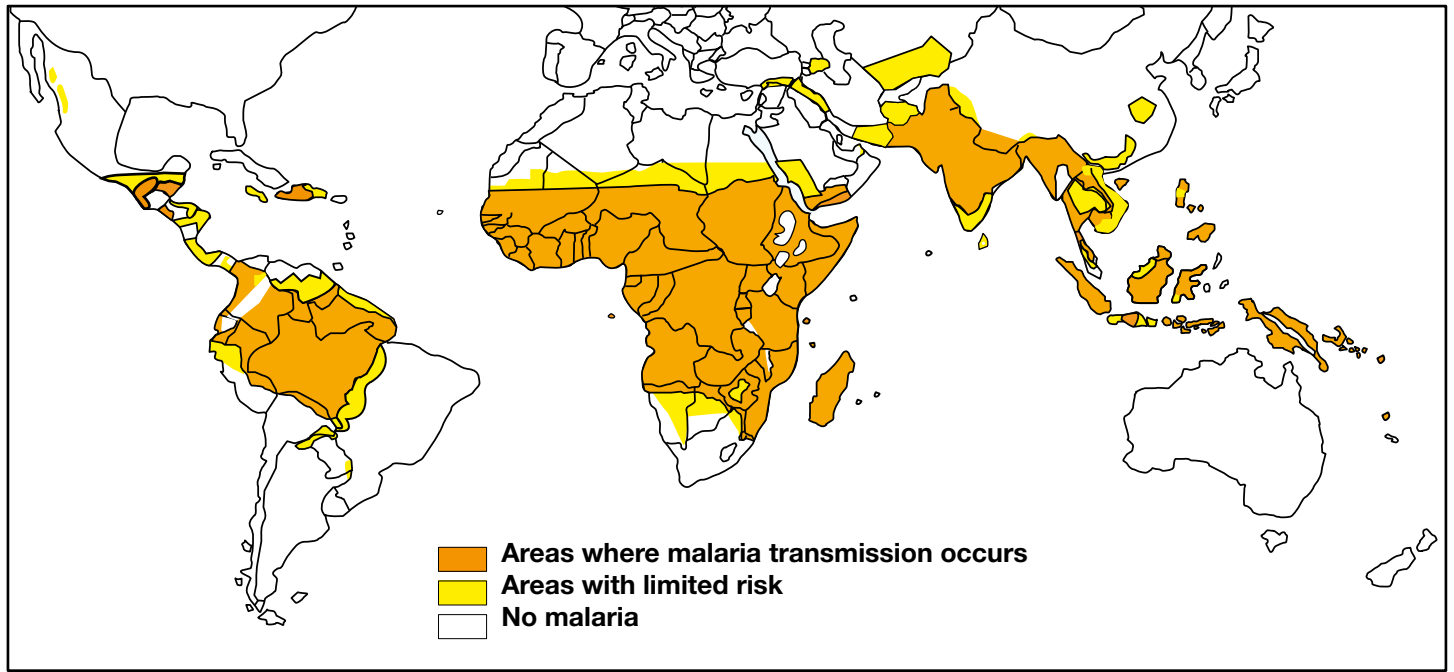




Malaria Information sheet, issued 2017



Background

The following data are mainly taken from the WHO Malaria web sites (<http://www.who.int/malaria>) and intended as a summary overview with regard to the special issues of a malaria infection risk for employees in international maritime shipping.

Cause

Malaria is caused by the protozoan parasite Plasmodium. Human malaria is caused by four different species of Plasmodium: *P. falciparum*, *P. malariae*, *P. ovalae* and *P. vivax*.

Transmission

The malaria parasite is transmitted by mosquitoes, which bite mainly between dusk and dawn. In the human body, the parasites multiply in the liver, and then infect red blood cells.

