

## Malaria Prevention

**Doxycycline is related to the antibiotic tetracycline. (generic drugs are available)**

### Directions for Doxycycline Use

- The adult dosage is 100 mg once a day.
- Take the first dose 1 or 2 days before arrival in the malaria-risk area.
- Take your dose once a day, at the same time each day, while in the risk area.
- Take your dose once a day for 4 weeks after leaving the risk area.

### Side Effects and Warnings

One of the most common side effects reported by travelers taking doxycycline include sun sensitivity (sunburning faster than normal). To prevent sunburn, avoid midday sun, wear a high SPF sunblock, long-sleeved shirts, long pants, and a hat.

Doxycycline may cause nausea and stomach pain. Take the drug on a full stomach with a full glass of liquid. Do not lie down for 1 hour after taking the drug to prevent reflux of the drug (backing up into the esophagus).

Women may develop a vaginal yeast infection on doxycycline. Treat vaginal discharge or itching with either an over-the-counter yeast medication or ask your health care provider for a prescription pill or cream.

Most people taking this drug do not have side effects serious enough to stop taking it; if you cannot tolerate doxycycline, see your health care provider. Other antimalarial drugs are available.

### Travelers Who Should Not Take Doxycycline

The following travelers should **not** take doxycycline and should take a different antimalarial drug (see your health care provider):

- pregnant women
- children under the age of 8 years
- persons allergic to doxycycline or other tetracyclines

## Protect Yourself from Mosquito Bites

Malaria is transmitted by the bite of an infected mosquito; these mosquitoes usually bite between dusk and dawn. To avoid being bitten, remain indoors in a screened or air-conditioned area during the peak biting period. If out-of-doors, wear long-sleeved shirts, long pants, and hats. Apply insect repellent (bug spray) to exposed skin.

### Choosing an Insect Repellent

For the prevention of malaria, CDC recommends an insect repellent with DEET (N, N-diethyl-m-toluamide) as the repellent of choice. Many DEET products give long-lasting protection against the mosquitoes that transmit malaria (the anopheline mosquitoes).

A new repellent is now available in the United States that contains 7% picaridin (KBR 3023). Picaridin may be used if a DEET-containing repellent is not acceptable to the user. However, there is much less information available on how effective picaridin is at protecting against all of the types of mosquitoes that transmit malaria. Also, since the percent of picaridin is low, this repellent may only protect against bites for 1-4 hours.

At this time, use of other repellents is not recommended for the prevention of malaria because there is insufficient data on how well they protect against the mosquitoes that transmit malaria.

## Precautions When Using Any Repellent

- Read and follow the directions and precautions on the product label.
- Use only when outdoors and thoroughly wash off the repellent from the skin with soap and water after coming indoors.
- Do not breathe in, swallow, or get repellent into the eyes or mouth. If using a spray product, apply to your face by spraying your hands and rubbing the product carefully over the face, avoiding eyes and mouth.
- Never use repellents on wounds or broken skin
- Pregnant women should use insect repellent as recommended for other adults. Wash off with soap and water after coming indoors.
- Repellents may be used on infants older than 2 months of age
- Children under 10 years old should not apply insect repellent themselves. Do not apply to young children's hands or around their eyes and mouth.

## Using Repellents With DEET

- Do not get repellent containing DEET into the mouth. DEET is toxic if swallowed.
- Higher concentrations of DEET may have a longer repellent effect; however, concentrations over 50% provide no added protection.
- Timed-release DEET products, which are micro-encapsulated, may have a longer repellent effect than liquid DEET products. Re-apply as necessary, following the label directions.

## Other Recommended Anti-mosquito Measures

- Travelers should take a flying insect spray on their trip to help clear rooms of mosquitoes. The product should contain a pyrethroid insecticide; these insecticides quickly kill flying insects, including mosquitoes.
- Travelers not staying in well-screened or air-conditioned rooms should sleep under bed nets (mosquito nets), preferably nets treated with the insecticide permethrin. Permethrin both repels and kills mosquitoes as well as other biting insects and ticks. In the United States, permethrin is available as a spray or a liquid (e.g. Permanone™). Pre-treated nets, permethrin or another insecticide deltamethrin, are available overseas.

For information on ordering insecticide-treated bed nets: <http://www.travmed.com>, phone 1-800-872-8633, fax: 413-584-6656; or <http://www.travelhealthhelp.com>, phone 1-866-621-6260.

- Protect infants (especially infants under 2 months of age not wearing insect repellent) by using a carrier draped with mosquito netting with an elastic edge for a tight fit.
- Clothing, shoes, and camping gear, can also be treated with permethrin. Treated clothing can be repeatedly washed and still repel insects. Some commercial products (clothing) are now available in the United States that have been pretreated with permethrin.

## Know the Signs and Symptoms of Malaria

You can still get malaria despite taking an antimalarial drug and using protection against mosquito bites. Taking an antimalarial drug greatly reduces your chances of getting malaria. Symptoms are very flu-like and can include *fever, shivering chills, headache, muscle aches, and tiredness. Nausea, vomiting, and diarrhea may also occur.* Malaria symptoms will occur at least six to nine days after being bitten by an infected mosquito. Therefore, fever in the first week of travel in a malaria-risk area is unlikely to be malaria; however, ill travelers should still seek immediate medical care and any fever should be promptly evaluated. **If you or your child becomes ill with a fever or flu-like illness while traveling in a malaria-risk area and up to 1 year after returning home, seek immediate medical care. Delaying treatment can lead to serious complications such as coma, kidney failure, and death. Tell your health care provider where you have been traveling and that you have been exposed to malaria.**