



# malaria

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Seafarers' Health Information Programme

Healthier, fitter, safer ...





Malaria is one of the world's most common and serious tropical diseases.

Malaria causes at least 1 million deaths every year, the majority of which occur in resource-poor countries.

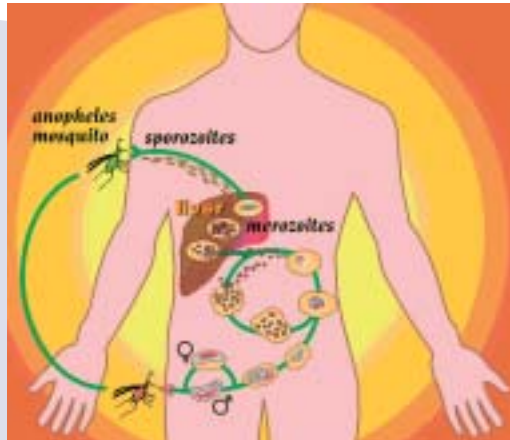
Malaria predominantly affects Africa, south and central America, Asia, and the middle east. The heaviest burden is in Africa, where around 90% of deaths from malaria worldwide occur each year. Nevertheless more than 1/3 of clinical malaria cases occur in Asia and 3% occur in the Americas.

Non-immune travellers are at a substantial risk of acquiring dangerous "falciparum" malaria. Each year as many as 30,000 travellers fall ill with the disease.

Malaria is also a maritime problem :

- Too many seafarers are unaware that malaria is serious and potentially fatal
- The real risk for seafarers is often miscalculated
- Seafarers are not familiar with the signs and symptoms of malaria
- Seafarers do not protect against malaria sufficiently and do not take appropriate protective medication

# Malaria - the disease



Malaria is transmitted by mosquitoes.

The malaria parasites travel through the bloodstream to the liver to grow and develop.

They leave the liver and enter the bloodstream again to invade the red blood cells, finish growing, and begin to multiply quickly.

The number of parasites increases until the red blood cells burst, releasing thousands of parasites into the blood.

The parasites then attack other red blood cells, and the cycle of infection continues, causing the common signs and symptoms of malaria.

## Malaria - symptoms

The symptoms of the most life-threatening type of malaria are usually experienced between one week and two months after infection.

Symptoms are flu-like, including :

- fever (often exceeding 40°C)
- chills
- malaise
- nausea and vomiting
- fatigue
- myalgia (muscle pain)
- headaches
- sweating

A typical attack lasts 8-12 hours.



Three successive stages may be observed :



**1. Cold stage**

**2. Hot stage**



**3. Sweat stage**



These stages are often NOT observed in the life-threatening “falciparum” malaria.

A patient with severe falciparum malaria may present with confusion, drowsiness, extreme weakness and may develop cerebral malaria with convulsions, an unrousable coma and rapid death.

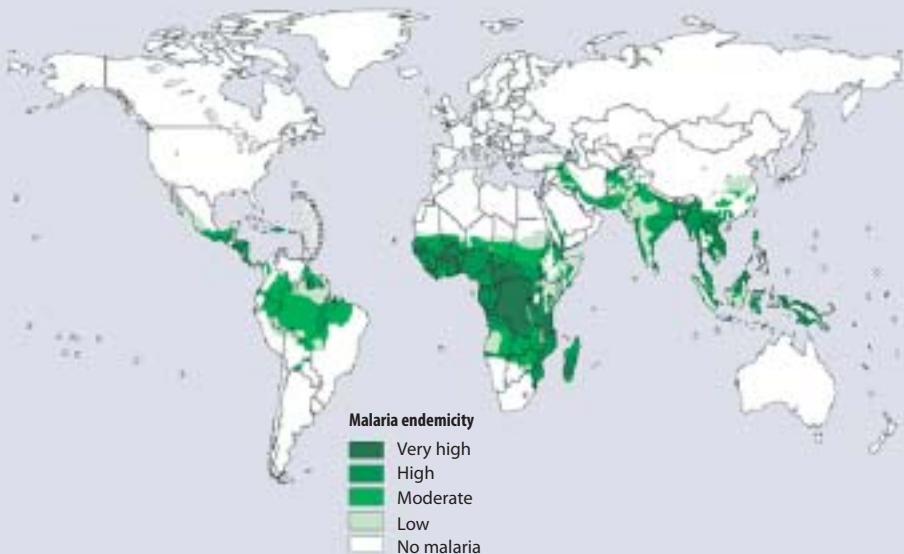
## BE AWARE OF THE RISK,...

Review all the ports to be visited, and check the malaria risk.

Compare the overall risk in a country with the risk at the coast and where possible in the individual port.