Nature of the disease

Malaria is an acute febrile illness with an incubation period of 7 days or longer. The most severe form is caused by *P. falciparum*; variable clinical features include fever, chills, headache, muscular aching and weakness, vomiting, cough, diarrhoea and abdominal pain. Other symptoms related to organ

failure may supervene, such as acute renal failure, pulmonary oedema, generalized convulsions, circulatory collapse, followed by coma and death. The initial symptoms, which may be mild, may not be easy to recognize as being due to malaria.

Risk for travellers

Fever starting at any time between 7 days after the first possible exposure to malaria and 3 months (or, rarely, later) after the last possible exposure **is a medical emergency and should be investigated urgently.**

Falciparum malaria may be fatal if treatment is delayed beyond 24 hours after the onset of clinical symptoms. In many parts of the world, the parasites have developed resistance to a number of malaria medicines.

So it is very important to be informed about the specific risk in the trading area and to choose the well-matched type of prevention according to the country list on page 2.

(All a.m. information were taken from WHO home page Malaria)

Countries and territories with malarious areas

The following list shows all countries with maritime access and international shipping where malaria occurs. In some of these countries, malaria is present only in certain areas which were noted after the country (e.g. Malaysia: risk III exists only on Borneo, other areas of Malaysia are no risk areas). In many countries, malaria has a seasonal pattern. The roman numbers **I, II, III, IV *** refer to the type of prevention based on the table below. **The abbreviaion HRA means high risk area.**

For further information please see WHO web sites Malaria.

| | |
|---|---|
| Angola III HRA | Democratic People's |
| Azerbaijan I | Republic of Korea I |
| Bangladesh III , Chittagong district only | Liberia III HRA |
| Belize I , Stann Creek and Toledo only | Madagascar III HRA |
| Benin III HRA | Malaysia III , Borneo only |
| Brazil III*) Amapá and legal Amazonia except City of Manaus only, HRA | Mauritania III |
| Brunai I | Mayotte III |
| Cambodia IV*) | Mexico I , Sinaloa only |
| Cameroon III HRA | Mozambique III HRA |
| Cape Verde I | Myanmar III ; in south-eastern Myanmar IV |
| China I , Guangxi only | Namibia III , Kavango, Caprivi region, Okavango, Oshikoto only |
| Colombia III , Cordoba, Chocó and Amazonia only | Nicaragua II , Region Autónoma del Atlántico Norte, |
| Comoros III | Léon and Chinandega only |
| Congo III HRA | Nigeria III HRA |
| Democratic Republic of Congo III HRA | Pakistan III |
| Costa Rica I , Canton of Matina, Limon Province, Nicoya only | Panama III*)in San Blàs, Daién only |
| Côte d'Ivoire III HRA | Papua New Guinea III HRA |
| Djibuti III | Peru I*) in coastal areas; III in Loreta only |
| Dominican Republic II*), western provinces of Dajabón, Elis Pina, San Juan only | Philippines III in Palawan; other areas I*) |
| Ecuador III*), Esmeralda and eastern flatland only | Sao Tome and Principe III |
| El Salvador I , southwestern region only | Saudi Arabia III*),in the southern province along the border with Yemen only |
| Equatorial Guinea III HRA | Senegal III HRA |
| Eritrea III HRA | Sierra Leone III HRA |
| French Guiana III*), in the territory bordering Brazil and Suriname only, HRA | Solomon Islands III HRA |
| Gabon III HRA | Somalia III HRA |
| Gambia III HRA | South Africa III HRA, north eastern KwaZulu-Natal, Mpumalanga and Limpopo only |
| Ghana III HRA | Sri Lanka I*) |
| Greece I , Evrotas delta only | Sudan III southern part only; northern part I |
| Guatemala II*), Escuintla only | Suriname III |
| Guinea III HRA | United Republic of Tanzania III HRA |
| Guinea-Bissau III HRA | Thailand I*); in areas near Cambodia, Malaysia and Myanmar borders IV*) |
| Guyana III HRA | Timor Leste III HRA |
| Haiti II or III | Togo III HRA |
| Honduras II | Turkey I*), border with Syria and Iraq only |
| India III , Gujarat, Central India and eastern coast only | Uganda III |
| Indonesia III HRA | Vanuatu III |
| Islamic Republic of Iran III , Hormozagan, | Venezuela: Amazonas, Bolivar and Amacuro delta III*) |
| Kerman and southern part of Sistan-Baluchestan only | in the northwest and Orinoco delta II*) rest no risk areas |
| Kenya III HRA | Vietnam: Outback III ; coastal areas and the north I*) |
| | Yemen III , Tihama only; on Socotra Island I*) |

