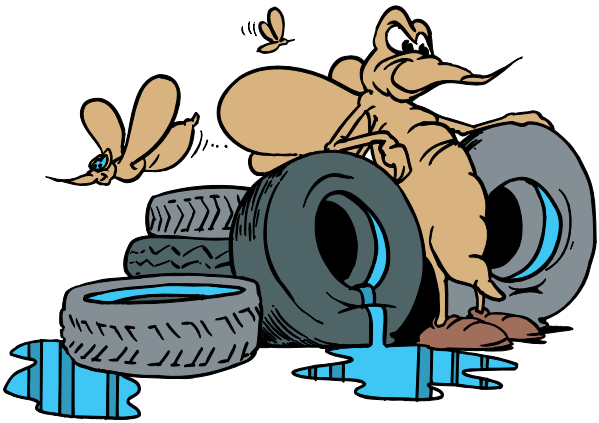
OKTEDI MINING

Malaria Identification and Protection



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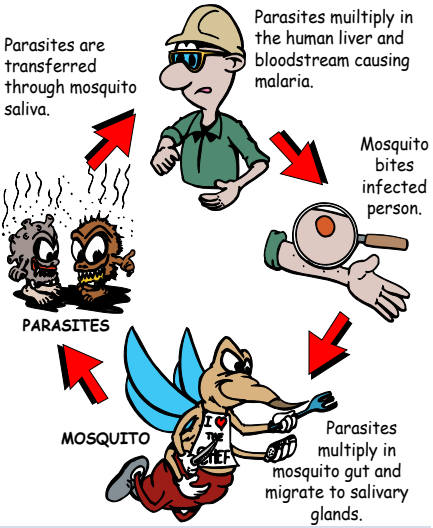
Malaria Infection Process

Malaria is a disease caused by a parasite called *Plasmodium*. *Plasmodium* parasites are spread from person to person through the bites of infected mosquitoes.

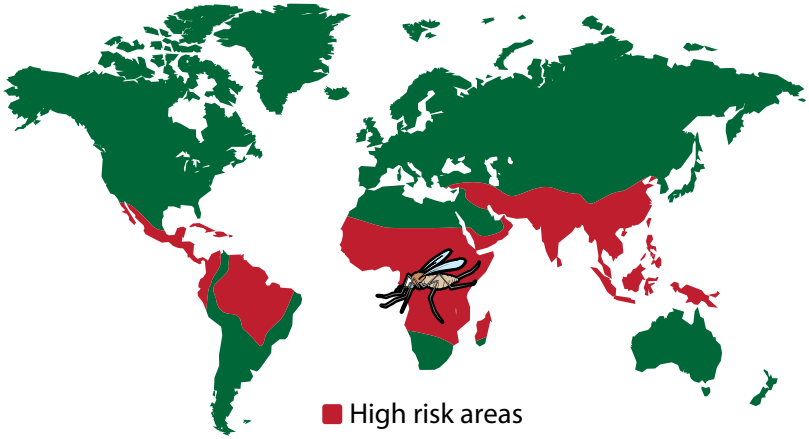
When you have been bitten by an infected mosquito, the *Plasmodium* parasites travel to your liver where they grow and multiply and then infect and destroy your red blood cells.



NOTE

There are 216 million malaria cases and nearly half a million deaths per year from malaria. (World Health Organization Statistics 2017).

Malaria is generally more common in areas with a tropical climate.



Plasmodium Parasites

Parasites are organisms that live in or on a host and benefit by deriving nutrients at the host's expense. There are four types of Plasmodium parasite that cause malaria.

Pasmodium Parasite

- Plasmodium falciparum: widespread and if left untreated can lead to cerebral malaria, shock, liver and kidney failure, coma and death. In cerebral malaria, the infected red cells obstruct the blood vessels in the brain.
- Plasmodium vivax and Plasmodium ovale: if left untreated, can remain in the liver without causing sickness for years, or recur at irregular times for months or years.
- Plasmodium malariae: if left untreated, can recur several decades after exposure.

