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World Malaria Risk Chart

Geographical distribution of Malaria risk areas, *Plasmodium falciparum* drug-resistant areas, principal mosquito vectors, and guidelines for suppressive medication by country.

Status as of April 15, 2015

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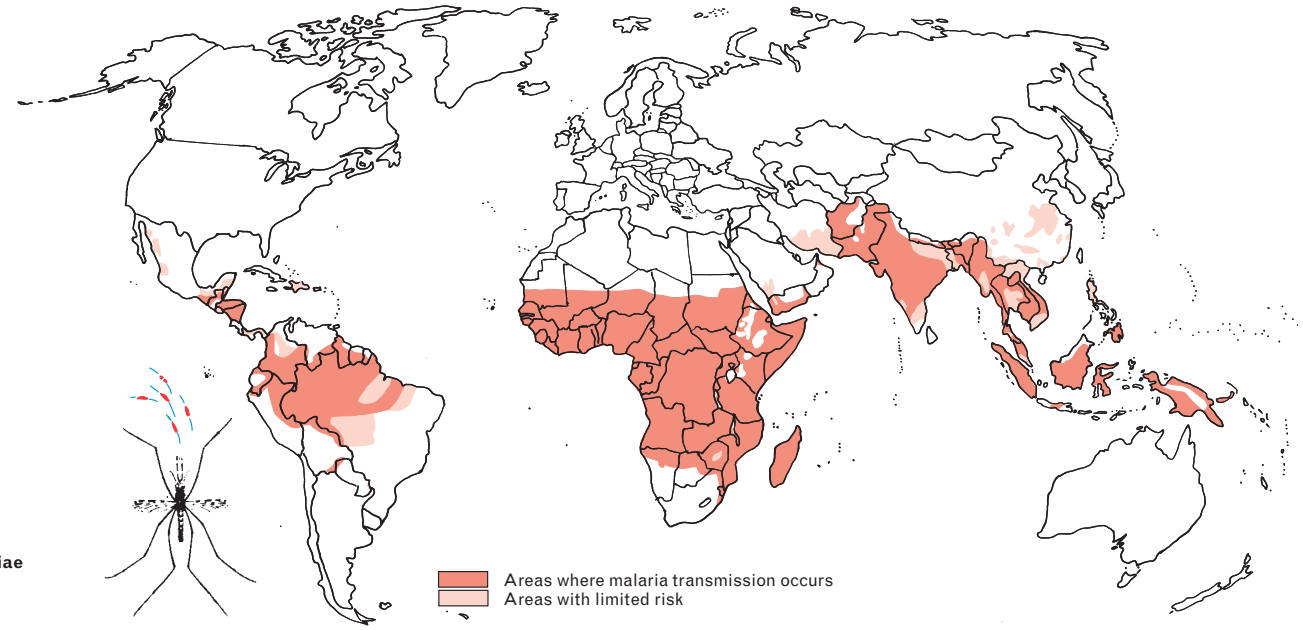
MALARIA COUNTRY INFORMATION

Afghanistan	Mab 1, 2500, IV-XII, A21, A23, P.F. 10%, R3, S2
Algeria	Mf 2, III-X, A19, P.F. 81%, S5
Angola	Mabg, I-XII, A7, A8, P.F. 90%, R3, S2
Azerbaijan	Mf 3, 1500, V-X, A10, A18, P.F. 0%, S5
Bangladesh	Mi 4, I-XII, A13, A22, P.F. 87%, R3, S2
Belize	Mi 5, 400, I-XII, A1, P.F. 3%, S1
Benin	Mabg, I-XII, A7, A8, A11, P.F. >87%, R3, S2
Bhutan	Mi 6, 1700, I-XII, A4, P.F. 43%, R3, S2
Bolivia	Mabc 7, 2500, I-XII, A5, A16, P.F. 16%, R2, S3
Botswana	Mf 8, XI-VI, A8, P.F. 100%, R1, S2
Brazil	Mi 9, 900, I-XII, A2, A5, P.F. 15%, R3, R7, S2
Brunei Darussalam	Mh 10, A24, P.K.
Burkina Faso	Mabg, I-XII, A7, A8, P.F. >80%, R3, S2
Burundi	Mabg, I-XII, A7, A8, P.F. >85%, R3, S2
Cabo Verde	Mf 11, VIII-XI, P.F. 100% R3, S5
Cambodia	Mabcg 12, I-XII, A3, A13, A22 P.F. 85%, R6, R7, S2, S4
Cameroon	Mabg, I-XII, A7, A8, A11, P.F. >85%, R3, S2
Central African Republic	Mabg, I-XII, A7, A8, P.F. >85%, R3, S2
Chad	Mabg, I-XII, A7, A8, P.F. >85%, R3, S2
China	Mi 13, 1500, A24, P.F. 73%, R4, S2, S4
Colombia	Made 14, 1700, I-XII, A5, A14, A16, P.F. 34%, R3, S2
Comoros	Mabg, I-XII, A8, P.F. 98%, R3, S2
Congo – Rep.	Mabg, I-XII, A7, A8, P.F. 90%, R3, S2
Congo – Dem. Rep.	Mabg, I-XII, A7, A8, P.F. 93%, R3, S2
Côte d'Ivoire	Mabg, I-XII, A7, A8, P.F. 88%, R3, S2
Djibouti	Mabg, I-XII, A8, P.F. 90%, R3, S2
Dominican Republic	Mabc 15, 400, I-XII, A1, P.F. 100%, S1
Ecuador	Mabc 16, 1500, I-XII, A1, A16, P.F. 43%, R3, S2
El Salvador	Mi 17, 1000, I-XII, A1 P.F. <1%, S5
Equatorial Guinea	Mabg, I-XII, A7, A8, A11, P.F. >85%, R3, S2
Eritrea	Mabc 18, 2200, I-XII, A8, P.F. 85%, R3, S2
Ethiopia	Mabc 19, 2000, I-XII, A7, A8, P.F. 64%, R3, R7, S2
French Guiana	Mabcg 20, I-XII, A5, P.F. 31%, R3, S2
Gabon	Mabg, I-XII, A7, A8, P.F. 95%, R3, S2
Gambia	Mabg, I-XII, A7, A8, P.F. >85%, R3, S2
Ghana	Mabg, I-XII, A7, A8, A11, P.F. >85%, R3, S2
Guatemala	Mabc 21, 1500, I-XII, A1, A5, P.F. 2%, S1
Guinea	Mabg, I-XII, A7, A8, P.F. 85%, R1, S2
Guinea-Bissau	Mabg, I-XII, A7, A8, P.F. 85%, R3, S2
Guyana	Mabg 22, I-XII, A2, A5, P.F. 55%, R1, S2
Haiti	Mabg 23, I-XII, A1, P.F.100%, S1
Honduras	Mab 24, 1000, I-XII, A1, A5, P.F. 21%, S1
India	Mabc 25, 2000, I-XII, A24, P.F. 53%, R3, S2
Indonesia	Made 26, 1200, I-XII, A3, A22, P.F. 55%, P.K., R3, R7, S2
Iran	Mi 27, 1500, III-XI, A21, A4, P.F. 18%, R3, S2
Kenya	Mabc 28, 2500, I-XII, A7, A8, P.F. >85%, R3, S2
Korea – North	Mi 29, A20, P.F. 0%, S1
Korea – South	Mf 30, A20, P.F. 0%, S5
Laos	Mabcg 31, I-XII, A13, P.F. 73%, R6, S2, S4
Liberia	Mabg, I-XII, A8, A11, P.F. 90%, R3, S2
Madagascar	Mabg, I-XII, A7, A8, P.F. >85%, R1, S2
Malawi	Mabg, I-XII, A7, A8, P.F. 90%, R3, S2
Malaysia	Mi 32, 1700, I-XII, A3, A22, P.F. 40%, P.K., R3, R7, S2
Mali	Mabg I-XII, A7, A8, P.F. >85%, R3, S2
Mauritania	Mabcg 33, I-XII, A7, A8, P.F. >85%, R1, S2
Mayotte	Mabg, I-XII, A7, A8, P.F. 100%, R3, S5
Mexico	Mi 34, 1000, A1, P.F. 1%, S1
Mozambique	Mabg, I-XII, A7, A8, P.F. 95%, R3, S2
Myanmar | Burma	Mabc 35, 1000, I-XII, A13, A22, P.F. 74%, P.K., R6, R7, S2, S4

