衞生防護中心
Centre for Health Protection

Scientific Committee on Vector-borne Diseases

Global Malaria Risk Summary October 2007

Introduction

Malaria is a notifiable disease in Hong Kong. Malaria notification ranges from 28 to 101 on annual basis in the past 10 years (1997 to 2006) and the vast majority of these cases were imported from outside Hong Kong. The last local malaria case was reported in 1998 yet there was no definite source of infection identified.

2. In 2006, the Scientific Committee on Vector-borne Diseases (the Committee) examined the malaria epidemiology and local prevention measures and reckoned the importance to highlight appropriate malaria prevention measures among travellers to at risk areas. Subsequently, 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 suggested to compile the malaria risks of various countries or administrative areas for healthcare professionals' reference. The Committee has recommended this "Global Malaria Risk Summary" be updated and reviewed on an annual basis at the Committee meetings.

Objectives

4. This document on global malaria risk serves to provide general reference for healthcare professionals in their management of potential travellers to malaria risk areas. It is to be used together with the "Guidelines on Malaria Chemoprophylaxis for Travellers from Hong

Kong", published by the Committee.

Methods and Explanatory Notes

5. To understand the distribution of malaria risk areas on a global basis relies on accurate disease and laboratory surveillance information from various countries and administrative areas. Apart from the World Health Organization, the health authorities in the United States, United Kingdom, and Canada also compile malaria epidemiology information together with recommendation for travellers visiting these areas.

6. This Global Malaria Risk Summary (the Risk Summary) is compiled based on the epidemiology information as well as malaria prevention strategies recommended by these health authorities. While the malaria risk information published by these overseas health authorities most often concur, 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 discrepancy are described in the Risk Summary. Nonetheless, as general principles, even in countries with malaria risks, the risk of malaria infection is generally lower in areas with altitudes greater than 2000 m or in well-developed city areas.

7. As regards recommendation, it is notably that mosquito-bite prevention is highlighted in all authorities. As for use of chemoprophylactic agents, there are 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, US and Canada recommend using either atovoquone/proguanil, doxycycline, or mefloquine.

8. In order to better reflect the current epidemiology and recommendations, we have developed a set of risk and recommendation category. 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 in the six regions.

Limitation and disclaimers

9. While great efforts have been made to ensure that the epidemiology information in this summary is maintained as up-to-date as

possible, disease situation may change rapidly over time. Moreover, under-reporting and delayed reporting of 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

10. This Risk Summary will be updated in the third quarter of 2008. Any feedbacks and enquiries can 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 October 10, 2007)
Annex 3: Risk Profile Statistics

Key References

World Health Organization

1. WHO. World Malaria Report 2005 [Cited 2007 September 12]. Available from http://www.rbm.who.int/wmr2005/
2. WHO. International travel and health 2007 Edition, Country list: yellow fever vaccination requirements, recommendations and malaria situation [Cited 2007 June 13]. Available from http://www.who.int/ith/countries/en/index.html

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3. Centers for Disease Control and Prevention. Health Information for International Travel 2008. Atlanta: US Department of Health and Human Services, Public Health Service, 2007. [Cited 2007 September 13]. Available from http://wwwn.cdc.gov/travel/contentYellowBookAbout.aspx

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4. Chiodini P, Hill D, Lalloo D, Lea G, Walker E, Whitty C and Bannister B. Guidelines for malaria prevention in travellers from the United Kingdom. London, Health Protection Agency, January 2007 [cited 2007 June 14]. Available from http://www.hpa.org.uk/publications/2006/Malaria/Malaria_guidelines.pdf

Canada

5. Public Health Agency of Canada. Canadian Recommendations for the Prevention and Treatment of Malaria Among International Travellers, June 2004 Volume 30S1 [cited 2007 June 14]. Available from http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/04vol30/30s1/index.html

Websites for Updated Epidemiology on Malaria

1. WHO. Disease Outbreak News: Malaria.
   Available from: http://www.who.int/csr/don/archive/disease/malaria/en/

2. CDC, US. Traveler's Health: Outbreak.
   Available from: http://wwwn.cdc.gov/travel/default.aspx

3. Health Protection Agency, UK. Malaria: News.
   Available from: http://www.hpa.org.uk/infections/topics_az/malaria/news.htm

4. National Travel Health Network and Centre, UK. Health professionals: Clinical Updates
   Available from: http://www.nathnac.org/pro/clinical_updates/index.htm

5. Public Health Agency of Canada. Travel Health: Notice and International Reports.
   Available from: http://www.phac-aspc.gc.ca/tmp-pmv/pub_e.html

Annex 1: Key to Global Malaria Risk Summary

Risk Category	General Description of the Risk	Recom-mendation	Recommendation description
1	**No malaria risk** (as reported by WHO, US CDC, UK HPA and Health Canada)	**I**	General precaution during travel
2	**Malaria risk reported to be very limited**	**II**	Malaria prevention may be required - Advise to undertake mosquito bite prevention. - Obtain update on latest epidemiology.
3	**Risk of fully choloroquine-sensitive malaria only** **3A**: *Risk of malaria exists in the whole administrative area* **3B**: *Risk of malaria exists in certain areas*	**III**	Malaria prevention recommended - Advise to undertake mosquito bite prevention - When travel to at risk areas, consider chemoprophylaxis using chloroquine.
4	**Chloroquine-resistant malaria have been reported** **4A:** *Risk of malaria exists in the whole administrative area* **4B:** *Risk of malaria exists in certain areas* **4C***: Emerging chloroquine-resistant malaria exists in certain areas*	**IV**	Malaria prevention recommended - Advise to undertake mosquito bite prevention - When travel to areas at risk of chloroquine-resistant malaria, consider chemoprophylaxis using either atovoquone/proguanil, doxycycline, or mefloquine; - When travel to areas at risk of emerging chloroquine-resistant malaria, consider chemoprophylaxis using chloroquine + proguanil (recommended by WHO and HPA) or either atovoquone/proguanil, doxycycline, or mefloquine (recommended by CDC and / or Health Canada);

