

Patient information from BMJ

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Malaria prevention

Malaria is a dangerous disease that's spread by bites from some types of mosquito. It's common in parts of Asia, Africa, and South America. You can't get malaria from mosquito bites in the US, or in any country where malaria is not commonly found (endemic).

Taking steps to avoid mosquito bites and taking medicines can help you avoid malaria when you visit countries where malaria is endemic.

What is malaria?

Malaria is caused by a tiny **parasite**. A parasite is a creature that lives inside your body. The parasites that cause malaria are spread by mosquito bites. If you're bitten, the parasites can grow in your blood and make you sick.

What are the symptoms?

If you get malaria you might feel as though you've got the flu. The most common symptom is a **high temperature (fever)**. You might also have:

- a headache
- muscle aches
- vomiting, or
- diarrhea.

Malaria symptoms don't always happen soon after you are infected. It can take a while before you have any symptoms.

If you have symptoms, it's important to **get treatment as soon as possible**. If you aren't treated quickly you might become delirious (confused and over-excited). Severe malaria can sometimes cause seizures or a coma.

What treatments are available?

The best way to prevent malaria is to avoid being bitten by mosquitoes. There are some medicines that can help prevent malaria. But no treatment can protect you completely when you're in an area where malaria is endemic.

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Some treatments to prevent malaria aren't safe for pregnant women or for children. If you're pregnant or traveling with children, talk to your doctor before traveling.

A **malaria vaccine** has now been developed. But it is not completely effective in stopping malaria infection.

The vaccine, when widely available, is also likely to be given as a priority to those living in areas where malaria is endemic, rather than to travelers.

Preventing bites

There are many things you can do to prevent being bitten. For example:

- sleeping inside a **mosquito net** that's coated with an **insecticide** (a chemical that kills insects) can help keep mosquitoes away and stop you getting malaria
- using netting or mesh on open windows
- spraying your clothes with an insecticide called permethrin can also help. You should spray your outer clothes, hat, and socks. The spray can have mild side effects, such as making you itch or making your skin sore
- you could try to avoid mosquitoes by not going out in the evening and at night, which is when most bites happen
- it might be better to wear light-colored rather than dark clothing, because insects prefer landing on dark surfaces. Full-length clothes that cover you up might help, too.

Some doctors recommend insect repellents that you rub on your skin. A repellent containing diethyltoluamide (**DEET**) is most often recommended. But it's not clear whether these repellents help prevent malaria.

DEET can also have side effects. People who use DEET for a long time might get confused or irritable, have difficulty sleeping, or get skin irritation.

People often burn coils containing repellent to keep mosquitoes away. You can also buy plug-in devices to use indoors that release repellent. But it's not really clear whether they help prevent malaria and the smoke from the coils can irritate some people's eyes and noses.

We don't know how safe these coils are, so they're not recommended for use indoors.

You can get insecticides that you spray around your room, but doctors don't usually recommend them.

Medicines to prevent malaria

Different medicines are recommended for different areas of the world, and these change over time. Some drugs need to be taken once a day and some once a week. You usually need to start taking them before you travel, and to keep taking them for several weeks after you get home.

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It's important to check with a doctor or nurse about which drugs you need and how to take them. The recommendations about which drugs you need for which parts of the world change often. So you need the most up-to-date information.

These are some of the drugs most commonly used to prevent malaria.

Atovaquone and proguanil are used together as one medicine. This works well to prevent malaria in most people in the areas for which it's recommended. But some people get mild side effects, such as an upset stomach, backache, stomach ache, mouth ulcers, or dizziness. Some people get a headache, strange dreams, or disturbed sleep.

Taking a combination of **chloroquine** and **proguanil** helps prevent malaria. Chloroquine pills used to be used on their own but some malaria parasites have grown resistant to it. It still works in some countries, so ask a doctor or nurse which medicine you need.

Side effects of chloroquine and proguanil taken together can include nausea, diarrhea, and dizziness.

Doxycycline can help protect you against malaria in countries where other drugs don't work. But you might get side effects. These can include an upset stomach, skin problems, a cough, or headaches.

Some women who take doxycycline get a fungal infection (candidiasis) in their vagina. And many people who take doxycycline get a skin reaction to the sun.

Mefloquine is another drug that can prevent malaria. But it can cause serious side effects, including strange dreams, mood changes, disturbed sleep, or difficulty concentrating.

Other common side effects include depression, dizziness, headaches, and skin problems. You can't take it if you have epilepsy or a mental illness, such as depression or anxiety.

What to expect in the future

If you do catch malaria you probably won't know until after you get home. It can take anywhere from one week to 18 months to become ill after you've been infected by a bite. But most people get symptoms within three months.

If you get a feverish illness after visiting Asia, Africa, or South America, see a doctor straight away.

If you catch malaria **you can't infect anyone else**. Malaria does not pass from person to person.

Most people recover completely with treatment. But there is a risk of dying from malaria if you don't get medical help. The risk is greater for older people.

But it's rare for people to die from malaria in countries where good medical treatment is available. Malaria shouldn't come back if it's treated properly the first time.

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