| Malaria risk | Type of prevention |
|---|--|
| I: Very limited risk of malaria transmission | Mosquito bite prevention only |
| II: Risk of <i>P. vivax</i> malaria only | Mosquito bite prevention plus Chloroquine chemoprophylaxis |
| III: Risk of <i>P. falciparum</i> malaria transmission, combined with reported chloroquine resistance | Mosquito bite prevention plus Atovaquone-Proguanil or Doxycycline or Mefloquine chemoprophylaxis |
| IV: Risk of <i>P. falciparum</i> malaria in combination with reported Mosquito bite prevention plus Atovaquone-Proguanil or multidrug resistance | Doxycycline or Mefloquine chemoprophylaxis (select according to reported resistance pattern) |
| *) Alternatively in case of a very low risk of <i>P. falciparum</i> infection during a very short stay, mosquito bite prevention can be combined with stand-by emergency treatment. - The abbreviaion HRA means high risk area. | |

Based on specialist advice, stand-by emergency treatment may be indicated for travellers who make frequent short Stopps in endemic areas over a prolonged period of time. Such travellers may choose to reserve chemoprophylaxis for high-risk areas and seasons only. This possibility is limited to countries with low risk of infection (in the Country list above marked with *)). It is very important to seek immediate medical care in case of fever and take stand-by emergency treatment if prompt medical help is not available. Standby emergency treatment must always be followed-up with contact to Radio Medical Advice.

For further information please see <http://www.who.int/malaria/publications/country-profiles/en> or <http://www.who.int/malaria/travellers/en> or http://www.cdc.gov/malaria/travelers/country_table/a.html

Antimalaria drugs for prophylaxis

Dos. = Dosage, CI = Contraindication, SE = Side effects, PC = Precaution

Doxycycline 100 mg tablets (Vibramycine ®)

Danish reg.**** 08.02 b, Dutch reg. 07.1.07, Finnish reg. 07.02 a, German reg. *** 295, GB */ Cy / Prt reg. 010 d, Hong Kong Annex 2 reg. 14.07, Hong Kong Orig. reg. 047, Lux reg. 07 a 4, Malta reg. 07 d 7, Norwegian reg. 07 a 4, WHO 2007 - SING 2014 - MHL 2013 reg. 19 a

Dos.: Adults: 1 tablet of 100 mg daily with plenty of water. *Starting 1 day before arrival and continuing for 4 weeks after leaving malarious area.*

CI: Hypersensitivity to Tetracyclines; liver dysfunction

SE: Makes the skin more susceptible to sunburn. May cause gastro-intestinal disease, may cause vaginal yeast infections in women.

Atovaquone/Proguanil 250 mg/100mg combination tablets (Malarone®)

Danish reg.**** 08.01, Dutch reg. 07.7.05 t, Finnish reg. 07.07, GB */ Cy / Prt reg. 010 c, German reg. (German Flag)** 09.02, Lux. reg. 07d 6, Malta reg. 07 d6

Dos.: Adults > 40 kg: 1 tablet daily. *Starting 1 day before arrival and continuing for 7 days after leaving malarious area, no restriction on the duration of use.*

CI: Hypersensitivity to Atovaquone and / or Proguanil; severe renal insufficiency (creatinine clearance < 30 ml/min).

SE: Headache, nausea, vomiting, diarrhoea

PC: Take with food or milk to increase absorption. Plasma concentrations of Atovaquone are reduced when it is coadministered with Rifampicin, Rifabutin, Metoclopramide or Tetracycline. May interfere with live typhoid vaccine.

