

Malaria: What You Need to Know to Protect Yourself in the United States.

What is malaria (mah-LARE-ee-ah)?

Malaria occurs in many areas of the world and is a serious disease caused by a parasite called *Plasmodium* (plaz-MO-dee-um). There are four kinds of malaria that can infect humans: *P. falciparum* (fal-SIP-a-rum), *P. vivax* (VI-vacks), *P. ovale* (o-VOL-ley), and *P. malariae* (ma-LER-ee-aa). Most malaria cases diagnosed in the United States are caused by either *P. vivax* or *P. falciparum*.

How do people become infected with malaria?

People get malaria from the bite of an infected female *Anopheles* mosquito. An *Anopheles* mosquito gets infected when it bites a person who is infected with malaria. The parasite matures inside the mosquito for at least a week before infection can be passed to another person. When the mosquito bites another person, it injects the parasite into the bloodstream. The parasites travel to the liver and invade the liver's cells, where they mature and multiply for 8 days or more. *P. ovale* and *P. vivax* can remain dormant in the liver and emerge months or years later and cause a relapse. After leaving the liver cells, the parasites invade the red blood cells, where they undergo more development and multiply. Eventually, the red blood cells burst, releasing the parasites and toxins, which make the infected person feel sick.



Very rarely, malaria can be transmitted through blood transfusion, organ transplant, or shared use of contaminated needles or syringes. Malaria may also be transmitted from a mother to her fetus before or during delivery (congenital malaria).

Malaria is not transmitted from person to person like a cold or the flu. You cannot get malaria from casual contact with malaria-infected people.

Who is at risk for malaria?

In the U.S. population, most cases of malaria are found in people who travel to other countries where the disease is common. Under very rare circumstances, individuals who do not travel outside of the United States can be infected with malaria within the United States.

How common is malaria in the United States?

About 1,200 cases of malaria are diagnosed in the United States each year. Most cases in the United States are travelers and immigrants returning from malaria-risk areas, many from sub-Saharan Africa and the Indian subcontinent.

Can I become infected with malaria in the United States?

You are more likely to be infected with malaria when you travel outside the United States to places where malaria is more common ("malaria-risk" areas). However, even if you stay in the United States, under very rare circumstances you could get malaria. For example, if you receive a blood transfusion from a malaria-infected donor. Or if a local *Anopheles* mosquito bites a malaria-infected person (who acquired that infection in a malaria-risk country) and the mosquito, which is now infected, bites you 1-2 weeks later. There are about 1 to 2 episodes of malaria spread in the United States each year this way. Thus malaria remains a public health concern in the United States even though the disease has been eradicated here.

What are the symptoms of malaria?

Persons infected with malaria can generally begin to experience symptoms 6 days to several months after infection. Malaria infection may cause a wide variety of symptoms, ranging from moderate to severe. Persons infected with malaria may experience flu-like illness, including fever, chills, headache, muscle aches, and weakness. Loss of appetite, nausea, vomiting, and diarrhea may also occur. Malaria may also cause anemia and jaundice (yellow coloring of the skin and eyes) because of the loss of red blood cells. Severe malaria caused by infection with *P. falciparum* may cause seizures, coma, severe anemia, kidney failure, and cardiovascular shock.

If left untreated, malaria can progress rapidly and become life threatening.

How is malaria diagnosed?

Malaria is diagnosed by looking for the parasites in a drop of blood. Blood is taken by a finger prick and placed on a glass slide. The blood specimen is stained and examined under a microscope to see if the parasites are present and to determine the species type.

Is there treatment for malaria?

Malaria can be cured with prescription drugs. The type of drugs and length of treatment depend on the type of parasite that is diagnosed, where (geographically) the person was infected, whether or not the person is pregnant, and the condition of the infected person.

Infections caused by *P. vivax* or *P. ovale* can return after months or even years without symptoms. Treatment to reduce the chance of such relapses is available and should follow treatment of the first attack.

What should I do if I think I may have been infected with malaria?

If you are experiencing any symptoms, it is very important that you contact your doctor immediately. People with malaria can be easily cured when promptly treated by their doctor.

How can I protect myself from getting bitten by mosquitoes?

To prevent bites from mosquitoes, you should:

- Avoid or limit outdoor activities between dusk and dawn.
- Wear long pants, long-sleeved shirts and socks outdoors between dusk and dawn.
- Use an insect repellent containing DEET on exposed skin. Higher concentrations of DEET may have a longer repellent effect; however, concentrations over 50% provide no added protection (See Guidelines for DEET use).
- Protect infants under 2 months of age by using a carrier draped with mosquito netting with an elastic edge for a tight fit. Do not apply DEET to children under 2 months of age.
- Close windows at night or install screens in windows and doors if left open at night.
- Sleep under a mosquito bed net if you do not live in a screened or air-conditioned house.

For more information go to the CDC Malaria Web site: <http://www.cdc.gov/malaria>



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