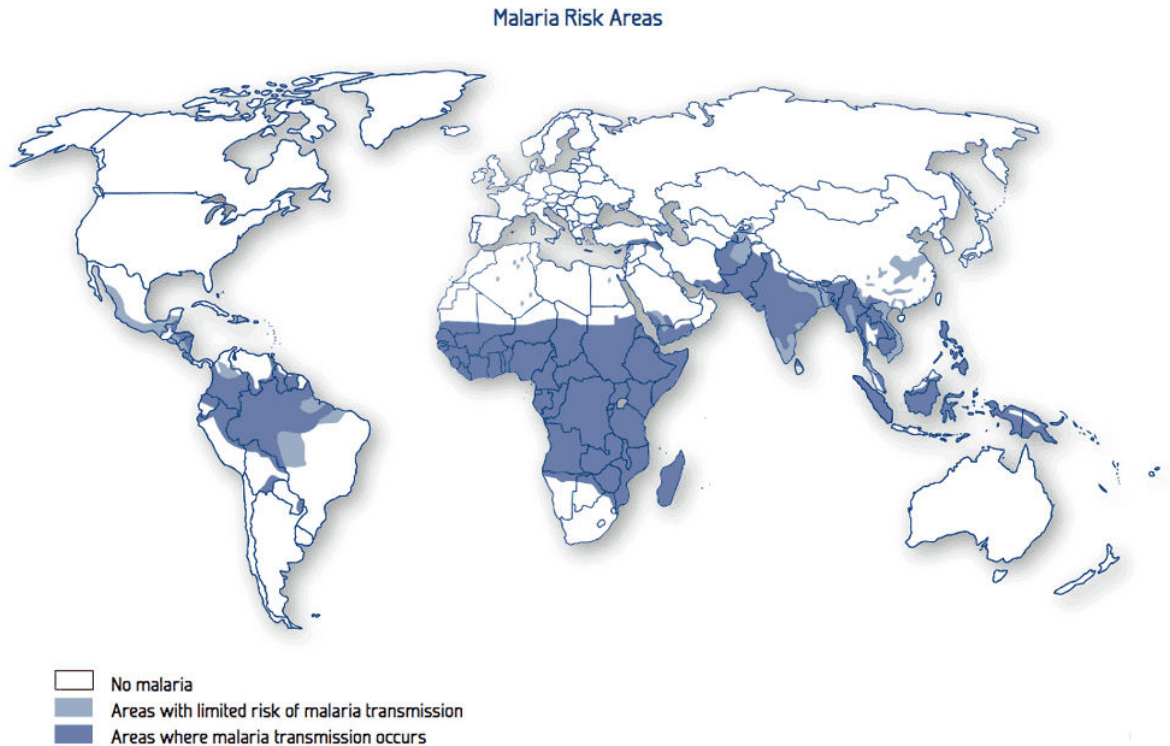
SORRENTO TRAVEL CLINIC FACT SHEET

MALARIA

Malaria is caused by protozoan parasites of the genus Plasmodium. Four species of Plasmodium can produce the disease in its various forms - Plasmodium falciparum, Plasmodium vivax, Plasmodium ovale and Plasmodium malaria. P. falciparum is the most widespread and dangerous of the four: untreated it can lead to fatal cerebral malaria.

Parasites are transmitted from one person to another by the female anopheline mosquito.



The estimated risk of getting malaria varies a great deal from area to area, and it also depends on itinerary, time and type of travel. For example, longer-term residents who live in screened and air-conditioned housing are less likely to be exposed than are missionaries or volunteers.

Resistance of P. falciparum to the drug chloroquine has spread to most areas with malaria; and in some locations, such as parts of Thailand, a newer drug called mefloquine may also be ineffective. If you're planning a trip to a malarious area, you should get medical advice on which preventive drugs to use and what personal protection measures to take. Although use of preventive drugs and other precautions will greatly decrease your chances of getting malaria, such measures do not guarantee protection.

If you think you might have symptoms of malaria, you should seek medical evaluation immediately. Delay of appropriate therapy can have serious or even fatal consequences.