Risk Category	General Description of the Risk	Recom-mendation	Recommendation description
			- When travel to areas at risk of chloroquine-sensitive malaria, consider chemoprophylaxis using chloroquine.
5	**Malaria resistant to both chloroquine and mefloquine have been reported** **5A**:*Risk of malaria exists in the whole administrative area* **5B**: *Risk of malaria exists in certain areas*	**V**	Malaria prevention recommended - Advise to undertake mosquito bite prevention - When travel to areas at risk of mefloquine resistant malaria, consider chemoprophylaxis using atovoquone/proguanil or doxycycline, BUT NOT mefloquine ; - When travel to areas at risk of chloroquine-resistant malaria, consider chemoprophylaxis using either atovoquone/proguanil, doxycycline, or mefloquine; - When travel to areas at risk of emerging chloroquine-resistant malaria, consider chemoprophylaxis using chloroquine + proguanil (recommended by WHO and HPA) or either atovoquone/proguanil, doxycycline, or mefloquine (recommended by 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 October 15, 2007)

Region	Country	Risk category	Risk description	Recom-mendation
Africa	Algeria	3B	Malaria risk exclusively due to P. vivax is limited. No indigenous cases reported in 2005. At risk area: Small foci of local transmission of P. vivax have been reported in the 6 southern and south-eastern wilayas (Adrar, El Oued, Ghardaia, Illizi, Ouargla, Tamanrasset). Isolated local P. falciparum transmission has been reported from the two southernmost wilayas in areas under influence of trans-Saharan migration.	III
Africa	Angola	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	Benin	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	Botswana	4B	Malaria risk predominantly due to P. falciparum exists. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: - Chloroquine-resistant malaria: North of 22°S, in the northern parts of the country: provinces of Central, Chobe, Ghanzi, Ngamiland, and including safaris to the Okavango Delta area from November to June.	IV

Region	Country	Risk category	Risk description	Recom-mendation
			No risk in the city of Gaborone.	
Africa	Burkina Faso	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	Burundi	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	Cameroon	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	Cape Verde	4B	Malaria risk is limited. P. falciparum resistant to chloroquine reported. At risk area: - Chloroquine-resistant malaria: In São Tiago Island from September through November.	IV
Africa	Central African Republic	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	Chad	4A	Malaria risk predominantly due to P.	IV

Region	Country	Risk category	Risk description	Recom-mendation
			falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	
Africa	Comoros	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	Congo	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	Côte d'Ivoire (Ivory Coast)	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	Democratic Republic of the Congo (formerly Zaire)	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	Djibouti	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported.	IV

Region	Country	Risk category	Risk description	Recom-mendation
			At risk area: -Chloroquine-resistant malaria: in all areas.	
Africa	Equatorial Guinea	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	Eritrea	4B	Malaria risk predominantly due to P. falciparum exists throughout the year. P.falciparum resistance to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: - Chloroquine-resistant malaria: in all areas below 2200m No risk in Asmara.	IV
Africa	Ethiopia	4B	Malaria risk predominantly due to P. falciparum exists throughout the year. P.falciparum resistance to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: - Chloroquine-resistant malaria: In all areas below 2000m No risk in Addis Ababa.	IV
Africa	Gabon	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	Gambia	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and	IV

Region	Country	Risk category	Risk description	Recom-mendation
			sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	
Africa	Ghana	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	Guinea	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	Guinea-Bissau	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	Kenya	4B	Malaria risk predominantly due to P. falciparum exists throughout the year. P.falciparum resistance to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: - Chloroquine-resistant malaria: In all areas below 2,500m. 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
Africa	Lesotho	1	No malaria risk reported by WHO, US	I

Region	Country	Risk category	Risk description	Recom-mendation
			CDC, UK HPA and Health Canada.	
Africa	Liberia	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	Madagascar	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	Malawi	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	Mali	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	Mauritania	4B	Malaria risk predominantly due to P. falciparum exists. P.falciparum resistance to chloroquine reported. At risk area: - Chloroquine-resistant malaria: In Adrar and Inchiri during the rainy season from July through November. Throughout the year in all other areas in the country except	IV

Region	Country	Risk category	Risk description	Recom-mendation
			in the northern areas of Dakhlet-Nouadhibou and Tiris-Zemour.	
Africa	Mauritius	3B	Malaria risk exclusively due to P. vivax may exist. No indigenous cases reported since 1998. At risk area: In certain rural areas. No risk on Rodrigues Island.	III
Africa	Mayotte (French territorial collectivity)	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	Mozambique	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	Namibia	4B	Malaria risk predominantly due to P. falciparum exists. P.falciparum resistance to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: - Chloroquine-resistant malaria: in the regions of Oshana, Oshikoto, Omusati, Omaheke, Ohangwena and Otjozondjupa from November through June. Throughout the year along the Kunene river and in Kavango and Caprivi regions.	IV
Africa	Niger	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine reported.	IV

Region	Country	Risk category	Risk description	Recom-mendation
			At risk area: -Chloroquine-resistant malaria: in all areas.	
Africa	Nigeria	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	Rwanda	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	São Tomé and Príncipe	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	Senegal	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum 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
Africa	Seychelles	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Africa	Sierra Leone	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported.	IV

