

What to know about malaria

Malaria is a life threatening mosquito-borne blood disease. Symptoms include fever, chills, and headaches. Treatment generally involves antimalarial medications.

Five Trusted Source types of Plasmodium can cause malaria in humans. Once an Anopheles mosquito with the infection bites a human, the parasites multiply in the host's liver before causing infection and destroying red blood cells. Early symptoms include a fever, and over time, it can affect the internal organs, leading to death.

In some places, early diagnosis can help treat and control malaria. However, many countries lack the resources to carry out effective screening. In 2020, there were around 241 million Trusted Source cases globally and 627,000 deaths due to the disease.

Malaria is now rare in the United States, but there are around 2,000 diagnoses each year, mostly among people returning from areas where it is common. However, the authors of a 2021 study Trusted Source note that climate change could cause cases to rise again in the country.

In 2021, the first vaccine against malaria, called RTS,S (Mosquirix), received approval from the World Health Organization (WHO) Trusted Source. However, it is not for use by travelers and is only available for Trusted Source children living in certain parts of Africa. For travelers, pills are available Trusted Source to help prevent infection.

Here, learn more about what malaria is, how it affects people, the treatment options available, and how to prevent it.

Symptoms

Malaria is a disease that typically features a fever, chills, and headaches. It can progress to cause severe or life threatening complications.

How it affects people can vary widely. Some people have mild or no symptoms, but others can become severely ill.

Doctors divide malaria symptoms into [two categories](#)

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: uncomplicated or severe malaria.

Uncomplicated malaria

Uncomplicated malaria refers to when a person has symptoms but no sign of severe infection or dysfunction of the vital organs. However, without treatment, or if a person has low immunity, it can progress to severe malaria.

Symptoms can resemble those of flu and can typically last [6–10 hours](#)

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and recur every second day. However, some strains of the parasite can have a longer cycle or cause mixed symptoms.

Overall symptoms include:

- [fever](#) and chills

- sweating
- [headaches](#)
- nausea and vomiting
- body aches
- weakness
- an enlarged liver
- mild [jaundice](#), which can cause the eyes to appear yellow
- a higher breathing rate
- a general feeling of being unwell

In areas where malaria is uncommon, a doctor may diagnose flu instead of malaria. If a person has recently visited an area where the disease is present and develops these symptoms, they should discuss their visit with their doctor.

Fever cycle

The classic fever cycle of malaria usually lasts 6–10 hours and recurs every second day.

It involves:

- chills and shivering
- fever, headaches, and vomiting, possibly with seizures in young children
- a sweating stage
- a return to usual temperatures that accompanies fatigue

However, the Centers for Disease Control and Prevention (CDC) notes that this is rare. With some types of *Plasmodium*, attacks may occur every third day.

Severe malaria

In some cases, malaria can progress and affect vital body organs. At this point, malaria parasites have affected over 5% of the red blood cells.

Symptoms include:

- severe [anemia](#)
- [blood in the urine](#)
- changes in blood clotting
- impaired consciousness
- changes in behavior
- high acidity in the blood and body fluids
- seizures
- [coma](#)

Severe malaria is a life threatening medical emergency.

Complications

Possible complications of malaria [include](#):

- liver failure, which can lead to jaundice
- kidney failure

- unusually [low blood glucose](#)
- swelling and rupturing of the spleen
- shock, which includes a sudden [fall in blood pressure](#)
- [pulmonary edema](#), where fluid builds up on the lungs
- [acute respiratory distress syndrome](#), which affects breathing
- dehydration

Malaria relapses

With some types of *Plasmodium*, malaria can disappear but return months or years later. This occurs because the parasites have dormant stages, during which there is no disease activity. However, symptoms can occur if they reactivate.

Treatment, which a person should undergo after their first episode, is available and can help prevent relapses.

Treatment

With early treatment, [most people](#) with malaria will make a full recovery.

Treatment for individuals with the disease [includes](#)

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:

- medication to eliminate the parasite from the bloodstream
- supportive care
- hospitalization for those with severe symptoms
- intensive care, in some cases

The main antimalarial drugs are:

- chloroquine
- hydroxychloroquine
- primaquine
- artemisinin-based therapy
- atovaquone-proguanil

The treatment period usually lasts 2 days.

However, the type of medication and length of treatment may vary, depending on:

- the type of *Plasmodium* that caused malaria
- how severe the symptoms are
- where the person caught malaria
- if they took antimalarial drugs before
- if the person is pregnant

Additionally, people who develop complications may need a combination of medications.

Prevention

Strategies for preventing malaria [include](#):

- being aware of the risk
- preventing mosquito bites, for example, by using insect repellent and covering the arms and legs
- taking antimalarial tablets when traveling to an area where malaria occurs
- getting a prompt diagnosis and treatment if someone thinks they may have the disease
- administering the vaccine to children who live in places where malaria is endemic

Antimalarial drugs are around [90%](#) effective in preventing malaria. If a person uses these drugs, they should still take measures to prevent bites when spending time in an area where the disease is likely.