MALARIA MAP



Anopheles gambiae

Namibia	Mi 36, XI-VI, A7, A8, P.F. 90%, R3, S2
Nepal	Mi 37, 2000, I-XII, A13, P.F. 12%, R3, S2
Nicaragua	Mabc 38, 1000, I-XII, A1, A16, P.F. 18%, S1
Niger	Mabg, I-XII, A7, A8, P.F. >85%, R3, S2
Nigeria	Mabg, I-XII, A7, A8, A11, P.F. >85%, R3, S2
Oman	Mi 39, S5
Pakistan	Mab, 2500, I-XII, A4, A21, P.F. 25%, R3, S2
Panama	Made 40, 800, I-XII, A1, P.F. 1%, R2, S3
Papua New Guinea	Mab, 2000, I-XII, A6, A17, P.F. 89%, R3, R7, S2
Paraguay	Mi 41, X-V, A5, P.F. 5%, S5
Peru	Mi 42, 2000, I-XII, A1, A5, A16, P.F. 16%, R3, R7, S2
Philippines	Made 43, 600, I-XII, A12, P.F. 79%, P.K., R3, S2
Rwanda	Mabg, I-XII, A7, A8, P.F. 90%, R3, S2
São Tomé & Principe	Mabg, I-XII, A8, P.F. >85%, R1, S2
Saudi Arabia	Mf 44, 2000, I-XII, A19, A21, P.F. 88%, R1, S2
Senegal	Mabg, I-XII, A7, A8, P.F. >85%, R3, S2
Sierra Leone	Mabg, I-XII, A7, A8, A11, P.F. >85%, R3, S2
Solomon Islands	Mab, 400, I-XII, A6, A17, P.F. 53%, R3, R7, S2
Somalia	Mabg, I-XII, A7, A8, P.F. 95%, R3, S2
South Africa	Mf 45, I-XII, A7, A8, P.F. 90%, R3, S2
South Sudan	Mabg, I-XII, A7, A8, P.F. 95%, R3, S2
Sudan	Mabg, I-XII, A7, A8, P.F. 95%, R3, S2
Suriname	Mabc 46, 1300, A5, A14, P.F. 46%, R6, S4
Swaziland	Mi 47, I-XII, A8, P.F. 90%, R1, S2
Tajikistan	Mab 48, 2000, VI-X, A10, A23, P.F. 10%, R5, S5
Tanzania	Mab, 1800, I-XII, A7, A8, P.F. >85%, R3, S2
Thailand	Madg 49, I-XII, A13, A22, P.F. 56%, P.K., R6, R3, S2, S4
Timor-Leste	Mabg, I-XII, A23, P.F. 50%, R3, S2
Togo	Mabg, I-XII, A7, A8, A11, P.F. >85%, R1, S2
Turkey	Mf 50, V-X, A18, A23, P.F. 0%, S5
Uganda	Mabg, I-XII, A7, A8, P.F. >85%, R3, S2
Vanuatu	Mabg 51, I-XII, A6, P.F. 62%, R3, R7, S2
Venezuela	Mi 52, 600, I-XII, A2, A5, A14, P.F. 35%, R3, S2
Vietnam	Made 53, I-XII, A13, A20, A22, P.F. 63%, R6, S2, S4
Yemen	Mabc 54, 2000, I-XII, A4, A19, P.F. 95%, R3, S2
Zambia	Mabg 55, I-XII, A7, A8, P.F. 90%, R3, S2
Zimbabwe	Mabc 56, 1200, XI-VI, A7, A8, P.F. 97%, R3, S2

In offering guidance on the choice of antimalarial drugs, the main concern is to provide protection against Plasmodium falciparum, the most dangerous form of the illness.

Take a complete supply of medication on your trip to avoid any problems getting antimalarial drugs that were prescribed for you. Be aware of counterfeit malaria medications at your destination. They're packaged very similarly to the real ones and could put your life at risk. Always get your medication from a reputable pharmacist.