Region	Country	Risk category	Risk description	Recom-mendation
			At risk area: -Chloroquine-resistant malaria: in all areas.	
Africa	South Africa	4B	Malaria risk predominantly due to P. falciparum exists throughout the year. P.falciparum resistance 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 and north-eastern KwaZulu-Natal as far south as the Tugela River. Risk is highest from October to May.	IV
Africa	Swaziland	4B	Malaria risk predominantly due to P. falciparum exists throughout the year. P.falciparum resistance to chloroquine reported. At risk area: - Chloroquine-resistant malaria: in the northern and eastern lowland areas bordering Mozambique in the Lubombo district, particularly around the villages/towns of Big Bend, Mhlume, Simunye and Tshaneni.	IV
Africa	Tanzania	4B	Malaria risk predominantly due to P. falciparum exists throughout the year. P.falciparum resistance to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: In all areas below 1800m.	IV
Africa	Togo	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine reported.	IV

Region	Country	Risk category	Risk description	Recom-mendation
			At risk area: -Chloroquine-resistant malaria: in all areas.	
Africa	Uganda	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum 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 parts of Kigezi.	IV
Africa	Zambia	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Africa	Zimbabwe	4B	Malaria risk predominantly due to P. falciparum exists. P.falciparum resistance to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: In areas below 1200 m from November through June. Throughout the year in the Zambezi valley. No risk in Harare and Bulawayo.	IV
Eastern Mediterranean	Afghanistan	4B	Malaria risk due to P. vivax and P. falciparum exists. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: - Chloroquine-resistant malaria: in all areas at altitude below 2,000m from April to December.	IV

Region	Country	Risk category	Risk description	Recom-mendation
Eastern Mediterranean	Bahrain	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Eastern Mediterranean	Egypt	3B	Malaria risk due to P. falciparum and P. vivax 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.	III
Eastern Mediterranean	Iran	4B	Malaria risk due to P. vivax and P. falciparum exists. P.falciparum resistance to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: - Chloroquine-resistant malaria: WHO: in rural areas of the provinces of Hormozgan, Kerman (tropical part) and the southern part of Sistan–Baluchestan from March through November. US/Canada: In Ardebil and East Azerbijan provinces north of the Zagros mountains during summer months. In rural areas of the provinces of Hormozgan, Kerman (tropical part) and the southern part of Sistan–Baluchestan from March to Novermber. - Emerging chloroquine-resistant malaria: UK: In Ardebil and East Azerbijan provinces north of the Zagros mountains during the summer months and in rural areas of the provinces of Hormozgan, Kerman (tropical part) and the southern part of Sistan–Baluchestan from March through November. - Chloroquine sensitive malaria: WHO: in Ardebil and East Azerbijan	IV

Region	Country	Risk category	Risk description	Recom-mendation
			provinces north of the Zagros mountains during the summer months.	
Eastern Mediterranean	Iraq	3B	Malaria risk exclusively due to P. vivax exists. At risk area: In Basrah province and in areas below 1500m in provinces of Duhok, Erbil, Ninawa, Sulaimaninya, and Ta'mim from May through November. No risk in Baghdad, Tikrit, and Ramadi.	III
Eastern Mediterranean	Jordan	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Eastern Mediterranean	Kuwait	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Eastern Mediterranean	Lebanon	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Eastern Mediterranean	Libya (Libyan Arab Jamahiriya)	2	Malaria risk is very low to none. At risk area: Obtain latest epidemiology.	II
Eastern Mediterranean	Morocco	2	Malaria risk due to P. vivax only is very limited. No indigenous cases reported in 2005. At risk area: - Chloroquine sensitive malaria: may exist in certain rural areas of Chefchaouen Province from May to October. No risk in the cities of Tangier, Rabat, Casablanca, Marrakech, and Fes.	II
Eastern Mediterranean	Oman	4B	Malaria risk is limited. P.falciparum resistance to chloroquine reported. No indigenous P. vivax or P. falciparum	IV

Region	Country	Risk category	Risk description	Recom-mendation
			cases reported since 2001. At risk area: - Chloroquine-resistant malaria: Canada: In remote areas of Musandam Province. - Emerging chloroquine-resistant malaria: UK: In remote areas of Musandam Province.	
Eastern Mediterranean	Pakistan	4B	Malaria risk due to P. falciparum and P. vivax exists throughout the year. P.falciparum resistance to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: - Chloroquine-resistant malaria: In all areas (including all cities) below 2000m.	IV
Eastern Mediterranean	Qatar	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Eastern Mediterranean	Saudi Arabia	4B	Malaria risk predominantly due to P. falciparum exists throughout the year. P.falciparum resistance to chloroquine reported. At risk area: - Chloroquine-resistant malaria: in most of the South-western Region, including Al Bahah, Al Madinah, Asir (excluding the highaltitude areas above 2,000 m), Jizan, Makkah, Najran, and Tabuk provinces No risk in urban areas of Jeddah, Mecca, Medina, and Ta'if.	IV
Eastern Mediterranean	Somalia	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area:	IV

Region	Country	Risk category	Risk description	Recom-mendation
			-Chloroquine-resistant malaria: in all areas.	
Eastern Mediterranean	Sudan	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum 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 along the Nile south of Lake Nasser and in the central and southern part of the country. Malaria risk on the Red Sea coast is very limited.	IV
Eastern Mediterranean	Syria (Syrian Arab Republic)	3B	Malaria risk exclusively due to P. vivax is 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. No risk in districts of Damascus, Deir-es-zor and Sweida.	III
Eastern Mediterranean	Tunisia	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Eastern Mediterranean	United Arab Emirates	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Eastern Mediterranean	Yemen	4B	Malaria risk predominantly due to P. falciparum exists throughout the year, but mainly from September through February. P.falciparum resistance to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: All areas below 2000 m. Limited risk on Socotra Island.	IV

