RBM Partnership
To End Malaria

3 March 2026

[Session 2] Work stream meetings

RBM Partnership
To End Malaria

3 March 2026

Work Steam 1 - Enhancing the Impact of Core Interventions

Co-Leads: Christen Fornadel & Ketty Ndhlovu

RBM Partnership To End Malaria

March 3, 2026

Workstream 1: Enhancing the Impact of Core Interventions

We will start momentarily.

.

Workstream One (WS1)
Enhancing the Impact of Core Interventions

Introduction of WS1 and Task Team Leaders

Presenters: Christen Fornadel and Ketty Ndhlovu

Welcome! From the Workstream one co-leads



Christen Fornadel
Christen.Fornadel@ivcc.com



Ketty Ndhlovu
ndhlovu.ketty@gmail.com

Introduction to Task Teams

WS1 Task Team One: Using biological data to address threats and inform decision making for IRS/ITNs

Task Team Leads



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(rathoul74@gmail.com)

Introduction to Task Teams

WS1 Task Team Two: Using non-biological data to address threats and inform decision making for IRS/ITNs

Task Team Leads



Anna Trett (CHAI)
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Keith Esch (PSI)
kesch@psi.org



Chrispin Williams (Liberia NMCP)
july18cw@gmail.com

Introduction to Team leads

WS1 Task Team Three: Financing for sustainable vector control and private sector engagement

Task Team Leads







Samuel Asiedu
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Jessica Rockwood
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Andrew Saibu
Andrew.Saibu@ivcc.com

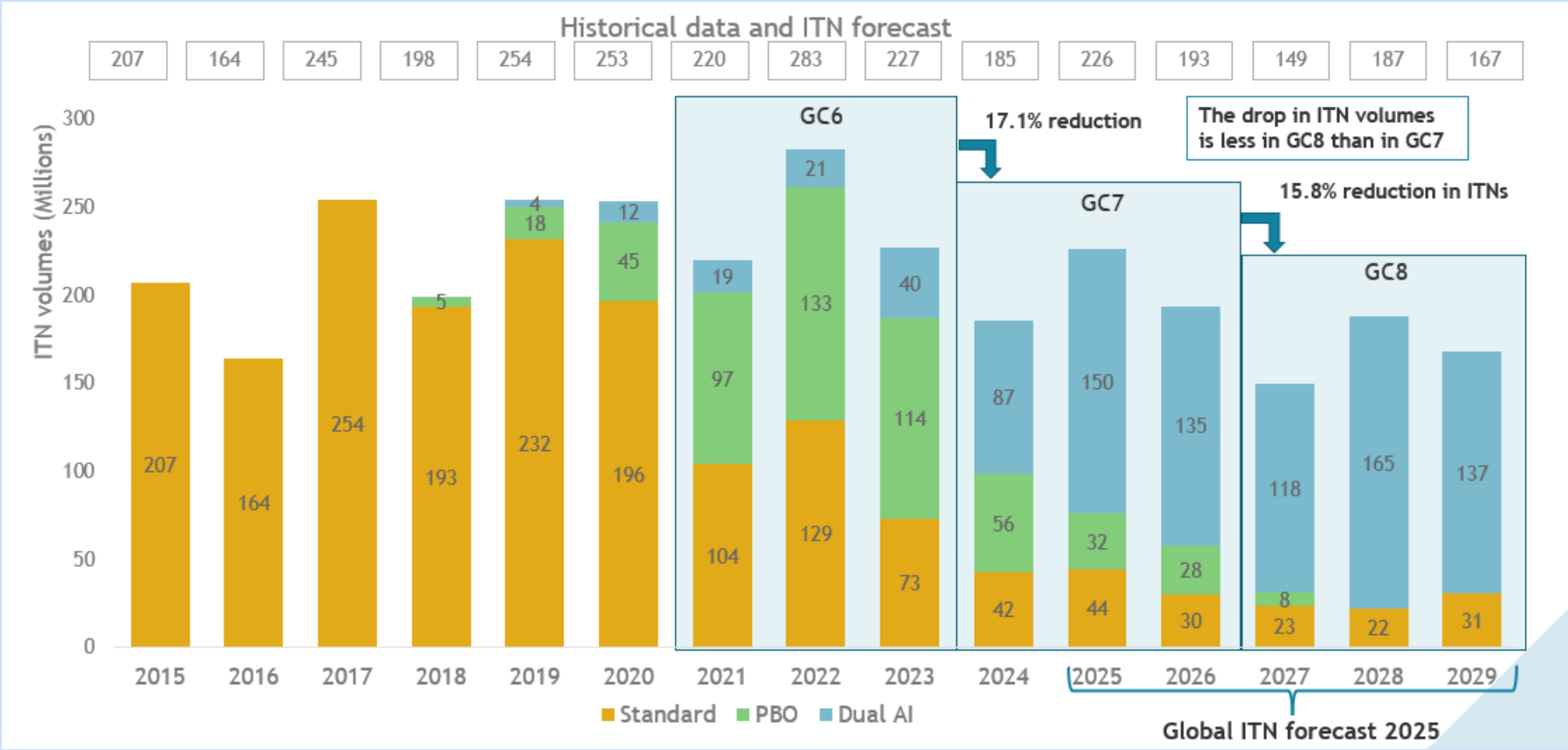
Workstream One (WS1)
Enhancing the Impact of Core Interventions

Priority Issues, Perspectives, and Agenda

Presenters: Christen Fornadel and Ketty Ndhlovu

WS1: Annual Meeting 2026
Overview of Priority Issues and Perspectives for Core Interventions

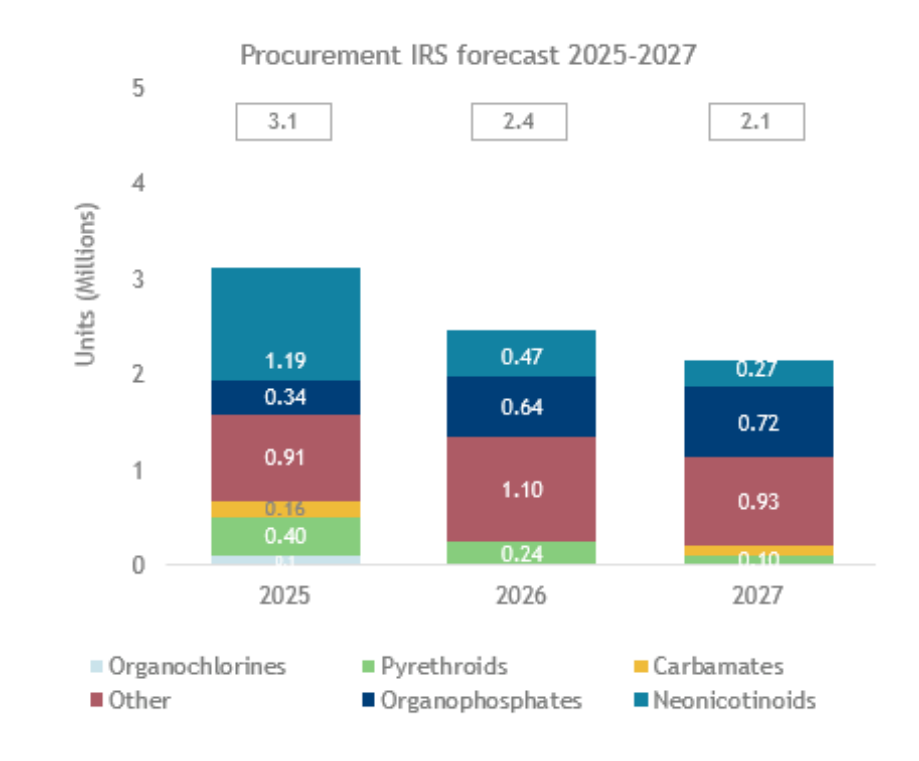
- Over the next three years, Dual AI nets continue to dominate the market, even as there is a reduction in the total ITNs purchased



Source: The Malaria Commodities Forecasting Project December 2025

WS1: Annual Meeting 2026
Overview of Priority Issues and Perspectives for Core Interventions

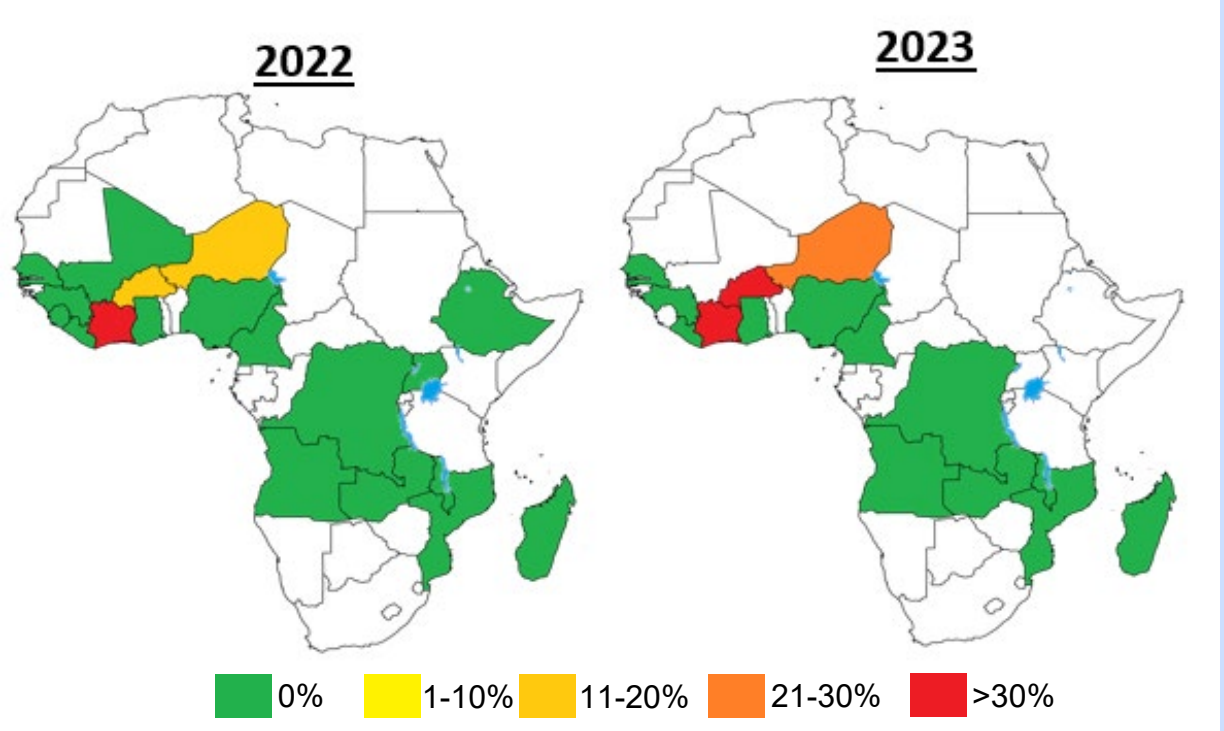
- Forecast procurement data show a steady decline through 2027, based on assumptions of constrained GC8 budgets and continued prioritization across interventions
- Increased uptake of newer products (e.g., Tenebenal, Sylando, Sovrenta) is expected
- Maintenance will require a mixture of continued donor commitment alongside domestic funding



Source: The Malaria Commodities Forecasting Project December 2025

WS1: Annual Meeting 2026
Overview of Priority Issues and Perspectives for Core Interventions

- Over at least the next three years there will be sustained, widespread use of chlorfenapyr nets, highlighting the threat of CFP resistance

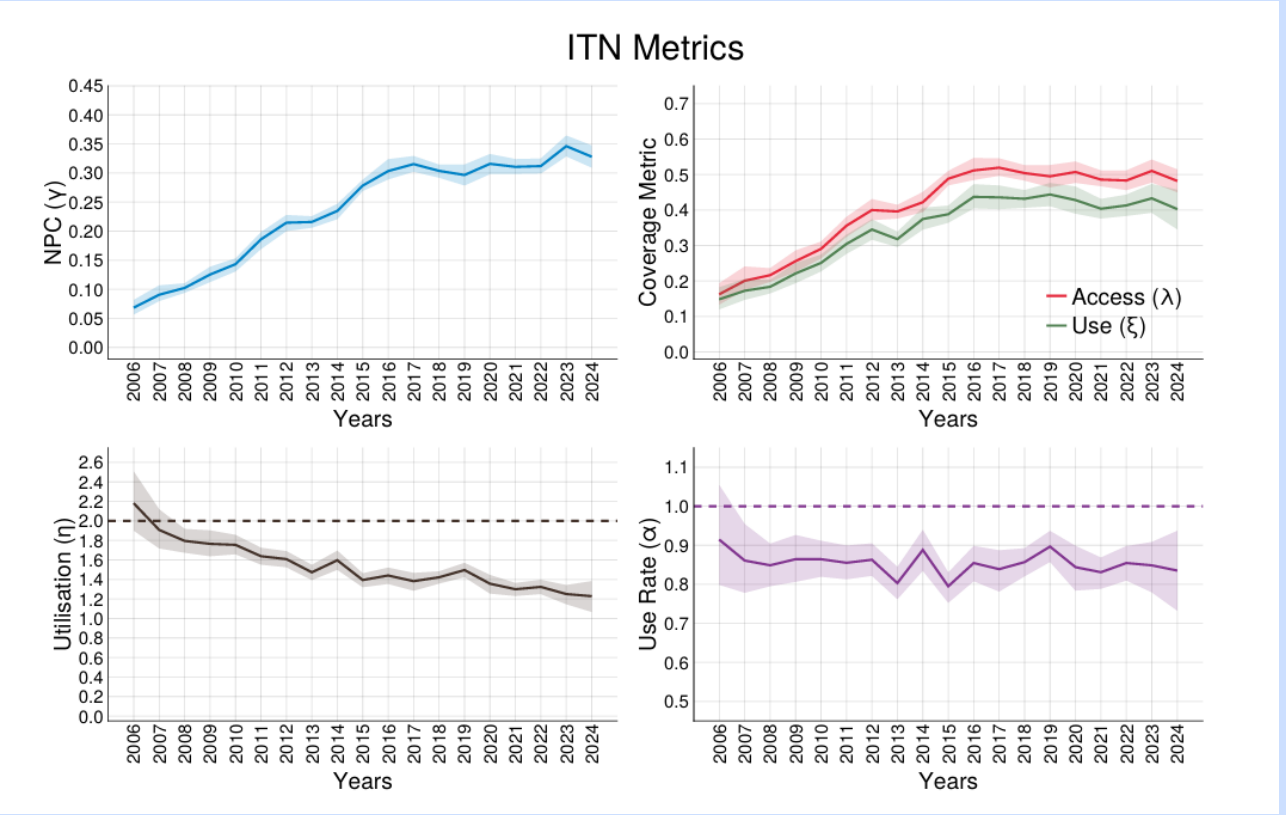


Chlorfenapyr 100ug/bottle insecticide susceptibility results <90% mortality cut-off at 72h

Source: PMI Evolve VCWG presentation 2024

WS1: Annual Meeting 2026
Overview of Priority Issues and Perspectives for Core Interventions

- Longitudinal coverage suggests stagnation in net ownership, access and use, alongside a downwards trend in utilisation
  - Suboptimal net allocation practices remain a challenge
  - Importance of net durability

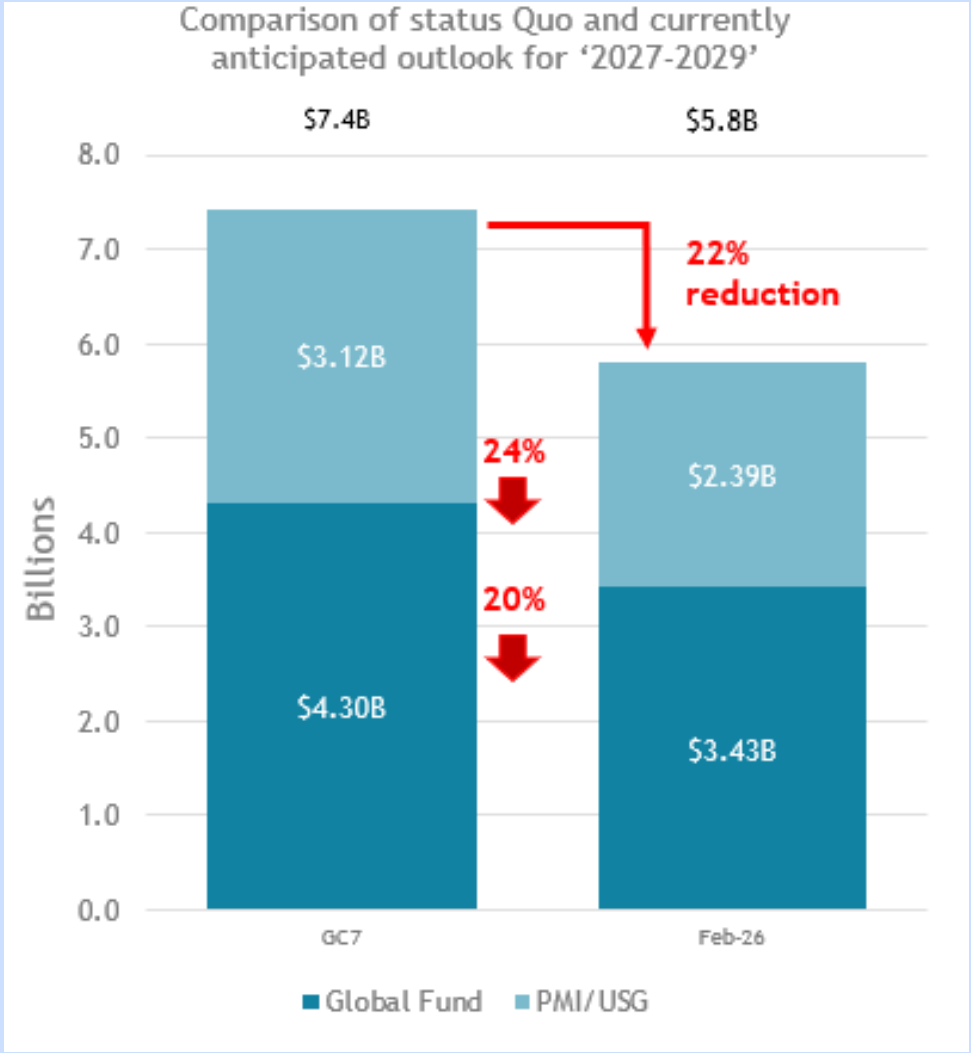


Source: Tan et al. 2025 preprint: https://doi.org/10.1101/2025.11.25.25341025

WS1: Annual Meeting 2026
Overview of Priority Issues and Perspectives for Core Interventions

Financing Challenges

- Following all replenishment announcements and USG commitment, the final donor-funded envelope for GC8 is $5.6B. As of Feb 2026, this indicate a 22% reduction in global malaria funding from GC7 to GC8
- Under USG MOUs countries will need to contribute domestic funding



