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Selected Scientific Publications (between 1 Feb 2024 and 31 May 2024)

LLINs

[Modeling resource allocation strategies for insecticide-treated bed nets to achieve malaria eradication](#)

eLife 8 Feb 2024

Using previously published mathematical models of *Plasmodium falciparum* and *Plasmodium vivax* transmission incorporating insecticide-treated nets (ITNs) as an illustrative intervention, we sought to identify the global funding allocation that maximized impact under defined objectives and across a range of global funding budgets. The paper discusses optimal funding strategies and how mathematical modeling can aid efforts in determining optimal approaches to achieve the largest possible impact with available resources.

[Effectiveness of pyriproxyfen-pyrethroid and chlorfenapyr-pyrethroid long-lasting insecticidal nets \(LLINs\) compared with pyrethroid-only LLINs for malaria control in the third year post-distribution: a secondary analysis of a cluster-randomised controlled trial in Benin](#)

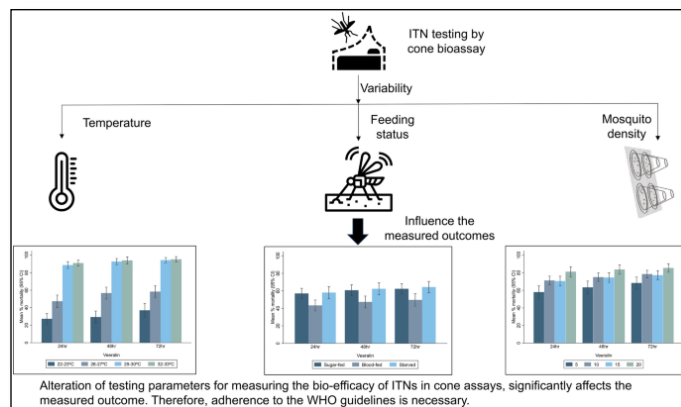
The Lancet Infectious Diseases 21 Feb 2024

This study reports on the third-year results of a cluster RCT assessing the effectiveness of two dual-active ingredient LLINs compared with pyrethroid-only LLINs on malaria case incidence and prevalence in an area of intense pyrethroid resistance in Benin. To capitalise on the new generation of nets, we need more information on their durability (physical and chemical) in communities. However, both trials showed a huge reduction in the use of trial nets over the 3 years, highlighting the need to rethink strategies for maintaining high coverage in high-risk communities. **The WHO recommendation that a net should last for 3 years is not met by any nets on the market**, yet this recommendation is the basis for the regularity of mass distributions. It is essential that the 3-year figure is reconsidered and that countries are empowered to make strategic decisions regarding distribution strategies.

[Temperature, mosquito feeding status and mosquito density influence the measured bio-efficacy of insecticide-treated nets in cone assays](#)

Parasites & Vectors 28 March 2024

We investigated the influence of temperature in the testing environment, mosquito feeding status and mosquito density on cone bioassay results. There was a notable influence of temperature, feeding status and mosquito density on *An. funestus* mortality for MAGNet (alphacypermethrin) and Veeralin (alphacypermethrin and piperonyl butoxide (PBO)) ITNs. The results of this study highlight that the testing parameters temperature, feeding status and mosquito density significantly influence the mortality measured in cone bioassays. Careful adherence to testing parameters outlined in WHO ITN testing guidelines will likely improve the repeatability of studies within and between product testing facilities.



[A qualitative look at bed net access and use in Burkina Faso, Mozambique, Nigeria, and Rwanda following piloted distributions of dual-active ingredient insecticide-treated nets](#)

Malaria Journal 7 May 2024

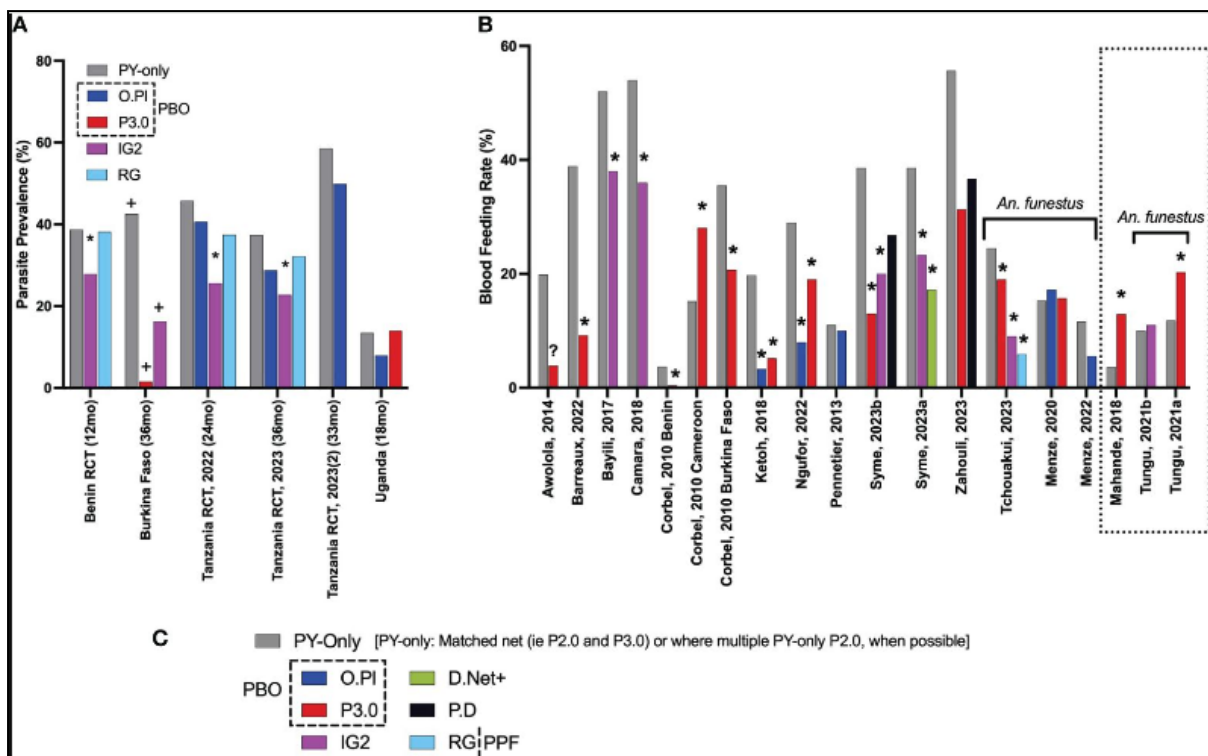
In-depth interviews and focus group discussions were conducted in 3 to 4 villages per district, in 13 districts across Burkina Faso, Mozambique, Nigeria and Rwanda from 2019 to 2022.