Region	Country	Risk category	Risk description	Recom-mendation
			No risk in Sana'a city.	
Europe	Albania	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Andorra	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Armenia	3B	Malaria risk exclusively due to P. vivax exists focally. No indigenous cases reported on 2006. At risk area: In some of the villages located in Ararat Valley, mainly in the Masis district from June through October. No risk in tourist areas.	III
Europe	Austria	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Azerbaijan	3B	Malaria risk exclusively due to P. vivax exists. At risk area: In lowland areas, mainly in the area between the Kura and the Arax rivers (provinces of Agcabadi, Barda, Beylaqan, Bilasuvar, Calilabad, Fuzuli, Imisli, Kurdamir, Nakhichivan, Saatli, Sabirabad, and Zardab) from June through October	III
Europe	Belarus	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Belgium	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Bosnia and Herzegovina	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Bulgaria	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I

Region	Country	Risk category	Risk description	Recom-mendation
Europe	Croatia	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Cyprus	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Czech Republic	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Denmark	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Estonia	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Finland	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	France	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Georgia	3B	Malaria risk exclusively due to P. vivax exists focally. At risk area: In the south-eastern part of the country near Azerbaijan border and Kura River and in the districts of Lagodekhi, Sighnaghi, Dedophilistskaro, Saraejo, Gardabani, and Marneuli in the Kakheti and Kveno Kartli regions from July to October. No risk in Tiblisi.	III
Europe	Germany	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Greece	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Hungary	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Iceland	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I

Region	Country	Risk category	Risk description	Recom-mendation
Europe	Ireland	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Israel	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Italy	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Kazakhstan	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Kyrgyzstan	3B	Malaria risk exclusively due to P. vivax exists. No chloroquine-resistant P. falciparum reported. The first case of autochthonous P. falciparum malaria was reported in 2004 in the southern part of the country, in an area bordering Uzbekistan. At risk area: In some southern and western parts of the country, mainly in areas bordering Tajikistan and Uzbekistan – Batken, Osh and Jalal-Abad regions including the capital city Bishkek from May through October.	III
Europe	Latvia	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Lithuania	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Luxembourg	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Macedonia, The Former Yugoslav Republic of	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Malta	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I

Region	Country	Risk category	Risk description	Recom-mendation
Europe	Moldova	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Monaco	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Montenegro	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Netherlands	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Norway	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Poland	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Portugal	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Romania	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Russia	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	San Marino	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Serbia and Montenegro	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Slovakia	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Slovenia	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Spain	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Sweden	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I

Region	Country	Risk category	Risk description	Recom-mendation
Europe	Switzerland	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Tajikistan	4C	Malaria risk predominantly due to P. vivax exists. Chloroquine and sulfadoxine-pyrimethamine resistant P. falciparum reported in the southern part of the country. At risk area: - Emerging 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.	IV
Europe	Turkey	3B	Malaria risk exclusively due to P. vivax exists. At risk area: In the south-eastern part of the country, and in Amikova and Çukurova Plain (provinces of Icel, Adana, Osmaniyeh, Hatay, Kahraman Maras, Gaziantep, Kilis, Adryaman, Sanliurfa, Elazig, Diyarbakar, Mardin, Bingol, Mus, Batman, Bitlis, Siirt, Sirnak, Van, and Hakkari) from March to November. No risk in the main tourist areas in the west and southwest of the country, Incirlik U.S. Air Force base and on typical cruise itineraries along the coast with Greece.	III
Europe	Turkmenistan	3B	Malaria risk exclusively due to P. vivax exists. At risk area: In some villages located in the south-eastern part of the country, mainly in Mary district, and in the flood plains between the Murgab and Tedzhen Rivers from June to	III

Region	Country	Risk category	Risk description	Recom-mendation
			October.	
Europe	Ukraine	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	United Kingdom (with Channel Islands and Isle of Man)	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Europe	Uzbekistan	3B	Malaria risk exclusively due to P. vivax exists with sporadic autochthonous cases reported. At risk area: In Uzunskiy, Sariassiskiy, and Shurchinskiy districts (Surkhanda-Rinskaya Region)	III
South-East Asia	Bangladesh	4B	Malaria risk exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: - Chloroquine-resistant malaria: All areas except no risk in Dhaka city.	IV
South-East Asia	Bhutan	4B	Malaria risk exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: - Chloroquine-resistant malaria: In rural areas below 1,700 m of the southern districts of: Chhukha, Chirang, Samchi, Samdrupjongkhar, Sarpang and Shemgang.	IV
South-East Asia	Burma (Myanmar)	5B	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxinepyrimethamine reported. Mefloquine resistance reported in Kayin	V

Region	Country	Risk category	Risk description	Recom-mendation
			state and the eastern part of Shan state. P. vivax with reduced sensitivity to chloroquine reported. At risk area: - Metfloquine resistant malaria: States of Shan, Kayah, Kayin, and Tanintharyi - Chloroquine-resistant malaria: All areas at altitudes below 1000 m except main urban areas of Yangon and Mandalay.	
South-East Asia	East Timor (Timor-Leste)	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
South-East Asia	India	4B	Malaria risk with overall 40% to 50% of cases due to P. falciparum exists throughout the year. P.falciparum resistance to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: - Chloroquine-resistant malaria: US/Canada: In all areas below 2,000 m, including Delhi and Mumbai (Bombay). WHO: In the north-eastern states, in Andaman and Nicobar Islands, Chhattisgarh, Goa, 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). UK: In Assam - Emerging chloroquine-resistant malaria: WHO/UK: In all other areas below 2,000 m, including Delhi and Mumbai (Bombay).	IV