Source: Current funding outlook compiled by CHAI, February 2026

WS1: Enhancing the Impact of Core Interventions Annual Meeting Agenda

Session	Title	Facilitators	Speakers
Session 1	Task Team 1: The evolution of insecticide resistance and resistance monitoring	Janneke Snetselaar	Steve Zinsou Hougbe, CREC Brian Polo, KEMRI Otubea Ansah, Ghana Health Service Joseph Chabi, Abt Global
Session 2	Task Team 2: Optimizing ITN coverage	Anna Trett Keith Esch Chrispin Williams	Emmanuel Mbuba, Swiss TPH Angharad Steele, Malaria Consortium Erica Vigano, LSHTM Andrew Glover, Imperial College London John Seppeh, Sierra Leone NMCP
Afternoon break, selection of teas, fruit juices, snacks			
Session 3	Task Team 3: Engagement and mapping of private sector partners to support implementation	Jess Rockwood Andrew Saibu	Matt Gordon & John Fairhurst, Global Fund Margaret McDonnell, United to Beat Malaria Dorothy Echodu, Pilgrim Africa Catherine Maiteki, Uganda NMED Charles Fanaka, NMCP Zambia

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Task Team 1: The evolution of insecticide resistance and resistance monitoring

Introduction

Janneke Snetselaar (VCWG Task Team lead)

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20-minute Speed Talks

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3 March 2026

Speed Talk 1

Two decades of insecticide resistance in Benin: a retrospective analysis of evolution and drivers (recorded presentation)

Steve Zinsou Hougbe, CREC

CREC
CENTRE DE RECHERCHE ENTOMOLOGIQUE DE COTONOU

21st Annual RBM Vector Control Working Group (VCWG) Workshop

RBM Partnership To End Malaria

«Vector Control at a Crossroads: Innovating for Impact in a Resource-Constrained Era»

Two decades of insecticide resistance in Benin: a retrospective analysis of evolution and drivers

Steve Zinsou Hougbe, Razaki A. Ossé, Roseric Azondékon, Casimir Kpanou, Minassou Juvénal Ahouandjinou, Zul-kifl Affolabi, Koffi Djigbodi Koumodji, Hermann Sagbohan,Esdras Odjo, Constantin Adoha, Boulais Yovogan, Serge Akpodji, Linda Towakinou, Bruno Akinro, Albert Salako, Filémon Tokponnon, Germain Gil Padonou, Lamine Baba-Moussa and Martin Akogbeto

BACKGROUND

Vector control interventions

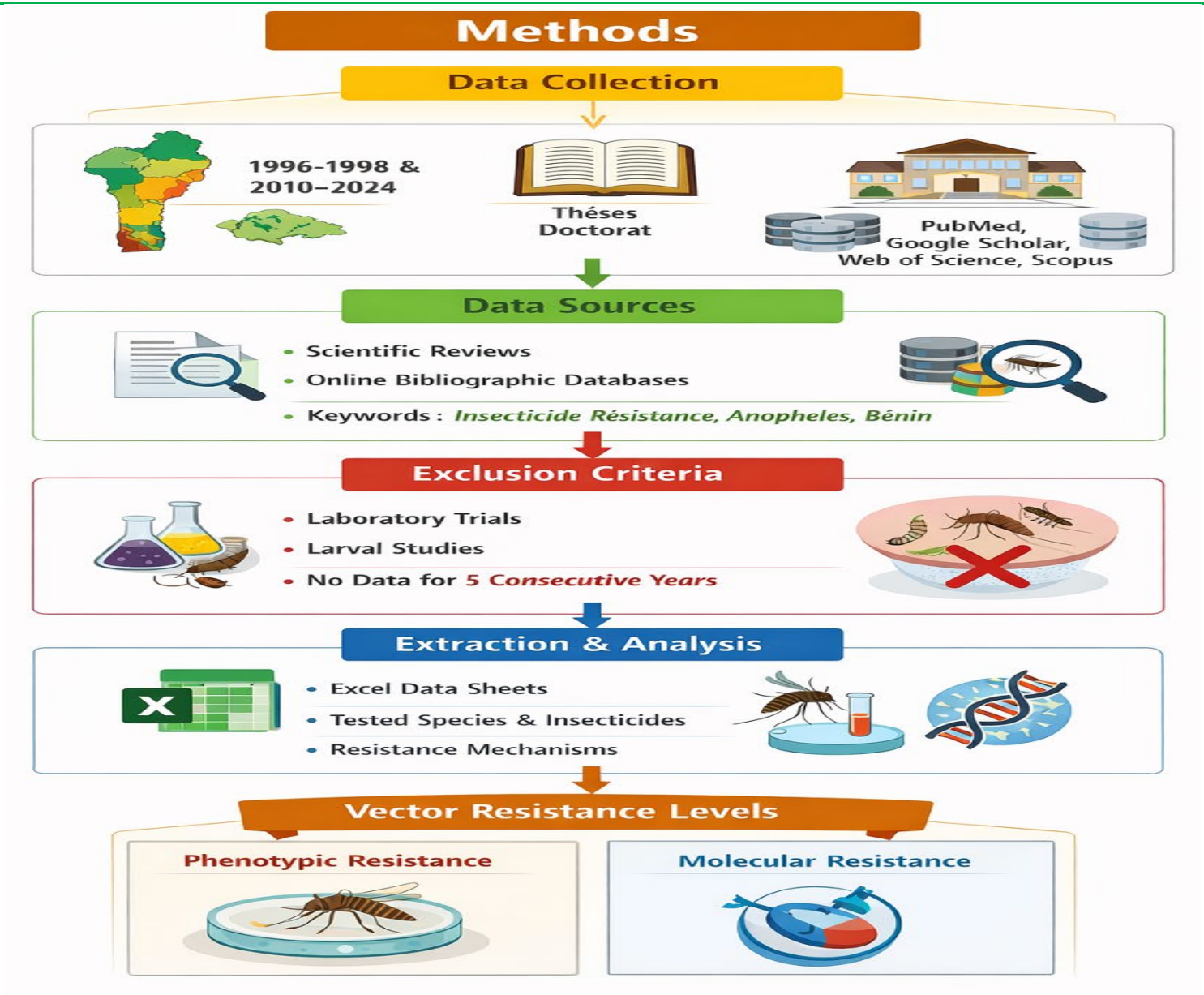


1. 2008: Start of the PID bendiocarb (carbamates)
2. 2011- 2020: Distribution of LLINs
   Mass distribution campaigns of pyrethroid-treated mosquito nets
3. 2013–2019: Indoor residual spraying (IRS) with pirimiphos-methyl (organophosphate)
4. 2020–2021: Indoor residual spraying with clothianidin
   Introduction of neonicotinoids
5. 2020–2023: Dual-treated LLINs
   Mosquito nets with pyrethroids + PBO or chlorfenapyr for enhanced efficacy.

Thus, through these interventions, the vectors have had time to become accustomed to these different classes and types of insecticides, leading them to develop resistance to some of them over the years

Retrospective analysis of the evolution and determinants of vector resistance to insecticides in Benin over the past 20 years.

METHODS

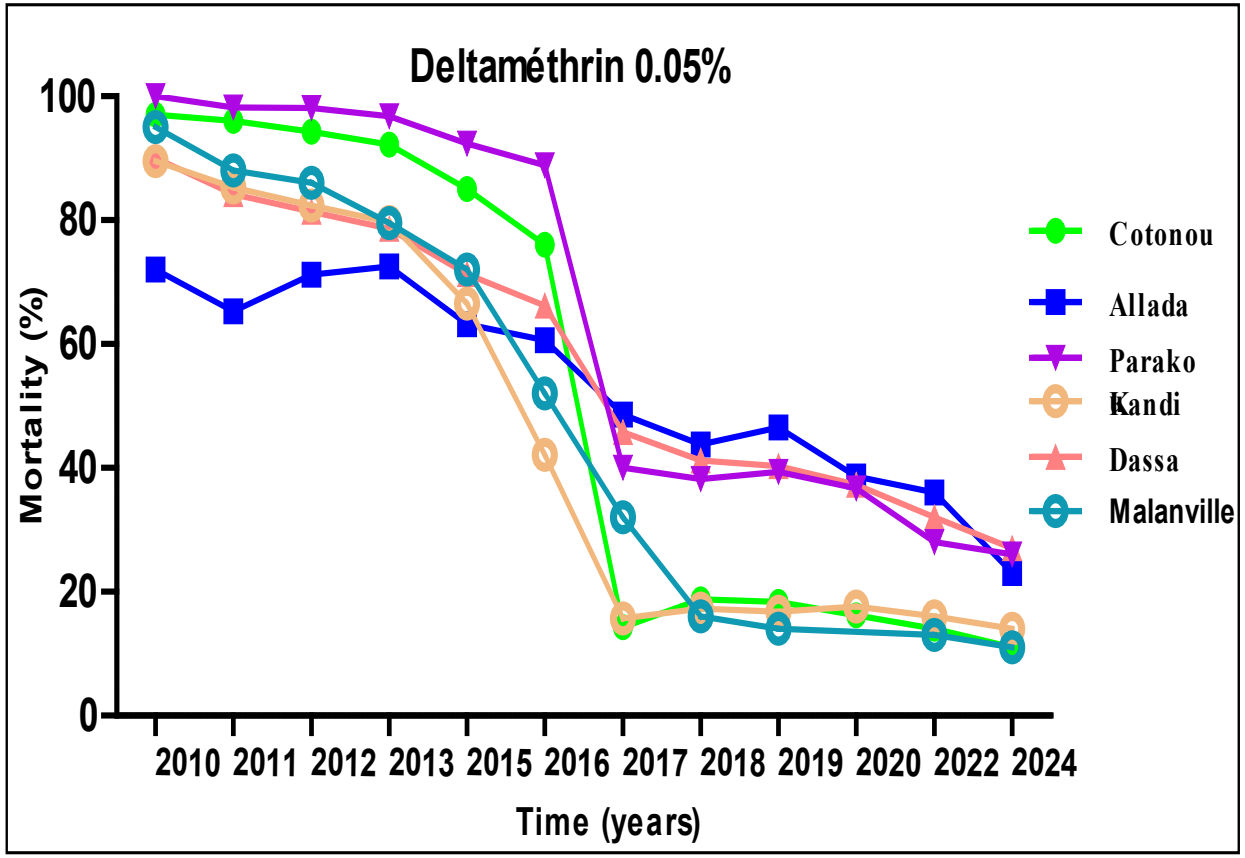

Methods
Data Collection
1996–1998 &
2010–2024
Théses
Doctorat
PubMed,
Google Scholar,
Web of Science, Scopus
Data Sources
Scientific Reviews
Online Bibliographic Databases
Keywords : Insecticide Résistance, Anopheles, Bénin
Exclusion Criteria
Laboratory Trials
Larval Studies
No Data for 5 Consecutive Years
Extraction & Analysis
Excel Data Sheets
Tested Species & Insecticides
Resistance Mechanisms
Vector Resistance Levels
Phenotypic Resistance
Molecular Resistance

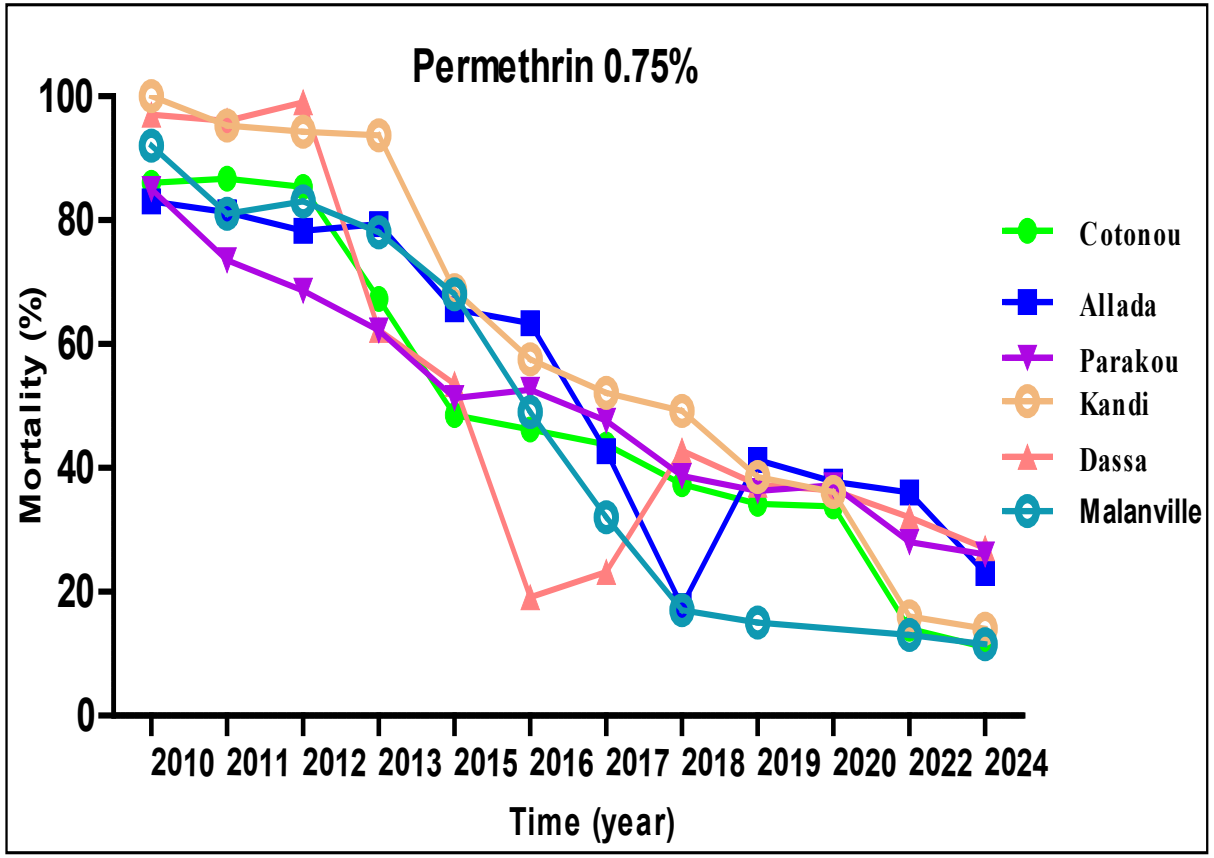
RESULTS

Evolution of insecticide resistance in *Anopheles gambiae s.l.* in Benin

Data from *2010 - 2024*

Case of deltamethrin and permethrin



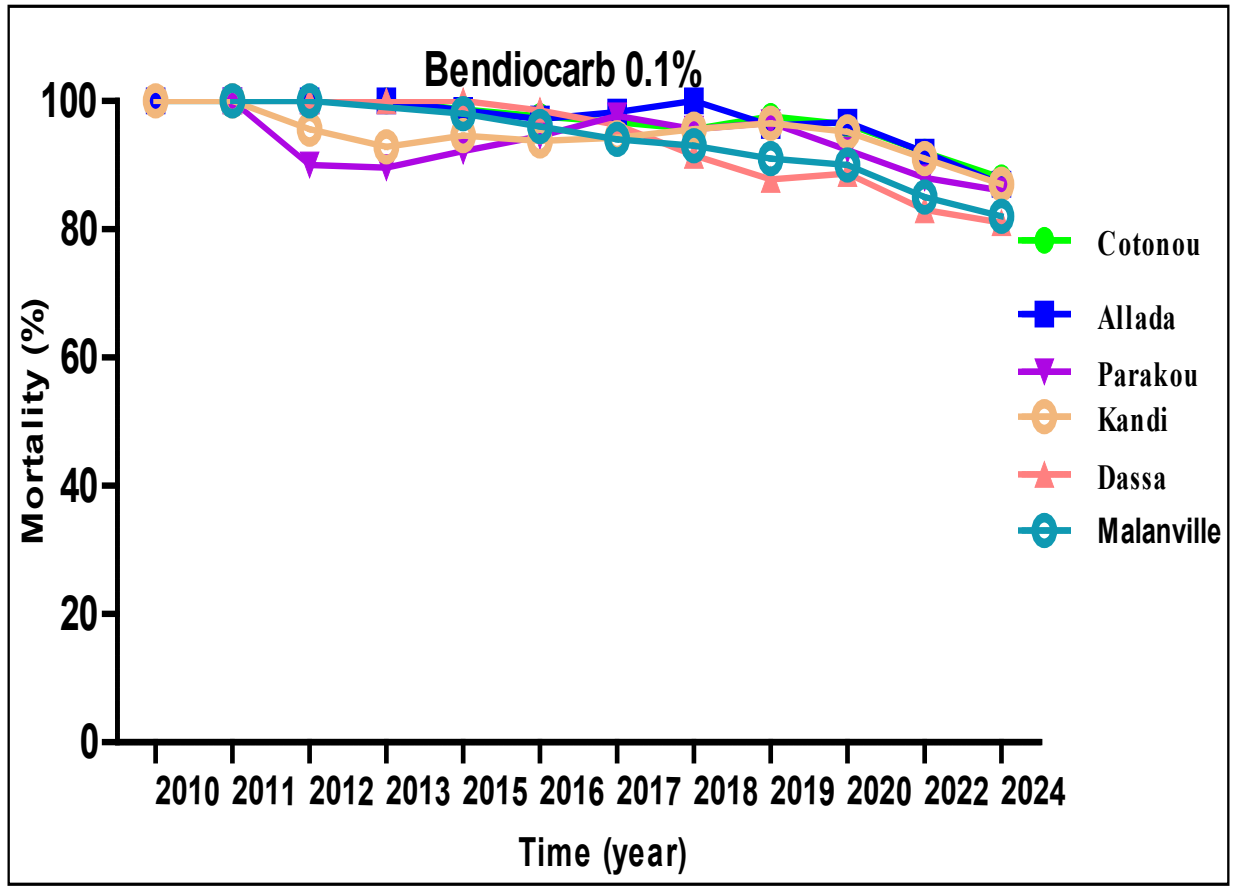


Rapid development of resistance from 2010 to 2024. The mortality rate of *An. gambiae s.l.* was below 20% in 2024

RESULTS

Evolution of insecticide resistance in *Anopheles gambiae s.l.* in Benin
Data from *2010 - 2024*

