Expires 31 December 2015

NPA Malaria prophylaxis information

Advice on malaria prophylaxis changes frequently. Any changes to guidance in this leaflet will be communicated via the NPA website, www.npa.co.uk. This information should not be used after December 2015. Further information on malaria prophylaxis can be found on the *Information Database (IRIS)* and *Travel Advice* sections of the NPA website. The contents of this leaflet should not be used for clinical decision making when following Patient Group Directions (PGDs).

Prevalence of malaria

High humidity and a temperature in the range 20–30C are the optimum conditions for malaria transmission. Malaria occurs rarely in regions with a temperature below 16C, nor does it usually occur at altitudes greater than 2000m. Seasonal rainfall may result in some areas having a variable risk of malaria, whilst urban areas tend to have a lower incidence of malaria than rural areas.

Malaria transmission does not occur in the following countries in northern, central and western Europe: Andorra, Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Hungary, Italy (including Sardinia), Latvia, Liechtenstein, Lithuania, Luxembourg, Netherlands, Norway, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and the UK. Transmission also does not occur in Australia (including Tasmania), Canada, New Zealand or Russia. These countries are, therefore, not included in the country tables on this leaflet.

Symptoms of malaria

Patients with the more serious form of malaria (*Plasmodium falciparum*) can be symptomatic from eight days after being bitten. The less severe forms (*Plasmodium vivax* and *Plasmodium ovale*) may incubate for even longer. The typical symptoms of malaria are fever (including chills and sweats), headache, myalgia (aching muscles) and possibly cough and diarrhoea. Fever may be cyclical, recurring every 48 hours. Customers are advised to seek medical advice if they experience any of these symptoms within one year (or possibly longer) and especially within three months of returning from an endemic area.

Bite avoidance measures for preventing malaria

The *Anopheles* mosquito is most active between dusk and dawn and the risk of being bitten is greatest during this time. Other mosquito species are active at other times (for example, those that transmit dengue fever are active during the daytime) and, therefore, it is advisable to practise bite avoidance measures at all times. Bite avoidance measures may still be required even in malaria-free areas, or during the daytime, due to the risk of contracting other insect-borne diseases. All travellers on cruises should use bite avoidance measures when ashore or cruising inland.
No prophylaxis regimen is 100 per cent effective so it is important that customers are advised to take the following measures to avoid being bitten:

Clothing

- Loose-fitting clothing (long-sleeves, long trousers and socks) should be worn when outdoors after sunset — permethrin (an insecticide) products are available for application to clothing; alternatively, DEET (N,N-diethyl-m-toluamide) can be sprayed on cotton clothing

Insect repellents

- Effective insect repellents should be applied to the skin, for example, DEET-containing products
  - The Public Health England Advisory Committee on Malaria Prevention (ACMP) advises that the appropriate concentration of DEET to use is between 20 per cent and 50 per cent
  - The protective effects of DEET at a concentrations of 20 per cent only last for up to three hours, whilst DEET at a concentration of 50 per cent has the longest duration of action of up to twelve hours; frequent re-application may still be required, especially in hot, humid conditions and after swimming
  - Long-term travellers, such as backpackers, are recommended to use a preparation containing a higher concentration of DEET, due to their prolonged exposure to mosquitoes
  - The ACMP also advises that DEET, at a concentration of up to 50 per cent, is suitable for bite avoidance in malarious areas in all individuals (unless allergic) over the age of two months including pregnant women (all trimesters) and those breastfeeding; however, this guidance may differ from information on product packaging
- Icaridin at a minimum concentration of 20 per cent (Autan®) can be used as an alternative because this has been shown to be comparable in efficacy to DEET products
- Repellents should be applied to exposed areas of the skin and over sunscreen (where one is used); sunscreens that contain a repellent are generally not recommended. The efficacy of sunblock is reduced by DEET

Insecticides

- Insecticides should be used; plug-in vapourisers can be used indoors and coils are suitable for outdoor use; 'knock down' insecticide sprays may also be used indoors; electronic buzzers are completely ineffective as mosquito repellents and should not be used
- Neither tea tree nor citronella oils are useful as repellents (citronella has been withdrawn in Europe)