MALARIA RISK CODES

M malaria risk
a present throughout the country
b including urban areas
c except areas specified
d excluding urban areas
e excluding the areas specified
f absent in most of the country, risk exists only in specified areas
g risk present at all altitudes
h no official information available
i present in the country; areas of risk are specified

1 or 2 digit numerals
Refers to detailed description of malarious areas in this country

3 or 4 digit numerals
Expresses the altitude levels in meters below which the risk is present. (1 metre is approximately 3.3 feet.)

Roman numerals
Identifies months during which the risk of contracting malaria is high: I = January to XII = December.

A = Anopheles
Followed by 1 or 2 digit numerals, the letter **A** refers to the principal *Anopheles* species which transmit malaria in this country. See box below for feeding habits and breeding places.

P.F. followed by %
The number of incidences expressed in percentage of *Plasmodium falciparum* malaria occuring in this country. Of the five species of human malaria parasites, *P. falciparum* is the most dangerous. The remaining percentage represents infections caused by *Plasmodium vivax*, *Plasmodium ovale* and *Plasmodium malariae*.

P.K. Infection with *Plasmodium knowlesi*, a malaria parasite of Old World monkeys, has been reported in humans in this country.

> More than **<** Less than

R Malaria parasite resistance to antimalarial drugs

S Suppressive medication or anti-mosquito bite measures required

ANOPHELES CODES

A = *Anopheles*, the principal vector for transmitting malaria in this country. (See chapter 'The World of *Anopheles*' in IAMAT's publication *How to Protect Yourself Against Malaria.*)

		Breeding places	Feeding habits and daytime resting places
A1	= *A. albimanus*	• Coastal mosquito of central and northern part of South America; breeds in sunlit water collections, pools, lakes, lagoons.	• Feeds on humans from dusk to midnight; rests outdoors in shaded areas.
A2	= *A. aquasalis*	• Coastal mosquito; breeds in fresh or brackish water.	• Starts feeding on humans at dusk; rests inside dwellings.
A3	= *A. balabacensis*	• Hill forest mosquito; breeds in small water collections under shade, in animal footprints, shallow pools.	• Bites late at night, rests outdoors.
A4	= *A. culicifacies*	• Plains mosquito; breeds in fresh water with grassy edges, slow-moving streams, man-made containers, pools.	• Feeds on humans and livestock at sunset; rests in dark corners of houses and cattle sheds.
A5	= *A. darlingi*	• Domestic mosquito; breeds in shaded bodies of still water, water under swamp vegetation, grassy edges of rivers, pools.	• Feeds on humans inside human habitation; rests inside houses, often near beds.
A6	= *A. farauti*	• Domestic mosquito; breeds in sunlit fresh or brackish water collections, pools, man-made containers.	• Feeds indoors and outdoors at night or during the day when skies are overcast; rests outdoors.
A7	= *A. funestus*	• Open country mosquito; breeds in fresh sunlit swamps, large rivers and grassy stream margins.	• Feeds at night on humans, mostly indoors; rests inside human habitations.
A8	= *A. gambiae*	• Domestic mosquito; breeds in sunlit pools, footprints, pits, puddles close to human habitations, man-made containers.	• Feeds on humans mostly indoors; biting peak times 2 a.m. - 4 a.m.; rests in dark places indoors and outdoors.
A9	= *A. labranchiae*	• Maritime mosquito; breeds in fresh or saline water of swamps, marshes near the coast.	• Feeds on humans indoors; rests in animal shelters and inhabited houses.
A10	= *A. maculipennis*	• Foothill mosquito; breeds in slow-moving streams, clear still water exposed to sunlight.	• Feeds on humans and animals, rests in animal shelters.
A11	= *A. melas*	• Sea coast mosquito; breeds in saline water of lagoons, marshes and swamps.	• Feeds on humans indoors; rests indoors.
A12	= *A. flavirostris*	• Mosquito of foothills and rolling land; breeds in clear water of streams, ditches, wells and seepages.	• Feeds on humans and livestock indoors, leaves dwellings early in the morning to rest in vegetation along stream banks.
A13	= *A. minimus*	• Mosquito of mountain and hilly areas; breeds in clear water of streams, irrigation ditches, rice paddies.	• Feeds on humans and livestock indoors, biting peak times 10 p.m. - 2 a.m.; rests in houses and cattlesheds.
A14	= *A. núñez-tovari*	• Mosquito of open marshy areas, ponds and lakes, breeds also in temporary ground pools, animal or wheel tracks.	• Starts to bite humans late in the evening indoors; rests outdoors.
A15	= *A. pharoensis*	• Breeds in small shallow pools, wells, stagnant desert water, large bodies of water with aquatic vegetation.	• Feeds on humans indoors and outdoors starting at sunset; rests mainly outside among vegetation.
A16	= *A. pseudopunctipennis*	• Highland valley mosquito; breeds in shallow pools, seepages, drying streams, tanks.	• Feeds on humans indoors; rests indoors.
A17	= *A. punctulatus*	• Domestic mosquito; breeds in puddles, footprints, streams, man-made water collections.	• Feeds on humans and animals outdoors, rests outdoors.
A18	= *A. sacharovi*	• Mosquito of inland and coastal swamps; breeds in fresh or brackish water of marshes, swamps, man-made water collections.	• Feeds indoors on humans and livestock, rests in houses and animal shelters.
A19	= *A. sergentii*	• Oasis mosquito; breeds in small pools, seepages, slowmoving water.	• Feeds on humans indoors after dark; rests in houses and tents.
A20	= *A. sinensis*	• Mosquito of the plains; breeds in rice paddies, swamps, lake margins.	• Feeds outdoors on humans and livestock early in the evening; rests in animal shelters.
A21	= *A. stephensi*	• Domestic mosquito; breeds in man-made containers, water collections near human habitations, footprints, puddles, lake margins.	• Feeds indoors on humans starting after sunset; rests in houses and shelters.
A22	= *A. sundaicus*	• Coastal mosquito; breeds in brackish water, sunlit lagoons, swamps and marshes.	• Feeds indoors on humans and livestock; rests in houses and shelters.
A23	= *A. superpictus*	• Mountain mosquito; breeds in clear water of sunlit pools, hill streams and rivers.	• Feeds indoors on humans, rests outdoors and in animal shelters.
A24	= For the vector in this country see Notes for Malarious Areas on page 5.		