Region	Country	Risk category	Risk description	Recom-mendation
			There is no transmission in parts of the states of Himachal Pradesh, Jammu and Kashmir, and Sikkim.	
South-East Asia	Indonesia	4B	Malaria risk exists throughout the year. P.falciparum resistance to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: - Chloroquine resistance malaria: In all areas except in Jakarta Municipality, big cites, and within the areas of the tourist resorts of Bali and Java.	IV
South-East Asia	Korea, North	3B	Malaria risk exclusively due to P. vivax is limited. At risk area: In some southern area. No risk in Pyongyang.	III
South-East Asia	Maldives	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
South-East Asia	Nepal	4C	Malaria risk predominantly due to P. vivax exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: - Emerging chloroquine-resistant malaria: In rural areas below 1,200m of the 20 Terai districts (including forested hills and forest areas) bordering with India, and in parts of the inner Terai valleys of Udaypur, Sindhupalchowk, Makwanpur, Chitwan and Dang. No risk in Kathmandu or on typical Himalayan treks.	IV
South-East Asia	Sri Lanka	4C	Malaria risk due to P. vivax (88%) and P. falciparum (12%) exists throughout the	IV

Region	Country	Risk category	Risk description	Recom-mendation
			year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: - Emerging chloroquine-resistant malaria: In all areas except no risk in the districts of Colombo, Galle, Gampaha, Kalutara, Matara and Nuwara Eliya.	
South-East Asia	Thailand	5B	Malaria risk exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine–pyrimethamine reported. Resistance to mefloquine and to quinine reported from areas near the borders with Cambodia and Myanmar. At risk area: - 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. No risk in cities (e.g. Bangkok, Chiang Mai, Chiang Rai, Pattaya), Samui island and the main tourist resorts of Phuket island. However, there is a risk in some other areas and islands.	V
The Americas	Anguilla (U.K.)	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
The Americas	Antigua and Barbuda	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
The Americas	Argentina	3B	Malaria risk exclusively due to P. vivax is low. At risk area:	III

Region	Country	Risk category	Risk description	Recom-mendation
			Confined to rural areas along the borders with Bolivia (lowlands of Jujuy and Salta provinces) and with Paraguay (lowlands of Corrientes and Misiones provinces).	
The Americas	Bahamas	3B	Malaria is not endemic in the Bahamas. Malaria transmission had not previously been reported from the Bahamas until a small outbreak of P. falciparum in late spring and summer of 2006. On August 23, 2007, the US CDC reported 2 confirmed P. falciparum malaria in the island of Great Exuma, Bahamas. One confirmed case affected a U.S. citizen who traveled to Great Exuma in late July 2007. At risk area: Island of Great Exuma only.	III
The Americas	Barbados	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
The Americas	Belize	3B	Malaria risk almost exclusively due to P. vivax exists throughout the year. At risk area: All districts but varies within regions. Risk is highest in Toledo and Stan Creek Districts; moderate in Corozal and Cayo; and low in Belize District and Orange Walk. No risk in Belize City.	III
The Americas	Bermuda (U.K.)	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
The Americas	Bolivia	4B	Malaria risk predominantly due to P. vivax (95%) and P. falciparum exists throughout the year. Falciparum malaria exists in Santa Cruz and in the northern departments of Beni and Pando, especially in the localities of Guayaramerín and Riberalta. P. falciparum resistant to chloroquine and	IV

Region	Country	Risk category	Risk description	Recom-mendation
			sulfadoxine-pyrimethamine reported. At risk area: - Chloroquine-resistant malaria: US/Canada: All areas below 2,500m in the following departments: Beni, Chuquisaca, Cochabamba, La Paz, Pando, Santa Cruz, and Tarija except in the city of La Paz. WHO: Beni, Pando and Santa Cruz UK: Amazone basins areas - Emerging chloroquine-resistant malaria: UK: in all other areas below 2,500 m except city of La Paz. -Chloroquine sensitve malaria: WHO: in all other areas below 2,500 m except city of La Paz.	
The Americas	Brazil	4B	Malaria risk due to P. vivax (78%) and P. falciparum (22%) exists throughout the year. Multidrug-resistant P. falciparum reported. At risk areas: -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). Transmission intensity varies from municipality to municipality, but is higher in jungle areas of mining, lumbering and agricultural settlements less than 5 years old, than in the urban areas, including in large cities such as Pôrto Velho, Boa Vista, Macapá, Manaus, Santarém, Rio Branco and Maraba, where the transmission occurs on the periphery of these cities.	IV

Region	Country	Risk category	Risk description	Recom-mendation
			Malaria transmission risk is negligible or nonexistent in the states outside "Legal Amazonia".	
The Americas	Canada	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
The Americas	Cayman Islands (U.K.)	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
The Americas	Chile	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
The Americas	Colombia	4B	Malaria risk due to P. falciparum (38%) and P. vivax (62%) is high throughout the year. Chloroquine-resistant P. falciparum exists in Amazonia, Pacífico and Urabá-Bajo Cauca. Resistance to sulfadoxine–pyrimethamine reported. At risk area: - Chloroquine-resistant malaria: In rural/jungle areas below 1,600 m, especially in municipalities of the regions of Amazonia, Orinoquía, Pacífico and Urabá-Bajo Cauca. Transmission intensity varies by department, with the highest risk in Antioquia, Chocó, Córdoba, Nariño and Valle del Cauca. No risk in Bogotá and vicinity.	IV
The Americas	Costa Rica	3B	Malaria risk almost exclusively due to P. vivax exists throughout the year. At risk area: In Puntarenas (Garabito canton), Alajuela, Guanacaste, Heredia and Limón provinces. Highest risk exists in the cantons Guacimo, Limón, Matina and Talamanca (Limón Province) and Garabito (Puntarenas Province).	III