NOTE

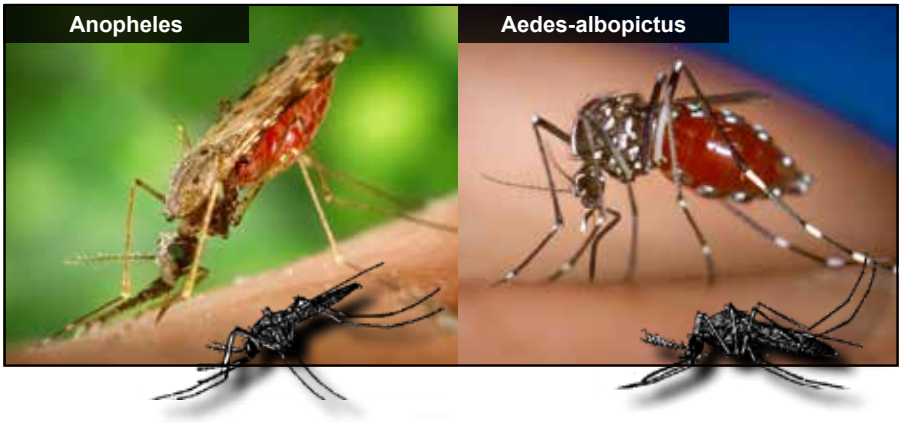
Vivax, *ovale* and *malariae Plasomodium* parasites are not usually life-threatening, but can pose a serious risk to the very young or old.

Anopheles Mosquitoes

It is only the female Anopheles mosquitoes that transmit malaria. Males only live for a week and only feed on nectar and other sources of sugar. While females also feed on sugar sources for energy, they usually require a blood meal for the development of eggs.

After obtaining a blood meal, the female rests for two to three days while the blood is digested and eggs are developed. Once the eggs are developed, the female lays them and resumes host seeking. If the female feeds on a host suffering from malaria, the parasite develops within the female's gut, then travels to her salivary glands ready to be injected into the next host.

Anopheles mosquitoes can be identified by the position they adopt when biting and resting. They make very little noise compared to other mosquitoes when flying.



NOTE

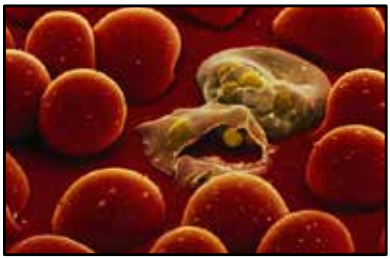
Anopheles mosquitoes usually bite between dusk and dawn (around 6 pm to 6 am).

Transmission of Malaria

In endemic regions, where transmission is high, people are continuously infected so they may gradually develop immunity to the disease. Malaria cannot move from person to person, except:

- from a mother to her foetus during pregnancy
- via a blood transfusion using infected blood.

How Plasmodium Parasites Make You Sick

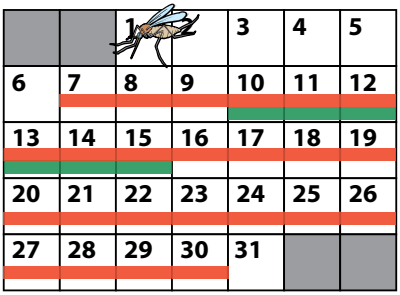


Once in the blood stream, the parasites travel from the bite site to the liver where they grow and multiply. After seven days, the parasites leave the liver and enter the red blood cells where they continue to grow and multiply. When the parasites mature, the red blood cell ruptures, freeing the parasites to attack and enter other red blood cells.

The symptoms of malaria are caused by poisonous toxins that are released when the red blood cells burst.

Incubation Period

The incubation period (the time between being bitten and the start of symptoms) ranges from 7 to 30 days. Most often however symptoms appear 10 to 15 days after being bitten. Some parasites can remain dormant in the liver from several months to years after a person has been infected.

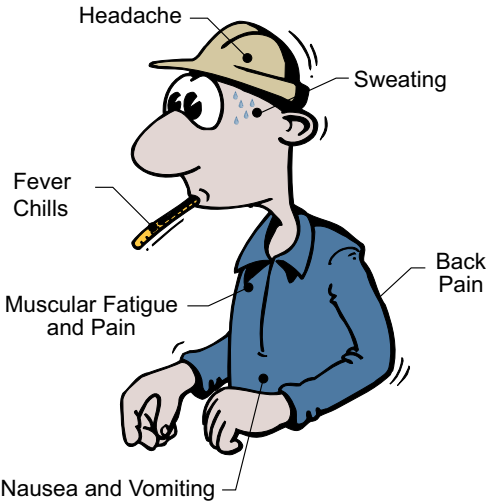


Symptoms and Treatment of Malaria

Clinical Symptoms

Malaria can cause a wide variety of symptoms that range from very mild to severe.