While there were divergent perspectives in whether the number of distributed nets were adequate, participants consistently expressed concerns of bias, discrimination, and a lack of transparency with the distribution process. While some participants reported using nets nightly throughout the year, other participants reported seasonal use, both due to the perceived higher density of mosquitoes and discomfort of sleeping under a net in the increased heat. Other barriers to consistent net use included activities that take place away from the home, sleeping patterns and arrangements, and sensitivity to the insecticides on the nets. To ensure adequate and increased net access, distribution campaigns should consider family structures, available sleeping spaces, and other bed sharing preferences when identifying the number of nets needed for distribution. In addition, campaigns should allow for multiple options for net distribution points and timing to accommodate households remote to health services. Continuous distribution channels and complimentary distribution through the private sector could help fill gaps in coverage. Solutions are needed for outdoor malaria transmission, including alternative designs for ITNs, and improving access to complementary personal protective measures.

[A descriptive review of next-generation insecticide-treated bed nets for malaria control](#)

Frontiers Malaria 28 May 2024

In this review, we report on key indicators across Africa for each net type [three classes of next-generation bed nets]. The results underscore a substantial variation in key indicators across Africa when comparing next-generation bed nets to traditional pyrethroid-only nets. Nevertheless, dual active ingredient bed nets generally outperform pyrethroid-only nets in a various setting. The results show that new nets are a formidable tool in malaria control, with superior performance compared to traditional pyrethroid-only nets. The variability in outcomes across Africa underscores the need for a region-specific approach, fostering a targeted and adaptive strategy for the deployment of these next-generation interventions.



IRS

[Impact of four years of annually repeated indoor residual spraying \(IRS\) with Actellic 300CS on routinely reported malaria cases in an agricultural setting in Malawi](#)

PLOS Global Public Health 24 April 2024

This study evaluates IRS in the context of a privately run campaign conducted across a low-lying, irrigated, sugarcane estate from Illovo Sugar, in the Chikwawa district of Malawi. IRS has significantly contributed to a reduction in case incidence rates at Illovo, as compared to control clinics and time points outside of the six month protective period. This study shows how the consistency of a privately run IRS campaign can improve the health of employees.

Spatial emanators

[Mosquito Shield™, a transfluthrin passive emanator, protects against pyrethroid-resistant *Anopheles gambiae* s.l in central Benin](#)

Malaria Journal 15 Feb 2024 (Preprint)

We performed a two-arm single-blinded small-scale household randomised entomological trial to assess the impact of Mosquito Shield™ on the human landing rate of wild pyrethroid-resistant *Anopheles gambiae* s.l vector mosquitoes in houses in the Ganhoua village of the Zakpota District of central Benin. The vector population in the study area showed a high intensity of resistance to pyrethroids.

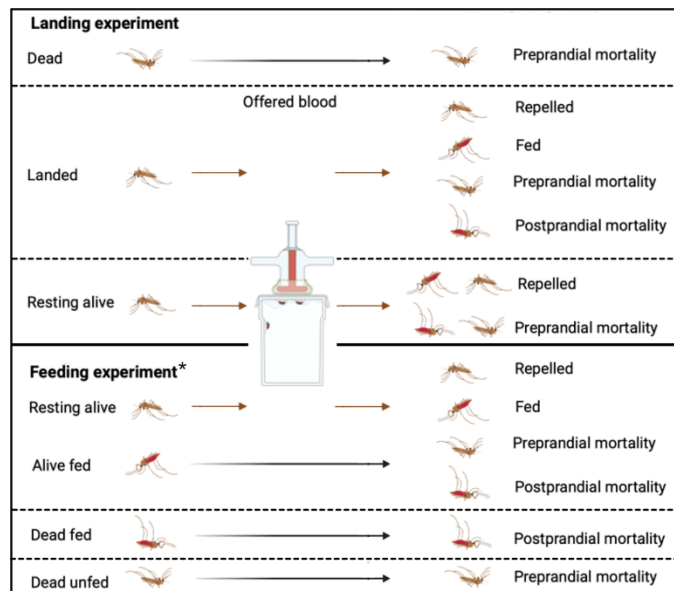
Overall *An gambiae* s.l human landing rates post-intervention were significantly lower in houses in the Mosquito Shield™ arm 18.13/person/night) compared to the houses in the placebo control arm (26.84/person/night, IRR=0.658, $p<0.001$). Over the lifespan of the product, Mosquito Shield™ provided a significant protective efficacy of 34.2% (22.1%-44.4%, $p<0.001$) against wild pyrethroid-resistant *An gambiae* s.l. vectors compared to the placebo. Human landing rates of other nuisance vector mosquito species (*Culex* and *Mansonia*) were also reduced in houses treated with Mosquito Shield™ compared to the placebo.



[Evaluating human landing catches as a measure of mosquito biting and the importance of considering additional modes of action](#)

Scientific Reports 20 May 2024

This study has two main aims (1) the evaluate the accuracy of HLCs as a proxy for feeding and (2) to compare the predicted reduction in vectorial capacity when we do and do not consider these additional characteristics. This study demonstrated that the mode of action of transfluthrin applied as a spatial repellent goes beyond bite prevention. It is important to consider secondary effects of tools, such as preprandial and postprandial killing, especially when considering the use of volatile pyrethroids for public health applications for disease prevention and control. The model demonstrated likely community level impacts when volatile pyrethroids are deployed at scale.