Case of *bendiocarb*



Mortality rate of 100%, indicating susceptibility to bendiocarb in 2012

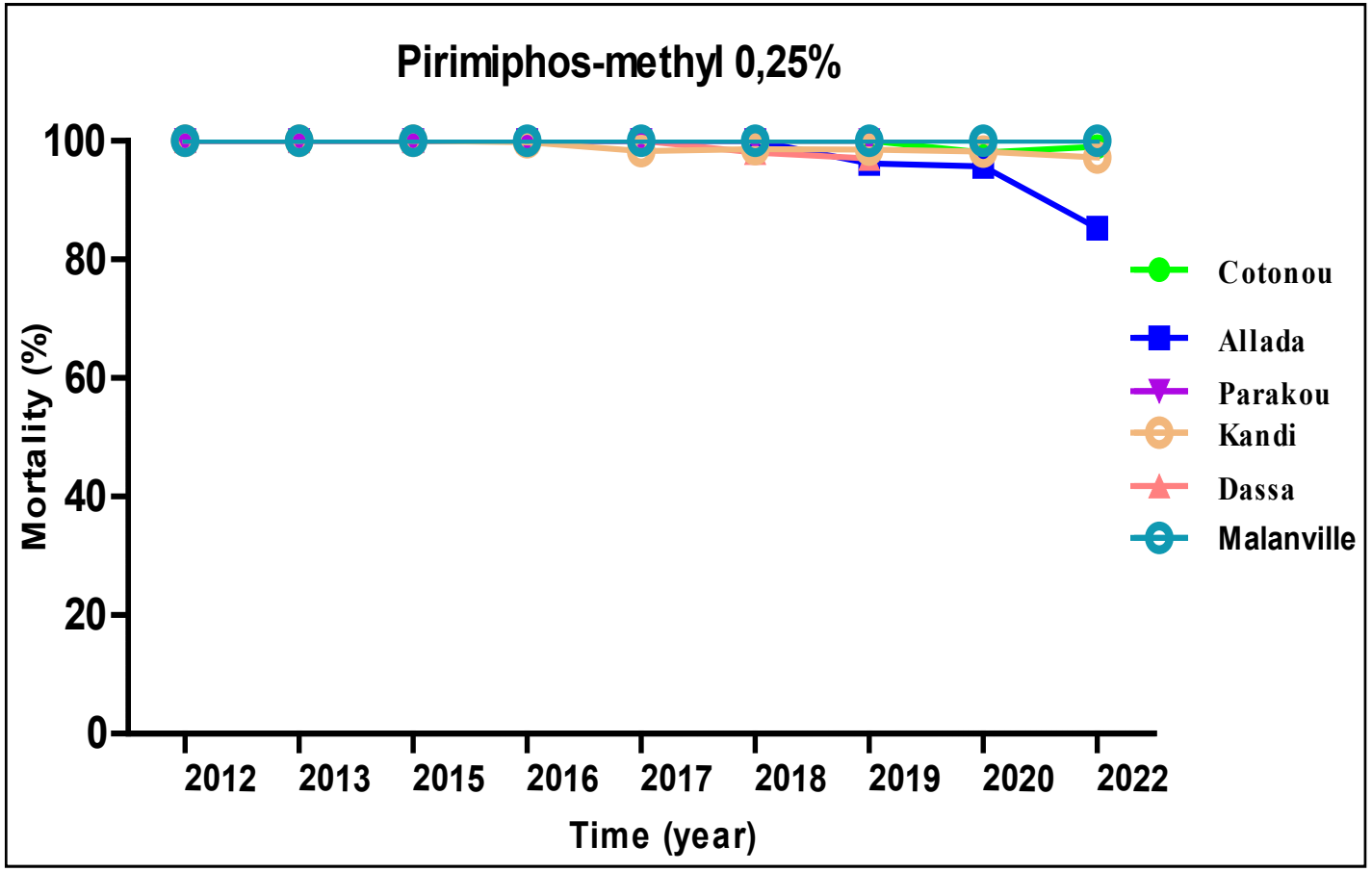
Suspected resistance: 83% in Dassa, 88% in Parakou, and 85% in Malanville between 2016 and 2022

RESULTS

Evolution of insecticide resistance in *Anopheles gambiae s.l.* in Benin

Data from *2010 - 2024*

Case of *Pirimiphos-méthyl*

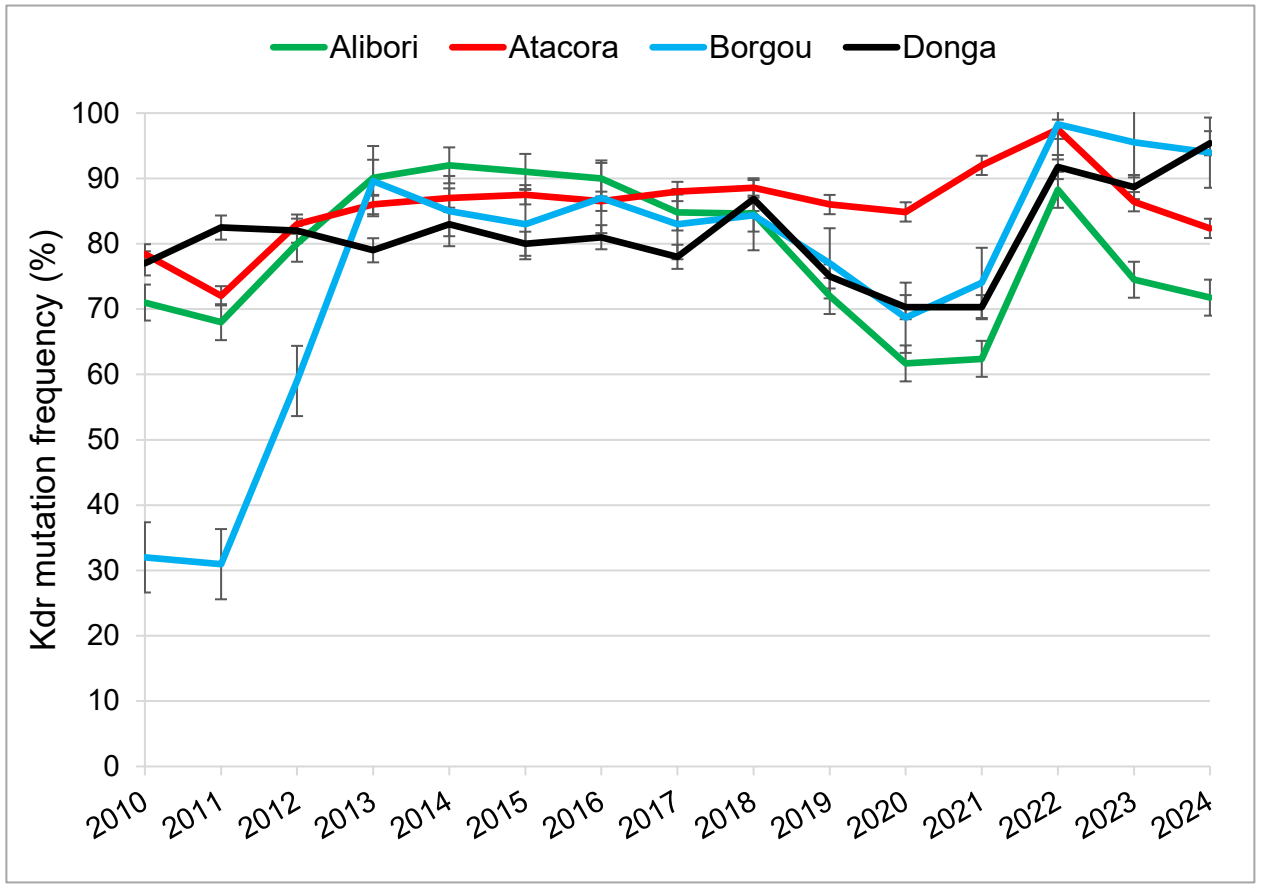


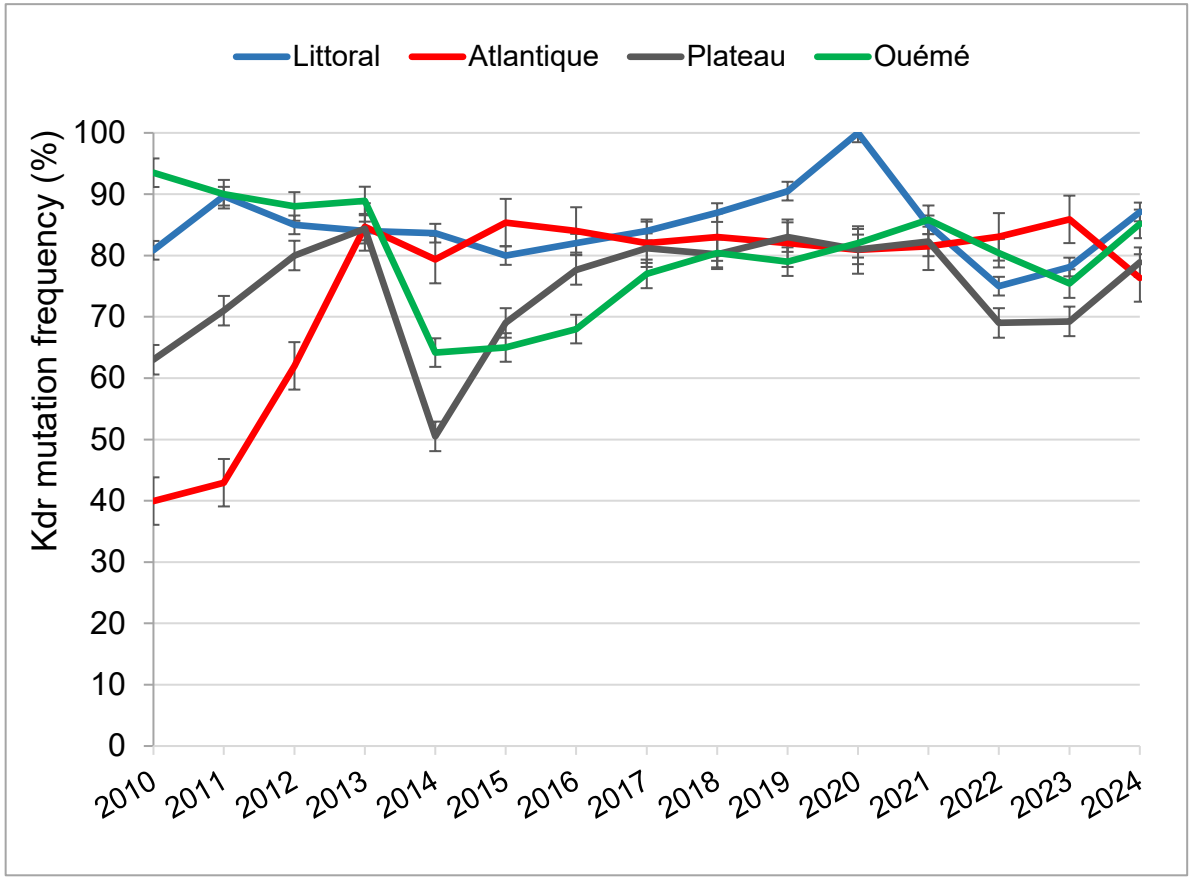
Reduced susceptibility, or even resistance, from 2022 in Cotonou (96%), Allada (85%), Dassa (97%), and Parakou (97%).

RESULTS

Evolution of resistance mechanisms from 2010 to 2024

Frequency of the *kdr* L1014F mutation

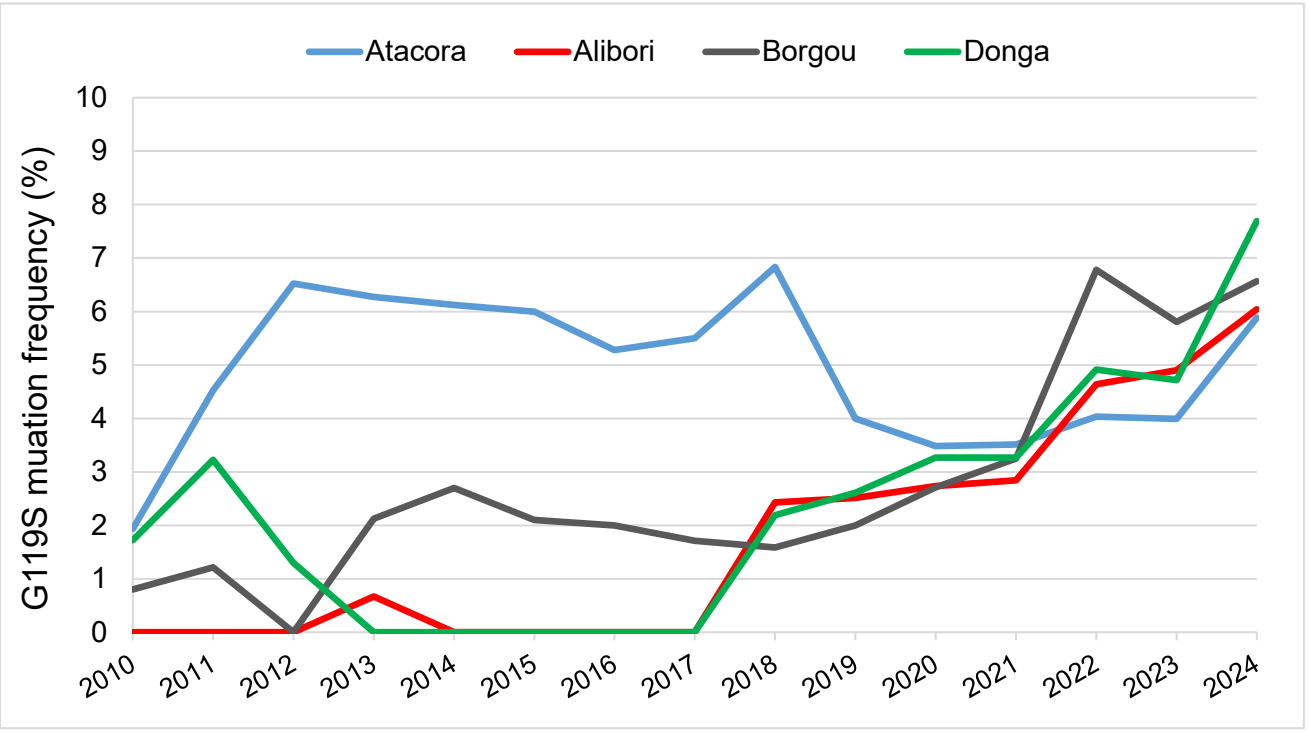


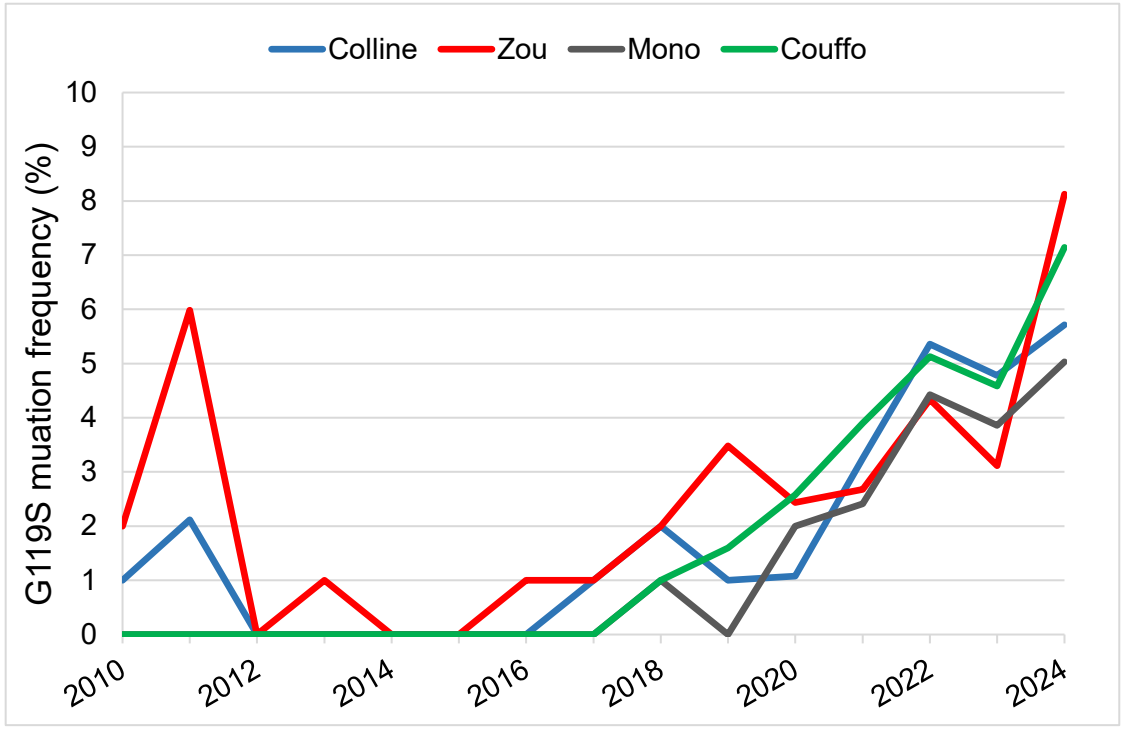


Progressive increase in the allelic frequency of the kdr mutation, from 70–78% in 2010 to 71–95% in 2024

Evolution of resistance mechanisms from 2010 to 2024

Evolution of the *ace-1* G119S mutation





The ace-1 G119S mutation played a very minor role in resistance mechanisms. However, it is evolving:

frequencies around 1–2% in 2010 increased to 5–7% in 2024

Conclusion

- Given this context, future vector control campaigns must prioritize the use of next-generation mosquito nets, such as PBO and Interceptor G2 and Permanet Dual mosquito nets, which have demonstrated effectiveness against resistant mosquito populations in multiple countries.
- Additionally, neonicotinoid-based insecticides like Fludora Fusion^{R} and Sumishield^{R} 50 WG and Vectron T500 offer promising alternatives for indoor residual spraying.
- Finally, consider the use of spatial repellents (Mosquito Shield™ and Guardian™) to fill the significant gaps of traditional methods: LLIN and IRS
- Complementary vector control strategies are critical. Physical vector control strategies, including environmental sanitation and the elimination of mosquito breeding sites, should be integrated into existing interventions.

Hougbe et al. Malaria Journal (2025) 24:156
https://doi.org/10.1186/s12936-025-05403-9

Malaria Journal

RESEARCH Open Access

Two decades of insecticide resistance in Benin: a retrospective analysis of evolution and drivers

Steve Zinsou Hougbe[1,2,3*], Razaki A. Ossé[3,4,5], Roseric Azondékon[3], Casimir Kpanou[6], Minassou Juvénal Ahouandjinou[3,4,5], Zul-kifl Affolabi[3,4,5], Koffi Djigbodi Koumodji[1,2,3], Hermann Sagbohan[3], Esdras Mahoutin Odjo[3], Constantin Adoha[3], Boulais Yovogan[3], Serge Akpodji[3], Linda Towakinou[3], Bruno Akinro[3], Albert Salako[6], Filémon Tokponnon[3,7], Germain Gil Padonou[2,3], Lamine Baba-Moussa[1,2] and Martin Akogbeto[3]

Abstract

Background Several studies have been conducted in Benin over the past two decades on insecticide resistance in mosquito vectors. These studies, by various authors, lead to diverse and scattered data. The present paper provides a retrospective analysis of these data to assess the current state of insecticide resistance and its evolution over two decades. Phenotypic trends were compared to mechanisms of insecticide resistance, focusing on the pyrethroids target-site mutation at codon 1014 of the voltage-gated sodium channel and the overproduction of detoxification enzymes capable of neutralizing insecticides before reaching their target.

