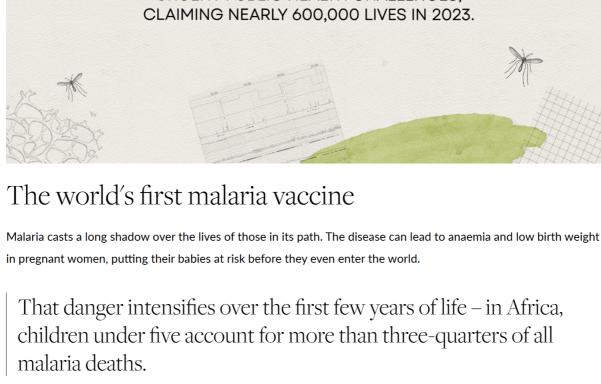
Home



MALARIA REMAINS ONE OF THE WORLD'S MOST URGENT PUBLIC HEALTH CHALLENGES, CLAIMING NEARLY 600,000 LIVES IN 2023.



Though less deadly in adults, malaria still exacts a heavy price, often removing individuals from the workforce for

million children in Ghana, Kenya, and Malawi. "I remember one of the mothers was very happy, saying her child who received the vaccine used to get sick with malaria three to four times every year - but after vaccination, the child has had no malaria episodes," Kariuki says. Overall, the vaccine led to a 13% drop in mortality and a significant reduction (22%) in hospitalisations for severe malaria among children age-eligible for vaccination. Access to malaria prevention, whether through vaccination or insecticide-treated nets, also increased to over 90% of children.

Dr Simon Kariuki, a leading malaria specialist at the Kenya Medical Research Institute (KEMRI) - led Kenya's involvement in the WHO's Malaria Vaccine Implementation Programme from 2019 to 2023, and has witnessed firsthand the impact of these new tools. The pilot programme administered the world's first malaria vaccine to two

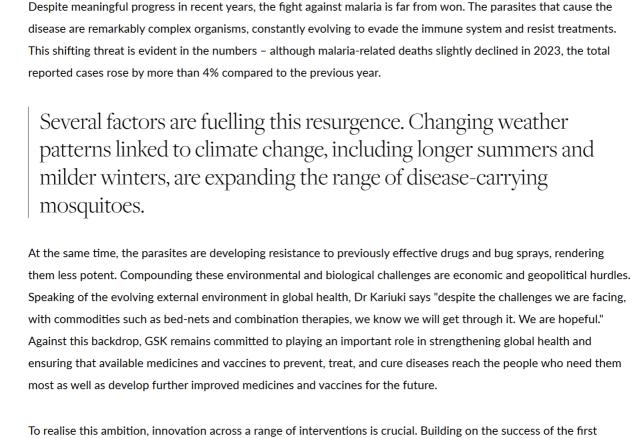
Outside of sub-Saharan Africa, it's the Plasmodium vivax (P. vivax) parasite that is most dominant, which causes relapsing malaria, with children under five and vulnerable populations at particular risk. The current treatment for this form of malaria in many endemic countries must be taken for 7 to 14 days to be effective. Adherence to multi-dose therapies and longer treatment such as this courses such as this can be a challenge for patients with relapsing malaria, whose symptoms improve shortly after treatment initiation. That's why GSK and Medicines for Malaria Venture (MMV) partnered to develop and roll out the first single-dose treatment for P. vivax

patients in endemic countries via national malaria programmes. This treatment helps prevent relapsing malaria in

find a majority of primary schoolchildren had malaria parasites in their blood. Today, from my experience, I would

estimate that number is now below half, thanks to some of the tools that have been developed."

"THERE'S A LOSS FOR THE CHILD, BUT ALSO A LOSS FOR THE SIBLINGS, AND A LOSS OF INCOME FOR THE MOTHER AND THE FATHER, WHO MAY HAVE TO MISS WORK TO CARE FOR



Breakthroughs in the interruption of the disease transmission via the mosquito also show promise. At GSK's Global Health R&D lab in Tres Cantos, Spain, scientists recently discovered a surprising ally in this battle: a naturally occurring bacterium. The discovery came about when a colony of mosquitoes in the lab stopped becoming infected with malaria parasites. Intrigued, the team found that a specific strain of bacteria, Delftia tsuruhatensis TC1, living within the insects was blocking the parasite's development.

"One of the major challenges we face is that mosquitoes rapidly evolve resistance to insecticides, both through genetic mutations and behavioural changes," notes Dr Janneth Rodrigues, a scientific leader in GSK's Global Health team. "What's exciting about our bacterial approach is that instead of killing the mosquito, we're targeting the parasite

Scientists at GSK and other research organisations are exploring whether the Delftia-based intervention strategy could potentially be used against other vector-borne diseases like dengue, Zika, leishmaniasis and - in endemic

improved pathways for approval and access, we can get to a second-

generation vaccine in a much shorter time." Katie Ewer, senior

New treatments, including monoclonal antibodies - bioengineered molecules that can bind to and neutralise the

parasite - are another avenue being explored by researchers, including Kariuki and his team at KEMRI.

Janneth Rodrigues, scientific leader, GSK

The headway made by Ewer and Rodrigues's team and colleagues- and indeed, all progress in the fight against malaria

- would not have been possible without extensive collaboration. As the quest to find solutions accelerates, the

of that effort is in vain," says Ewer. "Working with clinics and research organisations in endemic countries - those relationships are so important for us to develop and study new tools for the communities that need them most."