Schema showing the categorisations of mosquitoes after the semi-field-enclosure duration, whether they were offered a blood meal and the corresponding classifications after 24 hours. *Resting alive and alive fed mosquitoes were pooled for the 24-hour assessment

Larval control

[Combined use of long-lasting insecticidal nets and *Bacillus thuringiensis israelensis* larviciding, a promising integrated approach against malaria transmission in northern Côte d'Ivoire](#)

Malaria Journal 29 May 2024

Thus, this study aimed to assess the efficacy of the combined use of LLINs and *Bacillus thuringiensis israelensis* (*Bti*), in comparison with LLINs.

EIR was 1.36 infected bites/person/year (ib/p/y) in the LLIN + *Bti* arm against 47.71 ib/p/y in the LLIN-only arm. Malaria incidence dramatically declined from 291.8‰ (n = 765) to 111.4‰ (n = 292) in LLIN + *Bti* arm (P < 0.001).

Conclusions

The combined use of LLINs with *Bti* significantly reduced the incidence of malaria. The LLINs and *Bti* duo could be a promising integrated approach for effective vector control of *An. gambiae* for elimination of malaria.

New vector control tools and approaches

Early morning anopheline mosquito biting, a potential driver of malaria transmission in Busia County, western Kenya

Malaria Journal 4 March 2024

Anopheline mosquito biting and human location data were integrated to identify potential gaps in protection and better understand malaria transmission dynamics in Busia County, western Kenya.

Biting peaked before dawn and extended into early morning hours when people began to awake and perform routine activities, between 0400–0700 h for *An. gambiae* and 0300–0700 h for *An. funestus*.

Using an ITN while sleeping was estimated to prevent 79% and 82% of bites for *An. gambiae* and *An. funestus*, respectively. For an ITN user, most remaining exposure to bites occurred indoors in the hours before bed and early morning.



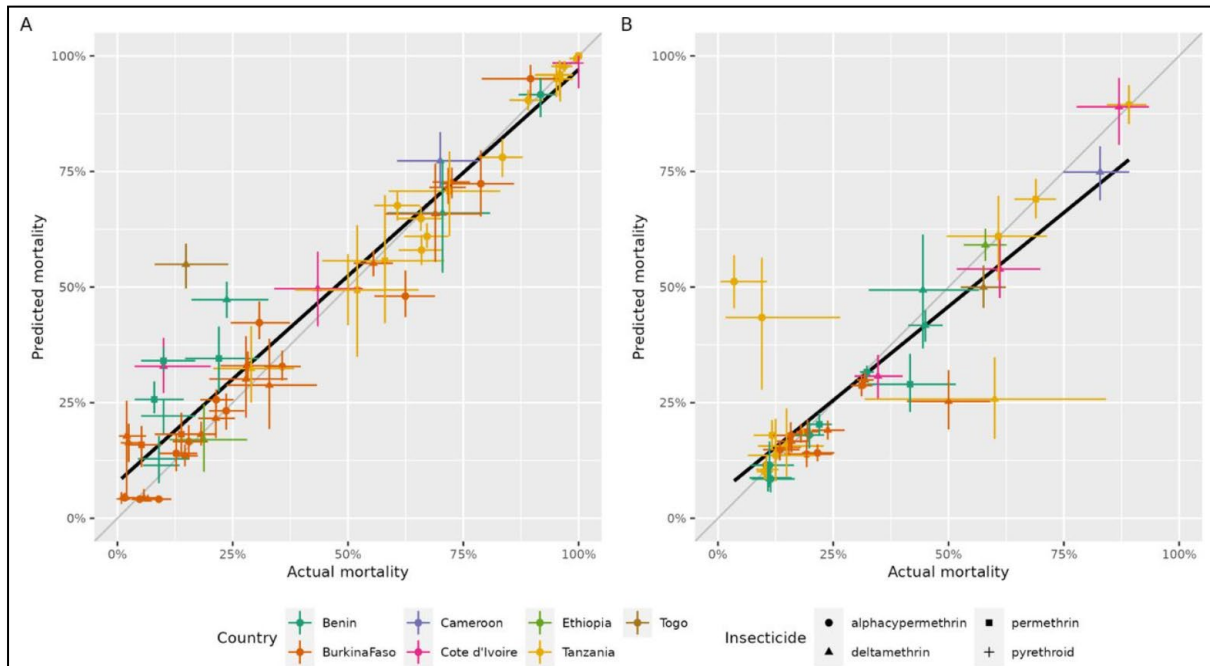
Evening (a, b), night (c, d) and morning (e, f) activities carried out by the study population. Photo a, a group of men drinking local brew, photo b, women chatting/socializing, photo c, a woman cooking, photo d, children eating, photo e, a student studying and photo f, a woman milking a cow

Integrating data from across insecticide resistance bioassay types using a mechanistic model incorporating mosquito genetic variation and behaviour

Cold Springs Harbor Lab 13 March 2024 (Preprint)

Author summary Bednets laden with insecticides that kill mosquitoes have been responsible for substantial reductions in the burden of malaria over the last few decades. Mosquito resistance to insecticides, however, threatens to halt further progress and potentially erode these gains. It is crucial to be able to gauge changes in insecticide resistance over time and how these changes affect the effectiveness of bednets. Important tools for

quantifying these changes include intensity-dose bioassays, which expose mosquitoes to a range of insecticide doses and measure their mortality, and experimental hut trials, which are more expensive and aim to mimic how mosquitoes interact with insecticides on bednets in the field. Here, we develop a mathematical model which includes mechanistic detail about how mosquitoes interact with insecticides in each of these types of experiment. We show how our models allow us to make accurate predictions of mosquito mortality in hut trials using data only from intensity-dose bioassays. Our models provide a more granular understanding of this important class of experiment and could be embedded into larger transmission dynamics models of malaria to predict the public health impact of measured changes to insecticide resistance.



Model-based predictions ('predicted') and empirical estimates ('actual') of mortality in susceptibility bioassays and experimental hut trials. Mortality in **A** susceptibility bioassays and **B** EHTs, for 41 different settings defined by geographical location, year and insecticide. Point estimates correspond to the posterior median and interval estimates to 95% credible intervals, as estimated by an effect-free binomial model with uniform prior ('actual') and by the joint mechanistic model fitted to both resistance bioassay and EHT data ('predicted'), respectively.