Mosquito nets

- Mosquito nets impregnated with permethrin should be used around the bed at night if sleeping outdoors or in accommodation without screens — the net should be checked to ensure that there are no holes in it and it should be tucked in under the mattress

Other

- There is no evidence to suggest that taking garlic or either vitamin B1 (thiamine) or vitamin B12 (cyanocobalamin) will repel mosquitoes

Advising on malaria prophylaxis

To ensure that correct and consistent advice is given, it is important that the following information is determined before advising on malaria prophylaxis:

- **Where** exactly the customer is going (different areas within the same country can have different regimens for prophylaxis) — check whether the customer is planning any day trips or cruises to other areas within the country during their stay and if they are, establish how they are travelling between these areas, for example, overland, by plane or by boat
- **When** the customer is travelling and **how long** they are staying away for — malaria risk may vary with season; additionally, recommendations should not be given more than six–to–eight weeks in advance of travel and antimalarial choice may also be subject to licensing restrictions according to length of stay
- Whether anyone travelling takes **any other medicines** or suffers from any **underlying condition** that may affect the choice of regimen, for example, depressive illness, epilepsy, psoriasis or renal impairment
- Whether any of the customers travelling are **pregnant** or **breastfeeding**
- Whether any **children** are travelling and if so, ascertain their weight — although chloroquine and paludrine may be sold over the counter for malaria prophylaxis, many children's doses are unlicensed and will require a prescription from a prescriber (see p8 for further information)
- For customers going on **a cruise**, please contact the NPA Pharmacy Services Team for advice

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Precautions

The list below is not exhaustive. The individual Summary of Product Characteristics (SPC) should be referred to for further guidance.

Chloroquine is contrainidicated in patients taking amiodarone and not advisable in patients taking bupropion. It is unsuitable for those with epilepsy or myasthenia gravis, and it should be used with caution in patients with glucose-6-phosphate dehydrogenase (G6PD) deficiency, porphyria and psoriasis. Chloroquine may interact with certain antacids, ciclosporin, cimetidine, digoxin, moxifloxacin, and rabies vaccine (when given intradermally). Chloroquine may cause hypoglycaemia and travellers should be advised of the signs and symptoms and doses of antidiabetic drugs may need to be adjusted accordingly. Visual disturbances may occur on first taking chloroquine; if this occurs travellers should avoid driving or operating machinery.

Doxycycline should be used with caution in patients with hepatic impairment, porphyria, myasthenia gravis and those with systemic lupus erythematosus. Doxycycline may interact with alcohol, antacids, ciclosporin, methotrexate, retinoids, oral typhoid vaccine, warfarin and possibly others. Although carbamazepine and phenytoin may increase the metabolism of doxycycline, a dose change in doxycycline for malaria prophylaxis is not required. Doxycycline can cause photosensitivity, which can be minimised by using a broad spectrum sunscreen. Should a reaction occur, medical advice should be sought. Doxycycline can predispose female users to vaginal candidiasis and can cause oesophagitis if not taken with food or if the traveller lies down too soon after taking it.

Mefloquine should not be given to patients with hypersensitivity to quinine or quinidine. It is also contraindicated in those with a history of seizures, psychiatric disturbances (including depression) or who have severe liver function impairment. It should be avoided in those taking drugs that lower the seizure threshold (for example, bupropion or tramadol). Mefloquine should be avoided in those with a history of cardiac conduction disorders and those taking drugs that alter cardiac conduction. For airline pilots and travellers planning on scuba diving, mefloquine is not considered to be the drug of choice. Mefloquine may interact with inhibitors/inducers of CYP3A4, medicines which can prolong the QT interval and with the oral live typhoid vaccine.

Proguanil and **atovaquone/proguanil** should be used with caution in travellers with renal impairment. Proguanil and atovaquone/proguanil may interact with warfarin and caution is advised during initiation and withdrawal of prophylaxis.

Metoclopramide should be avoided with atovaquone/proguanil. Atovaquone interacts with certain antiretrovirals, as well as rifabutin and rifampicin and also tetracycline. Antacids and proguanil should be taken at least two–to–three hours apart.

Special considerations

Epilepsy: Chloroquine is unsuitable for patients with epilepsy. Mefloquine is contraindicated due to the risk of precipitating seizures as well as having the effect of lowering levels of antiepileptics in the body. Some antiepileptics may alter the metabolism of doxycycline and reduce its plasma levels, although there is no evidence to suggest increasing the dose of doxycycline.

