

A guide to malaria prevention

Malaria is a common life-threatening disease in many parts of the world: **Africa, Latin America, Caribbean, Asia, Eastern Europe, and the South Pacific.** It is spread through **Anopheles mosquitoes** that carry the **Plasmodium** parasite and it can be a serious and sometimes fatal illness if not acted upon quickly. It is not a problem only in endemic countries but also a **worldwide risk.** These countries are visited by millions of travelers all over the world, that each year fall ill visiting risk areas. Also, well over thousands are reported with malaria after returning home.

Risk

3.2 billion

remain at risk of malaria

Incidence

214 million

new cases in 2015 alone

Mortality

438.000

deaths of malaria in 2015

Travel risk

125 million

visit risk countries per year

Back home

10.000

report malaria after returning home



Accessing travel health and malaria information

Every traveler should undergo an **individual risk assessment**, always taking into consideration the destination country, including detailed itinerary with species of malaria that occur there, type of accommodation, season and weather and style of travel. Presence of antimalarial drug resistance in the risk country is also key.

Based on this risk assessment, the prevention methods may vary. Prevention of **mosquito bites** and **specific medicines** to prevent malaria are the most effective and common way to prevent the disease. A tropical medicine specialist must provide all the recommendations for every special case.

Key factors for the individual risk assessment

Destination country	Season
Type of accommodation	Style of travel
Presence of antimalarial drug resistance	

Bite prevention

Vector control is the main way to prevent malaria transmission because it **reduces the chance for a mosquito to arrive at an individual.** Insecticide-treated mosquito nets (ITNs) and indoor residual spraying (IRS), are effective, affordable and commonly used to prevent mosquito bites. But when traveling, individual protection is also very important.

These are the easiest and most effective ways to protect yourself during your trip:

Wear a registered **insect repellent.** DEET, picardin, eucalyptus oil or IR3535 provide long lasting protection against mosquitoes.

Cover up with **appropriate clothes** like long-sleeved shirts and pants.

Avoid being outside between dusk and dawn, when the mosquito is more active.

Close windows and use air conditioning. If the mosquito is likely to be inside your home, sleep under a properly maintained bed net.

Chemoprophylaxis for short-term visitors

Beginning a treatment before the trip allows the antimalarial agent to be in the blood before the traveler is exposed to the parasite.

When prescribing a drug, it is crucial to study whether antimalarial **resistance** has been reported in the destination country. Other factors such as **medical conditions, cost of medicines, potential side effects** should be considered.

Prophylaxis is not absolute. Breakthrough infection can always occur and **risk avoidance is still necessary.**

Examples of medications used for chemoprophylaxis

Atovaquone-Parguanil	Doxycycline
Chloroquine and Hydroxychloroquines	Mefloquine

Antimalarial drugs should always be purchased before traveling!

Some countries, sell dangerous and ineffective drugs that are counterfeit. Travelers should be strongly discouraged from obtaining medications while abroad.



Malaria clinical presentation

Malaria is always a serious illness and can be **deadly.** Travelers who experience any **flu-like symptoms** or **headache** should seek immediate medical attention. Patients with malaria typically become symptomatic a few weeks after infection. Therefore, travelers who have the mentioned symptoms after returning home from a risk country are **critical, even up to 1 year.** Patients presenting suspect malaria symptoms after a trip to a tropical area have to be treated as a potential medical emergency and need to immediately inform a physician about their travel history.

People may experience

Pain areas: in the abdomen or muscles

Whole body: fatigue, chills, fever, night sweats

Gastrointestinal: diarrhea, nausea, or vomiting

Also common: fast heart rate, headache, mental confusion, or pallor



Issues in malaria treatment

Malaria is an entirely **preventable** and **treatable** disease. The main goal of the treatment is to ensure the rapid and complete **elimination of the parasite** from the blood in order to prevent progression of uncomplicated malaria to severe disease, death, or chronic infection.

Artemisinin-based combination therapies (ACTs) are the most effective and most recommended treatment for uncomplicated malaria caused by *P. falciparum*. The type of ACTs is based on the results of efficacy in local strains of the parasite. For *P. vivax* infections, the preferred treatment is **chloroquines**. In areas with chloroquine *P. vivax* resistance, malaria should be treated with ACT.

Standby or emergency self-treatment: If you know you will be at high risk of developing malaria while traveling abroad, you should consider carrying a full reliable treatment supply of medicines to ensure access to a quality treatment.



Vulnerable travelers

Pregnant women

Malaria can have harmful effects on pregnancies like increasing the risk of premature delivery, miscarriage and stillbirth. Pregnant women should not travel to malaria-endemic areas. If they must go, they absolutely should take prevention medicines (mefloquine being the best choice) and avoid mosquito bites.

Children

Children can rapidly develop high levels of the parasite in the blood and are at high risk of severe complications, including death. Preventive medicines should be taken calculating the pediatric dose and on the basis of body weight. Also, personal protection measures avoiding mosquito bites are crucial.

Immunocompromised travelers

Selection of an appropriate prophylactic regimen should take into account the drug interactions with a traveler's medications, including immunosuppressive agents and antivirals. Being immunocompromised, the most important question is: do the benefits of your trip exceed the risks?

Getting healthcare abroad: useful links

The International Association for Medical Assistance to Travelers **www.iamat.org**: country information by destination or health risk.

World Hospital Search **www.worldhospitalsearch.com**: search for any hospital around the world accredited by Joint Commission International (JCI) that determine quality and patient safety around the world.

The International Society of Travel Medicine **www.istm.org**: global travel clinic directory.

Travel Health Online **www.tripprep.com**: information by destination, travel advice and travel medicine providers.

References

All the information for this poster was taken from the **World Health Organization (WHO)** and the **Center for Disease Control (CDC)**