

Malaria



What is malaria?

Malaria is a disease caused by a parasite that lives in infected mosquitoes. The parasite enters a person's blood through a mosquito bite. Rarely, the parasite can also be transmitted by transfusion with infected blood, or by shared needle use, or from a mother to her unborn child.

Malaria can be a serious disease and if left untreated, it can cause seizures, anemia, jaundice, heart failure, kidney failure, coma and death. Malaria is the most frequent infectious cause of death for persons travelling to countries in the tropics and subtropics.

Malaria exists in over 100 countries and territories, and more than 40% of the world's population is at risk. This disease occurs in areas throughout Africa, Central and South America, Southeast Asia, the Middle East, Haiti, the Dominican Republic, Mexico, Oceania, and parts of the Indian sub-continent.

In Canada, the number of imported cases varies, averaging around 400 cases per year. This rate is likely to increase as international travel becomes more common and as the worldwide geographic distribution of malaria changes.

What causes malaria?

Malaria is caused by parasites that grow and develop inside a mosquito. The parasites enter a person's blood when bitten by the mosquito, and they travel to the liver to invade the human liver cells where they grow and multiply. The parasites leave the liver cells and invade the red blood cells where they continue to multiply and mature until the red blood cells burst. The parasites are then able to attack other red blood cells.

There are four types of this parasite that can infect humans; *Plasmodium falciparum*, *P. vivax*, *P. ovale*, and *P. malariae*. These strains can remain dormant in the liver, delaying symptoms of malaria for many months after exposure. Relapses of malaria can also occur with these strains.

What are the symptoms?

Symptoms include high fever, chills, headache, muscle ache, and tiredness. Nausea and vomiting may also occur. These symptoms occur when the red blood cells burst, freeing the parasites to attack other red blood cells. The infection can progress rapidly to become life-threatening. Infection with *P. falciparum* can be fatal if not treated promptly. Malaria kills by infecting and destroying red blood cells and by clogging the blood vessels that carry blood to the brain.

How is it spread?

People get Malaria through a bite of infected female *anopheles* mosquito. Once the parasite has entered the human host, it undergoes a series of changes as part of its complex lifecycle. At various stages, the parasite invades the immune system and infects the liver and red blood cells. It finally develops into a form that is able to infect another mosquito when it bites this infected person, thus continuing the spread of malaria.

How long does it take after being bitten for symptoms to appear?

The incubation period is about 10 to 12 days after infection. At this time, the parasites are in the blood travelling to the liver and entering the person's liver cells. It is here that the parasite grows and multiplies.

What should I do before travelling?

The Public Health Vaccine Preventable Disease program can provide you with detailed pre-travel information, including prevention of malaria. You should see your doctor or health care provider before travelling to high-risk areas of malaria. Your doctor may prescribe anti-malarial drugs, and you should start on the medication before entering the area and continue for some time after leaving the area, depending on the medication prescribed.

Talk to your healthcare provider about anti-malarial drugs. Malaria can sometimes develop even when taking this medication. The small chance of developing the illness can sometimes last for months after you have travelled. Watch for symptoms and ensure early treatment to prevent complications.

How can I protect myself from mosquito bites?

- Wear clothing that reduces the amount of exposed skin.
- Wear light coloured clothes, long-sleeved shirts, long pants, socks and shoes when outdoors between dusk and dawn.
- Apply DEET-containing mosquito repellent to exposed skin when outdoors between dusk and dawn (see fact sheet “Mosquito Repellents”).
- Sleep in places with screened windows and doors or places with air conditioning.
- Use bed nets impregnated with permethrin every six months and tucked tightly under the mattress before dusk. Treated bed nets are available in Canada.

Where can I get more information?

The following links provide more information on Malaria and travelling.

World Health Organization

<http://www.who.int/topics/malaria/en/>

<http://www.who.int/ith/en/>

Public Health Agency of Canada

http://www.phac-aspc.gc.ca/tmp-pmv/info/pal_mal_e.html

Contact Public Health at 376-9420 or 1-800-263-3456 or visit our website at

www.publichealthgreybruce.on.ca