Hepatic or renal impairment: All patients with hepatic impairment should be referred to their specialist to determine the degree of their condition. For renal impairment, dosage reduction may be required depending on the severity of renal impairment and the choice of antimalarial.

Pregnancy: Travel to malarious zones during pregnancy should be avoided. However, if travel is unavoidable effective prophylaxis should be used (off-licence). Malaria is more severe during pregnancy and the risk of malaria to mother and foetus is greater than the risk from the antimalarial drug at the recommended dose. **ALL** pregnant travellers should be referred to their doctor. Chloroquine and proguanil may be taken in their usual doses throughout pregnancy. Pregnant women taking proguanil or atovaquone/proguanil should additionally take 5mg of folic acid daily for at least the first trimester. Doxycycline is contraindicated during pregnancy but under special circumstances may be used providing that the entire course is completed before 15 weeks gestation. Mefloquine can be considered in all trimesters for travellers to high risk areas following a careful risk benefit assessment, although caution should be exercised in the first trimester. Atovaquone/proguanil should be discouraged because its safety in pregnancy has not been established, although may be considered in the second and third trimesters after a careful risk assessment.

Breastfeeding and breast-fed infants: Prophylaxis is still required in breast-fed infants because although antimalarials are excreted in breast milk, the amounts are not sufficient to provide adequate protection. Doxycycline is contraindicated, and the manufacturers of atovaquone/proguanil do not recommend its use whilst breastfeeding due to lack of data. The ACMP advises that atovaquone/proguanil may be considered if there is no other suitable antimalarial. Mefloquine may be used as experience suggests it is safe during breastfeeding. Chloroquine and proguanil are considered to be safe, although the drugs may not provide adequate protection for certain malarious areas.

Please contact the NPA Pharmacy Services Team for specific guidance on any of the above special considerations and the following patient groups:

- Patients taking anticoagulants
- Those with G6PD deficiency
- Patients who are immunosuppressed or have HIV/AIDS
- Patients with sickle-cell disease or thalassaemia
- Patients who have had a splenectomy, or those whose spleen does not function properly
- Patients with renal impairment or liver disease

Please remember — no prophylaxis regimen is 100 per cent effective. It is important that customers are also advised to take adequate measures to avoid being bitten.

Key to prophylaxis regimens

Please see p8 for dosing information

Mef/Dox/AtP	Mefloquine **OR** Doxycycline **OR** Atovaquone/Proguanil
Dox or AtP only	Doxycycline **OR** Atovaquone/Proguanil (chloroquine and mefloquine resistance present)
PC	Proguanil **PLUS** Chloroquine
C	Chloroquine (preferred regimen) **OR** Proguanil (but only if chloroquine is unsuitable)
R	No chemoprophylaxis required — use insect repellents, mosquito nets and wear long-sleeved clothing after dusk
x	No risk of malaria — no chemoprophylaxis or bite avoidance measures required

This chart is not comprehensive — please contact the NPA Pharmacy Services Team on 01727 891 800 or 08447 364 201 for countries not listed and for itineraries of more than one country (the NPA Pharmacy Services Team contact details are for NPA Member's use only and these telephone numbers must not be given to the general public).

Please remember:

- Customers who are visiting a number of low-risk areas within one country and are travelling overland between these areas may be passing through areas of greater risk and may require prophylaxis
- Preferred regimens should always be taken unless there is a medical reason why this is not possible — alternative regimens may not provide optimal cover
- No prophylaxis regimen is 100 per cent effective; it is important that customers are advised to take adequate measures to avoid being bitten
- Mefloquine, doxycycline and atovaquone/proguanil are prescription-only medicines and must not be sold over the counter for malaria prophylaxis under any circumstances