CODES FOR AREAS WITH DRUG RESISTANT MALARIA

In this country, malaria parasites are resistant to some antimalarial drugs.

R1 *P. falciparum* malaria is resistant to chloroquine. Resistance is present in all malarious areas.

R2 Refer to text for description of chloroquine resistant areas.

R3 Multidrug resistant (chloroquine and sulfadoxine-pyrimethamine) *P. falciparum* malaria is present in all malarious areas of this country.

R4 Chloroquine resistant *P. falciparum* malaria is present in parts of the provinces of Yunnan, Guangxi and Guangdong including the island of Hainan. Yunnan and Hainan also report *P. falciparum* resistance to sulfadoxine-pyrimethamine. See details in text.

R5 Chloroquine resistant *P. falciparum* malaria is present in all malarious areas, but accounts for only 10% of total malaria cases.

R6 The following areas report *P. falciparum* malaria resistance to chloroquine, mefloquine hydrochloride and sulfadoxine-pyrimethamine.

- **Cambodia:** The provinces of Siem Reap, Preah Vihear, Oddar Meancheay, Banteay Meanehey, Battambang, Pailin, Pursat, Kampat, and Koh Kong. The southern and western provinces also report resistance to artesunate, lumefantrine and pyperaquine.
- **Laos:** The northwestern provinces of Bokeo and Louang Namtha bordering Myanmar | Burma and China; and the southern provinces of Salavan and Champasak bordering Thailand.
- **Myanmar | Burma:** The states of Bago, Kayah, Kachin, Kayin, Shan and Tanintharyi (eastern half of the country including the areas bordering China, Laos and Thailand). Resistance to artemisinin is reported.
- **Suriname:** This country reports *P. falciparum* resistance to chloroquine, mefloquine hydrochloride, sulfadoxine-pyrimethamine and some decline in quinine sensitivity.
- **Thailand:** The western border areas with Myanmar | Burma: forested hilly areas of Chang Rai, Chang Mai, Mae Hong Son, Tak, Kanchanaburi, Ratchaburi and Petchaburi provinces (these areas also report *P. falciparum* resistance to quinine and artemisinin); the eastern border areas with Cambodia: forested hilly areas of Ubon Ratchathani, Si Sa Ket, Surin, Buriram, Sa Kaeo, Chantaburi, and Trat provinces.
- **Vietnam:** The provinces of Binh Phoc, Dak Lak, Dak Nong, Gia Lai, Khan Hoa, Kon Tum, Lam Dong, Ninh Thuan, Song Be and Tay Ninh.

R7 Chloroquine resistant *P. vivax* malaria has been reported from this country.

SUPPRESSIVE MEDICATION CODES

In offering guidance on the choice of antimalarial drugs, the main concern is to provide protection against *Plasmodium falciparum* malaria, the most dangerous and often fatal form of the illness.

Regardless of the medication which has been taken, it is of utmost importance for travellers and their physician to consider fever and flu-like symptoms appearing seven days up to several months after leaving a malarious area as a malaria breakthrough. Early diagnosis is essential for successful treatment

S Suppressive medication or anti-mosquito bite measures are required. For details on how to prevent mosquito bites, drug descriptions, adult and pediatric dosages, and contraindications see IAMAT's *How to Protect Yourself Against Malaria*.

S1 Chloroquine is sensitive to *P. falciparum* malaria in this country. **TAKE ONE OF THE FOLLOWING REGIMENS:**

a) Follow a chloroquine regimen:

- TAKE IN WEEKLY DOSES OF 500 mg (300 mg base). START 1 WEEK BEFORE ENTERING MALARIOUS AREA, CONTINUE WEEKLY DURING YOUR STAY AND CONTINUE FOR 4 WEEKS AFTER LEAVING. TAKE IT AFTER A MEAL TO AVOID STOMACH UPSETS.
- **Note:** The bitter taste makes the drug unpalatable. Minor stomach upsets, itching skin, nausea and diarrhea may occur. It may also cause blurred vision and a transitory headache.

b) You can also take hydrochloroquine as an alternative:

- TAKE IN WEEKLY DOSES OF 400 mg (310 mg base). START 1 WEEK BEFORE ENTERING MALARIOUS AREA, CONTINUE WEEKLY DURING YOUR STAY AND CONTINUE FOR 4 WEEKS AFTER LEAVING.
- **Note:** An alternative to chloroquine that may be better tolerated.

c) Other options are atovaquone-proguanil, doxycycline, or mefloquine hydrochloride (see S2 for details).

S2 High incidences of chloroquine resistant and / or multidrug resistant *P. falciparum* malaria occur in this country. **TAKE ONE OF THE FOLLOWING REGIMENS:**

a) Atovaquone-proguanil: (brand names: Malarone, Malanil and others; generics available)

- TAKE 1 TABLET DAILY (ATOVAQUONE 250 mg + PROGUANIL 100 mg). START 1-2 DAYS BEFORE ENTERING THE MALARIOUS AREA, CONTINUE DAILY DURING YOUR STAY AND CONTINUE FOR 7 DAYS AFTER LEAVING.
- **Note:** Take at the same time every day with food or milk.

b) Doxycycline: (brand name: Vibramycin and others; generics available)

- TAKE 1 TABLET OF DOXYCYCLINE (100 mg) DAILY. START 1 DAY BEFORE ENTERING MALARIOUS AREA, CONTINUE DAILY DURING YOUR STAY AND CONTINUE FOR 4 WEEKS AFTER LEAVING.
- **Note:** When taking this drug, avoid exposure to direct sunlight and use sunscreen with protection against long range ultraviolet radiation (UVA) to minimize risk of photosensitive reaction. Take with large amounts of water to prevent esophageal and stomach irritation.

c) Mefloquine hydrochloride (brand names: Lariam, Mephaquin, Mefliam and others; generics available)

- TAKE 1 TABLET OF 250 mg (228 mg base) ONCE A WEEK. START 1-2 WEEKS BEFORE ENTERING THE MALARIOUS AREA, CONTINUE WEEKLY DURING YOUR STAY AND CONTINUE FOR 4 WEEKS AFTER LEAVING.
- **Note:** Side effects include nausea and headache, including neurological side effects such as dizziness, ringing of the ears, and loss of balance. Psychiatric side effects include anxiety, depression, mistrustfulness, and hallucinations. Neurological side effects can occur any time during use and can last for long periods of time or become permanent even after the drug is stopped. Seek medical advice if any neurological or psychiatric side effects occur.