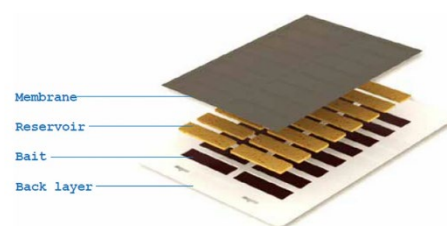
[Residual bioefficacy of attractive targeted sugar bait stations targeting malaria vectors during seasonal deployment in Western Province of Zambia](#)

Malaria Journal 29 May 2024

This study evaluated the residual laboratory bioefficacy of Westham prototype ATSB® Sarabi v.1.2.1 Bait Station in killing malaria vectors in Western Province, Zambia, during the first year of a large cluster randomized phase-III trial.

Field-deployed stations that remained in good condition (intact, non-depleted of bait, and free of dirt as well as mold) retained high levels of bioefficacy (mean induced mortality of 95.3% in males, 71.3% in females, 83.9% combined total) over seven months in the field but did induce lower mortality rates than non-deployed ATSB stations (mean induced mortality of 96.4% in males, 87.0% in females, 91.4% combined total).

While field-deployed ATSB stations induced lower mortality rates than non-deployed ATSB stations, these stations nonetheless retained relatively high and stable levels of bioefficacy across the 7-month malaria transmission season.



An ATSB station. The ATSB station is made of a plastic layer, 16 cells that serve as the reservoir for the bait, and a protective membrane that covers the bait but allows mosquitoes to feed.

Anopheles stephensi

[Anopheles stephensi ecology and control in Africa](#)

Trends in Parasitology February 2024

The focus of this study is to provide a succinct overview of the fundamental ecology of three major native East African malaria vectors, namely *Anopheles gambiae sensu stricto* (hereafter referred to as *An. gambiae*), *Anopheles funestus sensu lato* (*An. funestus*), and *Anopheles arabiensis*, as well as the recently invasive vector *An. stephensi*. We aim to identify the distinctions and similarities between the two groups (i.e., native and invasive malaria vectors) so as to introduce potential new *An. stephensi* larval and adult control tools and inform prospective future research directions. We emphasize that most of the ecological studies on *An. stephensi* were conducted in Asia, as knowledge of *An. stephensi* ecology in Africa is currently limited.

Odds & Ends

[The public health impact and cost-effectiveness of the R21/Matrix-M malaria vaccine](#)

The Lancet Infectious Diseases 8 Feb 2024

The R21/Matrix-M vaccine has demonstrated high efficacy against *Plasmodium falciparum* clinical malaria in children in sub-Saharan Africa. Using trial data, we aimed to estimate the public health impact and cost-effectiveness of vaccine introduction across sub-Saharan Africa.

Findings: Anti-circumsporozoite protein antibody titres were found to satisfy the criteria for a surrogate of protection for vaccine efficacy against clinical malaria. Age-based implementation of a four-dose regimen of R21/Matrix-M vaccine was estimated to avert 181 825 (range 38 815–333 491) clinical cases per 100 000 fully vaccinated children in perennial settings and 202 017 (29 868–405 702) clinical cases per 100 000 fully vaccinated children in seasonal settings. Similar estimates were obtained for seasonal or hybrid implementation. Under an assumed vaccine dose price of US\$3, the incremental cost per clinical case averted was \$7 (range 4–48) in perennial settings and \$6 (3–63) in seasonal settings and the incremental cost per DALY averted was \$34 (29–139) in perennial settings and \$30 (22–172) in seasonal settings, with lower cost-effectiveness ratios in settings with higher $PfPR_{2-10}$.

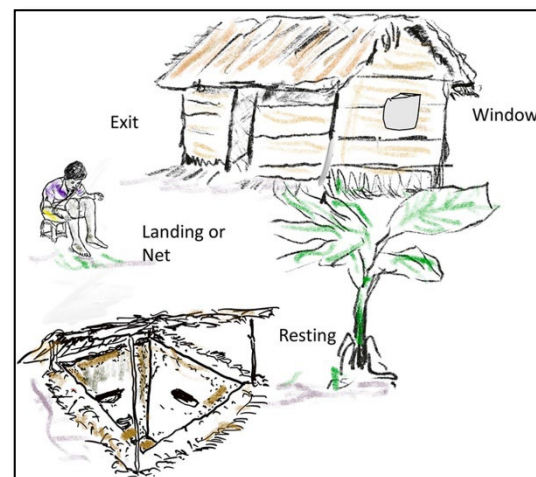
Interpretation: Introduction of the R21/Matrix-M malaria vaccine could have a substantial public health benefit across sub-Saharan Africa.

[Simple techniques for a complex problem:](#)

[Sampling malaria vectors in Africa](#)

Acta Tropica March 2024

Disease surveillance, including entomological surveillance, serves as the basis for all vector control program activities. How to do this in the most ecologically sensible way, so that the most suitable, naturalistic method, of control for that population can be identified, should be a priority. Here we describe a set of techniques, whose only energy requirement is a torch (flashlight), that can be used to collect both endo and exophagic and endo and exophilic malaria vectors. The data obtained over a number of years from an individual sentinel house in a village in Mozambique and from a village in Cambodia using these kinds of collection techniques, is presented.