Chloroquine phosphate 250 mg = Chloroquine base 150 mg tablets (Resochin ®, Weimerquine ®)

Dutch reg. 07.7.03 t, GB */ Cy / Prt reg. 10 b, Hong Kong Annex 2 reg. 14.02, Hong Kong Orig. reg. 022, Lux. reg. 07 d 2, Malta reg. 07 d 2, Norwegian reg. 07 d 1, WHO 2007 - SING 2014 - MHL 2013 reg. 721

Dos.: Adults: 300 mg Chloroquine base weekly (= 2 tablets) *in one dose. Starting 1 week before arrival and continuing for 4 weeks after leaving malarious area*

CI: Hypersensitivity to Chloroquine; history of epilepsy; psoriasis history of epilepsy; psoriasis

SE: Anorexia, vision disorders, cloudiness of the cornea, diarrhoea, nausea, emesis

PC: Take after meal, concurrent use of Chloroquine can reduce the antibody response to intradermally administered human diploid-cell rabies vaccine.

Mefloquine 250 mg tablets (Lariam ®)

Lux reg. 07 d 5, Malta reg. 07 d 5, Norwegian reg. 07 d 3,

Dos.: Adults: 1 tablet of 250 mg weekly. *Starting at least 1 week before arrival and continuing for 4 weeks after leaving malarious area*

CI: Blackwater fever, severe liver dysfunction, treatment with Ketoconazol or Halofantrin, hypersensitivity to Mefloquine; psychiatric (including depression) or convulsive disorders; history of severe neuropsychiatric disease; treatment with Mefloquine in previous 4 weeks;

SE: Dizziness, nausea, vomiting, headache, psychiatric disorders

PC: Do not give within 12 hours of Quinine treatment, Mefloquine and other cardioactive drugs may be given concomitantly only under close medical supervision. Ampicillin, Tetracycline and Metoclopramide can increase Mefloquine blood levels. Do not give concomitantly with oral Typhoid vaccine.

Antimalaria drugs for treatment

Dos. = Dosage, CI = Contraindication, SE = Side effects, PC = Precaution

Artemether/Lumefantrin 20 mg/120 mg combination tablets (Riamet ®)

WHO 2007 - SING 2014 - MHL 2013 reg. 08, GB */ Cy / Prt reg. 010 h, Hong Kong Annex 2 reg. 14.09

Dos.: 3 days course of 6 doses total, taken at 0, 8, 24, 36, 48 and 60 hours after the first dose. Adult dose = 4 tablets / one course = 24 tablets

Preferred option if „Malarone“ used for prevention.

To be used also for stand-by emergency treatment.

CI: Hypersensitivity to Artemether or Lumefantrin

SE: Headache, dizziness, nausea, vomiting

PC: Must be taken with fatty foods to improve absorption

Artemether injection 80 mg/ml (Artesiane ®)

WHO 2007 - SING 2014 - MHL 2013 reg. 07

Dos.: Get Radio Medical Advice!

CI: Hypersensitivity to Artemether

Quinine sulfate 300 mg tablets

Quinine dihydrochloride injection 300 mg/ml

Danish reg.**** 08.03, Dutch reg. 07.7.01 t, GB */ Cy / Prt reg. 010 i, Hong Kong Annex 2 reg. 14.10, Hong Kong Orig. reg. 066, Lux. reg. 07 d 4, Malta reg. 07 d 4,

Dos. tablets: Take 7 - 9 tablets a day for 7 days, divided in 3 doses. In areas of high-level resistance to Quinine give in combination with Doxycycline, Tetracycline.

(Dos. of Doxycycline in this case: 1. day: 2 tablets 12 hours apart, followed by 1 tablet daily for 6 days.)

Dos. Injection: Loading dose of up to 20 mg per kg body weight by i.v. infusion over 4 hours, then maintenance dose of 10 mg per kg in 500 ml diluent over 4 hours. Repeat at 8 - 12 hourly intervals. Diluent is sodium chloride 0.9%.

