

*Editorial***Malaria among children under five years at public and private sector****Ruth A. Ashton***

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Accepted 20 May, 2021

EDITORIAL NOTE

Malaria is a mosquito-borne infectious disease that affects humans and other animals. Malaria causes symptoms that typically include fever, tiredness, vomiting, and headaches. In severe cases, it can cause yellow skin, seizures, coma, or death. Symptoms usually begin ten to fifteen days after being bitten by an infected mosquito. If not properly treated, people may have recurrences of the disease months later. In those who have recently survived an infection, reinfection usually causes milder symptoms. This partial resistance disappears over months to years if the person has no continuing exposure to malaria.

Malaria is caused by single-celled microorganisms of the *Plasmodium* group. The disease is most commonly spread by an infected female Anopheles mosquito. The mosquito bite introduces the parasites from the mosquito's saliva into a person's blood. The parasites travel to the liver where they mature and reproduce. Five species of Plasmodium can infect and be spread by humans. Most deaths are caused by *P. falciparum*, whereas *P. vivax*, *P. ovale*, and *P. malariae* generally cause a milder form of malaria. The species *P. knowlesi* rarely causes disease in humans. Malaria is typically diagnosed by the microscopic examination of blood using blood films, or with antigen-based rapid diagnostic tests. Methods that use the polymerase chain reaction to detect the parasite's DNA have been developed, but are not widely used in areas where malaria is common due to their cost and complexity.

The risk of disease can be reduced by preventing mosquito bites through the use of mosquito nets and insect repellents or with mosquito-control measures such as spraying insecticides and draining standing water. Several medications are available to prevent malaria in travellers to areas where the disease is common. Occasional doses of the combination medication sulfadoxine/pyrimethamine are recommended in infants and after the first trimester of pregnancy in areas with high rates of malaria. As of 2020, there is one vaccine which has been shown to reduce the risk of malaria by about 40% in children in Africa. A pre-print study of another vaccine has shown 77% vaccine efficacy, but this study has not yet passed peer review. Efforts to develop more effective vaccines are ongoing. The recommended treatment for malaria is a combination of antimalarial medications that includes artemisinin. The second medication may be either mefloquine, lumefantrine, or sulfadoxine/pyrimethamine. Quinine, along with doxycycline, may be used if artemisinin is not available. It is recommended that in areas where the disease is common, malaria is confirmed if possible before treatment is started due to concerns of increasing drug resistance. Resistance among the parasites has developed to several antimalarial medications; for example, chloroquine-resistant *P. falciparum* has spread to most malarial areas, and resistance to artemisinin has become a problem in some parts of Southeast Asia.

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