Country / Region	Area	Prophylaxis
Afghanistan	Areas below 2000m between May and November	PC
Albania	No risk of malaria	x
Algeria	Very low risk in the southern and south eastern provinces, including the Illizi Department — avoid mosquito bites	R
American Samoa	No risk of malaria	x
Angola	All areas	Mef/Dox/AtP
Anguilla	No risk of malaria	x
Antigua and Barbuda	No risk of malaria	x
Argentina	• Rural areas along northern border in the Chaco, Corrientes, Misiones and Salta provinces • All other areas, including Iguaçu Falls — low to no risk, avoid mosquito bites	C R
Armenia	No risk of malaria	R
Aruba	No risk of malaria	x
Ascension Island	No risk of malaria	x
Azerbaijan	All areas — low to no risk, avoid mosquito bites	R
Bahamas	No risk of malaria	x
Bahrain	No risk of malaria	x
Bangladesh	• Chittagong Hill Tract districts • All other areas, including the city of Chittagong and Sylhet — low to no risk, avoid mosquito bites	Mef/Dox/AtP R
Barbados	No risk of malaria	x
Belarus	No risk of malaria	x
Belize	• All rural areas • No risk in Belize district, Belize City or islands frequently visited by tourists	C R
Benin	All areas	Mef/Dox/AtP
Bermuda	No risk of malaria	x
Bhutan	• Southern districts of Chukha, Geyleg-phug, Jonkhar, Samchi, Samdrup and Zhemgang • All other areas — low to no risk, avoid mosquito bites	PC R
Bolivia	• Amazon basin area east of the Andes particularly the departments of northern Beni, Pando and Santa Cruz • All other rural areas below 2500m	Mef/Dox/AtP C
Borneo (Indonesian Borneo)	All areas	Mef/Dox/AtP
Borneo (Malaysian Borneo)	• Eastern inland areas of Sabah and inland forested areas of Sarawak (including Sepilok) • Coastal areas of Sabah (including Kota Kinabalu) and coastal areas of Sarawak	Mef/Dox/AtP R
Bosnia and Herzegovina	No risk of malaria	x
Botswana	• Northern half of the country, including Okavango Delta area and Zambezi river, from November to June • Southern half of the country — low to no risk, avoid mosquito bites	Mef/Dox/AtP R
Brazil	• The Amazon basin region, including the city of Manaus • All other areas, including the Iguaçu Falls — low to no risk, avoid mosquito bites	Mef/Dox/AtP R
Brunei Darussalam	All areas — very low risk, avoid mosquito bites	R
Burkina Faso	All areas	Mef/Dox/AtP
Burundi	All areas	Mef/Dox/AtP
Cambodia	• Western provinces of Cambodia bordering Thailand • All other areas • Very low risk in Angkor Wat and around Lake Tonie Sap, including Siem Reap, and no risk in Phnom Penh	Dox or AtP **only** Mef/Dox/AtP R
Cameroon	All areas	Mef/Dox/AtP
Cape Verde	Very low risk on the islands of Boa Vista and Santiago (Sao Tiago) between August and November	R
Cayman Islands	No risk of malaria	x
Central African Republic	All areas	Mef/Dox/AtP
Chad	All areas	Mef/Dox/AtP
Chile	No risk of malaria (including Easter Island)	x
China	• Yunnan and Hainan provinces (including Hainan Island) • All other areas, including main tourist areas and Yangtze cruises — very low risk, avoid mosquito bites	Mef/Dox/AtP R

