

MALARIA PROTECTION AND TREATMENT

Malaria is a potential problem in almost all areas outside the main metropolitan centers in Indonesia. It is more effective - and healthier - to rely more on anti-mosquito measures than on anti-parasite drugs. Be aware of these points:

- Malaria is spread by mosquitoes, so any measures that reduce mosquito bites reduce the risk of contracting malaria and dengue
- For prophylactic drugs to be effective they must be taken regularly according to the recommended schedule
- Prophylactic medication does NOT offer absolute protection
- Exceeding the recommended dose of prophylactic medication does not increase its effectiveness and will increase the risk of side effects, which can (rarely) be serious. Before certain types of malaria prophylaxis are prescribed, a doctor's examination and laboratory tests are advised.

SIMPLE SELF-PROTECTION MEASURES

Personal protective measures can greatly reduce the risk of being bitten by the anopheles mosquito. Because of its night time feeding habits, malaria transmission occurs primarily between dawn & dusk.

1. Correct use of mosquito nets (if accommodation not air conditioned). For added protection for up to 3 months or longer, mosquito nets can be soaked in 1 % solution of PERMETHRIN (or other repellent/insecticide). If resident in a malarious area, curtains can be treated in a similar manner.
2. Use of mosquito coils (obat anti nyamuk) and "knockdown spray" (containing pyrethroids) - spray insecticide in cool dark places where mosquitoes lurk.
3. Avoid use of dark colored clothing, perfumes and colognes in the evening and at night all these attract mosquitoes.
4. Use an effective mosquito repellent on exposed skin and clothing. DEET (*diethylmethylbenzamide*) is an effective safe component of good repellents. The actual concentration of DEET varies widely between different manufacturers, and can be as high as 90% (too high for safety). Choose a repellent with between 30-45% DEET (unless pregnant in which case concentration should be < 35%) and take the following precautions:
 - apply sparingly and only to exposed skin
 - never apply high concentrations to skin (use those for clothing)
 - do not inhale or swallow or get it in eyes or mucous membranes
 - do not apply to hands that may touch eyes or mouth
 - do not apply to wounds, rashes, or abrasions
 - wash repellent off after coming indoors to stay
 - if skin starts to burn, wash repellent off and seek medical advice

DEET-based repellents should last for up to 4 hours.

Although mosquitoes can bite through cloth it is still better to cover up.

5. Destroy mosquitoes and their larvae (young). Mosquitoes breed in standing water. Clear the neighborhood of ponds & pits. Cover all water containers and any objects that can trap rain water.

ANTI-MALARIA CHEMOPROPHYLAXIS

There are many drugs used for malaria prophylaxis and medical opinion differs internationally as to the best medications to use.

As well as this difference of opinion, the situation is further complicated by the increasing emergence and spread of resistance to some anti-malaria prophylactics, especially with respect to *P. falciparum* and *P. vivax*. You should be aware of the recommendations current in your home country, and that advice can be 'fine-tuned' by the experience of doctors locally.

Resistance to anti-malaria prophylaxis comes in 3 grades:

1. No resistance; in this case chloroquine alone is adequate for prophylaxis.
2. Chloroquine resistance; this occurs in many places in the world. Indonesia has many areas of known chloroquine resistance, particularly (South East Kalimantan, East Maluku, Lombok, and ***Flores (Labuan Bajo)***, so if chloroquine is used it should be supplemented (with Proguanil).
3. Antifolate resistance; this is emerging in South East Asia, and in Irian Jaya and other islands of East Indonesia. In this type of resistance, the parasite is resistant to chloroquine and Fansidar.

GENERAL RULES FOR ANTI-MALARIA PROPHYLAXIS

1. Fansidar as a prophylactic is no longer recommended due to side-effects, although it is still recommended for standby treatment.

2. The use of mefloquine (Larium) is hotly debated but as usual when there is more heat than light, the debated tends to be polarized rather than illuminating. The author believes this drug is very useful especially for short-term prophylaxis and definitely as "stand-by" treatment; for longer-term use this drug is best chosen only after discussion with your medical advisor.

3. Always check for allergy to medication. If a patient is allergic to 'sulfa' drugs, then they should not take Fansidar. Some patients especially those of Asian or Mediterranean origin should be tested for G6PD deficiency.

4. Prophylaxis should be commenced 1-2 weeks before traveling, to establish effective blood levels, to establish a routine of regular taking if medication, and to make sure that

any early side effects occur near to medical help and not in a remote area (start mefloquine 3 weeks before).

The medication should be continued for 4 weeks after returning from malarious areas, with the exception of doxycycline.

5. Doxycycline (Vibramycin) is a reasonable daily alternative for short stays of up to 6 weeks and can be supplemented with weekly chloroquine. It should not be taken by children whose permanent teeth are not complete, nor by pregnant women.

6. Some authorities recommend that people traveling through or working in a malarious area, start taking supplements of Vitamin B two weeks beforehand. There is some evidence that metabolites of Vitamin B cause an odor that discourages Anopheles mosquitoes.

7. Always have enough medicine to last for the trip / stay as the particular recommended medication may not be available in remote areas.

RECOMMENDATIONS FOR PROPHYLAXIS

(ALWAYS check side-effects and contra-indications before taking and DO NOT SELF-PRESCRIBE)

For healthy adults:

1. Doxycycline (Vibramycin) is an alternative for short stays of about 2-6 weeks; 100 mg once a day with food, starting 2 days before and finishing 2 weeks after exiting malarious area.

or

2. Mefloquine (Larium) 250 mg (1 tablet) once a week, before, during, and for 4 weeks after exposure. Do not use Fansimef (Fansidar plus Mefloquine) for prophylaxis. Do not use if any history of convulsions, depressive illness, cardiac conditions. ALWAYS check its use with a doctor before taking.

or

3. Chloroquine and Proguanil for longer stays;

Chloroquine 2x 150 mg tablets once a week, same time each week

Proguanil 2x 100 mg tablet once a day, same time each day

both starting 2 weeks before and finishing 4 weeks after exiting.

For pregnant women:

Malaria can cause intrauterine fetal death, miscarriage, congenital infection, premature labor and pre-eclamptic toxemia.

We strongly advise women who are pregnant or trying to become pregnant not to go to a malarious area (anywhere outside metropolitan Jakarta, Bandung, Yogya, Surabaya and Bali).

Doxycycline is contraindicated in pregnancy; Proguanil is considered safe; Chloroquine is considered safe but alone constitutes insufficient protection. Mefloquine is not known to be safe in the 1st trimester but has been used in the 2nd and 3rd trimesters without known problems so far.

For children:

In this group the emphasis is on bite prevention. Antimalarials for children must be prescribed by a pediatrician and doses individualized:

Chloroquine phosphate / chloroquine sulfate: 50 mg chloroquine base per tablet: DOSE: 5.0 mg / kg / week up to maximum adult dose

Chloroquine sulfate syrup (Nivaquine syrup): 25 mg chloroquine base per 5 ml syrup; DOSE: 1.0 ml / kg / week (measure accurately using a syringe)

Proguanil syrup: DOSE 3 mg / kg / day

REMEMBER THAT NO DRUG IS AS EFFECTIVE AS PREVENTING BITES IN THE FIRST PLACE

IF SICK WITH A FEVER AFTER VISITING A MALARIOUS AREA ALWAYS GIVE THE DOCTOR A TRAVEL HISTORY AND IF NECESSARY ASK HIM / HER "COULD THIS BE MALARIA"? ESPECIALLY IF 'BACK HOME'