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# BATTLING MALARIA

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In 1987, the pharma giant GlaxoSmithKline began testing a vaccine to target the malaria parasite. The initiative received support from the WHO, Bill and Melinda Gates Foundation and the international NGO PATH. The collaboration bore fruit on April 23, when health workers in Malawi rolled out the first vaccine against the viral disease. Ghana and Kenya are expected to join the inoculation drive in the next few weeks and the effort could vaccinate more than a million children against the disease which kills more than a 1,000 people a day worldwide, a majority of them in Africa. The vaccine is also a significant intervention given that the WHO estimates that climate change will exacerbate the mortality caused by the disease.

In its most virulent form, malaria is a difficult disease to deal with. Plasmodium falciparum, the most dangerous of the virus, replicates very fast in the human body. This means if a person infected with the virus does not get diagnosed urgently, the infection assumes fatal or near fatal proportions rapidly. That is why prevention has always been the primary strategy against the disease. However, insecticides that are used against the mosquitoes have a life of less than 20 years — the parasite is adaptable and has survived for millenia. The virus has proved an equally formidable adversary: Many strains of P. falciparum have become resistant to chloroquine, once the first-line malaria drug. That is why triggering the immune system to defend against the first stage of malaria, when the virus enters the blood stream, has been thought to be a more effective strategy. But the scientists had their work cut out because, unlike bacteria, parasites evolve complex ways to evade the immune system. The malaria parasite passes through multiple life stages, each of which presents a unique challenge to vaccine developers. Moreover, inside the human body the virus changes shape making it very difficult for the proteins produced by a vaccine to target the pathogen.

There is a limitation to the new intervention, though. In clinical trials, the new vaccine reduced malaria cases by less than 40 per cent — the measles vaccine, by comparison, is 97 per cent effective and the chickenpox vaccine prevents almost 100 per cent of severe cases of the disease. Another issue with the vaccine is that children need four doses. Critics of the vaccine argue that four trips to a clinic could be tough for families in rural Africa. Work has begun to improve on the vaccine. However, this time the research community cannot afford to spend more than 30 years to develop the vaccine.



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