Colombia	• Most rural areas below 1600m • Cartagena city — low to no risk, avoid mosquito bites	Mef/Dox/AtP R
Comoros	All areas	Mef/Dox/AtP
Congo (Republic of the)	All areas	Mef/Dox/AtP
Congo (Democratic Republic of)	All areas	Mef/Dox/AtP
Cook Islands	No risk of malaria	x
Costa Rica	• Limon province, except no risk in the city of Limon (Puerto Limon) • All other rural areas below 500m (including islands) — low to no risk, avoid mosquito bites	C R
Côte D'Ivoire	All areas	Mef/Dox/AtP
Croatia	No risk of malaria	x
Cuba	No risk of malaria	x
Cyprus	No risk of malaria	x
Djibouti	All areas	Mef/Dox/AtP
Dominica	No risk of malaria	x
Dominican Republic	• Cities of Santiago and Santo Domingo — very low risk, avoid mosquito bites • All other areas	R C
East Timor (Timor Leste)	All areas	Mef/Dox/AtP
Ecuador	• Galapagos Islands, Guayaquil — no risk of malaria • All other areas below 1500m, including the Amazon basin areas and coastal provinces	R Mef/Dox/AtP
Egypt	All areas — very low risk, avoid mosquito bites	R
El Salvador	All areas, including the western provinces of Santa Ana, Ahuachapán and La Unión — low risk, avoid mosquito bites	R
Equatorial Guinea	All areas	Mef/Dox/AtP
Eritrea	All areas below 2200m, except no risk in Asmara	Mef/Dox/AtP
Estonia	No risk of malaria	x
Ethiopia	Areas below 2000m, except no risk in Addis Ababa	Mef/Dox/AtP
Falkland Islands	No risk of malaria	x
Fiji	No risk of malaria	x
French Guiana	• City of Cayenne and Devil's Island (Ile du Diable) • All other areas, especially the border areas	R Mef/Dox/AtP
French Polynesia	No risk of malaria (including Bora Bora Island and Tahiti)	x
Gabon	All areas	Mef/Dox/AtP
Gambia	All areas	Mef/Dox/AtP
Georgia	South eastern rural areas between June and October — very low risk, avoid mosquito bites	R
Ghana	All areas	Mef/Dox/AtP
Gibraltar	No risk of malaria	x
Greece	All areas — very low risk, avoid mosquito bites	R
Grenada	No risk of malaria	x
Guadeloupe	No risk of malaria	x
Guam	No risk of malaria	x
Guatemala	• No risk in Antigua, Guatemala City or Lake Atitlan and areas above 1500m • All other areas below 1500m	R C
Guinea	All areas	Mef/Dox/AtP
Guinea-Bissau	All areas	Mef/Dox/AtP
Guyana	• All interior areas • Georgetown and coastal areas — low risk, avoid mosquito bites	Mef/Dox/AtP R
Haiti	All areas	C
Hawaii	No risk of malaria	x
Honduras	• San Pedro Sula and Tegucigalpa — no risk of malaria • All other areas below 1000m, together with Roatán and other Bay Islands	R C
Hong Kong	No risk of malaria	R
India	• Assam and Orissa; the districts of East Godavari, Srikakulam, Vishakhapatnam and Vizianagaram in the state of Andhra Pradesh; and the districts of Balaghat, Dindori, Mandla and Seoni in the state of Madhya Pradesh • For the rest of India (including Goa and the Andaman and Nicobar Islands) • Lakshadweep Islands **However, if travelling overland between these areas travellers may be passing through areas of greater risk and require prophylaxis.**	Mef/Dox/AtP R R

Indonesia and Java (see also Borneo — Indonesian Borneo)	• Lombok and Papua (Irian Jaya) • Bali and cities on the islands of Java and Sumatra — very low risk • City of Jakarta • All other areas	Mef/Dox/AtP R R PC
Iran	• South eastern rural areas and northern border areas with Azerbaijan and Turkmenistan from March to November • All other rural areas — low to no risk,avoid mosquito bites	PC R
Iraq	Rural northern areas below 1500m from May to November — very low risk, avoid mosquito bites	R
Israel	No risk of malaria	x
Ivory Coast	See Côte D'Ivoire	
Jamaica	No risk of malaria	x
Japan	No risk of malaria	x
Jordan	No risk of malaria	x
Kazakhstan	No risk of malaria	x
Kenya	• Main urban areas of Nairobi — very low risk, avoid mosquito bites • All other areas below 2500m	R Mef/Dox/AtP
Kiribati	No risk of malaria	x
Korea — North (Democratic People's Republic of Korea)	Very low risk in some southern areas	R
Korea — South (Republic of Korea)	Very low risk in some northern areas	R
Kosovo	No risk of malaria	x
Kuwait	No risk of malaria	x
Kyrgyzstan	South western areas that border Tajikistan and Uzbekistan from June to October — very low risk, avoid mosquito bites	R
Laos	• Border areas with Myanmar (Bokeo and Louang Namtha provinces) and Thailand (Champasak and Saravan provinces) • City of Vientiane — low to no risk, avoid mosquito bites • All other areas	Dox or AtP **only** R Mef/Dox/AtP
Lebanon	No risk of malaria	x
Lesotho	No risk of malaria	x
Liberia	All areas	Mef/Dox/AtP
Libya	No risk of malaria	R
Macedonia	No risk of malaria	x
Madagascar	All areas	Mef/Dox/AtP
Malawi	All areas	Mef/Dox/AtP
Malaysia (see also Borneo — Malaysian Borneo)	• Peninsular Malaysia inland forested areas, including Taman Negara National Park • All other areas of peninsular Malaysia, including Cameron Highlands, Kuala Lumpur and Penang — very low risk, avoid mosquito bites	Mef/Dox/AtP R
Maldives	No risk of malaria	x
Mali	All areas	Mef/Dox/AtP
Malta	No risk of malaria	x
Marshall Islands	No risk of malaria	x
Martinique	No risk of malaria	x
Mauritania	• Northern provinces from July to October inclusive and southern provinces all year round • Northern provinces during the rest of the year	Mef/Dox/AtP R
Mauritius	No risk of malaria	R
Mayotte	All areas	Mef/Dox/AtP
Mexico	• Southern states of Chiapas and Oaxaca • All other areas, including Cancun and states of Chihuahua, Durango, Nayarit, Quintana Roo and Sinaloa — very low risk, avoid mosquito bites	C R
Micronesia	No risk of malaria	x
Moldova	No risk of malaria	x
Monaco	No risk of malaria	x
Mongolia	No risk of malaria	x
Montenegro	No risk of malaria	x
Montserrat	No risk of malaria	x
Morocco	No risk of malaria	x
Mozambique	All areas	Mef/Dox/AtP
Myanmar (formerly Burma)	• Cities of Mandalay and Yangon — very low risk, avoid mosquito bites • All other areas	R Dox or AtP **only**