A thoughtful review worth reading for a great perspective on Anopheles biology and much more

[Behavioral resistance to insecticides: current understanding, challenges, and future directions](#)

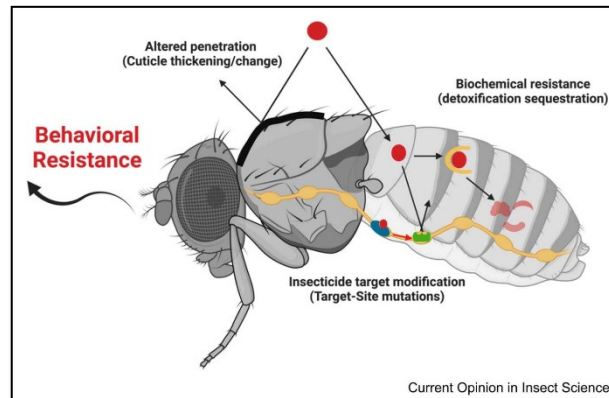
Current Opinion in Insect Science 2 March 2024

Highlights

Note the points around behavioral resistance to toxic baits and "spatial repellency"

- Behavioral resistance is one mechanism of insecticide resistance observed in insect taxa that is often overlooked.
- Bioassays for the detection of behavioral resistance are not standardized.
- Bioassays require consideration of the organism, their interaction with the toxic food bait and their expected response

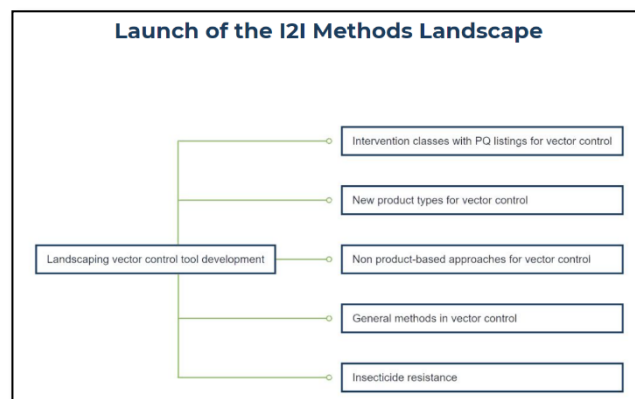
Here, we practically define behavioral resistance, describe the efforts taken by research groups to elucidate resistance mechanisms, and provide insight on designing appropriate bioassays for investigating behavioral resistance mechanisms in the future.



[Better methods, better data: landscaping the priorities for improving methodologies in vector control](#)

Gates Open Research 21 March 2024

This article addresses the evolving challenges in evaluating insecticide-based tools for vector control. In response to the emergence of insecticide resistance in major malaria vectors, novel chemistries and products are coming to market, and there is a need to review the available testing methodologies. Commonly used methods for evaluating insecticides, such as the World Health Organization (WHO) cone bioassay, are inadequate for the diverse range of tools now available. Innovation to Impact (I2I) has studied the variability in laboratory methods, with the aim of identifying key factors that contribute to variation and



providing recommendations to tighten up protocols. The I2I Methods Landscape is a living document which presents a review of existing methods for evaluating vector control tools, with the scope currently extending to insecticide-treated nets (ITNs) and indoor residual sprays (IRS). The review reveals a lack of validation for many commonly used vector control methods, highlighting the need for improved protocols to enhance reliability and robustness of the data that is generated to make decisions in product development, evaluation, and implementation. A critical aspect highlighted by this work is the need for tailored methods to measure endpoints relevant to the diverse modes of action of novel insecticides.

For more information check out the i2i website <https://innovationtoimpact.org/launch-of-the-i2i-methods-landscape/>

A challenge to be creative

[Regaining the path to malaria elimination: Lessons from the pandemic](#)

MalariaWorld Journal 9 April 2024

The stagnation in malaria elimination efforts can be attributed to several contributing reasons: large populations displaced by conflict and severe weather, insecticide and drug resistance, competing priorities with COVID-19 and Ebola. Part of the problem may also be us and our pre-pandemic systems. The accelerated response to the COVID-19 emergency carries lessons for global efforts against the 'other emergency', malaria. We hope now, in 2024, nearly a decade into the stagnation of our malaria control efforts, we heed Arundhati Roy, break from the past, learn the lessons from COVID-19, change our systems and imagine a new path towards a malaria-free world.

[The Anopheles coluzzii range extends into Kenya: detection, insecticide resistance profiles and population genetic structure in relation to conspecific populations in West and Central Africa](#)

