

Malaria vaccines indicator

Burden & epidemiology

Number of new cases per year (last 3-5 years)

There were an estimated 282 million malaria cases in 2024, an increase of 19 million cases compared to 2023. Approximately 95% of malaria cases occur in sub-Saharan Africa and mostly among African children under five years of age. ¹ Case incidence has remained largely unchanged since 2015.

In many endemic areas, malaria parasite transmission occurs throughout the year, often with seasonal variation; in areas of highly seasonal malaria, transmission is influenced largely by rainfall patterns and limited primarily to several months per year. Intensity is usually heterogeneous within a country: there may be areas with very high transmission, areas with variable transmission where sporadic epidemics affect all age groups, and areas with little or no malaria transmission. In areas of high malaria transmission, young children often experience multiple episodes of clinical malaria each year, even while utilizing available malaria control tools. ²

Proportion of the population affected by the disease or infected with the antigen

Malaria disproportionately affects children under five years of age. In many countries with high perennial transmission, the age of highest risk is under three years of age, while in areas of highly seasonal malaria, the age of highest risk may be extended. [3](#), [4](#), [5](#)

Adults who have resided in areas with high transmission since childhood generally develop partial immunity through repeated infection from early months of age and are generally not at risk of severe malaria. Pregnant women and immunocompromised individuals remain at a higher risk for severe malaria and death. [2](#) Malaria in pregnancy is an important cause of maternal morbidity, stillbirths, and low birthweight, which is in itself associated with infant mortality.

Serogroup or serotype distribution (for serogroup- or serotype-specific vaccines)

Five *Plasmodium* species are known to cause malaria in humans.

The vast majority of malaria deaths are caused by *Plasmodium falciparum*, and most occur in African children under five years of age. *P. vivax* is an important cause of malaria morbidity outside sub-Saharan Africa. The remaining human-infective species are *P. malariae*, *P. ovale*, and *P. knowlesi*. [1](#), [2](#)

Plasmodium parasites show genetic diversity and strain variation within species, as opposed to classification by serogroups or serotypes, that are more relevant for viruses and bacteria. [6](#)

Number of deaths from the disease per year

In 2024, approximately 610 000 deaths were attributed to malaria, of which an estimated 440 000 occurred in children under five years of age, almost all caused by *P. falciparum*. [7](#)

While the global mortality rate has generally declined over the past two decades – the annual number of malaria deaths were higher in 2024 than 2023 (by 13 000). [7](#)

In 2024, one in six children aged 1-59 months died from malaria (17%) globally and one in four children died from malaria in sub-Saharan Africa (25%). ⁴ Malaria mortality rates begin to fall around 24 months of age in areas of moderate and high transmission, while in areas of highly seasonal malaria, acquired immunity may take longer to develop. ²

Case Fatality ratio (number of deaths / number of new cases, in %)

The weighted mean CFR among children with uncomplicated *P. falciparum* malaria treated with artemisinin-based combination therapies was 0.068% (95% CI 0.024–0.112). Among studies that offered moderate to high quality care, the weighted mean CFR among hospitalized children with malaria diagnosis was 3.4% (95% CI 1.6–5.2) and among hospitalized children with severe disease was 13.6% (95%CI 8.4–18.8). ⁸

Case fatality rates in severe malaria have been estimated at >90% if a child does not reach or receive adequate treatment, and 13-20% for hospitalized children. ^{9, 10} Those who survive malaria may have long-term sequelae, including neurocognitive and behavioral impairments. ¹⁰

Non-specific signs and symptoms of malaria contribute to the CFR, as early presentation may be difficult to distinguish from other illnesses. Without treatment, malaria can progress rapidly, changing from an apparently mild condition to severe illness and death within 24 hours. ⁹

Malaria also contributes substantially to child mortality indirectly by exacerbating other common childhood illness, such as pneumonia, diarrhoea, and malnutrition. ^{9 11}

Outbreak, epidemic or pandemic risk

In most areas reporting malaria cases, the disease is endemic. Localized outbreaks or malaria epidemics can occur due to climate, flooding, population movement, and related factors, such as the spread of invasive vectors (*An. Stephensi*). Malaria epidemics have been reported in northern Nigeria, Senegal, Zanzibar, and Uganda. ^{12, 13, 14, 15, 16}

The major malaria vector species and the parasite require specific climatic conditions and temperature ranges that are typically found in tropical regions; even though shifts in climate may alter the geographic areas suitable for transmission.

Contribution of the vaccine to achievement of the national, regional or global disease goals

WHO recommends the use of malaria vaccines (RTS,S/AS01 and R21/Matrix-M) for the prevention of *P. falciparum* malaria for children living in endemic areas, prioritizing areas of moderate and high transmission. ² Currently available vaccines reduce disease burden (clinical and severe malaria and all-cause child deaths), but do not prevent infection or block transmission. The delivery of malaria vaccines should be part of a comprehensive malaria control strategy and integrated into primary health care service delivery.

Malaria vaccine is one of several WHO-recommended high-impact interventions (all only partially protective); higher impact can be achieved through a mix of tools determined by the country through subnational tailoring, and considering local context. ^{17, 5}

The burden of malaria in Africa has been reduced substantially in recent decades as a result of scaled-up malaria control measures. However, since 2015, the rate of progress in reducing both malaria cases and deaths has stalled; in some countries with high malaria burden, the annual number of malaria cases has risen. Increased use of current control and prevention tools, which now include malaria vaccine, and the addition of new tools, strategies and enhanced problem-solving approaches are needed to further improve malaria control. ²

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