Glossary

Artemisinin-based combination therapy (ACT). A combination of an artemisinin derivative with a longer-acting antimalarial that has a different mode of action.

Asexual cycle. The life cycle of the malaria parasite in the host, from merozoite invasion of red blood cells to schizont rupture (merozoite → ring stage → trophozoite → schizont → merozoites). The duration is approximately 24 h in *Plasmodium knowlesi*, 48 h in *P. falciparum*, *P. ovale* and *P. vivax* and 72 h in *P. malariae*.

Asexual parasitaemia. The presence of asexual parasites in host red blood cells. The level of asexual parasitaemia determined by microscopy can be expressed in several ways: the percentage of infected red blood cells, the number of infected red cells per unit volume of blood, the number of parasites seen in one field on high power microscopy examination of a thick blood film, or the number of parasites seen per 200–1000 white blood cells on high-power examination of a thick blood film.

Asymptomatic parasitaemia. The presence of asexual parasites in the blood without symptoms of illness.

Cerebral malaria. Severe *P. falciparum* malaria with coma (Glasgow coma scale < 11, Blantyre coma scale < 3); malaria with coma persisting for > 30 min after a seizure.

Combination treatment. A combination of two or more classes of antimalarial drug with unrelated mechanisms of action.

Cure. Elimination of the malaria parasites that caused the treated illness.

Drug resistance. The ability of a parasite strain to survive and/or to multiply despite the administration and absorption of a drug given in doses equal to or higher than those usually recommended, provided the exposure is adequate. Resistance to antimalarial agents arises because of the selection of parasites with genetic changes (mutations or gene amplifications) that confer reduced susceptibility.

Gametocytes. The sexual stages of malaria parasites that infect anopheline mosquitoes when taken up during a blood meal.

Fixed-dose combination. A combination in which two antimalarial drugs are formulated together in the same tablet, capsule, powder, suspension or granule.

Hyperparasitaemia. A high density of parasites in the blood, which increases the risk of deterioration to severe malaria (although the risk varies in different endemic areas according to the level of transmission) and of subsequent treatment failure. In this document, the term is used to refer to a parasite density > 4% (~ 200 000/μL). Patients with *P. falciparum* parasite densities > 10% and patients with *P. knowlesi* parasite densities > 100 000/μL (~ 2%) are considered to have severe malaria even if they do not have evidence of vital organ dysfunction.

Hypnozoites. Persistent liver stages of *P. vivax* and *P. ovale* malaria that remain dormant in host hepatocytes for 3–45 weeks before maturing to form hepatic schizonts, which then burst and release merozoites that infect red blood cells. This is the cause of relapses.

Malaria pigment (haemozoin). A dark-brown granular material formed by malaria parasites as a by-product of haemoglobin digestion. Pigment is evident in mature trophozoites and schizonts. It may also be phagocytosed by monocytes, macrophages and polymorphonuclear neutrophils.

Merozoite. Parasite released into the host bloodstream when a hepatic or erythrocytic schizont bursts. The merozoites then invade red blood cells.

Monotherapy. Antimalarial treatment with a single medicine: either a single active compound or a synergistic combination of two compounds with related mechanisms of action.

Plasmodium. A genus of protozoan vertebrate blood parasites that includes the causal agents of malaria. *P. falciparum*, *P. malariae*, *P. ovale* (two species) and *P. vivax* cause malaria in humans. Human infections with the monkey malaria parasite *P. knowlesi* and very occasionally with other simian malaria species may occur in forested regions of South-East Asia.

Pre-erythrocytic development. The development of the malaria parasite when it first enters the host. After inoculation into a human by a female anopheline mosquito, sporozoites invade hepatocytes in the host liver and multiply there for 5–12 days, forming hepatic schizonts. These then burst, liberating merozoites into the bloodstream, where they subsequently invade red blood cells.

Radical cure. This term refers to both cure of blood-stage infection and prevention of relapses by killing hypnozoites (in *P. vivax* and *P. ovale* infections only).

Rapid diagnostic test (RDT). An antigen-based stick, cassette or card test for malaria in which a coloured line indicates the presence of plasmodial antigens.

Recrudescence. Recurrence of asexual parasitaemia following antimalarial treatment comprising the same genotype(s) that caused the original illness. This results from incomplete clearance of asexual parasitaemia because of inadequate or ineffective treatment. It must be distinguished from re-infection (usually determined by molecular genotyping in endemic areas). Recrudescence is different from relapse in *P. vivax* and *P. ovale* infections.

Recurrence. Recurrence of asexual parasitaemia after treatment, due to recrudescence, relapse (in *P. vivax* and *P. ovale* infections only) or a new infection.

Relapse. Recurrence of asexual parasitaemia in *P. vivax* and *P. ovale* malaria deriving from persisting liver stages; occurs when the blood-stage infection has been eliminated but hypnozoites persist in the liver and mature to form hepatic schizonts. After an interval of weeks or months, the hepatic schizonts burst and liberate merozoites into the bloodstream.

Ring stage. Young, usually ring-shaped, intra-erythrocytic malaria parasites, before malaria pigment is evident by microscopy.

Schizont. Mature malaria parasite in host liver cells (hepatic schizont) or red blood cells (erythrocytic schizont) that is undergoing nuclear division by a process called schizogony.

Selection pressure. Resistance to antimalarial agents emerges and spreads because of the survival advantage of resistant parasites in the presence of the drug. The selection pressure reflects the intensity and magnitude of selection: the greater the proportion of parasites in a given population exposed to concentrations of an antimalarial agent that allow proliferation of resistant but not sensitive parasites, the greater is the selection pressure.

Severe anaemia. Haemoglobin concentration of < 5 g/100 mL (haematocrit < 15%).

Severe falciparum malaria. Acute falciparum malaria with signs of severity and/or evidence of vital organ dysfunction.

Sporozoite. Motile malaria parasite that is infective to humans, inoculated by a feeding female anopheline mosquito, that invades hepatocytes.

Transmission intensity. This is the frequency with which people living in an area are bitten by anopheline mosquitoes carrying human malaria sporozoites. It is often expressed as the annual entomological inoculation rate, which is the average number of inoculations with malaria parasites received by one person in 1 year.

Trophozoite. The stage of development of malaria parasites growing within host red blood cells from the ring stage to just before nuclear division. Mature trophozoites contain visible malaria pigment.

Uncomplicated malaria. Symptomatic malaria parasitaemia with no signs of severity and/or evidence of vital organ dysfunction.

Vectorial capacity. Number of potential new infections that the population of a given anopheline mosquito vector would distribute per malaria case per day at a given place and time.

Abbreviations

ACT	artemisinin-based combination therapy
bw	body weight
CI	confidence interval
DTP	diphtheria, tetanus and pertussis (vaccine)
GRADE	Grading of Recommendations Assessment, Development and Evaluation
G6PD	glucose-6-phosphate dehydrogenase
HRP2	histidine-rich protein 2
IPTp	intermittent preventive treatment in pregnancy
IPTi	intermittent preventive treatment in infancy
PCR	polymerase chain reaction
*Pf*HRP2	*Plasmodium falciparum* histidine-rich protein-2
*p*LDH	*parasite*-lactate dehydrogenase
Pvdhfr	*Plasmodium vivax* dihydrofolate reductase gene
RDT	rapid diagnostic test
RR	relative risk, or risk ratio
SMC	seasonal malaria chemoprevention
SP	sulfadoxine–pyrimethamine