Region	Country	Risk category	Risk description	Recom-mendation
			Negligible or no risk of malaria transmission exists in the other cantons of the country. No risk in Limón city (Puerto Limón).	
The Americas	Cuba	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
The Americas	Dominica	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
The Americas	Dominican Republic	3B	Malaria risk exclusively due to P. falciparum exists throughout the year. No evidence of P. falciparum resistance to any antimalarial drug. At risk area: In rural areas in western provinces bordering Haiti and in La Altagracia province including resort areas. Risk in other areas is low to negligible.	III
The Americas	Ecuador; Including the Galápagos Islands	4B	Malaria risk due to P. falciparum (23%) and P. vivax (77%) exists throughout the year. P.falciparum resistance to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas below 1 500 m, with moderate to high transmission risk in El Oro, Esmeraldas, Guayas, Los Rios, Manabi, Morona Santiago, Napo, Orellana, Pastaza, Pichincha and Sucumbios. No risk in the cities of Guayaquil and Quito, the central highland tourist areas, and the Galápagos Islands.	IV
The Americas	El Salvador	3B	Malaria risk, almost exclusively due to P. vivax, is very low throughout the year.	III

Region	Country	Risk category	Risk description	Recom-mendation
			At risk area: In Rural areas in Santa Ana (in rural areas of migratory influence from Guatemala), Ahuachapán, and La Unión departments. Sporadic vivax malaria cases are reported from other parts of the country. No risk in the city of San Salvador.	
The Americas	French Guiana	4A	Malaria risk due to P. falciparum (80%) and P. vivax (20%) is high throughout the year. Multidrug-resistant P. falciparum reported in areas influenced by Brazilian migration. At risk area: -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.	IV
The Americas	Grenada	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
The Americas	Guadeloupe, including St. Barthelemy and Saint Martin (France)	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
The Americas	Guatemala	3B	Malaria risk predominantly due to P. vivax exists throughout the year. At risk area: In areas below 1,500 m. There is moderate to high risk in the departments of Alta Verapaz, Baja Verapaz, Escuintla, Huehuetenango, Izabal, Petén, Quiché (Ixcan) and Retalhuleu. No risk in Guatemala City, Antigua or	III

Region	Country	Risk category	Risk description	Recom-mendation
			Lake Atitlán.	
The Americas	Guyana	4B	Malaria risk due to P. falciparum (42 - 48%) and P. vivax (52 - 58%) is high throughout the year. P.falciparum resistance to chloroquine reported. Sporadic cases of malaria have been reported from the densely populated coastal belt. At risk area: - Chloroquine-resistant malaria: in all parts of the interior below 900 m. Highest risk occurs in Regions 1, 7, 8 and 9; moderate risk in Region 2; and low risk in Regions 4, 6 and 10.	IV
The Americas	Haiti	3A	Malaria risk exclusively due to P. falciparum exists throughout the year. At risk area: In all areas.	III
The Americas	Honduras	3B	Malaria risk predominantly due to P. vivax exists throughout the year. At risk area: In all areas at altitudes below 1000 m (<3,281 ft) and in Roatán and other Bay Island. Risk exists in the outskirts of Tegucigalpa and San Pedro Sula. Risk is high in the provinces of Colón, Gracias a Dios, and Islas de la Bahía; and moderate in the province of Atlántida. P. falciparum risk is the highest in Colón, Gracias a Dios, and the Islas de la Bahía.	III
The Americas	Jamaica	2	Jamaica is a non-endemic country for malaria. An outbreak of P. falciparum malaria with 370 confirmed cases occurred in the city of Kingston since December 2006. No new malaria cases since June 10, 2007. The	II

Region	Country	Risk category	Risk description	Recom-mendation
			temporary recommendation of chloroquine for travellers staying overnight in the city of Kingston has been removed by CDC and Health Candada on September 14, 2007 and October 9, 2007 respectively. At risk area: City of Kingston.	
The Americas	Martinique (France)	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
The Americas	Mexico	3B	Malaria risk, almost exclusively due to P. vivax, exists by tourists throughout the year. At risk area: In Some rural areas that are not often visited by tourists in the states of Chiapas, Oaxaca, Chihuahua, Sinaloa, Tabasco, Campeche, Durango, Guerrero, Michoacán, Jalisco, Nayarit, Quintana Roo, Sonora, Veracruz and Yucatan. There is high risk of transmission in some localities in the states of Chiapas and Oaxaca; moderate risk in the states of Chihuahua, Sinaloa and Tabasco; and low risk in Campeche, Durango, Guerrero, Michoacán, Jalisco, Nayarit, Quintana Roo, Sonora, Veracruz and Yucatan. 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 HPA and Health Canada.	I
The Americas	Netherlands Antilles (Bonaire, Curaçao, Saba, St. Eustasius,	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I

Region	Country	Risk category	Risk description	Recom-mendation
	and St. Martin)			
The Americas	Nicaragua	3B	Malaria risk predominantly due to P. vivax exists throughout the year. At risk area: In 119 municipalities throughout the year, with the highest risk in 7 municipalities in the department of RA Atlántico Sur and moderate risk in 6 municipalites in RA Atlántico Norte. Cases are reported from 138 other municipalities in the central and western department; but the risk in these areas is considered low or negligible.	III
The Americas	Panama	4B	Malaria risk due to P. vivax (83%) and P. falciparum (17%) exists. Chloroquine-resistant P. falciparum has been reported in Darién and San Blas provinces. At risk area: - Chloroquine-resistant malaria: in Darién, San Blas provinces and San Blas Islands. - Chloroquine sensitive malaria: in provinces along the Atlantic coast and the border with Colombia: Bocas del Toro, Colon, Darien, Embera, Kuna Yala, Ngobe Bugle, Panama and Veraguas. No or negligible risk in Panama City, the Canal Zone and in other provinces.	IV
The Americas	Paraguay	3B	Malaria risk exclusively due to P. vivax is moderate. At risk area: In the departments of Alto Paraná, Caaguazú, Caazapa, Canendiyú and Guaira. No or negligible transmission risk in the	III