Namibia	• Caprivi region and areas along the Kavango and Kunene rivers all year round • Northern third of the country between November and June • All other areas — low to no risk, avoid mosquito bites	Mef/Dox/AtP Mef/Dox/AtP R
Nauru	No risk of malaria	x
Nepal	• Kathmandu and Himalayan treks — very low risk, avoid mosquito bites • All other areas below 1500m, including Terai districts	R PC
Netherlands Antilles	No risk of malaria (including Saint Martin)	x
New Caledonia	No risk of malaria	x
Nicaragua	• City of Managua — very low risk, avoid mosquito bites • All other areas	R C
Niger	All areas	Mef/Dox/AtP
Nigeria	All areas	Mef/Dox/AtP
Niue	No risk of malaria	x
Oman	No risk of malaria	R
Pakistan	• Areas below 2000m, including Hyderabad, Islamabad and Lahore • All other areas — low to no risk of malaria, avoid mosquito bites	PC R
Palau	No risk of malaria	x
Panama	• East of Panama Canal Zone • West of Panama Canal Zone • Low risk in Panama City and for cruises on Panama Canal Zone	PC C R
Papua New Guinea	All areas below 1800m	Mef/Dox/AtP
Paraguay	• Departments of Alto Paraná and Caaguazú • All other areas — very low risk, avoid mosquito bites	C R
Peru	• Amazon basin along border with Brazil, particularly in the province of Loreto • Coastal areas south of Chiclayo and city of Lima — no risk of malaria • Other rural areas below 2000m including Amazon basin areas that border Bolivia	Mef/Dox/AtP R C
Philippines	• Rural areas below 600m and the islands of Luzon, Mindanao, Mindoro and Palawan • No risk in the cities, and the islands of Bohol, Boracay, Catanduanes, Cebu and Leyte	PC R
Pitcairn Islands	No risk of malaria	x
Puerto Rico	No risk of malaria	x
Qatar	No risk of malaria	x
Réunion Island	No risk of malaria	x
Romania	No risk of malaria	x
Rwanda	All areas	Mef/Dox/AtP
Saint Helena	No risk of malaria	x
Saint Kitts and Nevis	No risk of malaria	x
Saint Lucia	No risk of malaria	x
Saint Pierre and Miquelon	No risk of malaria	x
Saint Vincent and the Grenadines	No risk of malaria	x
Samoa	No risk of malaria	x
San Marino	No risk of malaria	x
São Tomé and Príncipe	All areas	Mef/Dox/AtP
Saudi Arabia	• South western border areas below 2000m including Asir province • Cities of Jeddah, Mecca, Medina, Riyadh and Ta'if — very low risk, avoid mosquito bites • Hajj pilgrims: trip between Mecca and Medina if undertaken on a single day during daylight hours — low risk, otherwise chemoprophylaxis may be required	PC R R
Senegal	All areas	Mef/Dox/AtP
Serbia	No risk of malaria	x
Seychelles	No risk of malaria	x
Sierra Leone	All areas	Mef/Dox/AtP
Singapore	No risk of malaria	R
Solomon Islands	All areas	Mef/Dox/AtP
Somalia	All areas	Mef/Dox/AtP
South Africa	• Low altitude areas of Limpopo and Mpumalanga (bordering Mozambique and Zimbabwe) including Kruger National Park — from September to May • North east KwaZulu-Natal and bordering areas	Mef/Dox/AtP R
South Sudan	All areas	Mef/Dox/AtP