Methods Data were collected from studies between 1996 and 1998 and from 2010 to 2024. For each selected study, the following information were extracted and organized in a Microsoft Excel spreadsheet: study year, adherence to WHO insecticide susceptibility testing protocols, mosquito species tested, study site characteristics, insecticides assessed, data source, and resistance mechanisms identified. Municipalities with data gaps exceeding five consecutive years were excluded.

Results The earliest reported cases of insecticide resistance in Benin date back to 1963, involving organochlorines. Resistance to pyrethroids was first observed in 1999, initially limited in scope. However, from 2010 to 2024, resistance to all pyrethroids spread across all regions of Benin, reaching high levels. In some municipalities, mortality rates in *Anopheles gambiae* sensu lato (s.l.) populations exposed to permethrin-treated papers fell below 10%. The frequency of the *kdr* L1014F mutation has mirrored phenotypic resistance trends, increasing from 10% homozygous resistant (*kdr/kdr*) individuals in 2011 to 90% in 2024 in the municipality of Allada. Detoxification enzymes, such as α-esterase, β-esterase, monooxygenase and glutathione S-transferase showed low, but steadily increasing activity between 2015 and 2024. Resistance to bendiocarb, first reported in 2012, has shown minimal progression, while resistance to pirimiphos methyl has been observed in some municipalities since 2022.

Conclusion First observed with organochlorines around the 1960s, and later with pyrethroids in 1999, insecticide resistance in mosquito vectors has continued to intensify. Over the last 20 years, it has gradually expanded, now

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Full list of author information is available at the end of the article

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THANK FOR YOUR ATTENTION



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To End Malaria

3 March 2026

Speed Talk 2

Genomic surveillance reveals geographical heterogeneity and differences in known and novel insecticide resistance mechanisms in Anopheles arabiensis across Kenya

Brian Polo, KEMRI

Genomic Surveillance Reveals Geographical Heterogeneity in *Anopheles arabiensis* Resistance Across Kenya

Brian Polo, Kelly L. Bennett, Sonia Barasa, Jon Brenas, Silas Agumba, Joseph Mwangangi, Lucy Wachira, Stanley Kitur, Damaris Matoke-Muhia, David Mburu, Edith Ramaita, Elijah O. Juma, Charles Mbogo, Eric Ochomo, Christopher Clarkson, Alistair Miles, Luna Kamau.

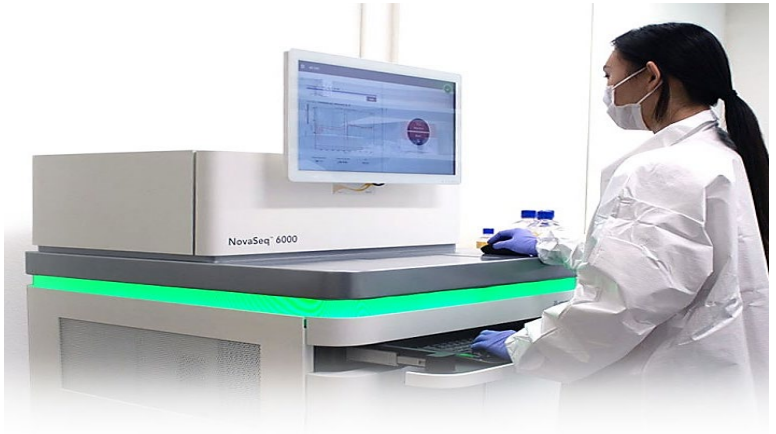
Kenya Medical Research Institute
VCWG-21 Abstract
Nairobi Kenya.

Introduction and Method

- *An. arabiensis* is Kenya's predominant malaria vector, yet resistance mechanisms poorly understood.
- Analyzed 498 whole-genome sequences of *An. arabiensis* from Kenya covering diverse ecological zones.



Sampling of *Anopheles* mosquito larvae



Illumina Hi-Seq whole genome sequencing



Laboratory rearing of field-collected Anopheles mosquito larvae to adults



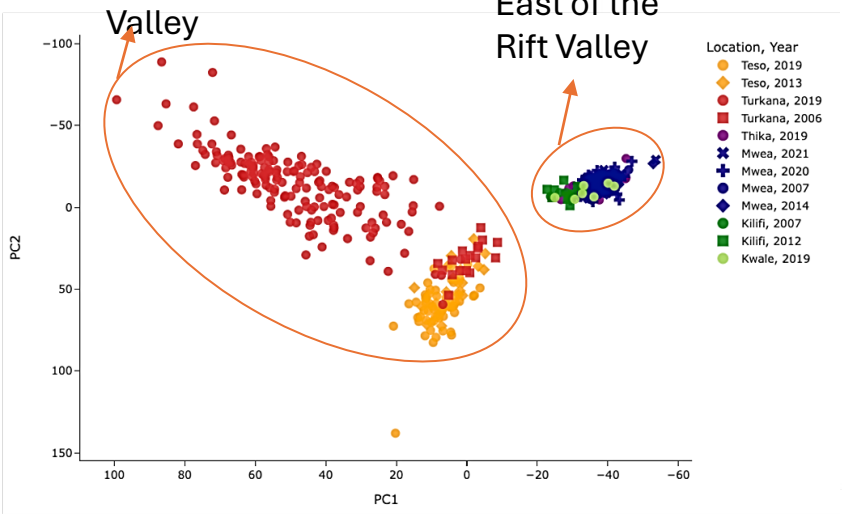
Adult mosquitoes 3-5 days old were exposed to discriminating doses of insecticides

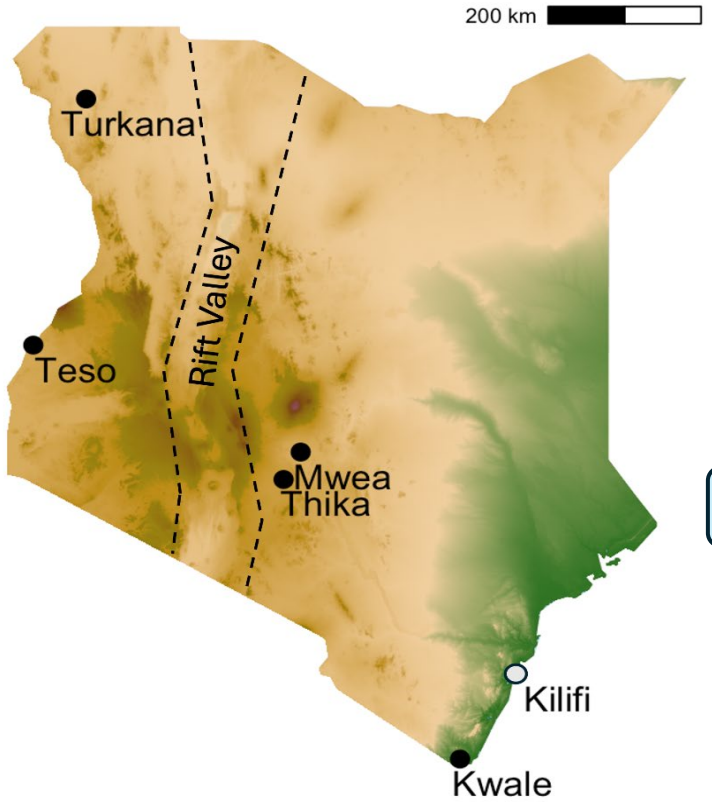
Key findings

Geographic Population Structure

- **Great Rift Valley creates genetic barrier** (FST 0.005-0.011)
- Western populations distinct from central/coastal regions.
- Restricted gene flow shapes divergent resistance evolution

a.





Region-Specific Resistance Profiles

Central Kenya (Mwea/Thika):

- **Fixed resistance** at Cyp6aa/p cluster (93-100%)
- Carboxylesterase amplifications (80-100%) = organophosphate resistance
- Likely driven by intensive agricultural pesticide use

Western Kenya (Turkana):

- **Vgsc-L995F mutation** at 44% frequency (target-site resistance)
- **Cyp9k1 duplications** at 66% (metabolic resistance)
- High ITN coverage creating resistance hotspot

Novel Discovery

- **Keap1 gene under selection** in central Kenya only
- Regulates multiple detoxification pathways
- Stop-gain mutation (E762*) suggests loss-of-function = elevated antioxidant defense

Conclusion

- The observed high heterogeneity in population genetic structure and diverse insecticide resistance mechanisms across Kenya is **likely driven by restricted gene flow such as the Great Rift Valley**.
- Genomic evidence suggests that organophosphate resistance in Central Kenya is largely driven by Cyp6aa/p gene cluster and carboxylesterases.
- Turkana Presented appreciable frequencies of the Vgsc-L995F mutation and Cyp9k1 duplications, which are associated with pyrethroid and DDT resistance.
- **Further studies on Keap1 gene**, can help evaluate the effects of these mutations on insecticide resistance in central Kenya.

Acknowledgement

- Luna Kamau
- Eric Ochomo
- Silas Agumba
- Lucy Wachira
- Joseph Mwangangi
- Stanley Kitur
- Damaris Matoke
- Kelly L. Bennett
- Jon Brenas
- Alistair Miles
- Christopher Clarkson
- Charles Mbogo
- Elijah O. Juma
- Sonia Barasa
- David Mburu
- Edith Ramaita

MalariaGEN
GENOMIC EPIDEMIOLOGY NETWORK

RBM Partnership
To End Malaria

3 March 2026

Speed Talk 3

Insecticide Resistance in Ghana

Otubea Owusu Akrofi, Ghana NMEP Health Service



Sustaining the Watch: Funding Challenges and Opportunities for Entomological Surveillance

OTUBEA OWUSU AKROFI
National Malaria Elimination Programme
Ghana Health Service

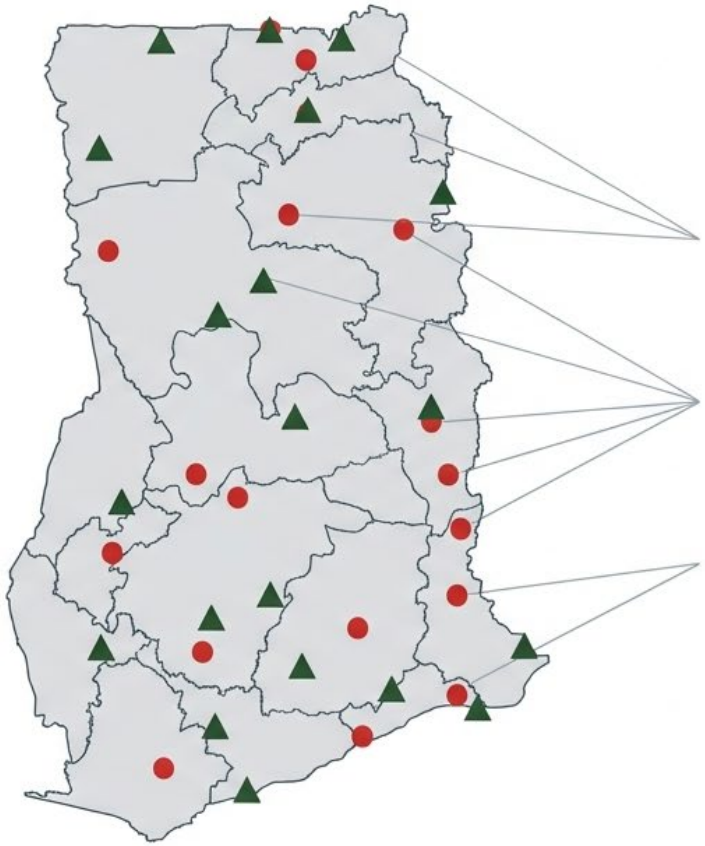
2026 VCWG MEETING
MARCH, 2026

MINISTRY OF HEALTH
REPUBLIC OF GHANA

GHANA HEALTH SERVICE
Your Health-Our Concern

Introduction

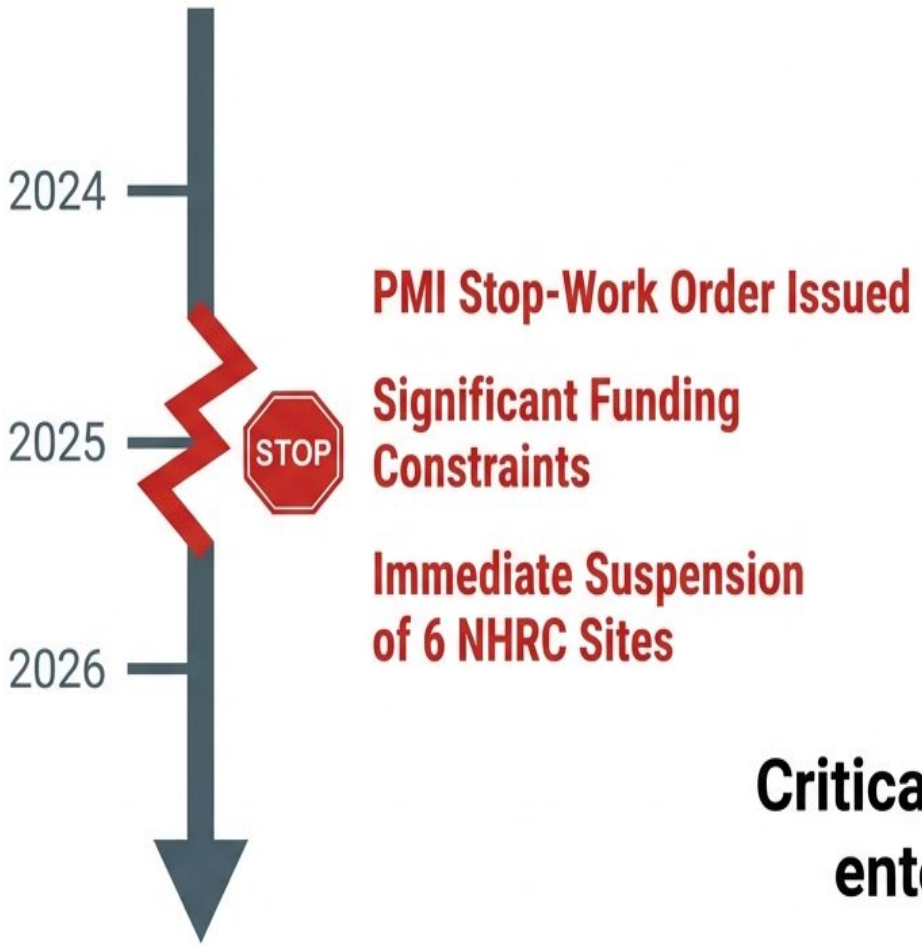
The Baseline: A Nationwide Surveillance Network (2021-2024)



Nationwide Operational Coverage

- 30 Insecticide Resistance Monitoring (IRM) Sites
- 20 Longitudinal Entomological Surveillance Sites
- Key Partnerships: NMIMR, NHRC, KNUST, and UCC