d) An alternative to above regimens: Travellers on short term trips to areas with mainly *P. vivax* malaria can take primaquine phosphate (brand name: Primaquine)

- TAKE 1 TABLET OF 52.6 mg (30 mg base) DAILY. START 1-2 DAYS BEFORE ENTERING MALARIOUS AREA, CONTINUE DAILY DURING YOUR STAY AND CONTINUE FOR 7 DAYS AFTER LEAVING.
- **Note:** Primaquine is contraindicated for persons with G6PD (glucose 6-phosphate dehydrogenase) deficiency. Screening for G6PD levels must be done prior to prescribing and using this drug.

e) Antimalarial regimen for travellers who cannot follow one of the above regimens:

- TAKE CHLOROQUINE OR HYDROCHLOROQUINE (SEE S1A AND S1B FOR DETAILS). NOTE THAT THESE DRUGS ARE MUCH LESS EFFECTIVE IN THIS COUNTRY THAN ATOVAQUONE-PROGUANIL, DOXYCYCLINE OR MEFLOQUINE HYDROCHLORIDE. SEEK IMMEDIATE MEDICAL ATTENTION IF YOU HAVE FLU-LIKE SYMPTOMS — FEVER, HEADACHE, NAUSEA, GENERAL MALAISE — APPEARING ABOUT 7 DAYS OR LATER AFTER ENTERING THE MALARIOUS AREA.
- **Note:** It is imperative to use a mosquito bed net to avoid the bite of the nocturnal *Anopheles* mosquito. Use repellents and insecticides as described in IAMAT's *How to Protect Yourself Against Malaria*.

S3 See text for suppressive medication required in different areas of this country.

S4 Travellers going to multidrug resistant *P. falciparum* malaria areas of this country (see R6 above) should follow an atovaquone-proguanil (see S2a) or doxycycline (see S2b) regimen. Persons who cannot follow one of these regimens or contemplate a long term visit to these areas should seek advice from a travel health specialist for a possible alternative drug regimen.

S5 Risk of contracting malaria is low. Travellers going to risk areas should follow meticulous anti-mosquito bite measures from dusk to dawn during the malaria season.

Persons travelling to, or working in, remote areas where medical attention cannot be sought within 24 hours should consult a travel health specialist for advice on a possible self-treatment regimen in case of a malaria breakthrough.
For a description of anti-malarial drugs see IAMAT's publication *How to Protect Yourself Against Malaria*.

If you have a fever or flu-like symptoms appearing 7 days or several months after your trip, don't forget to tell your doctor that you were in a malarious area. Early diagnosis is essential for successful treatment.

MALARIA FREE COUNTRIES

Albania, American Samoa, Argentina, Armenia, Andorra, Anguilla, Antigua and Barbuda, Australia, Austria, Azores, Bahamas, Bahrain, Barbados, Belarus, Belgium, Bermuda, Bosnia and Herzegovina, Bulgaria, Canada, Canary Islands, Cayman Islands, Chile, Christmas Island, Cocos Islands, Cook Islands, Costa Rica, Croatia, Cuba, Cyprus, Czech Republic, Denmark, Dominica, Egypt, Estonia, Falkland Islands, Faroe Islands, Fiji, Finland, France, French Polynesia, Georgia, Germany, Gibraltar, Greece, Greenland, Grenada, Guadeloupe, Guam, Hungary, Iceland, Iraq, Ireland, Israel, Italy, Jamaica, Japan, Jordan, Kazakhstan, Kiribati, Kuwait, Kyrgyzstan, Latvia, Lebanon, Lesotho, Libya, Liechtenstein, Lithuania, Luxembourg, Macedonia, Madeira Islands, Maldives, Malta, Marshall Islands, Martinique, Mauritius, Micronesia, Moldova, Monaco, Mongolia, Monserrat, Montenegro, Morocco, Nauru, Netherlands, Netherlands Antilles, New Caledonia, New Zealand, Niue, Norfolk, Northern Mariana Islands, Norway, Palau, Pitcairn, Poland, Portugal, Puerto Rico, Qatar, Réunion, Romania, Russia, St. Barthélemy, St. Helena, St. Kitts and Nevis, St. Lucia, St. Martin, Saint Pierre and Miquelon, St. Vincent and the Grenadines, Samoa, San Marino, Serbia, Seychelles, Singapore, Slovakia, Slovenia, Spain, Sri Lanka, Sweden, Switzerland, Syria, Taiwan, Tokelau, Tonga, Trinidad and Tobago, Tunisia, Turkmenistan, Turks and Caicos, Tuvalu, Ukraine, United Arab Emirates, United Kingdom, United States of America, Uruguay, Uzbekistan, Virgin Islands (British and U.S.A.), Wake Island, Wallis and Futuna.

1 **Afghanistan:** Persons travelling overland from and to Pakistan, and to refugee camps should follow an S2 anti-malarial medication regimen.

2 **Algeria:** Risk is present in the southern and southeastern provinces (wilayas) of Adrar, El Oued, Ghardaia, Illizi, Ouargla and Tamanrasset.

3 **Azerbaijan:** Risk is present in lowland regions between the rivers Kür (Kura) and Araz. Affected subdivisions(rayons): Aghjabadi, Bärdä, Beylagan, Bilasuvar, Fuzuli, Imishli, Jalilabad, Kürdamir, Sabirabad, Saatli, Zardab, and the region of Nakhchivan. Baku is risk free.

4 **Bangladesh:** The city of Dhaka is risk free.
Note: Risk is present in the following rural areas of Dhaka Division (districts of Mymensingh, Sherpur, and Netrakona), Rangpur Division (district of Kurigram), and Sylhet Division (districts of Habiganj, Moulvibazar, Sunamgonj and Sylhet). High risk is present in the rural areas of the following districts of Chittagong Division: Chittagong, Cox's Bazar, Badarban, Rangamati and Khagrachhari.

5 **Belize:** Risk is present in the districts of Stann Creek and Toledo. Sporadic cases are reported from other districts. Persons visiting islands and resort areas should take meticulous anti-mosquito measures.