The risk is influenced by :

- seafarers staying onboard, at anchor, or taking shore leave
- seafarers signing off, travelling inland, or joining the ship in that port
- the duration of stay, daytime or also at dusk or dawn (with higher risk)



## ...AVOID BEING BITTEN,...

Within 2 miles of a malaria shore it is important that :

- Doors and windows are kept closed after dusk
- Any mosquitoes entering compartments are killed
- Insect spray is used, also under tables and chairs and in dark corners
- Long sleeved shirts and trousers are worn
- Pools of stagnant water, dew or rain are removed
- Refuse bags and bins are sealed properly
- Portholes, ventilation and other openings are covered with fine wire mesh
- Lights are screened to avoid attracting mosquitoes

The mosquitoes are most active in low light hours after dusk and prior to dawn.

Air conditioning helps to keep the mosquitoes away, it is important that it is left on all day.

While sleeping, use undamaged impregnated mosquito nets, put under the mattress, fixed on the four corners of the bed.



## ...TAKE ANTIMALARIAL DRUGS,...

When a ship is bound for a malaria port, in addition to taking all possible measures to prevent mosquito bites, medication has to be given to the whole crew systematically.

Preventative medication, combined with other measures against mosquitoes, strongly reduces the chance of disease, if taken correctly.

Most medication is taken for a set period before entering a malaria zone, continued while you are in a malaria zone and for a set period after leaving.

Resistance of the parasite against some kinds of malaria medication exists and is high in several regions.

The World Health Organisation advises on the type of prevention to be used in a particular region ([www.who.int](http://www.who.int)).

TABLE 1

	Malaria Risk	Type of prevention
Type I	Very limited risk of malaria transmission	Mosquito bite prevention only
Type II	Risk of <i>P. vivax</i> malaria or fully chloroquine-sensitive <i>P. falciparum</i> only	Mosquito bite prevention plus chloroquine chemoprophylaxis
Type III	Risk of malaria transmission and emerging chloroquine resistance	Mosquito bite prevention plus chloroquine+proguanil chemoprophylaxis
Type IV	High risk of falciparum malaria plus drug resistance, or moderate/low risk falciparum malaria but high drug resistance	Mosquito bite prevention plus either atovaquone/proguanil, doxycycline or mefloquine, (take one that no resistance is reported for in the specific areas to be visited)

For more details see SHIP "Guidelines for Malaria Prevention Onboard Merchant Ships"



TABLE 2

Preventative treatment recommended per country, specific for seafarers.

( ) Type of Prevention between brackets = in many areas seafarers may drop their chemoprophylaxis after a detailed discussion of their itinerary with a specialist doctor and careful evaluation of the malaria risk in relation to shipping, on condition that strict anti-mosquito measures are taken from sunset to sunrise and that malaria emergency treatment and full instructions are on hand.

Countries in <b>BOLD</b> have ports		Type of Prevention	*
<b>East Europe</b>			
ARMENIA	I	*	
<b>AZERBAIJAN</b>	none (I)	*	
GEORGIA	I	*	
KYRGYZSTAN	I	*	
TAJIKISTAN	III	*	
<b>TURKMENISTAN</b>	none (I)	*	
UZBEKISTAN	I	*	
<b>Central Africa</b>			
<b>ANGOLA</b>	IV		
<b>CAMEROON</b>	IV		
<b>CENTRAL AFRICAN REPUBLIC</b>	IV		
CHAD	IV		
<b>CONGO</b>	IV		
<b>DEMOCRATIC REP. OF THE CONGO</b>	IV		
<b>EQUATORIAL GUINEA</b>	IV		
<b>GABON</b>	IV		
<b>SUDAN</b>	IV		
ZAMBIA	IV		
<b>East Africa</b>			
BURUNDI	IV		
<b>COMOROS</b>	IV		
<b>DJIBOUTI</b>	IV		
<b>ERITREA</b>	IV	*	
ETHIOPIA	IV		
<b>KENYA</b>	IV		
<b>MADAGASCAR</b>	IV		
MALAWI	IV		
<b>MAURITIUS</b>	none		
<b>MAYOTTE</b> (FRENCH TERRITORIAL COLLECTIVITY)	IV		
<b>MOZAMBIQUE</b>	IV		
RWANDA	IV		
<b>SOMALIA</b>	IV		
<b>TANZANIA</b>	IV		
UGUNDA	IV		
<b>South Africa</b>			
BOTSWANA	IV	*	
<b>NAMIBIA</b>	(IV)	*	
<b>SOUTH AFRICA</b>	(IV)	*	
SWAZILAND	IV		
ZIMBABWE	IV	*	
<b>West Africa</b>			
<b>BENIN</b>	IV		
BURKINA FASO	IV		
<b>CAPE VERDE</b>	none (I)	*	
<b>GAMBIA</b>	IV		
<b>GHANA</b>	IV		
<b>GUINEA</b>	IV		
<b>GUINEA-BISSAU</b>	IV		
<b>IVORY-COAST</b>	IV		
<b>LIBERIA</b>	IV		
MALI	IV		
<b>MAURITANIA</b>	III	*	
NIGER	IV		
<b>NIGERIA</b>	IV		
<b>SAO TOME AND PRINCIPE</b>	IV		
<b>SENEGAL</b>	IV		
<b>SIERRA LEONE</b>	IV		
<b>TOGO</b>	IV		
<b>North Africa</b>			
<b>ALGERIA</b>	none (I)	*	
<b>EGYPT</b>	none		
<b>MOROCCO</b>	none (I)	*	