Region	Country	Risk category	Risk description	Recom-mendation
			other departments.	
The Americas	Peru	4B	Malaria risk due to P. vivax (84%) and P. falciparum (16%) is high. P.falciparum resistance to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: - Chloroquine-resistant malaria: US/Canada: in all departments below 2,000 m in 21 of the 33 sanitary regions, including Ayacucho, Cajamarca, Cerro de Pasco, Chachapoyas, Chanca-Andahuaylas, Cutervo, Cusco, Huancavelica, Jaen, Junín, La Libertad, Lambayeque, Loreto, Madre de Dios, Piura, San Martín, Tumbes and Ucayali. WHO/UK: in P. falciparum transmission reported areas including Jaen, Lambayeque, Loreto, Luciano Castillo, Piura, San Martín, Tumbes and Ucayali. - Emerging cholorquine resistant malaria: UK: in all departments below 2,000 m in the following sanitary regions: including Ayacucho, Cajamarca, Cerro de Pasco, Chachapoyas, Chanca- Andahuaylas, Cutervo, Cusco, Huancavelica, Junín, La Libertad, and Madre de Dios. - Chloroquine sensitive malaria: WHO: in all departments below 2,000 m in the following sanitary regions: Ayacucho, Cajamarca, Cerro de Pasco, Chachapoyas, Chanca- Andahuaylas, Cutervo, Cusco, Huancavelica, Junín, La Libertad, and Madre de Dios. Travelers who will visit only in Lima and its vicinity, coastal areas south of Lima, or the highland tourist areas (Cuzco, Machu Picchu, and Lake Titicaca) are not at risk and need no prophylaxis.	IV

Region	Country	Risk category	Risk description	Recom-mendation
The Americas	Puerto Rico (U.S.)	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
The Americas	Saint Kitts (Saint Christopher) and Nevis (U.K.)	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
The Americas	Saint Lucia	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
The Americas	Saint Vincent and the Grenadines	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
The Americas	Suriname	4B	Malaria risk due to P. falciparum (81%) is high throughout the year. P.falciparum resistance to chloroquine and sulfadoxine-pyrimethamine reported. Some decline in quinine sensitivity also reported. At risk area: - Chloroquine-resistant malaria: in all areas in the interior of the country beyond the coastal savannah area, with highest risk along the eastern border and in gold mining areas. Risk is low or negligible in Paramaribo city and the other seven coastal districts (Nickerie, Coronie, Saramacca, Wanica, Paramaribo, Commewijne, and Marowijne) north of latitude 5°N.	IV
The Americas	Trinidad and Tobago	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
The Americas	Turks and Caicos Islands (U.K.)	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
The Americas	United States	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I

Region	Country	Risk category	Risk description	Recom-mendation
The Americas	Uruguay	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
The Americas	Venezuela (Bolivarian Republic of)	4B	Malaria risk due to P. vivax (90%) and P. falciparum (10%) exists throughout the year. Risk of P. falciparum malaria is mostly restricted to municipalities in jungle areas of Amazonas , Bolívar and Delta Amacuro. P.falciparum resistance to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: US/Canada: In some rural areas of Apure, Amazonas, Barinas, Bolívar, Carabobo, Sucre, Táchira, Delta Amacuro states and in Angel Falls. WHO/UK: In municipalities in jungle areas of Amazonas (Alto Orinoco, Atabapo, Atures, Autana, Manapiare, Rio Negro), Bolívar (Cedeño, Gran Sabana, Piar, Raul Leoni, Sifontes and Sucre), Carabobo (Naguanagua) and Delta Amacuro (Antonia Diaz, Casacoima and Pedernales). -Emerging chloroquine-resistant malaria: UK: In other rural areas of Apure, Amazonas, Barinas, Bolívar, Carabobo, Sucre, Táchira, Delta Amacuro states and in Angel Falls. -Chloroquine sensitive malaria: WHO: In other rural areas of Apure, Amazonas, Barinas, Bolívar, Carabobo, Sucre, Táchira, Delta Amacuro states and in Angel Falls. No risk in Caracas.	IV
The Americas	Virgin Islands, British	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I

Region	Country	Risk category	Risk description	Recom-mendation
Western Pacific	Australia; Including Cocos (Keeling) Islands.	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Western Pacific	Brunei Darussalam	2	Malaria risk is very low to none. At risk area: Obtain latest epidemiology.	II
Western Pacific	Cambodia	5B	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxinepyrimethamine reported. Resistance to mefloquine reported in western provinces near the Thai border. At risk area: - Metfloquine resistant malaria: Provinces of Preah Vihear, Siemreap, Oddar, Meanchey, Banteay Meanchey, Battambang, Pailin, Koh Kong, and Pursat bordering Thailand. - Chloroquine-resistant malaria: All areas (include the tourist area of Angkor Wat (Siem Reap)) except the Phnom Penh, area close around Tonle Sap.	V
Western Pacific	China	5B	Malaria risk including P. falciparum exists. P. falciparum malaria occurs in Hainan and Yunnan. Limited risk of P. vivax malaria exists in southern and some central provinces. The risk may be higher in areas of focal outbreaks. Chloroquine and sulfadoxine-pyrimethamine resistant P. falciparum reported in Hainan and Yunan province only. At risk area: - Metfloquine resistant malaria: Along China-Burma border in the western part of Yunnan province	V