Sri Lanka	• North of Vavuniya — low risk • Colombo and Kandy — no risk of malaria • All other areas — very low to no risk of malaria	R R R
Sudan	• Very low risk in Khartoum — avoid mosquito bites • All other areas	R Mef/Dox/AtP
Suriname	• City of Paramaribo and coastal districts — very low risk, avoid mosquito bites • All other areas	R Mef/Dox/AtP
Swaziland	• Northern and eastern regions bordering Mozambique and South Africa (including Lubombo district and Big Bend, Mhlume, Simunye and Tshaneni regions) • All other areas — very low risk, avoid mosquito bites	Mef/Dox/AtP R
Syria	Small remote foci of Al-Hasakah — very low risk, avoid mosquito bites	R
Taiwan	No risk of malaria	x
Tajikistan	• All areas below 2000m between June and October • All areas below 2000m during the rest of the year	PC R
Tanzania	All areas below 1800m — including Pemba and Zanzibar	Mef/Dox/AtP
Thailand	• Rural, forested border areas with Cambodia, Laos and Myanmar • No risk in Bangkok, Chiang Mai, Chiang Rai, Koh Pha Ngan, Koh Samui, Pattaya and Phuket • All other areas, including the Kwai bridge (Kanchanaburi) — very low risk, avoid mosquito bites	Dox or AtP **only** R R
Tibet	No risk of malaria	x
Togo	All areas	Mef/Dox/AtP
Tokelau	No risk of malaria	x
Tonga	No risk of malaria	x
Trinidad and Tobago	No risk of malaria	x
Tunisia	No risk of malaria	x
Turkey	• Border with Syria and area around, and to the east of Adana between May to October • All other areas — very low risk, avoid mosquito bites	C R
Turkmenistan	No risk of malaria	x
Turks and Caicos Islands	No risk of malaria	x
Tuvalu	No risk of malaria	x
Uganda	All areas	Mef/Dox/AtP
Ukraine	No risk of malaria	x
United Arab Emirates	No risk of malaria — including Abu Dhabi and Dubai	x
Uruguay	No risk of malaria	x
USA	No risk of malaria	x
Uzbekistan	Sporadic cases in south eastern areas — very low risk, avoid mosquito bites	R
Vanuatu	All areas	Mef/Dox/AtP
Venezuela	• Amazon basin area, Angel Falls, and areas south of and including Orinoco river • Rural areas in the states of Apure, Monagas, Sucre and Zulia (north of Orinoco river) • Caracas, Margarita Island, and day trips to Angel Falls — very low risk, avoid mosquito bites	Mef/Dox/AtP PC R
Viet Nam	• Cities (including Hanoi and Ho Chi Minh), Mekong River delta until close to the Cambodian border, coastal areas north of Nha Trang, the island of Phu Quoc and the Red River delta • All other areas including rural areas in the southern part of the country (the provinces of Dac Lac, Gia Lai, Kon Tum, Lam Dong and Tay Ninh)	R Dox or AtP **only**
Virgin Islands (British and American)	No risk of malaria (including Tortola)	x
Wake Island	No risk of malaria	x
Wallis and Futuna Islands	No risk of malaria	x
Western Sahara	No risk of malaria	R
Yemen	• No risk of malaria above 2000m including Sana'a City • Very low risk on Socotra Island — avoid mosquito bites • All other areas below 2000m	R R PC
Zambia	All areas	Mef/Dox/AtP
Zimbabwe	• Zambezi valley and Victoria Falls all year round • All other areas below 1200m between November and June • Harare and Bulawayo — very low risk, avoid mosquito bites	Mef/Dox/AtP Mef/Dox/AtP R

Dosage schedule

Antimalarial drugs should be taken with food and swallowed with plenty of water; weekly doses should be taken on the same day of the week. Customers should be counselled on the importance of completing the course after leaving the endemic area. Mefloquine, doxycycline and atovaquone/proguanil are prescription-only medicines and must not be sold over the counter for malaria prophylaxis under any circumstances.