Primary Protection Measures

The first line of defence is to take measures to avoid contact with Anopheles mosquitoes, especially between dusk and dawn, when they feed. During these hours, you should avoid outdoor exposure and:

- Remain in air-conditioned or well-screened areas.
- Use mosquito nets.
- Wear clothes that cover most of your body.
- Apply flying-insect spray that contains pyrethroid to living and sleeping areas during evening and night time hours.
- For added protection against mosquitoes, bednets and clothing can be soaked in or sprayed with permethrin. When used according to directions, permethrin can be effective on clothing for several weeks.
- Apply repellents that contain DEET to clothing and exposed skin.

The possibility of adverse reactions to DEET will be minimised if the following precautions are taken:

- Avoid applying products containing more than 35% DEET to the skin.
- Always use repellent according to label directions.
- Apply repellent sparingly only to exposed skin or clothing.
- Do not inhale or ingest repellents or get them in the eyes.
- Avoid applying repellents to portions of children's hands that are likely to have contact with their eyes or mouth.
- Never use repellents on wounds or irritated skin.
- Wash repellent-treated skin after coming indoors if there is no risk of exposure to insects.
- If a suspected reaction to insect repellent occurs, wash treated skin and seek medical attention.

Preventive Therapy

Mefloquine, Doxycycline, or Malarone are the three main drugs used for malaria prevention, the first two are both suitable for long term use. While malarone is also probably safe for long term use, no good data on that question exists, and if it used as a prevention drug, it cannot be used for treatment.

Doxycycline should not be taken by pregnant women or children younger than 8 years old.

Risks and Side Effects of Preventive Medications

Mefloquine

Minor side effects of mefloquine include stomach distress and dizziness, which tend to be mild and temporary. Some people may experience vivid dreams, sleep disturbance, disorientation, depression or anxiety. More serious side effects are rare when this drug is taken at the recommended dosage. Like chloroquine, mefloquine may aggravate psoriasis.

Mefloquine is not recommended for those who:

- are pregnant or are planning to become pregnant within three months of ceasing antimalarials;
- have a history of epilepsy;
- have a history of a psychiatric disorder;
- are allergic to mefloquine;
- will be scuba-diving or piloting aircraft;
- have a cardiac conduction defect.

Doxycycline

Possible side effects include skin photosensitivity, which can result in an exaggerated sunburn reaction. Risk of this can be lowered by using sunscreen that blocks UVA rays, avoiding prolonged exposure to sunlight, and by wearing a hat. Women who take doxycycline may develop vaginal yeast infections and should talk to their doctor about this before using this drug.

Doxycycline should not be used by:

- women during their entire pregnancy;
- children under 8 years of age;
- persons who are allergic to this drug.

Doxycycline may interact with some drugs such as carbemazapine, phenytoin, phenobarbitone, antacids and iron and calcium preparations so that it may not be effective. Women taking the oral contraceptive pill are advised not to rely on the pill for contraception while taking doxycycline.

Malarone, is generally well tolerated, but gastrointestinal side-effects are reported.

Timing/Dosage
Malaria chemoprophylaxis should begin two weeks before travel to malaria risk areas for mefloquine, 2 days for doxycycline, and one day before for malarone. The pre-travel dosage period allows the drug's concentration in the body's tissues to build up to an effective level, plus it gives the physician time to evaluate any side effects (see Risks and Side Effects above). In case you may have unknowingly become infected, it is important to continue the mefloquine and doxycycline for 4 weeks after leaving the risk area to allow the infection to die out harmlessly. Malarone is required for only one week after.

Pregnancy
Malaria infection can be a very serious threat to a pregnant woman and her foetus. In fact, it can cause more severe problems in pregnant women than in those who are not pregnant. Malaria increases the risk of prematurity, miscarriage, and stillbirth, making it very important that a pregnant traveller going to a malaria-risk area consult her doctor and take preventive medication. **Ideally pregnant women should avoid malaria areas during pregnancy**.
If exposure is unavoidable, for areas where chloroquine is still effective, it is the preferred drug for most pregnant women. In areas that are resistant to chloroquine (most), pregnant women should consider mefloquine, especially in 2nd and 3rd trimesters. Mefloquine is not perfect, and discussion with a physician is important. Doxycycline should not be used during the entire pregnancy, and Malarone should be avoided until better information is known.

Breast-Feeding
Small amounts of antimalarial drugs may be passed on to infants who are breast-fed. The very small amount of drug in the breast milk received by the infant is not thought to be harmful. However, it is also not enough to protect infants against malaria; therefore, they need to be given appropriate drugs in dosages according to their weight. Each malaria attack must be treated promptly.