

Topic Page: [Malaria](#)

Definition: **malaria** from *Processing Water, Wastewater, Residuals, and Excreta for Health and Environmental Protection: An Encyclopedic Dictionary*

A debilitating and sometimes fatal disease caused by the protozoa *Plasmodium*, transmitted by female mosquitoes of the genus *Anopheles*; characterized by fever, often periodic, chills, sweating, anemia, enlargement of the spleen, and various complications. It is found in most of the warm areas of the world.

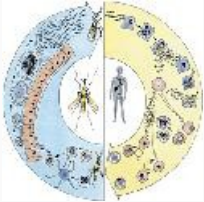


Image from: [An infected mosquito injects thousands of... in Guide to Global Hazards](#)

Summary Article: **Malaria**

From *Black's Medical Dictionary, 43rd Edition*

A parasitic disease caused by four species of PLASMODIUM: *P. falciparum*, *P. vivax*, *P. ovale*, and *P. malariae*. It causes recurrent episodes of high fever, sometimes associated with RIGOR; enlargement of the SPLEEN is common. *P. falciparum* infection can also be associated with several serious – often fatal – complications (see below): although other species cause chronic disease, death is unusual.

When bitten by a female mosquito, one or more sporozoites – a stage in the life-cycle of the parasite – are injected into the human circulation and taken up by liver cells, where they divide further into merozoites. These are liberated into the bloodstream where they invade red blood cells and again divide, releasing further merozoites, producing the characteristic fever, rigors, etc.

Malaria occurs in many tropical and subtropical countries; *P. falciparum* is confined very largely to Africa, Asia and South America. It is a significant problem for travellers, who should obtain sound advice on prevention before embarking on tropical trips – especially to a rural area where transmission is more likely. Frequent international air travel has exposed many more people to the risk of malaria, and infected individuals may not have symptoms until they have returned home so a recent traveller with unexplained fever and illness has a chance of malarial infection. Transmission has also been recorded at airports in Western countries, and following blood transfusion. The resurgence of malaria has been worldwide, partly because of resistant strains of the disease, and partly because many countries have failed (or been unable) to implement environmental measures to eliminate mosquitoes. According to the World Health Organisation, in 2015 around 214 million people a year contracted malaria with about 438,000 deaths – 70 per cent of them being children under the age of 5. The incidence has fallen by nearly 40% over the last 10 years and the death rate by over 60%. More than 90% of cases are now in the highest-risk area, sub-Saharan Africa. Diagnosis is by demonstration of trophozoites – a further stage in the parasite's life-cycle – in blood-films.

Gross SPLENOMEGALY (hyper-reactive malarious splenomegaly, or tropical splenomegaly syndrome) can complicate all four human *Plasmodium* spp. infections.

P. vivax and P. ovale

infections cause less severe disease than *P. falciparum* (see below). Acute complications are unusual, but chronic ANAEMIA is often present.

P. falciparum

Complications of *P. falciparum* infection include brain involvement (see BRAIN – Cerebrum), due to adhesion of immature trophozoites to the lining of brain blood cells. Renal involvement (frequently resulting from HAEMOGLOBINURIA), PULMONARY OEDEMA, HYPOTENSION, HYPOGLYCAEMIA, and complications in pregnancy are also important. In complicated disease, HAEMODIALYSIS and exchange TRANSFUSION have been used.

P. malariae

usually produces a chronic infection, and chronic renal disease (nephrotic syndrome) is an occasional sequel, especially in tropical Africa.

Prophylaxis

National public health bodies publish guidance for residents travelling to endemic areas for short stays.

Drug choice takes account of:

- risk of exposure to malaria;
- extent of drug resistance;
- efficacy of recommended drugs and their side-effects;
- criteria relevant to the individual (e.g. age, pregnancy, kidney or liver impairment).

Personal protection against being bitten by mosquitoes is essential. Permethrin-impregnated nets are an effective barrier, while skin barrier protection and vaporised insecticides are helpful. Lotions, sprays or roll-on applicators all containing diethyltoluamide (DEET), are safe and effective when put on the skin. Their effect, however, lasts only for a few hours. Long sleeves and trousers should be worn after dark.

Travellers to malaria-infested areas should seek expert advice on appropriate prophylactic treatment well before departing. Drug prophylaxis should be started before travelling into countries where malaria is endemic and continued for a time after returning. Even when all recommended antimalarial programmes are followed, it is possible that malaria may occur any time up to three months afterwards. Medical advice should be sought if any illness develops.

Treatment

Various chemoprophylactic and treatment regimes are used depending on up-to-date information about the likely agent and its current resistance patterns. Recommendations may change from year to year as the parasite changes its resistance patterns, so up-to-date advice is essential.

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Malaria. (2018). In H. Marcovitch (Ed.), *Black's Medical Dictionary, 43rd edition* (43rd ed.). London, UK: A&C Black. Retrieved from <https://search.credoreference.com/content/topic/malaria>



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