Funding Constraints



PMI Stop-Work Order Issued

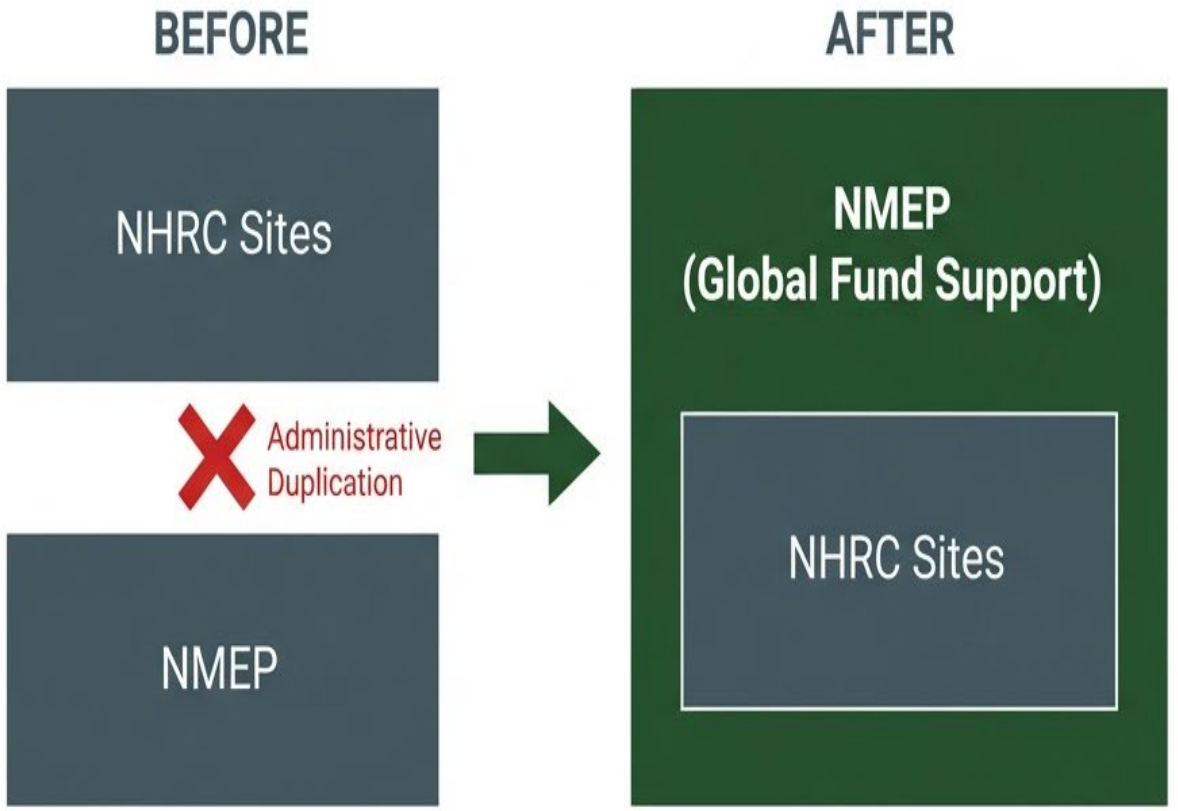
Significant Funding Constraints

Immediate Suspension of 6 NHRC Sites



Critical Risk: Loss of longitudinal entomological data continuity

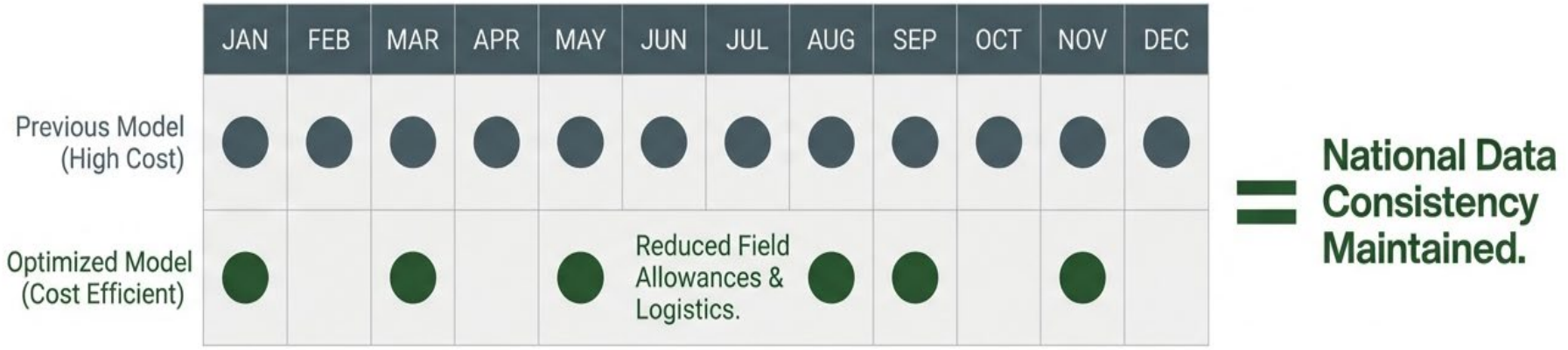
Measure 1: Central Coordination by NMEP



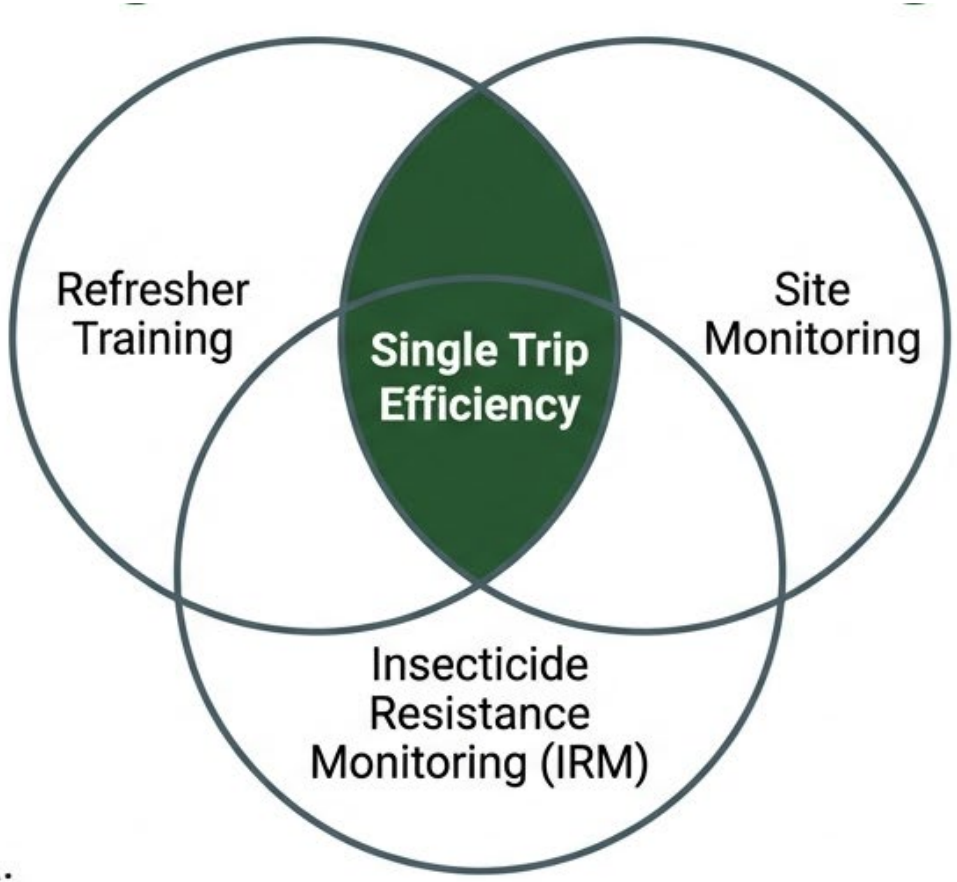
BENEFITS

- Absorption of 6 suspended sites.
- Elimination of administrative overhead.
- Leveraging of existing national coordination structures.

Measure 2: Optimized Frequency



Measure 3: Integrated Monitoring & Training



Key synergies:

- Combining activities drastically reduced travel and transportation costs.
- **Maximized technical support** provided per single site visit.

Measure 4: Phased Logistics Deployment



- Mandated use of existing stock before new procurement.
- Minimized wastage and improved accountability.

The Outcome

- Surveillance sustained despite funding disruptions
- National coverage maintained
- Improved efficiency and national ownership
- Datasets available for in country decision making

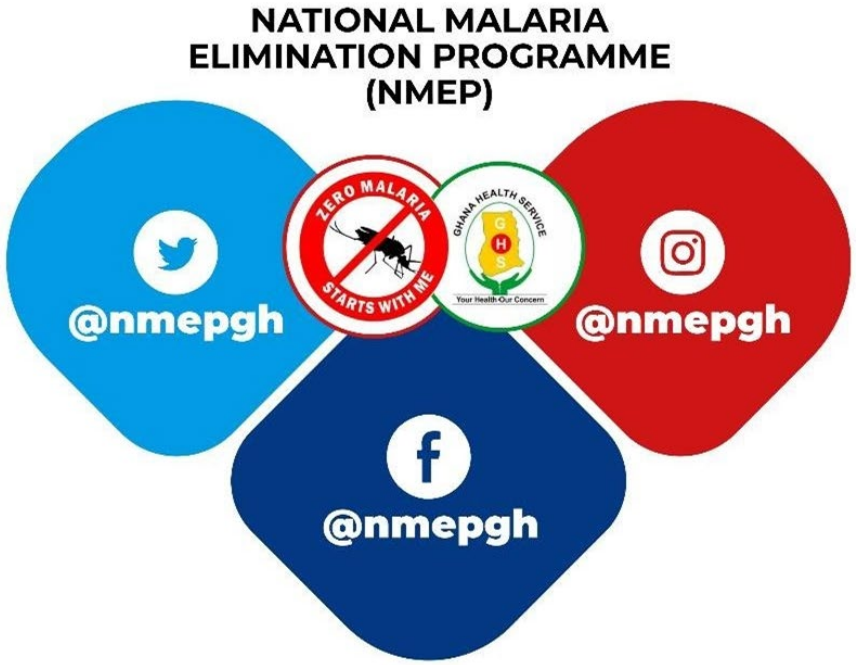
Conclusion: A Model for Sustainability?

- Strategic cost-saving measures ensured continuity in 2025

- Approach provides a model for sustainable surveillance financing
  - Further areas for reduction for efficiency?

Thank you

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3 March 2026

Speed Talk 4

PMI Evolve insecticide resistance monitoring landscape across countries before and after 2025: Importance to sustain data collection for vector control decision making

Joseph Chabi, Abt Global



PMI Evolve insecticide resistance monitoring landscape across countries before and after 2025: Importance to sustain data collection for vector control decision-making

Joseph Chabi, VCWG 2026

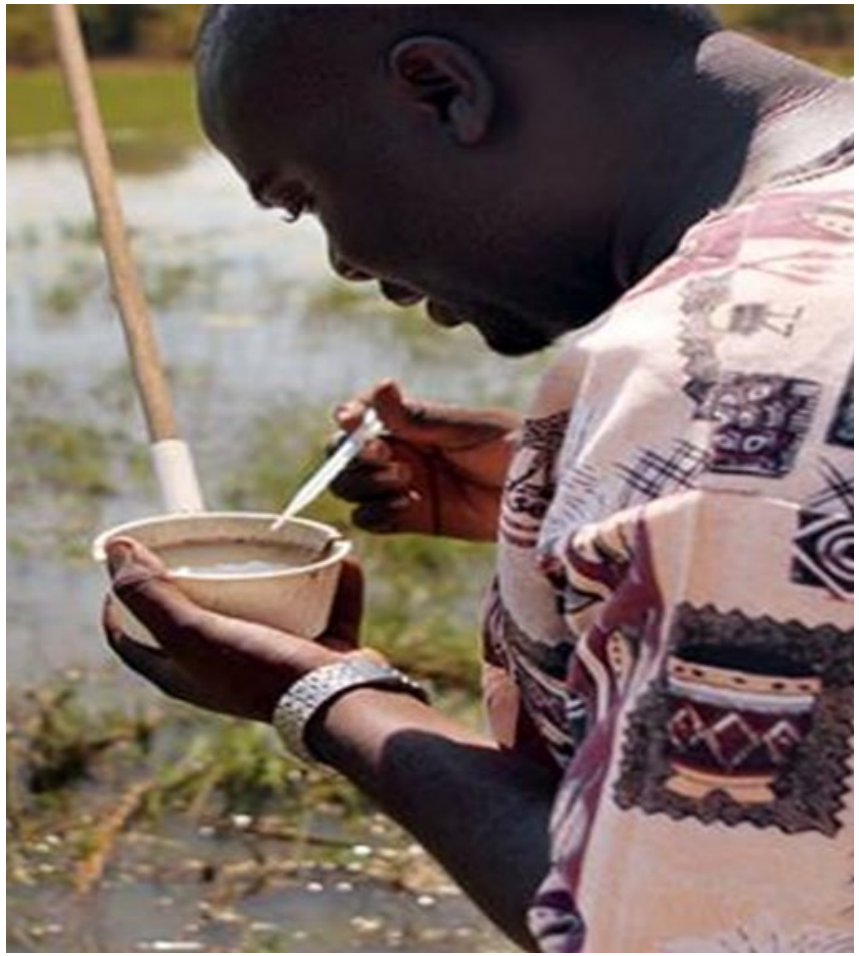
United States Government

PMI Evolve

Evolving Vector Control to Fight Malaria

Introduction

- Entomological monitoring has always been a backbone of all vector control tool and strategy decision-making
- While vector surveillance help on deciding the strategy and timeline of the implementation (vector biting behaviour, peak biting, feeding preference, etc..)
- Insecticide resistance monitoring remains the drivers of insecticide selection of the target strategies
- The more sites surveyed, the best the approach for tool selections
- PMI Evolve has contributed largely to data collection to support countries insecticide for IRS and type of ITN selections based on factual data.



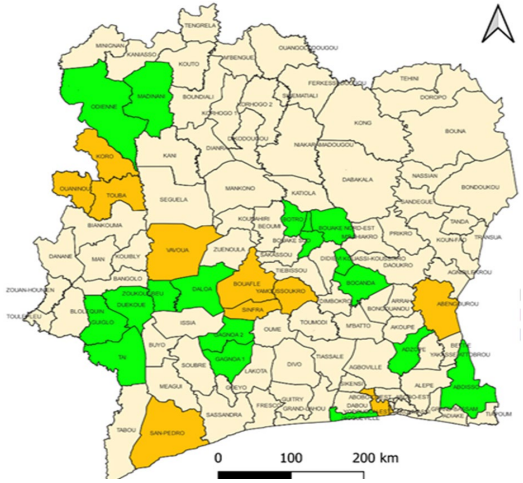
Landscape of the PMI Evolve IRM

	# Insecticide Resistance Sites	
Country	Before 2025	From 2025
Burkina Faso	25	5
Cambodia	3	0
Cameroon	10	5
Cote d'Ivoire	14	5
Ethiopia	5	5
Ghana	9	5
Guinea	7	5
Kenya	4	6
Liberia	7	4
Madagascar	8	5
Malawi	8	5
Mozambique	9	0
Niger	15	5
Nigeria	12	6
DRC	13	9
Sierra Leone	3	5
Tanzania	0	5
Togo	6	5
Uganda	14	7
Zambia	6	5
Zimbabwe	0	6
TOTAL	178	103

- In 2025, the project lost more than 40% of the initial number of sites due to change in US Government Foreign Assistance and a prioritization of life saving service delivery
- Reduced data to support appropriately country's VC decision
- Targeted insecticides to be tested following country's VC strategy
- No more detection of resistance markers,
- However, other stakeholders in some countries continued to collect data to provide support to NMPs decision-making

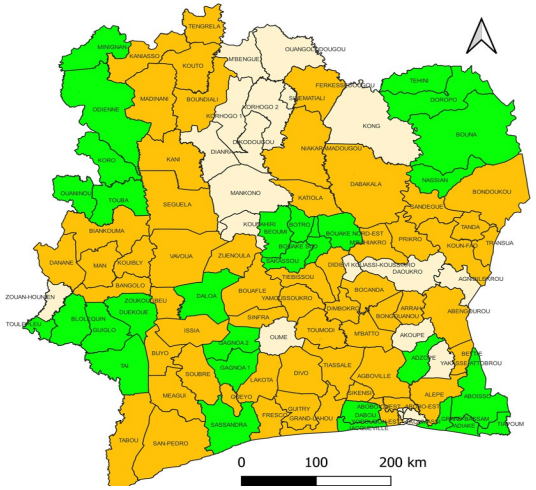
IRM Data for ITN Stratification (Case of Cote d'Ivoire)

2021



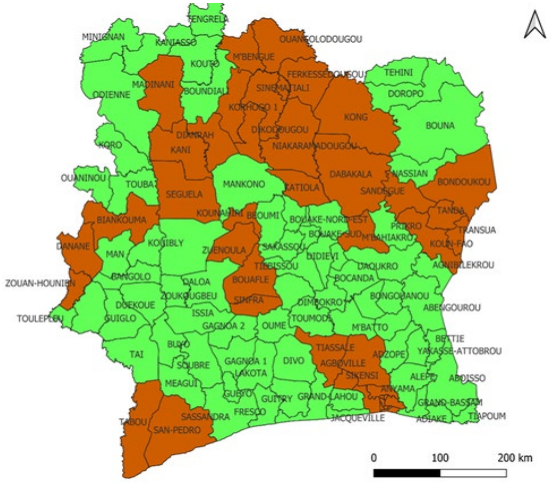
Standard (84 districts/ 74%)
MILDA IG2 (18 districts/ 16%)
MILDA PBO (11 districts/ 10%)

2024



Standard (24 districts/ 21%
MILDA IG2 (32 districts / 28%)
MILDA PBO (57 districts / 51%)

2027

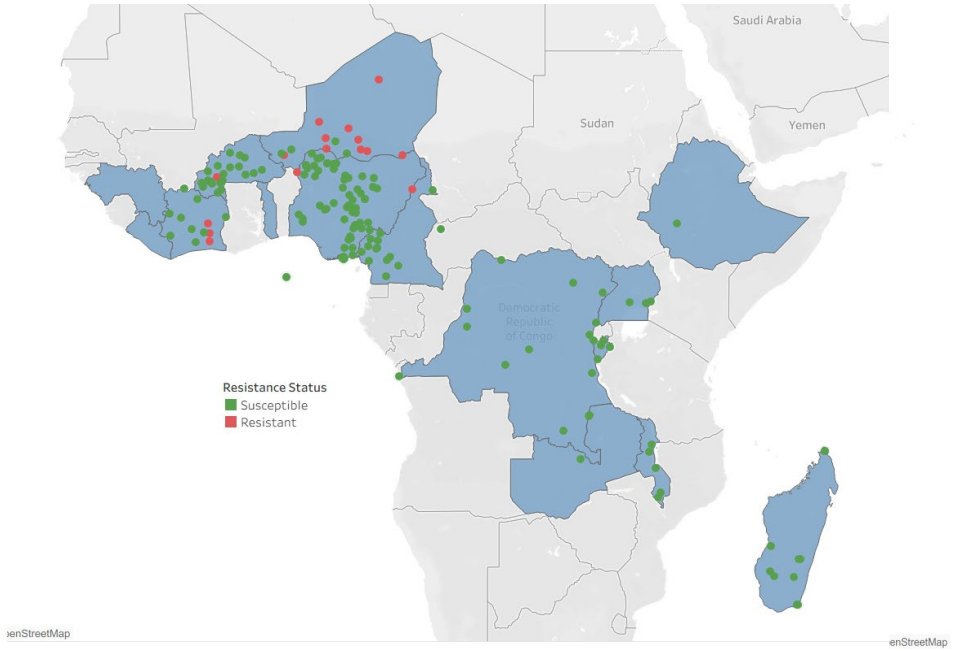


MILDA IG2 (70 distcts/79 %)
MILDA PERMANET DUAL (43 districts/ 21 %)

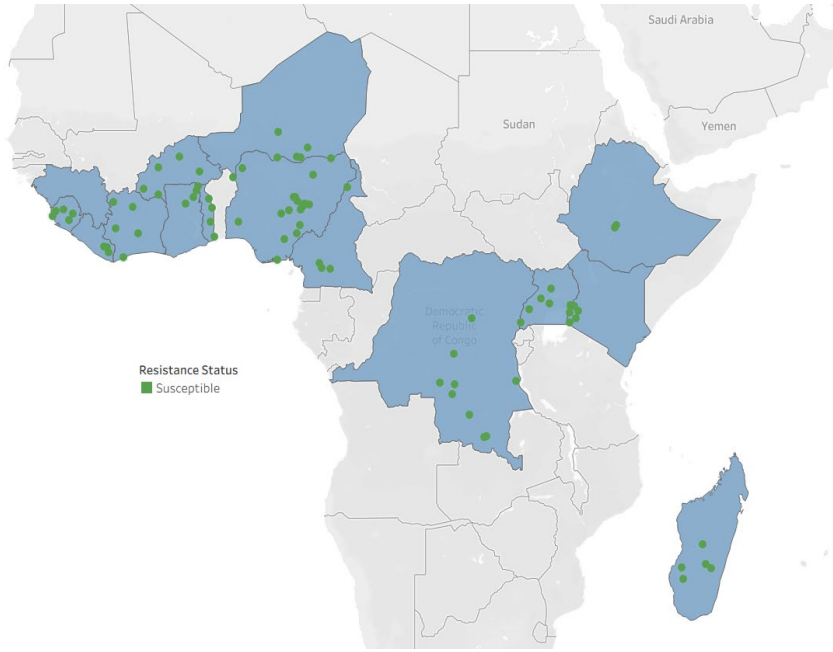
- Pyrethroid resistance is high and widespread across the country
- Standard ITNs have not been considered as VC tool in the new national strategic plan of the country
- PBO restoration was partial and very limited
- Chlorfenapyr represents the only best alternative to date

Trends in vector resistance to the new insecticides (Chlorfenapyr)