6 **Bhutan:** Risk is present year round in the following southern districts bordering India: Samtse, Chukha, Dagana, Tsirang, Sarpang, Zhemgang, Pemagatshel, Samdrup and Jongkhar. Focal malaria transmission during the summer rainy season occurs throughout the other districts below 1700 m/5,577 ft, except in the districts of Bumthang, Gasa, Paro and Thimphu.

7 **Bolivia:** The city of La Paz and the highland areas above 2500 m/8,202ft are risk free. *P. falciparum* malaria is present in the northeastern departments of Beni, Pando and Santa Cruz bordering Brazil. Use S2 anti-malarial guidelines for these areas. For all other malarious areas use S1 guidelines.
Note: All national parks are within the malarious area.

8 **Botswana:** Risk is present in the rural and urban areas of the following areas: Northwest District (sub-districts of Chobe, Okavango and Ngami), North East District, Central District (sub-districts of Bobirwa, Boteti and Tutume), and Ghanzi District. The cities of Francistown and Gaborone are risk free.

9 **Brazil**: Risk of multi-drug-resistant malaria is high throughout the states of the Amazon Basin, including cities and towns (main cities in brackets): Acre (Rio Branco), Amapá (Macapá), Amazonas (Manaus), the western half of Maranhão (São Luis), northern part of Mato Grosso (Cuiabába), Pará (Marabá, Santarém, Belém), Rondônia (Pôrto Velho), Roraima (Boa Vista), Tocatins (Araguaína).
High malaria transmission occurs along the trans-Amazon highway, the road from Cuiabá to Santarém and in the valleys of the Araguaia, Xingu, Jamanxim and Tapajos rivers. Localized malaria outbreaks caused by the migration of infected persons from the Amazon region have been reported in other areas of Brazil.
Note: Persons on cruises on the Amazon and its tributaries, or travelling overland throughout the Amazon Basin, must follow anti-malarial medication guidelines. There is no malaria transmission at Iguaçu Falls.

10 **Brunei Darussalam:** A case of *P. knowlesi* malaria in a traveler has been reported. The main vector for *P. knowlesi* is *Anopheles latens* found in forested and jungle areas. Feeding habits: Feeds outdoors at dusk. No information on local cases is available.
Note: Travellers visiting rural areas, wooded areas, national parks and jungles must take meticulous anti-mosquito measures.

11 **Cabo Verde:** Risk is present on the islands of São Tiago and Boavista.

12 **Cambodia:** The city of Phnom Penh is risk free. There is low risk of malaria transmission at Angkor Wat and in the city of Siem Reap. If only travelling to these areas, take meticulous anti-mosquito bite measures. However, if travelling throughout the rest of Cambodia, take malaria suppressive medication.

13 **China: Northern China** is malaria risk free.
Central China: Low risk exists from May to December in rural areas of the following provinces (main cities in brackets are risk free): Anhui (Hefei), Henan (Zhengzhou), and Hubei (Wuhan). Main vectors: *A. sinensi, A. minimus*.
In central China *P. vivax* malaria infections are predominant. Follow S2 malaria suppressive medication guidelines. Travelers to rural areas of these provinces should use anti-mosquito measures from dusk to dawn.
Southern China, including the southeastern tip of Tibet: Risk is present throughout the year in the rural areas of the following provinces (main cities in brackets are risk free): Guangdong (Guangzhou) including Hainan Island (Haikou), Guangxi (Nanning, Guilin), Guizhou (Guiyang), Jiangsu (Nanjing), Yunnan (Kunming), and the extreme southeastern part of Tibet in the area bordering India (Arunachal Pradesh state) and Burma including Yarlung Tsanpo (Zangbo) river canyon.
Main vectors: *A. minimus, A. balabacensis.*
In southern China *P. falciparum* malaria is predominant. Multi-drug resistance has been reported from the border areas with Myanmar/Burma. Follow S4 malaria suppressive medication guidelines when travelling through rural areas of Yunnan province bordering Myanmar/Burma, Laos, and Vietnam.
Macau is risk free.
Hong Kong is risk free.
Note: The risk of contracting malaria in central and southern China is small. Persons on the usual tourist itinerary visiting major cities and making daytime excursions into the countryside, or on cruses on the Yangtze river do not need to take suppressive medication. Use anti-mosquito measures.
Persons travelling to southern China on educational or scientific assignments in rural areas, or travelling extensively through rural areas must follow an anti-malarial regimen.

14 **Colombia:** The cities of Bogotá, Manizales and other towns and villages in the Andean highlands above 1700 m / 5,577 ft are risk free. On the Caribbean coast, the city of Cartagena and the islands of San Andrés and Providencia are risk free.
Note: Malaria risk is high in rural and jungle areas below 1700m / 5577ft, and persons travelling to rural areas, making excursions on the Magdalena River (south of Barranquilla), travelling along the Pacific coast, or travelling east of the Cordillera Oriental must follow S2 suppressive medication guidelines.

15 **Dominican Republic:** Santiago and Santo Domingo are risk free. Malaria cases have been reported from all parts of the country, including resort areas. Highest incidence rates are reported from the western provinces of Dajabón, Elías Piña, Independencia, northern half of Pedernales (these four provinces border Haiti), Azua, San Juan and Valverde. Use an anti-malaria regimen when travelling in these areas.
Note: Travellers vacationing in beach resorts (Puerta Plata, Punta Cana, Bavero, San Pedro de Macoris, etc.) or travelling throughout the rest of the country must take meticulous anti-mosquito measures from dusk to dawn

16 **Ecuador:** Guayaquil and the Galapagos Islands are risk free. There is also no malaria risk in the high-altitude cities of Quito (2879 m/9,445 ft) and Cuenca (3530 m/11,581 ft), and other cities and villages in the Andean highlands.
Note: Risk is present in the provinces of El Oro, Esmeralda, Manabí, Cotopaxi, Loja, and Los Ríos. Persons travelling to the upper Amazon Basin area: Pastaza River, Upano River, Coca, or Lago Agrio for cruises on the Napo River and its tributaries must follow a suppressive regimen.

17 **El Salvador:** Risk is present in rural areas in the provinces of Santa Ana and Ahuachapan bordering Guatemala. Sporadic cases are reported from other rural areas. Persons travelling extensively through rural areas should take meticulous anti-mosquito bite measures.
Note: The city of San Salvador is risk free.

