

PRESS RELEASE

Ifakara, UCSF Lead Global Research on Long-Lasting Mosquito Defence

>> Affordable new tool earns first recommendation in 40 years, offering protection for up to a year

Dar es Salaam, Tanzania (August 27, 2025) –A groundbreaking international analysis led by scientists from the University of California San Francisco (UCSF), in collaboration with partners including the Ifakara Health Institute (IHI), has confirmed that insecticide—dispersed via a sheet-like device—can provide protection for up to a year against mosquitoes that transmit malaria, dengue, West Nile virus, yellow fever, and Zika.

The systematic review analyzed over 25 years of data, covering 1.7 million mosquitoes. Researchers found that this new type of repellent, known as a “spatial emanator” because it disperses chemicals through the air, can prevent more than half of all mosquito bites.

Effective Against All Types of Mosquitoes

Spatial repellents were shown to offer an average protection of 56%, reducing more than half the bites that would occur without intervention. While efficacy varies depending on mosquito species, the products target all major disease-carrying mosquitoes.

This research aligns with a new recommendation by the **World Health Organization (WHO)**, issued in August, endorsing the use of spatial emanators—the first new vector control product class in over 40 years.

Three products are currently on the market: **BiteBarrier®**, **Mosquito Shield™**, and **SC Johnson Guardian™**. BiteBarrier®—the first to be sold in the U.S.—provides up to 21 days of protection, Mosquito Shield™ lasts approximately 30 days, and SC Johnson Guardian™ can protect users for up to one year.

Dr. **Ingrid Chen**, first author and associate professor of epidemiology and biostatistics at UCSF, added: “This method is lightweight, affordable, and easy to use, helping protect people worldwide from mosquito-borne diseases.”

“Spatial emanators are the first repellents to offer protection lasting up to a year,” said Prof. **Sarah Moore**, senior author and research scientist at IHI. “They complement indoor spraying and insecticide-treated nets (ITNs), providing long-lasting protection beyond sleeping hours—especially where mosquitoes bite outside of the night or people don’t use bed nets.”

Malaria’s Global Burden

In 2023, malaria claimed **597,000 lives**, mostly children under five in sub-Saharan Africa. While WHO aims to reduce malaria mortality by 90% from 2015 levels and eliminate malaria in at least 35 countries by 2030, progress has slowed due to COVID-19 disruptions, insufficient funding, and insecticide resistance.

With over 40 mosquito species transmitting malaria, each with unique biting and resting behaviors, no single method provides complete protection. ITNs primarily protect indoors at night, topical repellents require regular application, and insecticide-treated coils last only a few hours. Spatial emanators overcome these gaps—they use chemicals similar to those in treated bed nets but in a

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more volatile form, offering protection day and night without electricity or heating, making them ideal for remote areas in Africa, South America, and Southeast Asia.

Ifakara Health Institute's Contribution

Nearly 50 researchers from 15 countries contributed to this study, including 14 IHI scientists and half of the data sets originated from IHI. Prof. Sarah Moore, who has worked at IHI for 20 years, served as the senior author.

About Ifakara Health Institute

IHI is a leading African research organization specializing in health innovation, testing, and validation. Its work spans biomedical and ecological sciences, intervention studies, health-systems research, and policy translation.

About UCSF

The University of California, San Francisco (UCSF) focuses exclusively on health sciences, advancing global health through biomedical research, graduate education, and excellence in patient care. UCSF Health includes top-ranked hospitals and clinical programs, with regional campuses including one in Fresno. [More about UCSF](#)

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