Antimalarial	Schedule	Long-term travel
Mefloquine	1 x 250mg Lariam® tablet once weekly. Take two-to-three weeks before travel to (to assess tolerability), throughout stay in and for four weeks after leaving endemic area.	Currently licensed to be used for a period of 12 months; however, can be taken safely for up to three years and beyond as long as no side effects.
Doxycycline	1 x 100mg Doxycycline capsule/tablet daily. Take one-to-two days before travel to, throughout stay in and for four weeks after leaving endemic area.	Can be taken safely for up to at least two years and longer term use possible if considered necessary.
Atovaquone/Proguanil	1 x (250mg/100mg) Atovaquone/proguanil tablet daily. Take one-to-two days before travel to, throughout stay in and for seven days after leaving endemic area.	No evidence of harm if used long term and can be taken for up to one year and possibly longer. However, individual SPCs must be checked carefully as licensed treatment periods may vary.
Chloroquine	2 x 250mg Avloclor® tablets once weekly. Take one week before travel to, throughout stay in and for four weeks after leaving endemic area.	Can be taken continuously for six years. Beyond this, regular ophthalmic examinations are recommended every six-to-twelve months.
Proguanil	2 x 100mg Paludrine® tablets daily. Take one week before travel to, throughout stay in and for four weeks after leaving endemic area.	No time limit specified.

Children's doses

Calculate the dose by weight rather than by the age for infants and children. The following doses are based on guidelines from the ACMP and may differ from doses in patient information leaflets (PILs)/SPCs (off-licence doses should not be sold, but must be prescribed). Paediatric doses of atovaquone/proguanil and chloroquine syrup are given separately towards the bottom of the page.

Weight	Chloroquine once weekly	Proguanil once daily	Mefloquine once weekly	Doxycycline once daily
Under 6.0kg	1/4 tablet	1/4 tablet	*	not recommended
6.0 – 9.9kg	1/2 tablet	1/2 tablet	1/4 tablet	not recommended
10.0 – 15.9kg	3/4 tablet	3/4 tablet	1/4 tablet	not recommended
16.0 – 24.9kg	1 tablet	1 tablet	1/2 tablet	not recommended
25.0 – 44.9kg	1 and 1/2 tablets	1 and 1/2 tablets	3/4 tablet	From 12 years: 1 capsule/tablet
45kg and over	2 tablets	2 tablets	1 tablet	1 capsule/tablet

* Mefloquine (¼ tablet) may be advised for children weighing 5.0–9.9kg (licensed dose).

Atovaquone/Proguanil

Weight	5.0 – 7.9kg	8.0 – 9.9kg	10.0 – 19.9kg	20.0 – 29.0kg	30.0 – 39.9kg	> 40kg
Once daily dose	½ Malarone paediatric tablet	¾ Malarone paediatric tablet	1 Malarone paediatric tablet	2 Malarone paediatric tablets	3 Malarone paediatric tablets	4 Malarone paediatric tablets or 1 adult tablet

Chloroquine syrup (50mg/5ml base)

Weight	Under 4.5kg	4.5 – 7.9kg	8.0 – 10.9kg	11.0 – 14.9kg	15.0 – 16.5kg
Weekly dose	2.5ml	5.0ml	7.5ml	10ml	12.5ml

The dose steps for chloroquine syrup are not the same as for chloroquine tablets, because the tablets differ from the syrup in chloroquine content.

Proguanil, mefloquine and atovaquone/proguanil tablets may be crushed and mixed with jam, honey, pasteurised yoghurt or similar for ease of administration to young children. Tablets may be cut using tablet cutters where this is necessary.