- fever and flu like illness that may come and go
- headache
- backache
- joint aches and pain
- muscle aches
- tiredness
- nausea and vomiting
- diarrhoea.

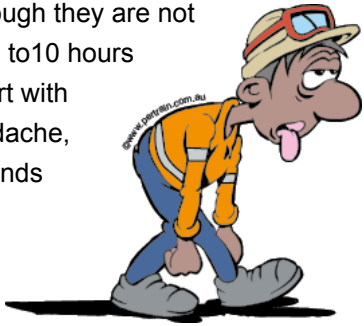


NOTE

Not all of the above symptoms need to be present. Malaria should be suspected if you have any of the symptoms, even if they are mild, seek medical help immediately.

Because of the loss of red blood cells, anemia and jaundice (yellow colouring of skin and eyes) can occur.

Classic malaria attacks sometimes occur, though they are not present in every patient. Attacks last about 6 to10 hours and repeat every two to three days. They start with feeling cold and shivering. A high fever, headache, and sometimes vomiting follow. The attack ends with sweating and a return to normal body temperature. The patient is left fatigued.



Diagnosing Malaria

Malaria is diagnosed by the clinical symptoms and microscopic examination of the blood.

A Rapid Diagnostic Testing (RDT) kit is used to examine a pin prick of blood to detect parasite-specific antigens (proteins).

The test does not require a laboratory and takes about 1 – 15 minutes to perform.

Preventing Malaria

Personal Protection

You cannot be vaccinated against malaria, but you can protect yourself by adopting the points in the following tables.

Clothing

- Cover as much of your skin as possible by wearing long pants, a long sleeve shirt, shoes and socks.
- Wear light coloured clothes.
- Wear insecticide-treated clothing if working on night shift.
- Insecticides are available as soaks and sprays and usually last through several washings.

Insect Repellent

- Apply insect repellent that contains at least 20% DEET to exposed skin.
- The higher the concentration of active ingredient in an insect repellent, the longer it lasts on your skin.
- Reapply after swimming or excessive sweating.
- Read directions provided on labels.
- Be aware that allergic reaction can occur in some people.

Sleeping Quarters

- Ensure window and door screens are undamaged and fit snugly to frame.
- Sleep under insecticide-treated mosquito nets.
- If sleeping outdoors, treat bedding and clothing with insecticide.
- Use ‘knock down’ aerosol sprays to kill mosquitoes inside buildings.
- Air conditioning also helps to keep mosquitoes away.

General Protection Programs

Mosquito identification program

- provides detailed information about the number and types of mosquito in the area.

Breeding site monitoring program

- regular monitoring provides information for preparing control and eradication treatments.

Drainage program

- prevents stagnant water build up.

Removing Mosquito Breeding Habitat

Anopheles mosquitoes like to breed in:

- salty, brackish and stagnant water
- pig wallows
- blocked drains
- swamps
- puddles and wheel ruts
- canoes
- empty containers.

Remove breeding habitat

NOTE

Take every opportunity to minimise the possibility for mosquitoes to breed. Empty water capture areas and vessels that provide the mosquito with a place to breed.

Chemical Treatments

Larvicide chemicals: chemicals applied directly to stagnant water to control mosquito larvae.

Adulticide chemicals: chemicals used in fogging and spraying to control adult mosquitoes. Fogging is used during high risk times to reduce the number of mosquitoes around the site.

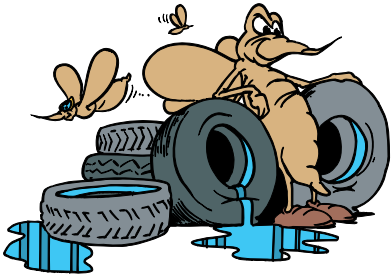
Indoor Residual Spraying: process of spraying the inside of dwellings with an insecticide to kill and deter mosquitoes. Bed nets are also sprayed with insecticide.


Larvicide Spraying

Summary

Malaria is preventable disease, however world-wide over half a million people die from malaria each year. Take personal responsibility to protect yourself and others from this disease.

- ✔ Wear protective clothing and apply insect repellent.
- ✔ Don't let water stagnate in containers such as empty bottles, cans, old tyres.
- ✔ If you have cold or flu symptoms, seek site medical treatment quickly.
- ✔ Follow site guidelines for the prevention of malaria.



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