But just as critical are partnerships with those working directly with clinicians and communities where malaria is endemic. "We've got to have innovation, but if the resulting products and tools can't be delivered to people, then all

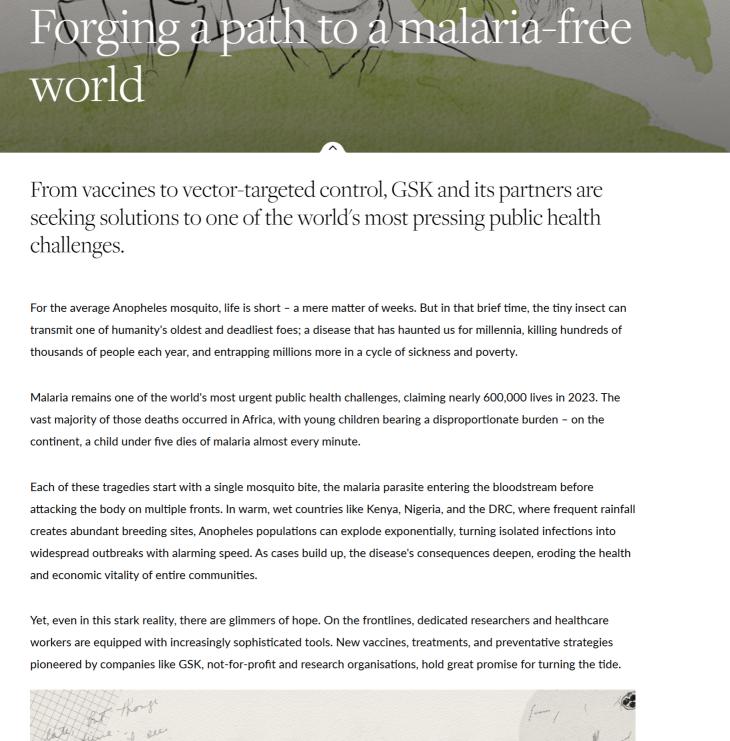
LIKE KEMRI IN KENYA - THOSE **RELATIONSHIPS ARE SO IMPORTANT** FOR US TO DEVELOP AND TEST NEW PRODUCTS IN THE COMMUNITIES THAT NEED THEM MOST." Katie Ewer, senior project leader, malaria vaccines, GSK As more interventions make the journey from research to real-world rollout, a future where no child dies from a mosquito bite inches closer. By continuing to innovate, collaborate, and engage local researchers and communities,

¹ Like all 8-aminoquinolines, the single-dose treatment which is co-administered with an antiparasitic medication, has the potential to cause haemolytic anaemia in people with glucose-6-phosphate dehydrogenase (G6PD) deficiency, therefore G6PD testing must be performed before prescribing.

the burden of malaria can drastically reduce, freeing those who have their futures taken away from them far too soon.

² As a microbe found naturally in soil and water, Delftia could potentially be safely released into the environment. Laboratory and semi-field studies in malaria-endemic Burkina Faso have shown that it could be deployed to mosquitoes by adding it to sugar baits or to mosquito breeding sites without disrupting delicate ecosystems. Additionally, the antiparasitic compound, harmane, secreted by the bacteria could also be applied to walls or bed nets, for uptake by mosquito contact, thereby breaking the transmission cycle of malaria. Source.

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extended periods.

University of Oxford.

Currently being rolled out across 18 countries in Africa, firstgeneration malaria vaccines target Plasmodium falciparum, the malaria parasite responsible for the most severe form of malaria,

As significant as these medical efforts are, experts stress they must continue to be deployed alongside proven prevention measures, like insecticide-treated bed nets and indoor residual spraying. This integrated approach has made a meaningful difference over the last decade, Kariuki reflects. "In the early 90s, when I was starting out, you'd

patients, who must first be tested for G6PD deficiency¹.

which is most prevalent in Africa.

THEIR ILL FAMILY MEMBERS." Dr Simon Kariuki, leading malaria specialist, Kenya Medical Research Institute

Fighting a resurgent threat with innovation

malaria vaccines, researchers are already working on a second-generation vaccine. Dr Katie Ewer, is leading one such effort for GSK's Global Health team, to develop a vaccine that targets multiple stages of the lifecycle of P. falciparum. "We are very optimistic that by taking all the expertise and knowledge that we have built over the last 35 years, coupled with

project leader, malaria vaccines, GSK.

inside it, allowing us to circumvent the generation of resistance.

Progress through partnership

development and continues to be a force in fighting infectious diseases.

countries where people are at most risk².

"WHAT'S EXCITING ABOUT OUR BACTERIAL APPROACH IS THAT INSTEAD OF KILLING THE MOSQUITO, WE'RE TARGETING THE PARASITE INSIDE IT, ALLOWING US TO CIRCUMVENT THE GENERATION OF RESISTANCE."

importance of these partnerships will continue to grow. This includes joint initiatives between biopharma companies and international research organisations, such as the decades-long partnership between GSK and the non-profit PATH. It also encompasses support from major global health funders like the Gates Foundation, which has invested hundreds of millions of dollars in malaria research and

"WORKING WITH ORGANISATIONS