



World's First Malaria Vaccine

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The world first malaria vaccine has been rolled out in Malawi for children under two.

- RTS,S/AS01, trade name Mosquirix, is an injectable vaccine targeting *P. falciparum*, the most prevalent malaria strain in Africa. It is the first and only vaccine to show partial protection in young children. In clinical trials, the vaccine was found to prevent approximately 4 in 10 malaria cases, including 3 in 10 cases of life-threatening severe malaria.
- The WHO-coordinated pilot programme is a collaborative effort with ministries of health in Ghana, Kenya and Malawi and a range of in-country and international partners, including PATH, a non-profit organization, and GSK, the vaccine developer and manufacturer, which is donating up to 10 million vaccine doses for this pilot.
PATH is an international nonprofit team of innovators which advises and partners with public institutions, businesses, grassroots groups, and investors to tackle the world's toughest global health problems, including malaria.
- The malaria vaccine pilot aims to reach about 360,000 children per year across the three countries.
- Recently the World Bank released World Malaria Report, 2018, according to which Malaria occurs in 91 countries but about 90% of the cases and deaths are in sub-Saharan Africa.

Mechanism

- RTS,S aims to trigger the immune system to defend against the first stages of malaria when the *Plasmodium falciparum* parasite enters the human host's bloodstream through a mosquito bite and infects liver cells.
- The vaccine is designed to prevent the parasite from infecting the liver, where it can mature, multiply, re-enter the bloodstream, and infect red blood cells, which can lead to disease symptoms.

Financing and Support

Financing for the pilot programme has been mobilized through an unprecedented collaboration among three key global health funding bodies: Gavi, the Vaccine Alliance; the Global Fund to Fight AIDS, Tuberculosis and Malaria; and Unitaid. Additionally, WHO, PATH and GSK are providing in-kind contributions

Weaknesses

- **It is Inconvenient:** A child must receive four injections before age 2, sometimes at intervals that do not match the routine vaccine schedules for most other diseases.
- **Partly effective:** Testing in more than 10,000 African children from 2009 to 2014 showed that, even after four doses, the vaccine prevented only about 40 percent of detectable malaria infections.
- **Not long lasting:** It is unclear how long even those relatively low levels of protection last; previous trials followed vaccinated children for four years. Experts also worry that parents whose children are vaccinated will become less vigilant about using mosquito nets, and less likely to seek medical care when their children develop fevers.
- **Develop Resistance:** The vaccine reduced the occurrence of severe malaria by about 30 percent, and the occurrence of severe anemia — a complication that often kills children — by about 60 percent. It did not protect well against parasite strains that were poor genetic matches, raising a concern that, over time, parasites could evolve resistance to the vaccine as they have to drugs

Malaria in India

India ranks very high in the list of countries with a serious malaria burden. In 2018, 3,99,134 cases of malaria and 85 deaths due to the disease were reported in the country, according to data from the National Vector Borne Disease Control Programme.

Malaria

- Malaria is caused by **Plasmodium parasites**.
- The parasites are spread to people through the bites of infected female Anopheles mosquitoes, **called "malaria vectors."**
- There are more than 400 different species of Anopheles mosquito; around 30 are malaria vectors of major importance.
- All of the important vector species bite between dusk and dawn.
- There are 5 parasite species that cause malaria in humans, and 2 of these species – P. falciparum (the most prevalent malaria parasite on the African continent and it is responsible for most malaria-related deaths globally) and P. vivax (the dominant malaria parasite in most countries outside of sub-Saharan Africa) – pose the greatest threat.

- Most malaria cases and deaths occur in sub-Saharan Africa.
- However, the regions of South-East Asia, Eastern Mediterranean, Western Pacific, and the Americas are also at risk.
- WHO recommends protection with effective malaria vector control. Two forms of vector control – insecticide-treated mosquito nets and indoor residual spraying – are effective in a wide range of circumstances.
- World malaria day is celebrated on 25th April every year.