18 **Eritrea:** Asmara (2325 m/7,627 ft) is risk free.

19 **Ethiopia:** Addis Ababa (2300 m/7,546 ft) is risk free.

20 **French Guiana:** Risk is present in the whole country, with high incidence rates reported from the border areas with Brazil (Oyapock River valley) and Suriname (Maroni River valley).

21 **Guatemala:** Guatemala City and the high altitude areas of the central highlands are risk free.
Note: Persons vacationing on the Pacific or Caribbean coasts, contemplating trips to the archaeological sites of Sayache and Tikal, the jungle of Petén, or travelling throughout the interior, must follow anti-malarial medication guidelines.

22 **Guyana:** Sporadic cases are reported from Georgetown. Risk is high in all rural areas.

23 **Haiti:** Persons vacationing in beach resorts must take malaria suppressive medication.

24 **Honduras:** Risk is present in the peripheral areas of Tegucigalpa and San Pedro Sula.
Note: Persons vacationing in the resorts of Ceiba, Tela, and the Bay Islands (Islas de la Bahía), travelling along the Atlantic or Pacific coasts or extensively in the interior, must take malaria suppressive medication.

25 **India:** Only the high altitude areas (above 2000 m) of the following states are risk free: Himachal Pradesh, Jammu, Kashmir and Sikkim.

Note: Risk is present throughout India, including Mumbai, New Delhi, and Goa. Travellers must take a full course of malaria suppressive medication.

Main vectors: Northern India – *A. minimus*; Ganges Plain – *A. stephensi* and *A. culicifacies*; Peninsular India – *A. culicifacies.*

26 **Indonesia:** Jakarta, Surabaya, Denpasar (Bali) and other large cities are risk free, including the beach resorts in southern Bali. Sporadic cases of malaria in travellers have been reported from rural areas of Bali (Padangbai area), Bintan and Lombok islands.

Note: Persons travelling extensively in rural areas, on cruises between the islands, or making excursions to night festivals, must take a full course of malaria suppressive medication. Irian-Jaya reports a high incidence of malaria in all regions. P.K. has been reported from the Kalimantan provinces (Borneo).

27 **Iran:** Risk is present in rural areas of the following south-eastern provinces: Hormozgan, the tropical part of Kerman, and the southern part of Sistan-Baluchistan.

Chloroquine and sulfadoxine-pyrimethamine *P. falciparum* resistant malaria has been reported from the Baluchistan-Sistan border areas with Afghanistan and Pakistan.

28 **Kenya:** Risk is low in the city of Nairobi and in the high altitude areas (above 2500 m/8,202 ft) of the provinces of Central, Eastern, Nyanza, and Rift Valley.

Note: If you are contemplating safaris or vacationing in Mombasa and beach resorts along the coast, you must take suppressive medication.

29 **Korea – North:** Risk of malaria is present in the southern half of the country. Only limited official information is available.

30 **Korea – South:** Risk is present in rural areas along the border with North Korea, particularly in Gyeonggi-do and Gangwon-do provinces.

Note: Persons on daytime excursions only to the DMZ (demilitarized zone) should use anti-mosquito measures.

31 **Laos:** The city of Viangchan (Vientiane) is risk free.

32 **Malaysia:** Risk is present in the mountainous interior of the triangle shared by the states of Kelantan, Pahang, and Perak (Cameron Highlands). Sabah: Risk is present throughout the year in rural areas. The incidence of *P. falciparum* is 80% of cases in Sabah.

Sarawak: Urban and coastal areas are risk free. The incidence of *P. knowlesi* is 28% of cases in Sarawak.

Note: Urban and coastal areas of Peninsular Malaysia, including the island of Pinang, are risk free.

33 **Mauritania:** The northern areas of Dakhlet-Nouadhibou and Tiris Zemmour north of 20°N are risk free.

Note: In Adrar and Inchiri regions, risk is present from July to October. In the southern part of Mauritania, risk is present throughout the year.

34 **Mexico:** Risk is present in the following areas:

• **Pacific Coast:** rural areas of the southern part of Sonora and southern part of Chihuahua, Sinaloa, Durango and Nayarit.

• **Southern Mexico:** rural areas of Chiapas and Oaxaca, sporadic cases are also reported from rural areas of Tabasco, Campeche and Quintana Roo (the forested areas bordering Belize and Guatemala).

Note: Visitors to rural areas and major resorts along both coasts (Acapulco, Puerto Vallarta, etc.) should use mosquito repellents containing DEET after sunset. You do not require anti-malarial medication.

Archaeological sites. Daytime excursions from cities to popular archeological sites do not require anti-malarial medication. However, persons staying overnight in the vicinity or in nearby villages of the following sites should take a full course of suppressive medication:

• **Chiapas** (Bonampak, El Cayo, La Mar, Palenque, Toniná, etc.). Cities of Villahermosa and Tuxtla Gutierrez are risk free.

• **Campeche** (Becan, Calakmul, Edzná, Hochob, Xpuhil, etc.). City of Campeche is risk free.

35 **Myanmar (Burma):** The urban centers of Yangon (formerly Rangoon) and Mandalay are risk free.

36 **Namibia:** Risk is present in the northern part of the country bordering Angola, Zambia and Botswana in the following regions: Ohangwena, Omaheke, Omusati, Oshana, Oshikoto, Otjozondjupa, Kunene, Kavango (Okavango) and Caprivi.

Risk is present throughout the year along the border with Angola (Kunene and Okavango River valleys and Caprivi Strip).

Note: Persons visiting Etosha National Park must follow a suppressive regimen during the risk season.

37 **Nepal:** Risk is present in all areas below 2000 m/6,562 ft. Kathmandu and the northern high altitude areas of Nepal are risk free.

Note: If you are flying into Kathmandu and visiting the northern Himalayan districts, you do not need to take malaria suppressive medication. However, if you are travelling from India overland into Nepal, and throughout the southern parts of the country, you must follow S2 malaria suppressive medication guidelines.

38 **Nicaragua:** Risk exists in the outskirts of towns and rural areas below 1000 m/3,280 ft. throughout Nicaragua, including the suburbs of Managua and the shore areas of Lake Managua. Travellers to rural areas must take malaria suppressive medication.