Region	Country	Risk category	Risk description	Recom-mendation
			- Chloroquine-resistant malaria: In Hainan and Yunnan province - Chloroquine sensitive malaria: In rural areas below 1,500m, 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° North, of following provinces: Anhui, Henan, Hubei, Jiangsu, Hainan, Fuijan, Guangdong, Guangxi, Guizhou, Sichuan, Tibet (in the Zangbo River valley only), Hunan, Jiangxi, and Shandong. There is no malaria risk in urban areas nor in the densely populated plain areas, nor at altitudes above 1,500 m. Travelers to cities and popular tourist areas, including Yangtze River cruises, are not at risk and do not need to take chemo-prophylaxis.	
Western Pacific	Cook Islands (New Zealand)	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Western Pacific	Fiji	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Western Pacific	French Polynesia, includes the island groups of Society Islands (Tahiti, Moorea, and Bora-Bora); Marquesas Islands (Hiva Oa	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I

Region	Country	Risk category	Risk description	Recom-mendation
	and Ua Huka); and Austral Islands (Tubuai and Rurutu)			
Western Pacific	Guam (U.S.)	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Western Pacific	Japan	1	No malaria risk reported by WHO, US CDC, UK HPA 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 HPA and Health Canada.	I
Western Pacific	Korea, South	3B	Malaria risk exclusively due to P. vivax is limited. No chloroquine-resistant P. falciparum reported. At risk area: In the demilitarized zone (DMZ) and northern areas of Kyunggi Do and Gangwon Do Provinces.	III
Western Pacific	Laos (Lao People's Democratic Republic)	5B	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum 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 province	V

Region	Country	Risk category	Risk description	Recom-mendation
			of Saravane and Champassack. - Chloroquine-resistant malaria: All areas except Vientiane.	
Western Pacific	Malaysia	4B	Malaria risk exists only in limited foci. P.falciparum resistance to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: - Chloroquine-resistant malaria: In the deep hinterland, inland forested areas of the Malaysia West [peninsular] and Sarawak, and all areas of Sabah except Kota Kinabalu. Low risk in Cameron Highlands. Urban and coastal areas are free from malaria.	IV
Western Pacific	Marshall Islands	1	No malaria risk reported by WHO, US CDC, UK HPA 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 HPA and Health Canada.	I
Western Pacific	Mongolia	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Western Pacific	Nauru	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Western Pacific	New Caledonia (France)	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Western Pacific	New Zealand	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Western	Niue (New	1	No malaria risk reported by WHO, US	I

Region	Country	Risk category	Risk description	Recom-mendation
Pacific	Zealand)		CDC, UK HPA and Health Canada.	
Western Pacific	Northern Mariana Islands (US) Includes Saipan, Tinian, and Rota Island	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Western Pacific	Palau	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Western Pacific	Papua New Guinea	4B	Malaria risk predominantly due to P. falciparum exists throughout the year. P.falciparum resistance to chloroquine and sulfadoxine-pyrimethamine reported. P. vivax resistant to chloroquine reported. At risk area: - Chloroquine-resistant malaria: All areas below 1,800m.	IV
Western Pacific	Philippines	4B	Malaria risk exists throughout the year. P.falciparum resistance to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: - Chloroquine-resistant malaria: in areas below 600 m, except in the provinces of Aklan (including Borocay Island), Benguet, Bilaran, Bohol, Camiguin, Capiz, Catanduanes, Cebu, Guimaras, Iloilo, Leyte, Masbate, northern Samar, Sequijor, metropolitan Manila, urban areas, and the plains.	IV
Western Pacific	Pitcairn Islands (U.K.)	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Western Pacific	Samoa (formerly Western Samoa)	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I

Region	Country	Risk category	Risk description	Recom-mendation
Western Pacific	Samoa, American (U.S.)	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Western Pacific	Singapore	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Western Pacific	Solomon Islands	4A	Malaria risk predominantly due to P. falciparum exists throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. At risk area: -Chloroquine-resistant malaria: in all areas.	IV
Western Pacific	Tokelau (New Zealand)	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Western Pacific	Tonga	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Western Pacific	Tuvalu	1	No malaria risk reported by WHO, US CDC, UK HPA and Health Canada.	I
Western Pacific	Vanuatu	4A	Malaria risk predominantly due to P. falciparum is low to moderate throughout the year. P. falciparum resistant to chloroquine and sulfadoxine-pyrimethamine reported. P. vivax resistant to chloroquine reported. At risk area: -Chloroquine-resistant malaria: In all areas	IV
Western Pacific	Vietnam	5B	Malaria risk predominantly due to P. falciparum exists throughout the year. 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. Resistance to chloroquine, sulfadoxine-pyrimethamine and mefloquine reported.	V

Region	Country	Risk category	Risk description	Recom-mendation
			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. - Chloroquine-resistant malaria: In all areas. No risk in urban centres, the Red River delta, and the coastal plain areas of central Viet Nam including Hanoi, Ho Chi Minh City (Saigon), Da Nang, Nha Trang, Qui Nhon, and Haiphong.	

Annex 3: Risk Profile Statistics

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

Region	1	2	3A	3B	4A	4B	4C	5B	Total
Africa	2	0	0	2	33	11	0	0	**48**
Eastern Mediterranean	7	2	0	3	2	6	0	0	**20**
Europe	45	0	0	7	0	0	1	0	**53**
South-East Asia	1	0	0	1	1	4	2	2	**11**
The Americas	23	1	1	11	1	9	0	0	**46**
Western Pacific	23	1	0	1	2	3	0	4	**34**
Total	**101**	**4**	**1**	**25**	**39**	**33**	**3**	**6**	**212**

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

Region	I	II	III	IV	V	Total
Africa	2	0	2	44	0	**48**
Eastern Mediterranean	7	2	3	8	0	**20**
Europe	45	0	7	1	0	**53**
South-East Asia	1	0	1	7	2	**11**
The Americas	23	1	12	10	0	**46**
Western Pacific	23	1	1	5	4	**34**
Total	**101**	**4**	**26**	**75**	**6**	**212**

Centre for Health Protection
October 2007