\* more details see SHIP Guidelines for Malaria Prevention Onboard Merchant Ships

Countries in <b>BOLD</b> have ports	Type of Prevention	*
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<b>East Asia</b>		
<b>CHINA</b>	none (II) (IV)	*
<b>KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF</b>	none (I)	*
<b>KOREA, REPUBLIC OF</b>	none (I)	*
<b>South East Asia</b>		
<b>CAMBODIA</b>	(IV)	*
<b>EAST TIMOR</b>	(IV)	*
<b>INDONESIA</b>	(IV)	*
LAOS	IV	*
<b>MALAYSIA</b>	none (IV)	*
<b>MYANMAR, (FORMERLY BURMA)</b>	(IV)	*
<b>PHILIPPINES</b>	none (IV)	*
<b>THAILAND</b>	none (IV)	*
<b>VIETNAM</b>	(IV)	*

<b>Indian Subcontinent</b>		
AFGHANISTAN	IV	*
<b>BANGLADESH</b>	(IV)	*
BHUTAN	IV	*
<b>INDIA</b>	(III) (IV)	*
NEPAL	III	*
<b>PAKISTAN</b>	(IV)	*
<b>SRI LANKA</b>	III	*

<b>Australia and the Pacific</b>		
<b>PAPUA NEW GUINEA</b>	IV	*
<b>SOLOMON ISLANDS</b>	IV	*
<b>VANUATA</b>	III	*

<b>Mexico and Central America</b>		
<b>BELIZE</b>	none (II)	*
<b>COSTA RICA</b>	none (II)	*
<b>EL SALVADOR</b>	none (II)	*
<b>GUATEMALA</b>	none (II)	*
<b>HONDURAS</b>	none (II)	*
<b>MEXICO</b>	none (II)	*
<b>NICARAGUA</b>	none (II)	*
<b>PANAMA</b>	none (II) (IV)	*

<b>South America</b>		
<b>ARGENTINA</b>	none	*
BOLIVIA	II	*
<b>BRAZIL</b>	(IV)	*
<b>COLOMBIA</b>	(III) (IV)	*
<b>ECUADOR</b>	(IV)	*
<b>FRENCH GUYANA</b>	(IV)	*
<b>GUYANA</b>	(IV)	*
PARAGUAY	II	*
<b>PERU</b>	(II) (IV)	*
<b>SURINAME</b>	(IV)	*
<b>VENEZUELA</b>	(II) (IV)	*
<b>Caribbean</b>		
<b>DOMINICAN REPUBLIC</b>	(II)	*
<b>HAITI</b>	(II)	*

\* more details see SHIP Guidelines for Malaria Prevention Onboard Merchant Ships

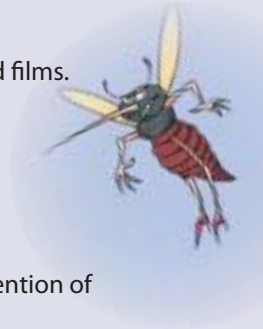
## Early diagnosis and treatment for a febrile illness

Fever occurring in a seafarer 1 week or more after entering a malaria risk area, and up to 3 months after departure, is a medical emergency that should be investigated urgently.

If the diagnosis of malaria is suspected onboard, call radio medical advise immediately.

In case of probable malaria treat the patient first and then arrange for definitive diagnosis.

A definitive diagnosis can be made by microscopy of stained blood films.



## Standby Emergency Treatment

Standby emergency treatment has an important place in the prevention of death by malaria in seafarers.

Standby emergency treatment is indicated for seafarers, who make frequent short stops in endemic areas over a prolonged period of time.

**Standby emergency treatment is started when fever and flu-like symptoms occur after being in an area with a malaria risk and where it is not possible to obtain medical attention within 24 hours.**

Call radio medical advise when standby emergency treatment is considered.

A full course of effective treatment should always be given once a decision to give anti-malarial treatment has been reached.

Several kinds of malaria medication can be used for standby emergency treatment, often in combination. Guidance can be found at [www.who.int](http://www.who.int) and in the SHIP "Guidelines for Malaria Prevention Onboard Merchant Ships".

A person who is developing an attack of "probable malaria" onboard, is best assisted and controlled by a colleague constantly.

All seafarers who were treated on board for "probable malaria" have to consult a doctor upon arrival (if possible with blood slides).



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