39 **Oman:** The following governorates have reported sporadic cases of *P. falciparum* and *P. vivax*: Ad Dakhliyah, Al Batinah North, Ash Sharqiyah North and South.

40 **Panama:** Panama Canal Zone, the cities of Panamá and Colón, and the central highlands above 800 m/2,624 ft are risk free.

Note: Risk is present west of the Canal in the provinces of Panamá, Colón, West Panamá, Veraguas, Ngäbe Buglé, Chiriquí, and Bocas del Toro where S1 anti-malarial guidelines for these areas. Risk is also present in all the provinces east of the Canal, including in the indigenous regions of Kuna Yala (formerly San Blas) and Embéra. Follow S2 suppressive medication guidelines.

41 **Paraguay:** Risk is present in rural areas of the south-eastern departments of Alto Paraná, Caaguazú and Canindeyú.

Note: There is no malaria transmission at Iguaçu Falls.

42 **Peru:** Risk is present in all regions (cities and rural areas below 2000 m/6,561 ft) except in the city of Lima and the coastal area south of Lima, the city of Ica, and the southern regions of Arequipa, Moquegua, Tacna, and the city of Puno.

Note: Persons visiting the high altitude areas of Cuzco, Machu Picchu, and Lake Titicaca are not at risk.

43 **Philippines:** Metropolitan Manila, major urban areas, the islands of Bohol, Catanduanes, and Cebu are risk free.

Note: Risk is generally low in rural areas except for the following provinces which still have a high incidence of malaria: Luzon Island (provinces of Kalinga-Apayao, Cagayan, Isabela and Abra), Mindanao (provinces of Surigao del Sur, Agusan del Sur, Davao del Sur), Mindoro, Basilan, Calamian, Palawan, and Sulu Archipelago (Tawi Tawi). The province of Palawan reports cases of *P. knowlesi.*

44 **Saudi Arabia:** The cities of Jeddah, Medina, Mecca, and Taif are risk free.

Note: Risk is present in the western emirates of Al Bāḥah, ʻAsīr, and Jāzān bordering Yemen.

45 **South Africa:** Risk is present in the northeastern provinces of Limpopo, the low altitude areas of Mpumalanga and KwaZulu-Natal as far south along the coast to the Tugela River, including Kruger National Park. Peak period of risk: October to May.

Note: Persons visiting Kruger National Park are advised to take malaria suppressive medication.

46 **Suriname:** The city of Paramaribo and the seven coastal districts are considered risk free, although sporadic cases are reported.

47 **Swaziland:** Risk exists in the northern and eastern grassland and plain areas, particularly in the areas of Big Bend, Mhlume, Simunye and Tjaneni.

48 **Tajikistan:** Risk is highest in the southern province of Khatlon bordering Uzbekistan and Afghanistan, the central division of Dushanbe, and the southwestern autonomous province of Gorno-Badakhshan bordering Afghanistan. Risk is also present in the northern province of Sughd.

49 **Thailand:** There is no risk in the cities of Bangkok, Chiang Mai, and the resort areas of Pattaya, Koh Samui and Koh Phangan. Persons flying into cities and making only daytime excursions to rural areas do not need to take malaria suppressive medication.

Persons traveling by car, boat, or train through rural areas of the interior, especially forested and hilly areas, and to mining and refugee camps, as well as to the border areas with Myanmar (Burma), Cambodia, and Laos, should be aware of the presence of multi-drug resistant malaria. Follow S4 malaria suppressive medication guidelines.

Sporadic cases are reported from Phuket and Phang Nga. Use anti-mosquito measures in these areas.

50 **Turkey:** Sporadic cases are reported from the south-eastern provinces of Diyarbakir, Mardin and Sanliurfa.

51 **Vanuatu:** Risk is present on all islands including Efate where locally transmitted cases have been reported in the capital Port Vila.

52 **Venezuela:** Risk is present in the following areas:

• **Northern Venezuela:** Sporadic cases are reported from rural areas below 600 m/1,968 ft. Risk is present in rural areas of Sucre state where the municipality of Santa Fe reports the largest number of cases. There is no malaria risk in cities and resorts (Caracas, Maracaibo, Macuto, Isla de Margarita).

• **Western Venezuela:** Risk is present in the states of Zulia (rural areas), Apure (extreme western part in the areas west of the city of Guasdualtto) and Barinas (western third of the state excluding the city of Barinas), as well as all rural and urban areas south of the Azauca river. Main vector: *A. nunez-tovari*.

• **Southern Venezuela:** Risk exists throughout the states of Amazonas (especially in the rainforest areas below 600m / 1968ft in the Orinoco River basin and its tributaries) and Bolívar (Orinoco River in the areas bordering the states of Apure and Guarico west of Las Bonitas. Risk is also present in the central and southern parts of the state in the valleys of the Paragua and Caroni Rivers). Main vector: *A. darlingi*.

• **Eastern Venezuela:** Malaria risk is present throughout the state of Delta Amacuro. Main vector: *A. darlingi*.

Note: Persons visiting Angel Falls must follow malaria suppressive medication guidelines.

53 **Vietnam:** There is no risk in Hanoi, Ho Chi Minh City, Da Nang, Nha Trang, Qui Nhon, the Red River Delta and the coastal area north of Da Nang.

Note: Malaria risk is present in all rural areas. The highest incidence rates have been reported from the central highland provinces of Binh Phuoc, Dak Lak, Dak Nong, Gia Lai and Kon Tum, and the western parts of the following provinces: Khanh Hoa, Ninh Thuan, Quang Nam and Quang Tri.

54 **Yemen:** The city of Ṣanaʻā' (2377 m/7,798 ft) is risk free.

55 **Zambia:** Persons visiting Victoria Falls must take malaria suppressive medication.

56 **Zimbabwe:** Harare (1472 m/4,829 ft) and Bulawayo (1343 m/4,406 ft) are risk free, although sporadic cases have been reported during the malaria season (November to June). In the Zambezi valley, risk is present throughout the year. Persons visiting Victoria Falls must take malaria suppressive medication.

This information has been compiled from IAMAT sources, WHO, CDC, and the Malaria Atlas project. The recommendations outlined in this document are intended as guidelines only. For a prophylactic malaria regimen tailored to your needs, seek further advice from your physician or travel health clinic