CI: Hypersensitivity to Quinine or Quinidine; tinnitus; optic neuritis; haemolysis; myasthenia gravis. Use with caution in persons with G6PD deficiency, caution in persons using beta-blockers, digoxin, calcium channel blockers, etc.

PC: Quinine may induce hypoglycaemia particularly in (malnourished) children, pregnant women and patients with severe disease.

Atovaquone/Proguanil 250 mg/100mg combination tablets (Malarone ®)

Danish reg.**** 08.01, Dutch reg. 07.7.05 t, Finnish reg. 07.07, GB */ Cy / Prt reg. 010 c, German reg. (German Flag)** 09.02, Hong Kong Annex 2 reg. 14.08, Hong Kong Orig. reg. 065, Lux. reg. 07d 6, Malta reg. 07 d6

Dos.: One dose daily for 3 consecutive days. Adults > 40 kg: 4 tablets (1 g Atovaquone/400 mg Proguanil) daily. To be used also for stand-by emergency treatment.

CI: Hypersensitivity to Atovaquone and / or Proguanil; severe renal insufficiency (creatinine clearance < 30 ml/min).

SE: Headache, nausea, vomiting, diarrhoea

PC: Take with food or milk to increase absorption. Plasma concentrations of Atovaquone are reduced when it is coadministered with Rifampicin, Rifabutin, Metoclopramide or Tetracycline. May interfere with live typhoid vaccine.

Chloroquine phosphate 250 mg = Chloroquine base 150 mg tablets (Resochin ®, Weimerquine ®)

Dutch reg. 07.7.03 t, GB */ Cy / Prt reg. 10 b, Hong Kong Annex 2 reg. 14.02, Hong Kong Orig. reg. 022, Lux. reg. 07 d 2, Malta reg. 07 d 2, Norwegian reg. 07 d 1, WHO 2007 - SING 2014 - MHL 2013 reg. 721

Dos.: Initial: 600 mg base (= 4 tablets), after 6 hours: 600 mg (= 4 tablets), after 24 hours: 300 mg (= 2 tablets), after 48 hours: 300 mg (= 2 tablets)
Dosage based on body weight of 60 kg
To be used for stand-by emergency treatment in areas without Chloroquine resistance only.

CI: Hypersensitivity to Chloroquine history of epilepsy; psoriasis

SE: Nausea, vomiting, diarrhoea

PC: Take after meal, concurrent use of Chloroquine can reduce the antibody response to intradermally administered human diploid-cell rabies vaccine.

* for further information please see MGN 399 (M)

** for further information please see I 1 Instruction Sheet on Malaria (See BG)

*** not registered in Germany for antimalarial prophylaxis**** for further information please see DMA's Malaria Strategy instruction sheet

Long-term use of chemoprophylaxis

The risk of serious side-effects associated with long-term prophylactic use of chloroquine is low.

However, anyone who has taken 300 mg of chloroquine weekly for over 5 years and requires further prophylaxis should be screened twice-yearly for early retinal changes.

An alternative drug should be prescribed if changes are observed.

Data indicate no increased risk of serious side-effects with long-term use of mefloquine if the drug is tolerated in the short term. Pharmacokinetic data indicate that mefloquine does not accumulate during long-term intake.

Available data on long-term chemoprophylaxis with doxycycline (i.e. more than 12 months) are limited but reassuring.

Summary

Travellers should note about malaria protection:

- **Be informed about the risk of malaria in your trading area and the special recommendation for prophylaxis in the different countries.**
- **Take care in time for sufficient stock of needed medicines.**
- **Avoid being bitten by mosquitoes, especially between dusk and dawn, wear long clothes, use insect repellent.**
- **Take the right antimalarial drug when appropriate, but keep in mind that no medicine gives 100% protection.**
- **Immediately seek diagnosis and treatment if a fever develops 1 week or more after entering an area where there is a malaria risk and up to 3 months (or, rarely, later) after departure from a risk area.**