Anyone planning to travel to an area where malaria is common should enquire about malaria tablets in good time. In most cases, people need to start taking the drugs [several more](#)

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days before traveling. They may also need to take tests before using some drugs, and it can take time to organize these screenings.

[What are some natural mosquito repellants?](#)

Vaccination

A vaccine is now available for preventing malaria, but it is not for use by travelers. It [has approval](#) for children who live in moderate-to-high risk areas in Sub-Saharan Africa, where infection with *Plasmodium falciparum* is common. So far, health experts have administered over 2.3 million doses, and it has a good safety profile.

While the vaccine will save lives, it is not 100% effective.

Currently, in children under the age of 5 years, it:

- offers [30%](#)
- [Trusted Source](#)
- protection from severe malaria after four doses
- will likely save one life among [every 200](#) children vaccinated
- can reduce the risk of an episode by [40%](#)

Where is malaria most common?

Malaria is not endemic to the U.S., but it affects people in [87 countries](#)

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around the world, especially in:

- Sub-Saharan Africa
- Southeast Asia

- South America

In these areas, factors that [increase the risk](#) of the disease being present and easily transmissible include:

- a warm climate
- altitude, as the risk may be lower at high altitude
- urbanization and a high population density
- travel between countries or between cities and rural areas
- urban agriculture
- open water, such as swampy land, open ditches, unused swimming pools, and leaky water pipes
- the type of *Plasmodium* present in local mosquitoes
- health education and access to methods of prevention and treatment

The CDC provides [a list](#)

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of countries and the risk of malaria, alongside advice on which tablets to take when traveling.

The following people may have a [higher risk](#)

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of the disease, as their immunity is likely to be lower:

- young children
- those who are pregnant, especially for the first or second time
- those who come from an area where malaria is uncommon

The CDC [advises](#)

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travelers to:

- find out what the overall risk of malaria is in the area they are visiting
- check the risk for the exact location, season, styles of travel, and health status of each traveler
- seek advice on the best medication to use to prevent infection in that region
- request antimalarial drugs in advance to allow time for any testing and pretravel doses
- be aware of the symptoms of malaria
- be aware that blood donation may not be permissible after traveling to a place where malaria is common

While away, travelers can reduce the risk of mosquito bites by:

- using air-conditioned accommodation
- not camping by stagnant water
- wearing clothes that cover the body at times when mosquitoes are most likely to be around
- using insect repellent, pretreated bed nets, and other products

Symptoms of malaria can appear [up to a year](#) after leaving an area where malaria is endemic. Anyone who develops a fever, chills, or other symptoms after traveling should seek medical advice.

Causes

A person can develop malaria if they receive a bite from an infected mosquito. To cause an infection in a person, the insect must carry a parasite known as *Plasmodium*. There are many types of this parasite, but only [five](#)

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can cause malaria in humans. Moreover, only a bite from a female *Anopheles* mosquito can transmit malaria to humans.

When the mosquito bites a person, the parasite [enters the blood](#)

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. It moves to the liver and begins multiplying.

The liver releases new malaria parasites back into the bloodstream, where they cause infections of red blood cells and multiply further. Some malaria parasites remain in the liver and do not circulate until later, resulting in recurrence.

As the parasites multiply, symptoms start to appear, usually [7–30 days](#)

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after infection, depending on the type of *Plasmodium*. If a person has an infection after taking antimalarial drugs, symptoms may take longer to appear, sometimes weeks or months.

An unaffected mosquito could also acquire parasites when it feeds on blood containing them, which restarts the cycle.

[Should I worry about mosquito bites?](#)

Diagnosis

Early diagnosis is critical for recovery from malaria. People can acquire an infection even after taking antimalarial drugs. In this case, symptoms can show up to [a year](#)

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after infection.

Anyone with symptoms that may indicate malaria should speak with a doctor as soon as possible. They should tell the healthcare professional if they have been in an area where malaria has been present in the past 12 months.

A doctor will ask the person about their symptoms and travel history. If they suspect malaria, they will order some blood tests.

These [include](#)

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:

- a complete blood count to test for anemia
- rapid diagnostic testing (RDT) for parasites, which can provide results in [2–15 minutes](#)
- [Trusted Source](#)
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- microscopic examination of blood cells

RDT tests are available as a kit but only through laboratories.

Outlook

Malaria is a serious disease that can be life threatening without treatment. However, with treatment, [most people](#) make a full recovery.

Without treatment, symptoms may last from [2 to 24 weeks](#)

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, depending on the type of *Plasmodium*. After they disappear, a relapse may occur from months up to 20 years later, depending on the type of infection.

Without treatment, a person may be at risk of developing cerebral malaria, severe malarial anemia, or nephrotic syndrome. These are potentially fatal complications.

Summary

Malaria is a life threatening disease that can occur if a person has a mosquito bite that carries certain types of *Plasmodium* parasites.

The symptoms include a fever and chills, which may disappear after a few days but can reappear several weeks or months later. Eventually, malaria can affect vital body organs.

Anyone planning to spend time in an area where malaria is common should ask for advice on antimalarial drugs and other strategies for reducing the risk of the disease. If the person develops symptoms up to a year after traveling in an affected area, they need to consult their doctor, who will likely test for malaria.