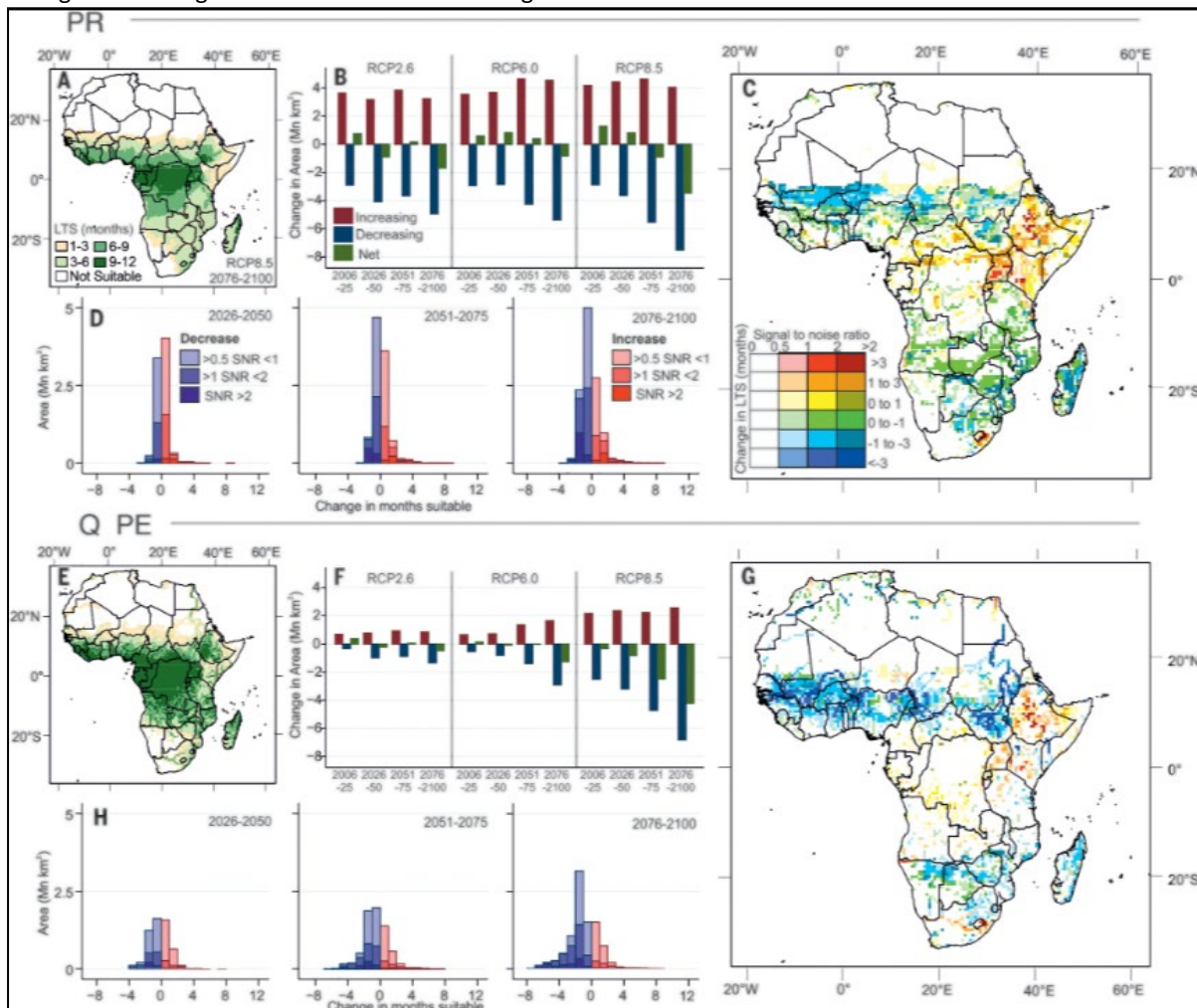
Malaria Journal 26 April 2024

Anopheles coluzzii is a primary vector of malaria found in West and Central Africa, but its presence has hitherto never been documented in Kenya. This study reports the detection of *An. coluzzii* for the first time in Kenya.

Future malaria environmental suitability in Africa is sensitive to hydrology

Science 9 May 2024

Changes in malaria transmission are complex and not driven by climate alone. However, the effect of climate change on malaria prevalence is pronounced, particularly in Africa. Changes in climate shift the geographic locations that are suitable for malaria transmission because of the thermal constraints on vector *Anopheles* mosquitoes and *Plasmodium* spp. malaria parasites and the lack of availability of surface water for vector breeding. Previous Africa-wide assessments have tended to solely represent surface water using precipitation, ignoring many important hydrological processes. Here, we applied a validated and weighted ensemble of global hydrological and climate models to estimate present and future areas of hydroclimatic suitability for malaria transmission. With explicit surface water representation, we predict a net decrease in areas suitable for malaria transmission from 2025 onward, greater sensitivity to future greenhouse gas emissions, and different, more complex, malaria transmission patterns. Areas of malaria transmission that are projected to change are smaller than those estimated by precipitation-based estimates but are associated with greater changes in transmission season lengths.



Future projections of malaria hydroclimatic suitability.

The behaviour of adult *Anopheles gambiae*, sub-Saharan Africa's principal malaria vector, and its relevance to malaria control: a review

Malaria Journal 23 May 2024

This review describes the journey of a female *An. gambiae* from its emergence to locating and feeding on a human host, before eventually laying its eggs. It illustrates how a deeper understanding of these behaviours might lead to the development of novel methods of vector surveillance and control. The review is primarily intended as an introduction to the behaviour of this important vector for students and early career scientists updating earlier reviews on the subject.

WHO news and publications

[WHO Malaria Policy Advisory Group \(MPAG\) meeting report](#), 30 October–1 November 2023

21 February 2024

The meeting focused on the following topics:

- the *Global Malaria Programme operational strategy 2024–2030*;
- malaria vaccines R21/Matrix-M and RTS,S/AS01, the Malaria Vaccine Implementation Programme (MVIP) and status of malaria vaccine roll-out;
- guiding principles for prioritizing malaria interventions in resource-constrained settings to achieve maximum impact;
- progress and challenges on subnational tailoring of interventions;
- **comparative effectiveness in the context of the arrival of new vector control products**;
- the “High burden to high impact” (HBHI) approach;
- the WHO guidelines for malaria;
- antimalarial drug resistance in Africa; and
- the Mekong Malaria Elimination programme.

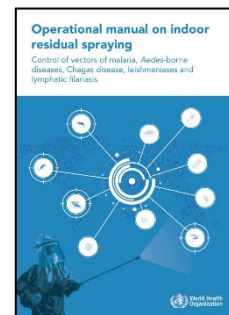
[Updated WHO guidance for controlling vector-borne diseases through indoor residual spraying](#)

19 Feb 2024

The World Health Organisation has released an updated operational manual on indoor residual spraying for control of vectors of malaria, Aedes-borne diseases, Chagas disease, leishmaniasis and lymphatic filariasis.

The scope of this updated WHO guidance on IRS has been expanded beyond malaria to include other vector-borne diseases, with a view to supporting disease control integration. **It also acknowledges that targeted spraying may be appropriate and can improve efficiency and save money.**

It is designed to provide guidance on the establishment, management, implementation, reporting and evaluation of safe and effective IRS campaigns within the context of a locally adapted and sustainable vector control programme, in line with the [Global vector control response 2017–2030](#). It provides information according to current WHO recommendations and standards on IRS and recognizes that IRS can potentially target multiple diseases in areas where endophilic vectors coexist.



[WHO Global Malaria Programme launches new operational strategy](#)

23 April 2024

The WHO Global Malaria Programme published a new operational strategy outlining its priorities and key activities up to 2030 to help change the trajectory of malaria trends, with a view to achieving the global malaria targets. The strategy outlines 4 strategic objectives where WHO will focus its efforts, including developing norms and standards, introducing new tools and innovation, promoting strategic information for impact, and providing technical leadership of the global malaria response.



[Data requirements and protocol for determining comparative efficacy of vector control products](#)

17 May 2024

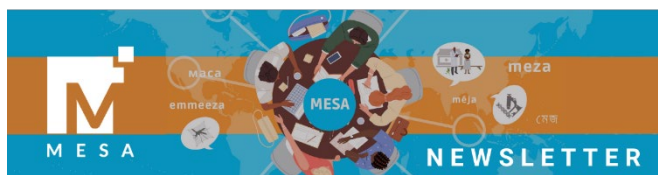
The aim of this protocol is to support the conduct of entomological comparative efficacy assessments for vector control products and the associated non-inferiority analysis. This evidence is used to inform discussions within the guidelines development context as to whether a new vector control product should be considered as covered by one or more existing WHO recommendations or not. Alternatively, the evidence may inform the extension of an existing WHO recommendation or the development of a new one, provided that non-inferiority is demonstrated.

