

Study reveals breastfeeding could protect babies from malaria

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In a world first, researchers from The University of Western Australia have taken the first step towards understanding whether it may be possible for breastfeeding mothers to naturally vaccinate their babies against malaria—one of the world's deadliest contagious diseases.

The study was led by Professor Valerie Verhasselt, from UWA's School of Molecular Sciences, and Dr. Thomas Egwang from Uganda, with UWA's Dr. Lieke van den Elsen as first author. Professor Verhasselt said the research introduced a new concept that could be tested to prevent the spread of [malaria](#).

"More than 200 million cases of malaria are reported each year around the world, with the majority in Africa," Professor Verhasselt said.

"Infants aged under five years account for two-thirds of all malaria deaths, highlighting the need for early and efficient prevention of malaria infection."

She said [breastfeeding](#) was the most efficient way to prevent childhood disease and death related to respiratory and gastro-intestinal infectious disease.

"Before this study, there was conflicting evidence on whether breastfeeding could prevent malaria and we wanted to find a way to ensure malaria prevention through breastfeeding," she said.

"Based on our longstanding expertise in the field of allergy prevention through breastfeeding, we propose the original hypothesis that the presence of malaria antigen (proteins) in breastmilk stimulates anti-malarial immune defense and reduces malaria risk in breastfed infants. This would be a way to naturally vaccinate infants."

The researchers investigated whether two proteins from malaria parasites were detectable in the breastmilk of mothers from Uganda, a country where malaria is widespread.

The research, published today in *JAMA Pediatrics*, shows for the first time that 15 percent of breastmilk samples from mothers who carry the

malaria parasites without symptoms, contain malaria antigens in their breastmilk.

They propose these mothers may be the ones able to naturally vaccinate their child against malaria as their breastmilk would contain malaria proteins together with additional factors specifically adapted to the babies' immune system.

Professor Verhasselt, who is also the Larssen-Rosenquist Chair in Human Lactology at UWA, said the next step was to carry out [clinical trials](#) to assess immunological outcomes and malaria risk in infants exposed to one or multiple malaria antigens through breastmilk.

"We could then propose to vaccinate breastfeeding [mothers](#) to increase levels of malaria antigen in [breastmilk](#), ensuring vaccination and long-term protected of their child," she said.

More information: Lieke W. J. van den Elsen et al. Malaria Antigen Shedding in the Breast Milk of Mothers From a Region With Endemic Malaria, *JAMA Pediatrics* (2020). [DOI: 10.1001/jamapediatrics.2019.5209](#)

Provided by University of Western Australia

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