2024



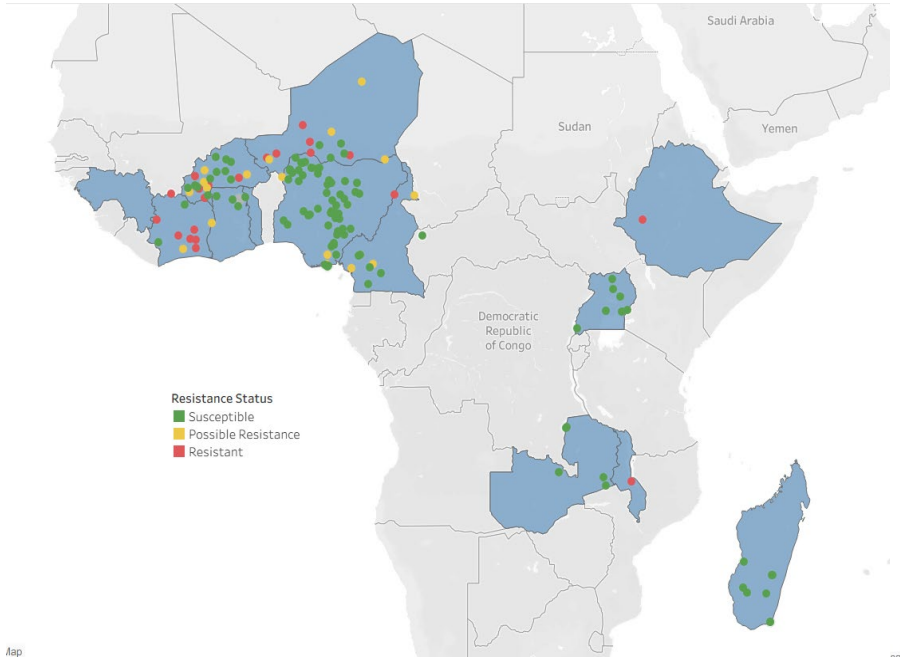
2025



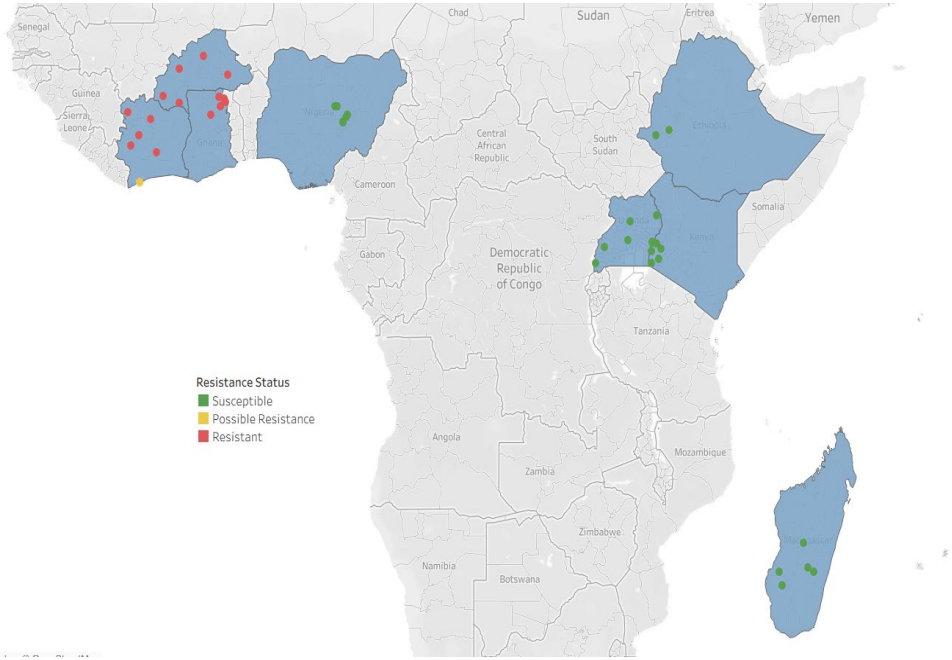
- Important to do continuous and extent monitoring of chlorfenapyr as most countries are now ITN countries with mass distribution of dual active ingredient ITNs
- A sign of survival of mosquitoes exposed to chlorfenapyr was detected in few countries in 2024
- Unfortunately, the reduced scope did not allow to investigate more sites in 2025 to confirm the trends in those sites, while the sites tested in 2025 recorded susceptibility

Trends in vector resistance to the new insecticides (Clothiandin)

2024



2025



- Though the IRS portfolio is reduced across the continent, the trend with clothianidin should be an alert for the whole VC portfolio
- Countries are gradually reporting resistance and mainly in West Africa
- The reduced scope for testing IRS insecticides in only IRS sites (7 in 2026) has limited the number of sites and countries that could report on the status of the insecticide

Conclusion and Recommendations

Malaria prevention is still based mostly on insecticide-based tools

Mass distribution of ITNs /IRS and agro-pesticides have been incriminated for the multiple mutations within the malaria vectors, different resistance mechanisms leading to widespread resistant vectors

With the challenge to make new insecticides and the limited options for public health vector control, it is important to secured the new insecticides and ensure continuous efficacy of the tools

However, this requires a close monitoring following currently large deployment of dual active ingredient ITNs across most of the endemic countries

With the impact of the USG new approach, advocacy for support from other partners is needed to improve data collection across countries

Over its successive projects (AIRS-VectorLink-Evolve) PMI has been working to strengthening countries ' capacity to collect data for VC decision making. The new era should be the time for countries to step up within the reduced donor funds



United States Government

PMI Evolve

Evolving Vector Control to Fight Malaria

RBM Partnership
To End Malaria

Panel session and Q&A on resistance monitoring in resource constrained setting

3 March 2026

Moderator: Janneke Snetselaar

Panelists:
Steve Zinsou Hougbe (CREC), Brian Polo (KEMRI), Kibor Keitany (Kenya NMCP), Otubea Akrofi (Ghana Health Service), and Joseph Chabi (Abt Global)

RBM Partnership
To End Malaria

3 March 2026

Task Team 2: Optimizing ITN coverage

Introduction to session: Five presentations followed by discussion

Anna Trett, Keith Esch, Chrispin Williams

RBM Partnership
To End Malaria

Workstream One
Task Team Two: Using non-biological data to address threats and inform decision making

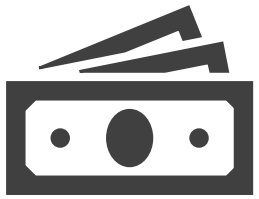
Please submit your questions for the speakers throughout the session for the Q&A that will follow

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Threats

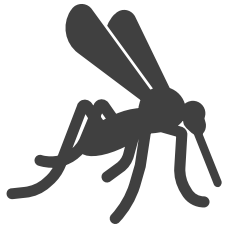
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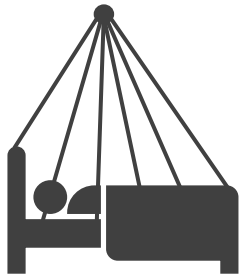
Financing and budgeting



Physical and chemical durability



Outdoor biting



ITN use

RBM Partnership To End Malaria

Decision making

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Which nets to procure?

Where to put nets?

How can we optimize ITN coverage?

How can we optimize distribution channels?



How to tailor SBCC?

What data to collect to inform decisions?

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Last year, we looked at a range of ITN optimization strategies utilizing the right data for decision making

Eleanore Sternberg	How can existing DM data be used to address issues pertaining to ITN durability?	→ No further DM data will be collected. Important to continue to utilize DM data as a resource. Updated analyses available through AMP
Emma Fairbanks	Semi-field versus EHTs	→ Several examples of smaller scale results being compiled to generate evidence of impact on a larger-scale
Tom Syme	20 wash metric for insecticide durability	→ Optimizing chemical durability measurements
Frank Mechan	Resistance to damage score	→ Publication in pre-print. Topic was discussed during a WHO technical consultation. Awaiting final technical report which may unlock potential for its use in ITN procurement decisions. Some procurers are requesting the RD to assist with decisions
Anna Trett	Adopting the RD score into decision making on ITNs	
Dominique Bomba Amougou	ITN distributions in Cameroon – Optimize distribution strategies	→ Findings informed a change to national distribution policy

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This year the session focuses on strategies to optimize ITN coverage, reviewing innovative and practical strategies to address threats facing our core intervention

Physical durability data collection	Emmanual Mbuba (Sarah Moore)	Estimating hole surface area of ITNs image analysis
Optimal resource allocation strategies	Erica Vigano	Using GC7 funding requests insights to inform VC resource allocation
	Angharad Steele	Building evidence base to optimize ITN distributions
	Andrew Glover	Validation of the MINT tool to support allocation of core VC interventions
Continuous distribution channels	John Seppeh	2025 school-based ITN distribution in Sierra Leone

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Please submit your questions for the speakers throughout the session for the Q&A that will follow

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To End Malaria

3 March 2026

Estimating the hole surface area of insecticide-treated nets using image analysis, manual hole counting and exact hole measurements

Sarah Moore, Swiss TPH

T2-PSL-v19.0

Swiss TPH
Swiss Tropical and Public Health Institute

ISO 9001:2015 certified
IFAKARA HEALTH INSTITUTE
research | training | services

UHURU NA UMOJA

UNI BASEL

Estimating the hole surface area of insecticide-treated nets using image analysis, manual hole counting and exact hole measurements

Sarah Moore / Emmanuel Mbuba || embuba@ihi.or.tz

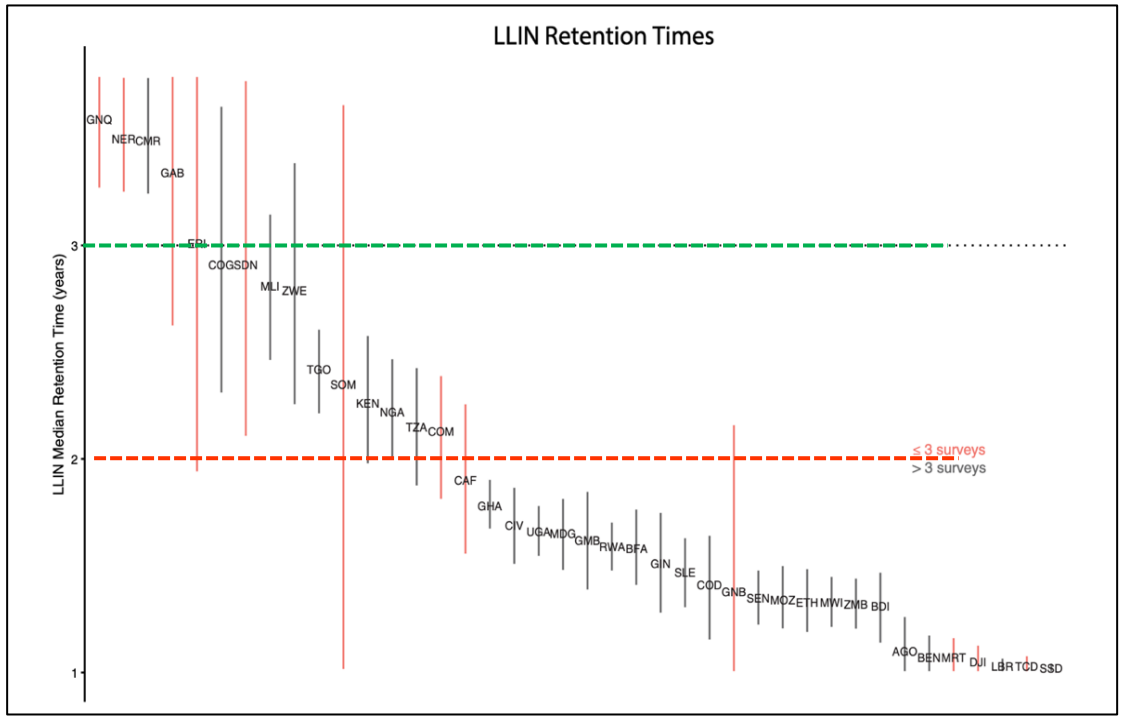
VCWG-21 Meeting || 3-5th March 2026
Nairobi, Kenya

ViALLIN

BRC CH Basel Research Centre for Child Health

Most ITNs have a median lifespan of < 3 years

Fabric damage is the main driver of ITN short lifespan



Source: Bertozzi-Villa 2021 Nat. Commun

Highly damaged ITNs are 10x more likely to be discarded



Mvungi *et al. 2025 Malar J*

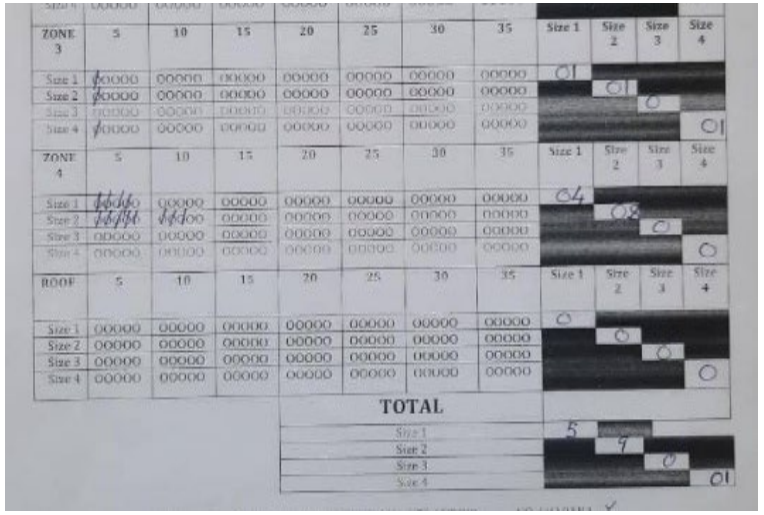
Durability monitoring is essential to assess if ITNs meet their intended 3-year lifespan

ViALLIN

Standard method for assessing fabric integrity

Hole count and tallying





Step 1

Hole size Category	Size 1	Size 2	Size 3	Size 4
Hole size in centimeter	0.5-2	2-10	10-25	>25
Corresponding weights	1	23	196	576

Step 2

pHI= (# of size 1 x 1) + (# of size 2 x 23) + (# of size 3 x 196) + (# of size 4 x 576)

Step 3

Category	pHI value ranges	Approx. hole surface area (cm^2)
Serviceable	0-642	0-1,000
Too torn	≥643	>1,000

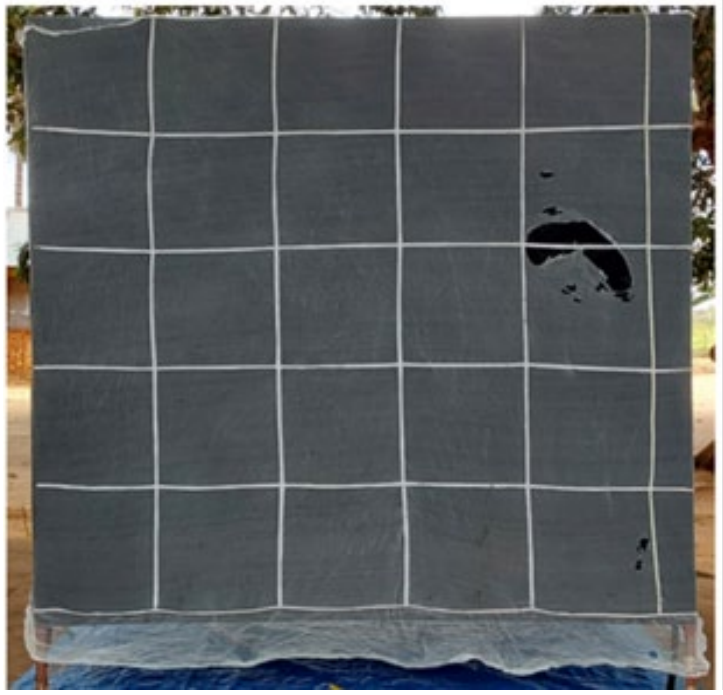
Rationale



We need a faster and user-friendly method for **routine** durability monitoring and guiding ITN distribution

Objective

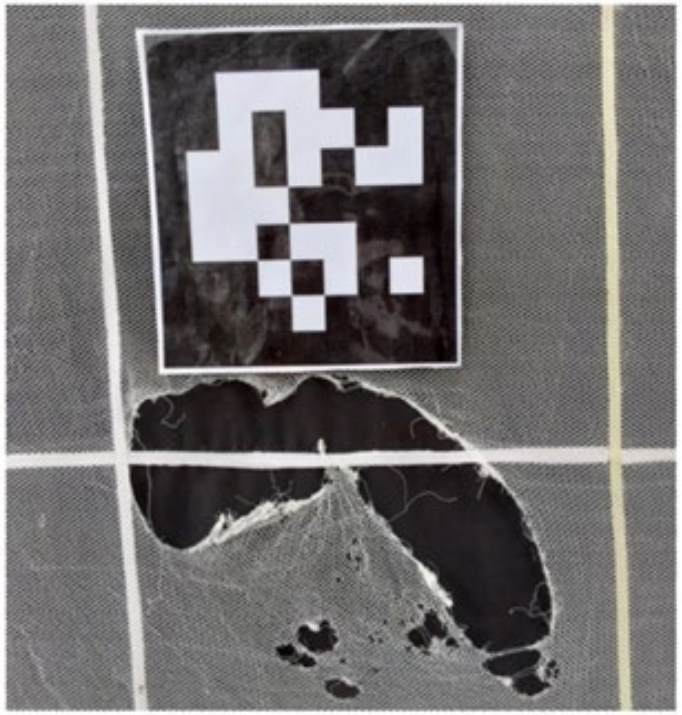
Assess agreement between hole area estimates from: whole-net photos, manual hole counting, and calibrated close-up images (ground truth)



Whole-net photos



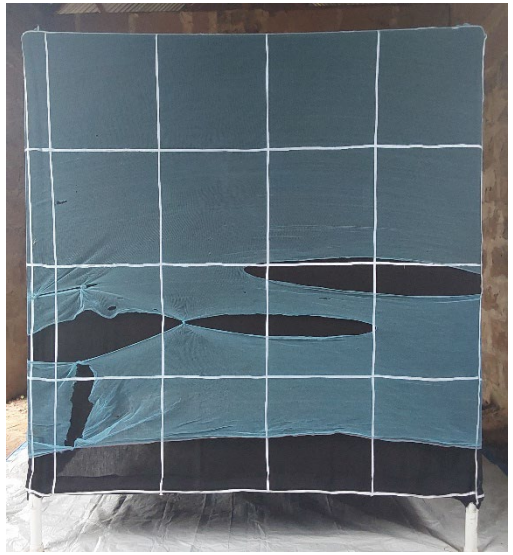
Manual hole counting (standard method)



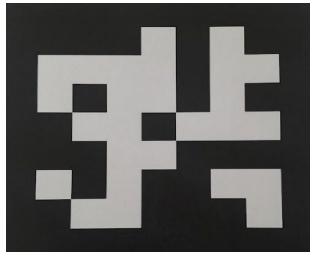
Close-up calibrated hole photos (ground truth)

Methods: sample size and photograph capture

- 75 purposively selected field-aged nets
- Each net was hung on a frame draped with black cloth before being photographed