[Dengue - Global situation](#)

13 May 2024

As of 30 April 2024, over 7.6 million dengue cases have been reported to WHO in 2024, including 3.4 million confirmed cases, over 16 000 severe cases, and over 3000 deaths. While a substantial increase in dengue cases has been reported globally in the last five years, this increase has been particularly pronounced in the Region of the Americas, where **the number of cases has already exceeded seven million by the end of April 2024, surpassing the annual high of 4.6 million cases in 2023.**

Webinars, websites and other resources



[New MESA website](#)

The MESA team has updated their website, MESA – the malaria knowledge hub which includes MESA Track, a living database of malaria projects. Since its inception in 2012, [MESA Track](#) has become the largest malaria projects database and has experienced remarkable growth. It currently hosts comprehensive information on 3,827 malaria projects and the malaria research portfolios of over 880 research institutions.

In February, they also launched their [first MESA country portfolio](#), bringing you a snapshot of malaria research and programs in Ghana. This profile is full of information useful for anyone working in Ghana and interested in better understanding the National Program, their strategic plan and the landscape of partners working in the country.



Principal Investigators		Funding Sources	Principal Institutions		
Linda Amoah	9	Bill & Melinda Gate...	15	INDEPTH Network	3
Kwaku Poku Asante	7	European and Dev...	12	Kwame Nkrumah ...	3
Dominic Kwiatkow...	5	Wellcome Trust	8	Population Service...	2
Evelyn Korkor Ansah	4	U.S. President's M...	8	Johns Hopkins Ce...	2
Gordon A Awandare	4	GlaxoSmithKline (...)	7	Karolinska Institut...	2
Nancy O. Duah Qu...	4	National Institute ...	7	University of Chica...	2
Fred Binka	4	The Global Fund to...	7	Imperial College L...	2
Carlota Dobaño	3	UNITAID	6	Abt Associates	2
Anita Ghansah	3	PATH	5	University of Califo...	2

[OpenMalaria 46.0 has been released](#)

You can download it [here](#)

You will find binaries for the following platforms:

- Ubuntu 22.04 and 20.04
- MacOS 11 and 12
- Windows



Some important changes to note:

- Improved performance (20-30% improvement when running on the cluster)
- Improved simulation of heterogeneity via availability of humans to mosquitoes (the <availability/> parameter in the vector model)
- Ability to deploy interventions based on availability
- Improved decay functions and increased flexibility (decay functions also support heterogeneity)

More information about the changes: <https://github.com/SwissTPH/openmalaria/wiki/Changelog>

[APMEN Webinar YouTube channel](#)

APMEN hosts a [webinar series](#) to provide a platform for discussing a variety of topics of interest and sharing information related to malaria elimination. Recorded sessions are available on their YouTube channel. Recent and upcoming topics include:

- ❑ 6 March 2024 – [New developments in Indoor Residual Spraying](#)
Speakers/Panellists
 - Inigo Garmendia, Goizper Group
 - Muhammad Mukhtar, Malaria Control Program, Pakistan
 - Manuel Lluberas, Mosquito Den LLC
- ❑ 27 March 2024 - [Targeting Mobile and Migrant Populations to Prevent Malaria Reintroduction](#)
Speakers/Panellists
 - Prakash Ghimire, Trbuhuvan University, Nepal and UCSF MEI
 - Duo-quan Wang, Natl Inst of Parasitic Diseases, China
 - Lieven Vernaeve, Malaria Consortium, Cambodia



[Joint meeting Vector Control & Multi-Sectoral Working Groups](#)

[19th Annual Meeting of the Vector Control Working Group](#)

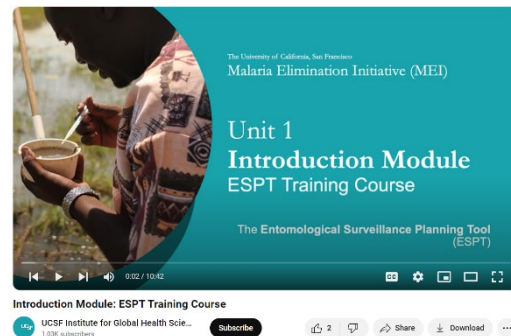
[6th Annual Meeting of the Multi-Sectoral Action Working Group](#)

The documentation from both annual meetings (RBM VCWG-19 & RBM MSWG-6), and their joint meeting, are posted and available at the above links.

[The Malaria Elimination Initiative: Entomological Surveillance Planning Tool \(ESPT\) Videos](#)

5 March 2024

A series of training videos on the MEI's [Entomological Surveillance Planning Tool \(ESPT\)](#) are now live on YouTube. Each module of the course instructs users on how to successfully implement the various components of the ESPT to answer malaria program questions and guide decision-making. The iterative, modular design allows users to work at their own pace and skip directly to priority topics as needed. The ESPT is available in several languages as a downloadable pdf or as an online application, all of which can be accessed on the MEI website before starting the training course.



[PMI 18th Annual Report to Congress](#)

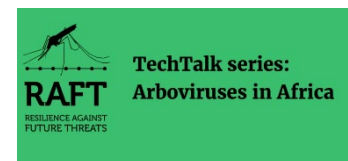
In our 18th Report to Congress, we show how we are working with partner countries to drive progress against malaria by innovating and tailoring the mix of malaria services to overcome challenges and meet each country's specific needs, supporting frontline and community health systems, and prioritizing local leadership to end malaria faster.



[Arbovirus outbreaks in West and Central Africa: a wake-up call](#)

14 May 2024

A recording of the 4th webinar of the RAFT TechTalk series on arboviruses in Africa is now available.