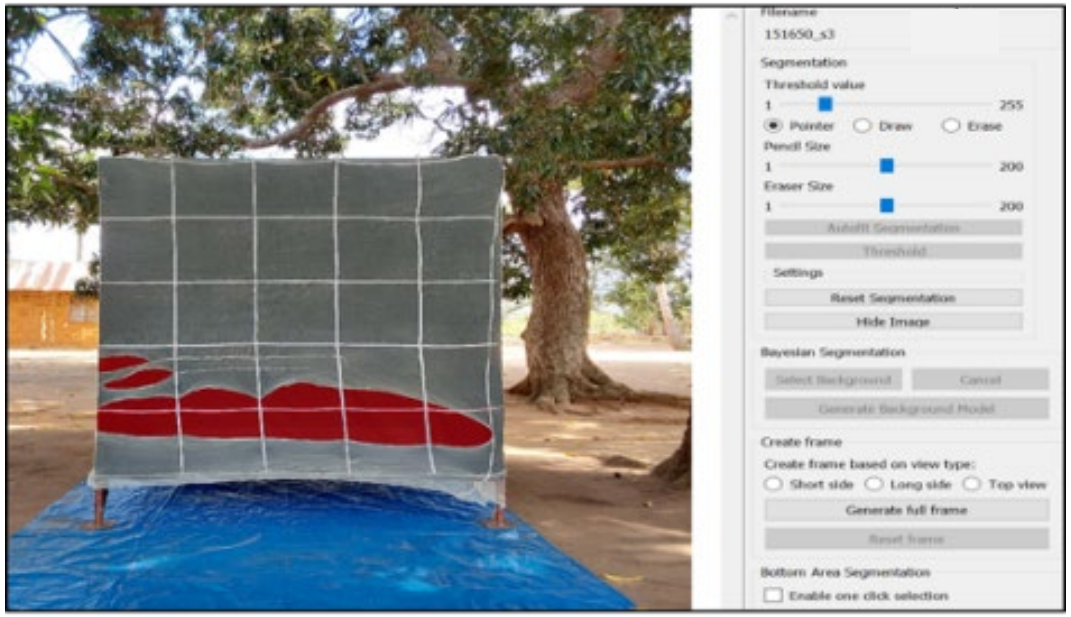


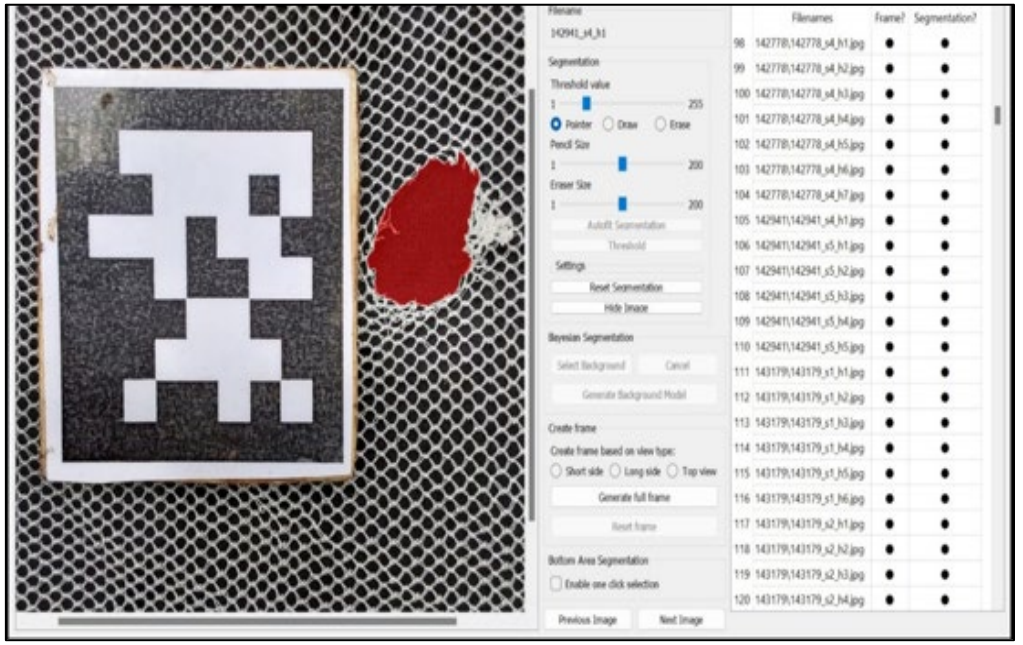
- Close-up photos of individual holes included calibration markers (ArUco) of known size



Methods: Image processing for damage assessment

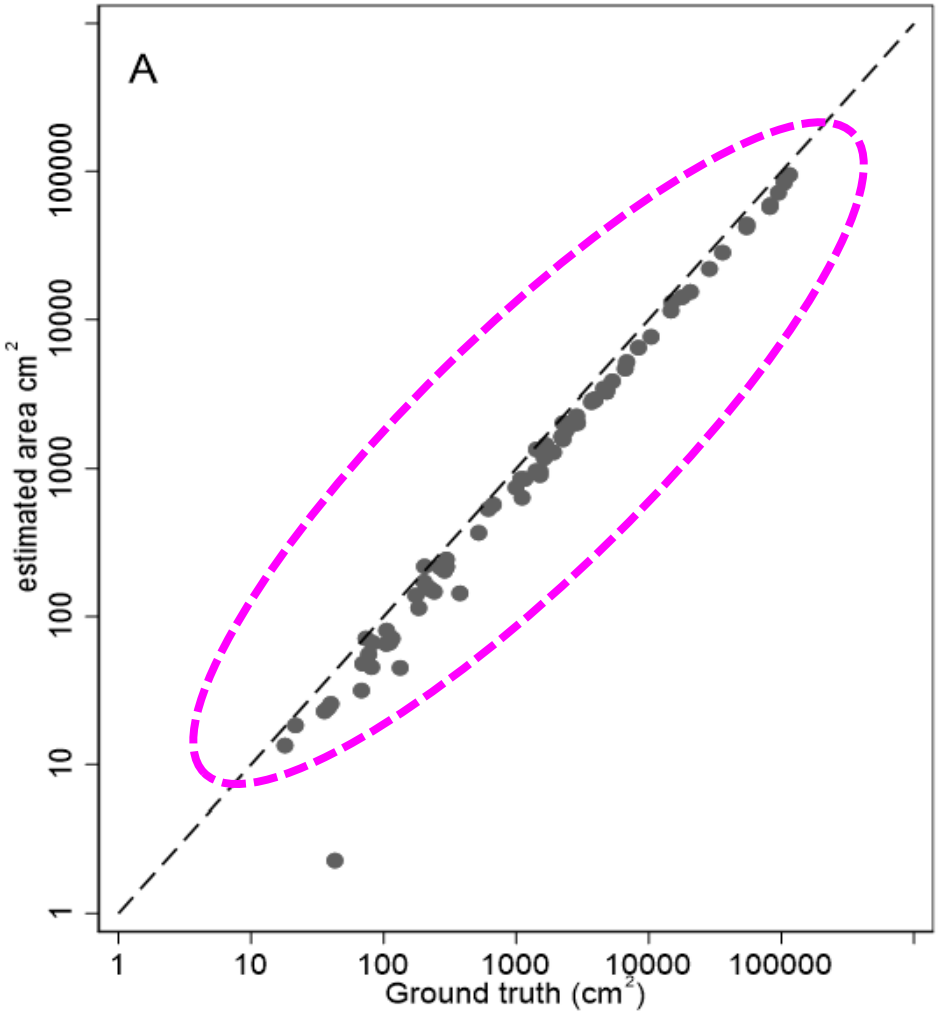
Graphical User Interface (GUI) for manual labelling of net defects



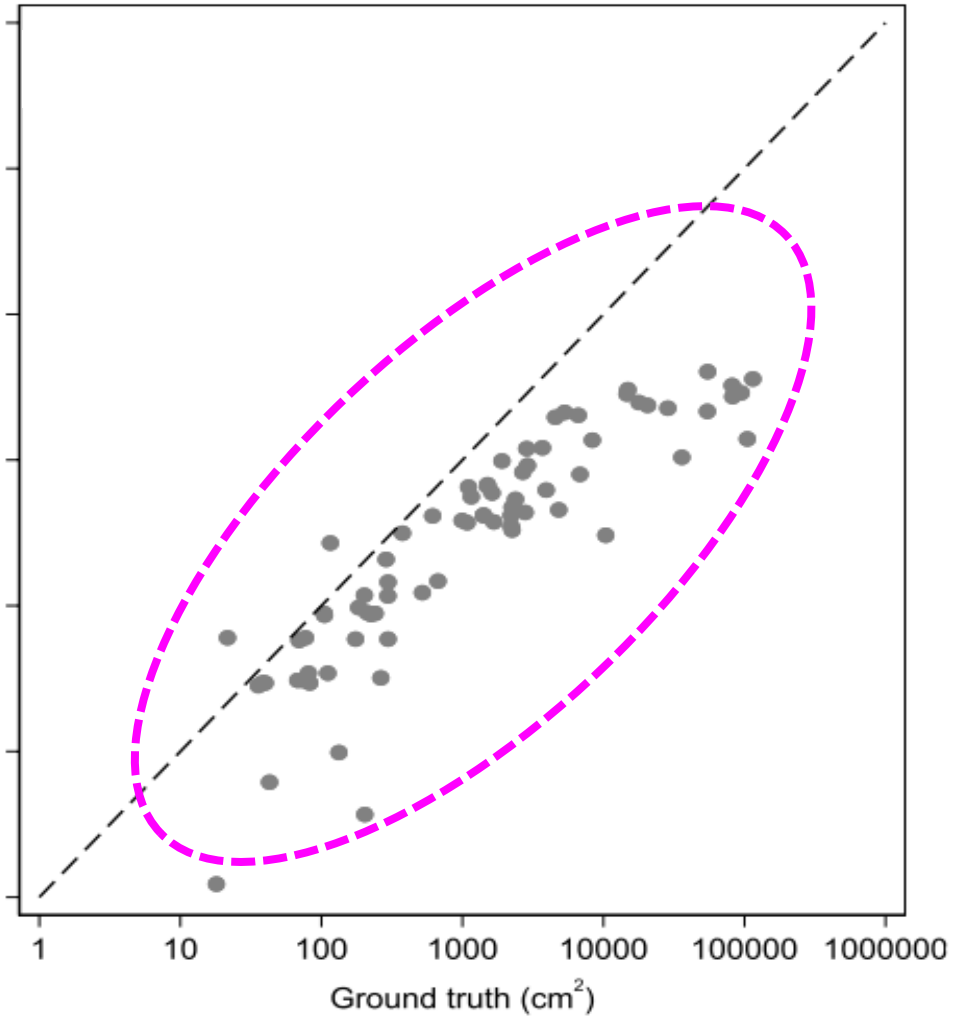


Results

Scatter plots for the hole surface area per ITNs

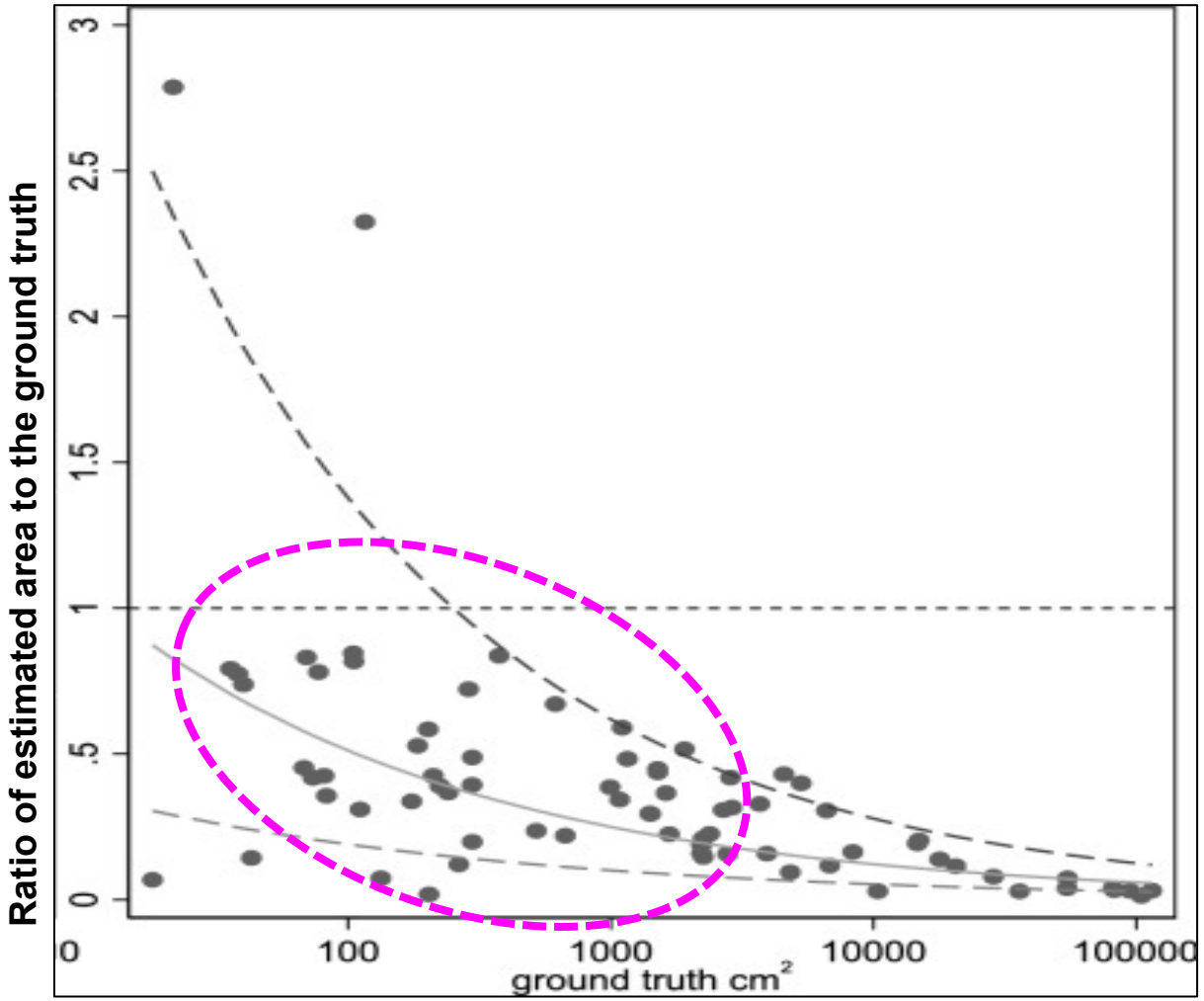


Whole-net photos vs ground truth



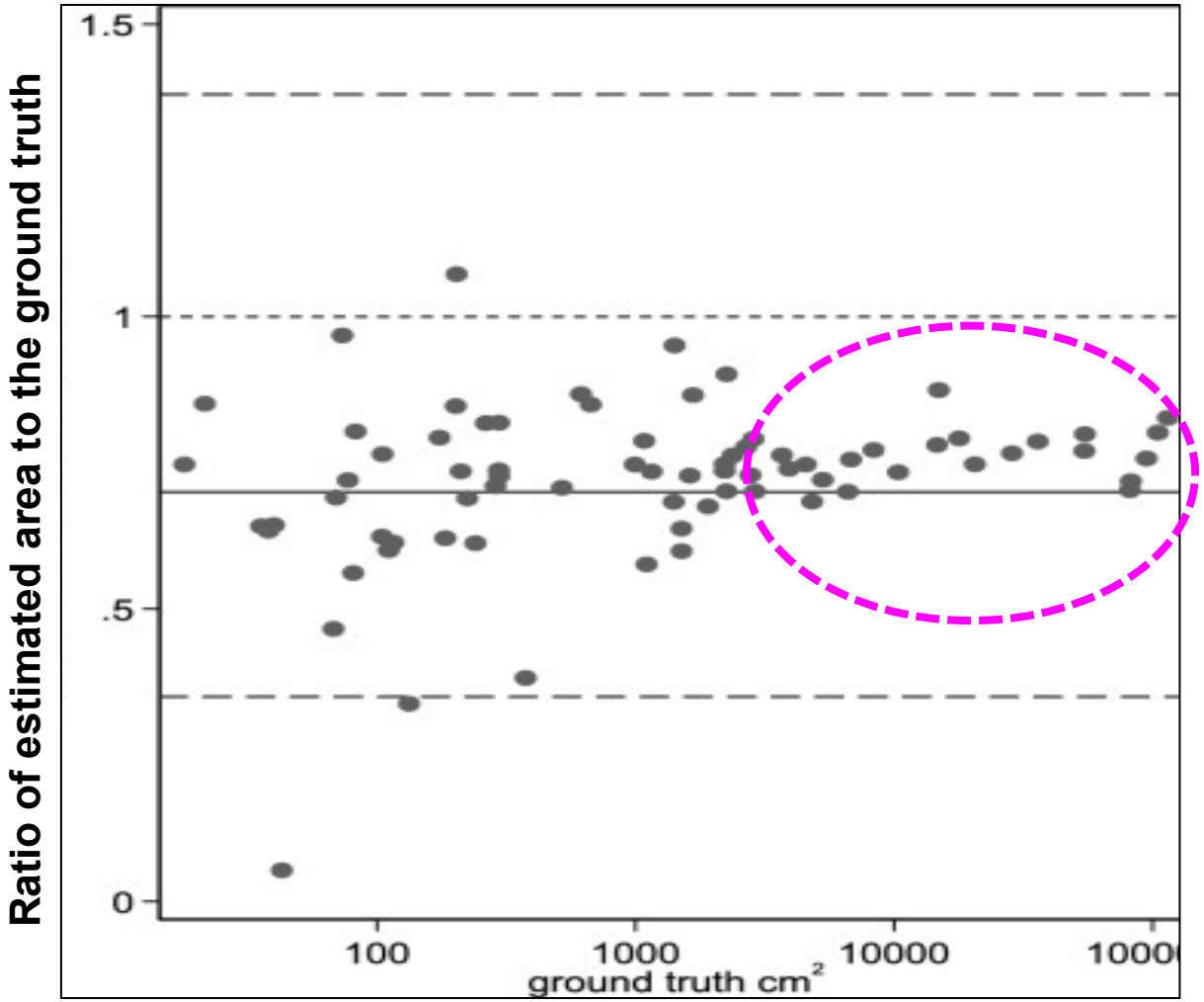
Manual hole counting Vs ground truth

Standard method underestimated the hole area



Manual hole counting compared to the ground truth

Hole area estimates from whole-net photos closely match the ground truth measurements



Whole-net photos compared to the Ground truth

Conclusion



- Whole-net photos provide sufficient information to estimate hole surface area, offering the possibility of automated hole detection
- Rapid, objective, and scalable method for **routine** ITN monitoring
- Useful for
  - Operational monitoring,
  - ITN replacement intervals,
  - Selection of cost-effective interventions

RESEARCH Open Access

Estimating the hole surface area of insecticide-treated nets using image analysis, manual hole counting and exact hole measurements

Emmanuel Mbuba[1,2,3*], Natalia Mañas-Chavernas[4], Sarah J. Moore[1,2,3,5], Philipo David Ruzige[1], Dickson Kobe[1], Jason Moore[1,2], Rose Philipo[1], Noela Kisoka[6], Gianpaolo Pontiggia[2], Frank Chacky[7], Charles Dismasi Mwalimu[7], Philippe Claude Cattin[4], Julia Wolleb[4,8], Robin Sandkuehler[4] and Amanda Ross[2,3]