[THE MALARIA DIVIDEND: WHY INVESTING IN MALARIA ELIMINATION CREATES RETURNS FOR US ALL](#)

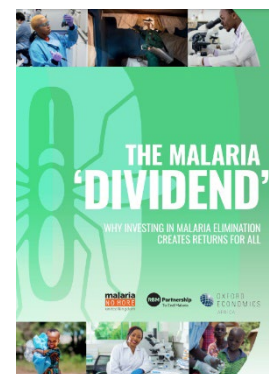
Malaria No More Zero Malaria June 2024

New research reveals that achieving the Sustainable Development Goal target of cutting malaria by 90% by 2030 could significantly **boost the GDP of malaria-endemic countries by US\$142.7 billion**.

The research also showed reaching this goal could generate an additional **\$31bn in exports** to some of the most affected malaria endemic countries in Africa; with an almost **\$4bn rise for G7 countries**.

The report shows that sticking to business as usual not only costs the lives and well-being of millions, it leaves **billions of dollars** of economic progress unrealised.

With a steadfast commitment from world leaders for the Global Fund and Gavi and with continued investment and support of malaria research, **we will not only save lives but boost economic growth for a stronger, safer world**.



In the news and social media

[African health ministers commit to end malaria deaths](#)

6 March 2024

Ministers of Health from African countries with the highest burden of malaria committed today to accelerated action to end deaths from the disease. They pledged to sustainably and equitably address the threat of malaria in the African region, which accounts for 95% of malaria deaths globally.

The Ministers, gathering in Yaoundé, Cameroon, signed a [declaration](#) committing to provide stronger leadership and increased domestic funding for malaria control programmes; to ensure further investment in data technology; to apply the latest technical guidance in malaria control and elimination; and to enhance malaria control efforts at the national and sub-national levels.



[Poverty and malaria are linked. Can we tackle them together?](#)

UNDP Blog 24 April 2024

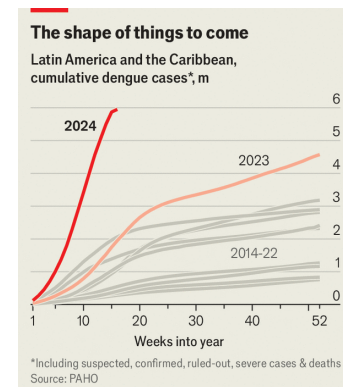
An integrated approach is key to ending malaria and unlocking sustainable development. This article discussed the topic and introduces a [Comprehensive Multisectoral Action Framework: Malaria and Sustainable Development](#) developed by UNDP, UN-Habitat and the RBM Partnership to End Malaria to guide integrated approaches that unlock mutual benefits across disease and development dimensions.



[Dengue fever is surging in Latin America](#)

The Economist 25 April 2024

For the second time in five years, Brazil's army is building field hospitals in the capital, Brasília. The tents are accommodating a surge of patients from swamped emergency departments, as millions of Brazilians succumb to dengue fever that is spreading across the country. As with covid-19, the last disease to prompt the construction of field hospitals, many dengue infections are asymptomatic. The one-in-four people who do fall ill can suffer for several weeks with a painful condition known as break-bone fever.



The Economist

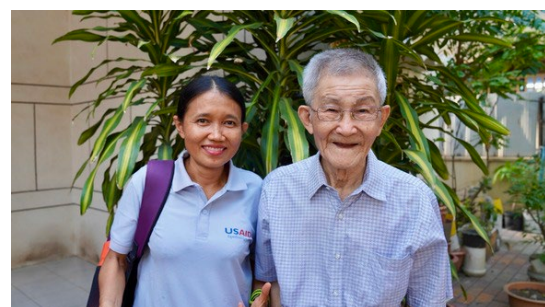
[Meet the man who made a difference on Cambodia's journey to malaria elimination](#)

24 April 2024

MEET YEANG CHHEANG

During his seven decades on the front lines of Cambodia's fight against malaria, Yeang Chheang, a soft-spoken man with wire-rimmed glasses and a razor-sharp memory, has seen it all. The country's first entomologist embarked on a remarkable seven decade journey to protect his country from malaria, even maintaining his mission during the horror of the Khmer Rouge regime

In 1954, at age 17, Chheang began training as a medical entomologist — his country's first. During the deadly Khmer Rouge regime in the mid-1970s, he saved countless lives by dispensing malaria medication from his pockets. In the decades after the war, he helped rebuild the country's shattered malaria control program from scratch.



[Malaria is a women's rights issue](#)

African Arguments 6 May 2024

When malaria rages, the women whose labour, visible and invisible, is the bedrock of the care economy, suffer; the effects reverberate across society.

Women constitute 65 percent of the global care workforce and perform more than 75 percent of unpaid care activities. Courtesy: RBM Partnership to End Malaria



[GMO mosquitoes released in Djibouti to fight malaria](#)

BBC News 23 May 2024

Tens of thousands of genetically modified (GMO) mosquitoes have been released in Djibouti in an effort to stop the spread of an invasive species that transmits malaria.

The friendly non-biting male *Anopheles stephensi* mosquitoes, developed by Oxitec, a UK-based biotechnology company, carry a gene that kills female offspring before they reach maturity.

The first batch of the mosquitoes were released into the open air on Thursday in Ambouli, a suburb of Djibouti city.

It is a pilot phase in a partnership between Oxitec Ltd, Djibouti's government and Association Mutualis, an NGO.

"We have built good mosquitoes that do not bite, that do not transmit disease. And when we release these friendly mosquitoes, they seek out and mate with wild type female mosquitoes," Oxitec head Grey Frandsen told the BBC.

The laboratory-produced mosquitoes carry a "self-limiting" gene that prevents female mosquito offspring from surviving to adulthood when they mate.

[Malaria Elimination: Fight against malaria receives a boost with introduction of Vectron T500](#)

JoyNews 30 May 2024

Check out the story on YouTube



Disclaimer: Given the breadth of vector control related literature, we are unable to include all relevant work. This update is intended to focus primarily on *Anopheles* vectors and a subset of mosquito control topics relevant to IVCC and its partners. Any views expressed in this update do not necessarily reflect the views or opinions of IVCC. In many cases we directly quote abstracts and other sections of published work. Mention of trade names or commercial products in this publication is solely for the purpose of providing specific information and does not imply recommendation or endorsement by IVCC or its funders. Readers may view copyrighted publications shared here provided that the information is only for their personal, non-commercial use.