Scan the QR code to access the publication

or use this link: https://doi.org/10.1186/s12936-025-05324-7

RBM Partnership
To End Malaria

3 March 2026

Informing vector control resource allocation: insights from Global Fund Grant Cycle 7 funding requests in four African countries

Erica Vigano, London School of Hygiene and Tropical Medicine

Informing vector control resource allocation: insights from Global Fund Grant Cycle 7 funding requests in four African countries

RBM Vector Control Working Group
Annual Meeting, Nairobi 2026

Erica Viganò

RAFT
RESILIENCE AGAINST FUTURE THREATS

globalvectorhub.lshtm.ac.uk/raft

Overview

Aim

To explore how decision-making occurred in different settings and compare experiences across countries

Methods

Qualitative
Semi-structured interviews
Chain-referral sampling
Thematic analysis

How are decisions made

Settings

Cameroon, Côte d'Ivoire, South Sudan, Tanzania

Timelines

April 2024 – July 2025

Participants

52 total

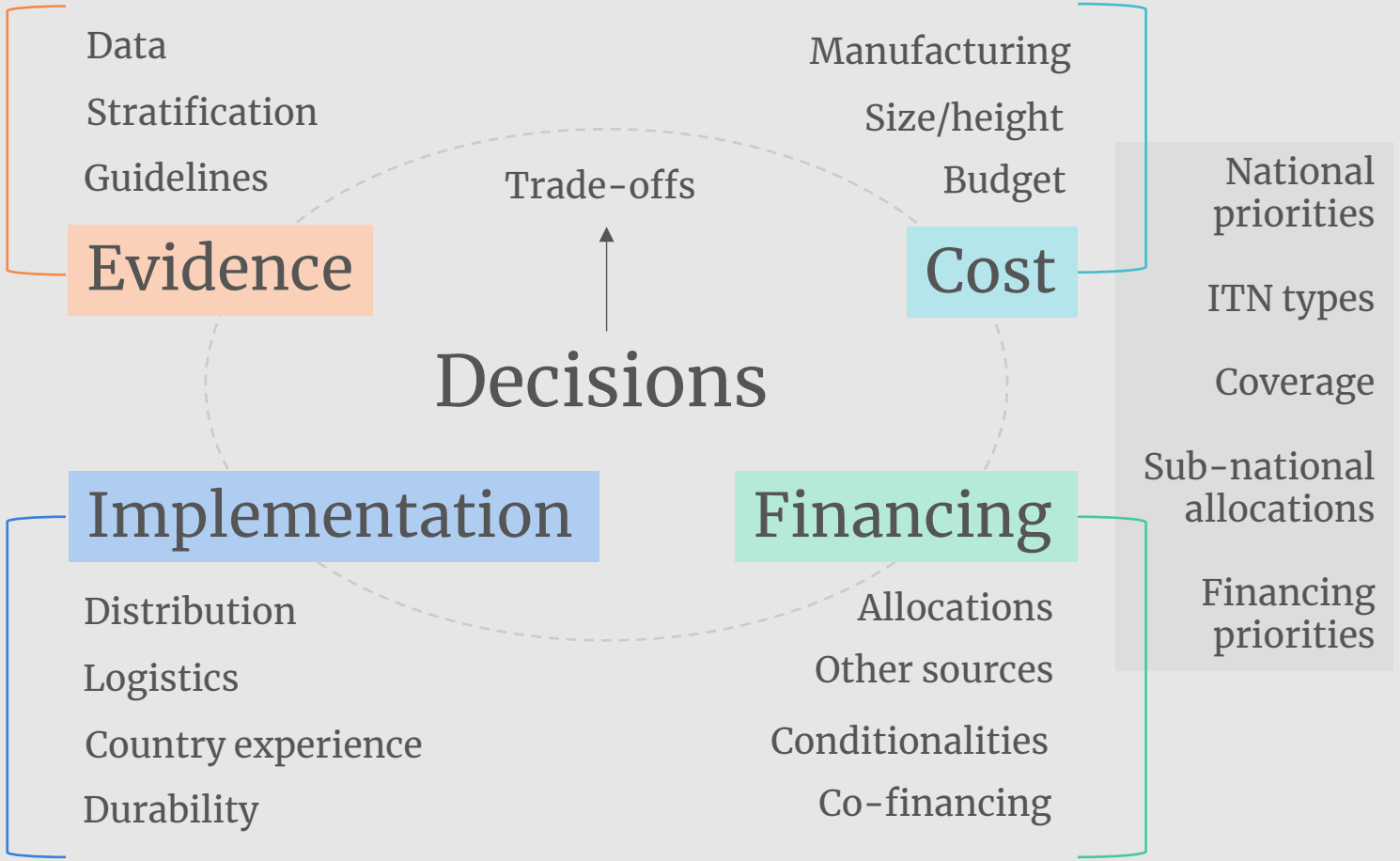
ITN decisions

Evidence

↓

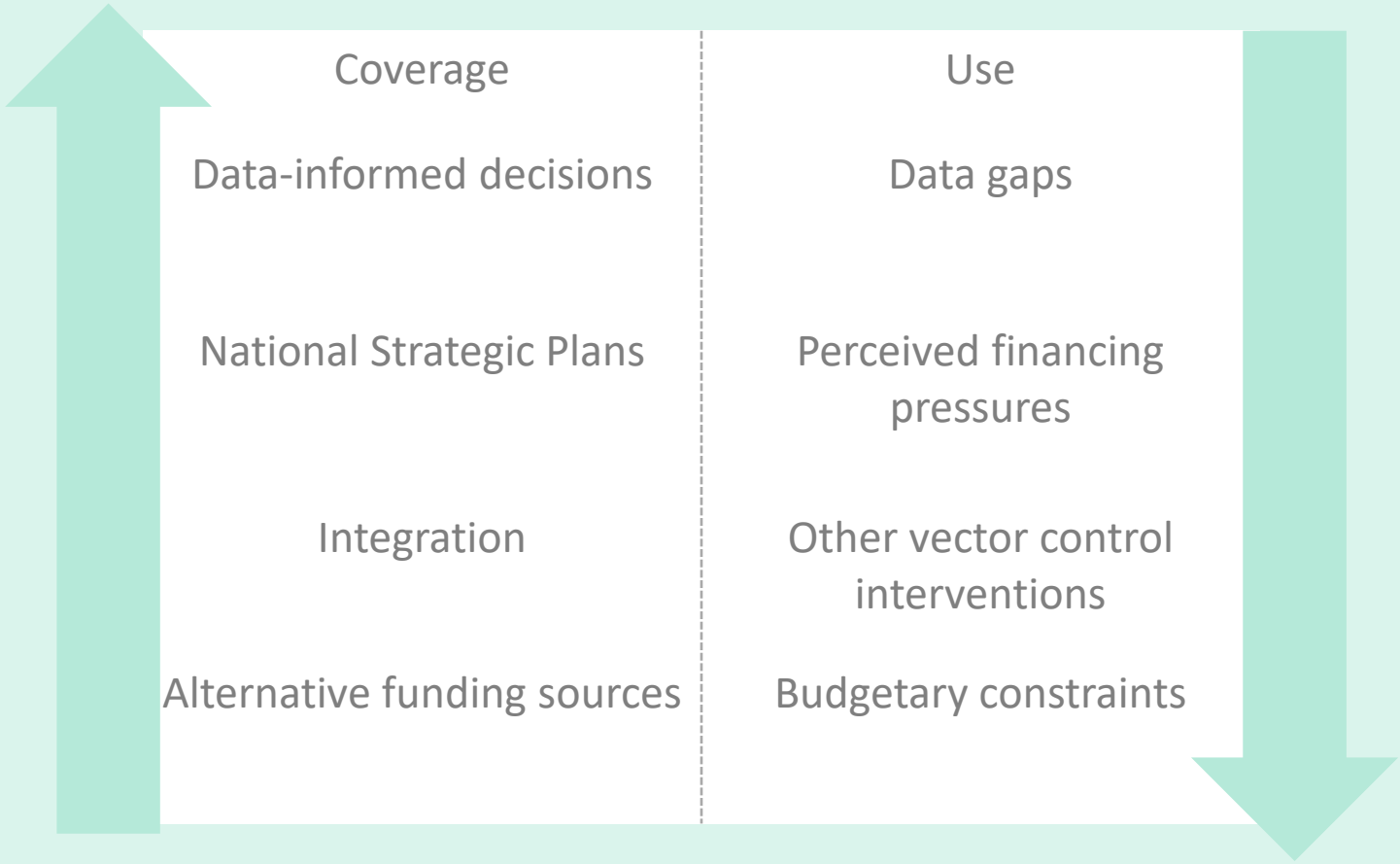
Decisions

V
S



Conclusions

Complex mediations



RAFT
RESILIENCE AGAINST FUTURE THREATS

LONDON SCHOOL of HYGIENE &TROPICAL MEDICINE

malaria consortium
disease control, better health

Centre for Research in Infectious Diseases CRID

NATIONAL INSTITUTE FOR MEDICAL RESEARCH

INSTITUT PIERRE RICHET

Research funded by: UK International Development
Partnership | Progress | Prosperity

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Contributors

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- Raphael N'Guessan

RBM Partnership
To End Malaria

3 March 2026

Building an evidence base to inform the optimisation of insecticide-treated net distribution in three African settings

Angharad Steele, Malaria Consortium

Identifying opportunities to optimise ITN distribution in three African settings

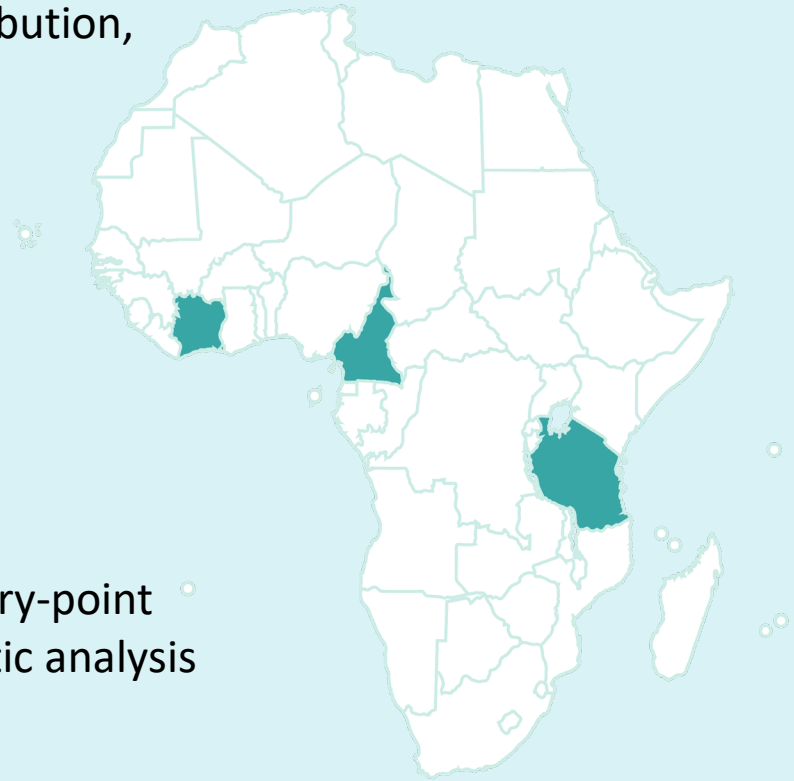
Aim: To explore decision-making and implementation factors for ITN distribution, including commonalities, differences,
barriers and enablers across country contexts

Timeline: March 2024 – September 2025

Setting: Cameroon, Côte d'Ivoire, Tanzania

Method: Qualitative

Methodology: Purposive sampling at national, regional, district and delivery-point levels; Interviews (n=22), focus group discussions (n=24); Standard thematic analysis (NVivo 15)



Presenter: Angharad Steele, Malaria Consortium

Cross-country learnings

Financial management	• **Micro-planning** includes input from sub-national levels, but financial burdens remain with district and delivery staff. • **Mobile money systems** improve accountability, but face challenges with flexibility and timeliness.
Allocation decisions	• **Stratification** guides ITN type choices, but budgets and logistics shape feasibility. • **Quantification and enumeration** follow 1 ITN per 1.8 persons, but supply gaps and population movement impact final allocation.
Supply chain coordination	• **Integrating** ITNs into **public supply-chain systems** strengthens ownership and oversight, though partners still play a role. • **Last-mile** resourcing is a common challenge.

Presenter: Angharad Steele, Malaria Consortium

Cross-country learnings

Service delivery model adaptations

- **Mass campaigns** remain core.
- **Routine delivery channels** (and targets) vary within and between countries.
- **Sub-national levels** face issues with guidelines, with varied understanding and implementation.

Data driven stock management

- **Stock management** decision-making is becoming increasingly data-informed.
- **Digital systems** face challenges with paper duplicates, data entry and quality.
- **Stockouts** are partially addressed by ITN reallocation, but face issues of availability, funding, approvals, and ITN type matching.



- **Create clear pathways** for sub-national input into planning and implementation.
- **Strengthen guidance and socialisation** to improve sub-national practice.
- **Map synergies** across different distribution channels.
- **Identify and learn** from countries' innovative approaches.

Presenter: Angharad Steele, Malaria Consortium

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Research funded by: UK International Development
Partnership | Progress | Prosperity

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RBM Partnership
To End Malaria

3 March 2026

User-friendly tool to support the allocation of core vector control interventions against malaria

Andrew Glover, Imperial College London

User-friendly tool to support the allocation of core vector control interventions against malaria

Andrew C. Glover*[1], Jack Wardle[1], Cosmo Santoni[1], Anmol Thapar[1], Ellie Sherrard-Smith[2], Oliver Watson[1], Thomas S. Churcher[1]

[1]MRC Centre for Global Infectious Disease Analysis, School of Public Health, Imperial College London, London, UK

[2]Department of Vector Biology, Liverpool School of Tropical Medicine, Liverpool, UK

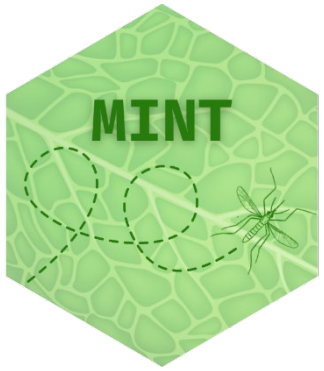
**a.glover18@imperial.ac.uk*

Malaria INtervention Tool (MINT)

MRC Centre for Global Infectious Disease Analysis

IMPERIAL

mint.dide.ic.ac.uk



Step 1 Create project

Create a new project by entering a name and listing regions.

Project Name

Mali ITNs

Regions

Bamako × Gao × Enter region names

Add regions by pressing Enter. Backspace to remove.

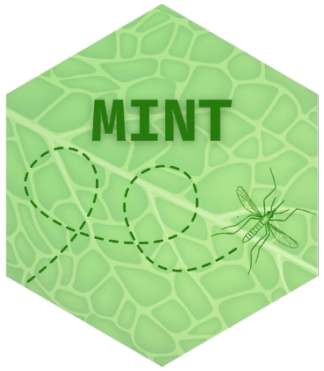
Create

Malaria INtervention Tool (MINT)

MRC Centre for Global Infectious Disease Analysis

IMPERIAL

mint.dide.ic.ac.uk



Step 1 Create project

Create a new project by entering a name and listing regions.

Project Name

Mali ITNs

Regions

Bamako

Add regions by p

Step 2 Input region characteristics

Baseline Options

Site Inputs

Size of population at risk

2709249

Is transmission seasonal?

Current malaria prevalence

20%

Mosquito Inputs

Preference for biting in bed

82%

Preference for biting humans

87%

Level of pyrethroid resistance

84%

Past Vector Control

Pyrethroid-only ITN population usage

0%

Pyrethroid-PBO ITN population usage

80%

Pyrethroid-pyrrole ITN population usage

0%

Pyrethroid-pyriproxyfen ITN population usage

0%

Total ITN population usage

80%

IRS population coverage

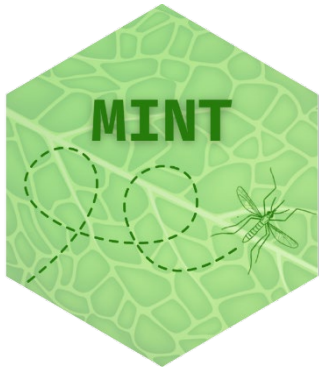
0%

Malaria INtervention Tool (MINT)

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Step 1 Create project

Create a new project by entering a name and listing regions.

Project Name

Mali ITNs

Regions

Bamako Gao Enter region names

Add regions by pressing Enter. Backspace to re

Create

Step 2 Input region characteristics

Baseline Options

Site Inputs

Mosquito Inputs

Preference for biting in bed

82%

Past Vector Control

Pyrethroid-only ITN population usage

0%

Pyrethroid-PBO ITN population usage

80%

Pyrethroid-pyrrole ITN population usage

0%

Pyrethroid-pyriproxyfen ITN population usage

0%

Total ITN population usage

80%

IRS population coverage

0%

Step 3 Input interventions

Intervention Options

Enter the details of the planned intervention options for this region.

Future Intervention Options

Expected ITN population usage

80%

Future ITN types

Pyrethroid-only ITNs

Pyrethroid-PBO ITNs

Pyrethroid-pyrrole ITNs

Pyrethroid-pyriproxyfen ITNs

Continuous distribution of ITNs

Expected IRS coverage

0%

Expected reduction in mosquito density achieved through larval source management

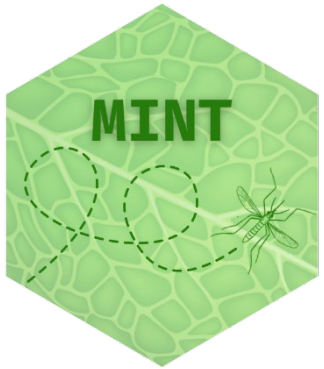
0%

Malaria INtervention Tool (MINT)

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Step 1 Create project

Create a new project by entering a name and listing regions.

Project Name

Mali ITNs

Regions

Bamako × Gao × Enter region names

Add regions by pressing Enter. Backspace to remove.

Create

Step 2 Input region characteristics

Baseline Options

Site Inputs

Size of population at risk: 2709249

Is transmission seasonal?

Current malaria prevalence: 20%

Mosquito Inputs

Preference for biting in bed: 82%

Preference for biting humans: 87%

Level of pyrethroid resistance: 84%

Past Vector Control

Pyrethroid-only ITN population usage: 0%

Pyrethroid-PBO ITN population usage: 80%

Pyrethroid-pyrrole ITN population usage: 0%

Pyrethroid-pyriproxyfen ITN population usage: 0%

Total ITN population usage: 80%

IRS population coverage: 0%

Step 3 Input interventions

Intervention Options

Enter the details of the planned intervention options for this region.

Future Intervention Options

Expected ITN population usage: 80%

Future ITN types

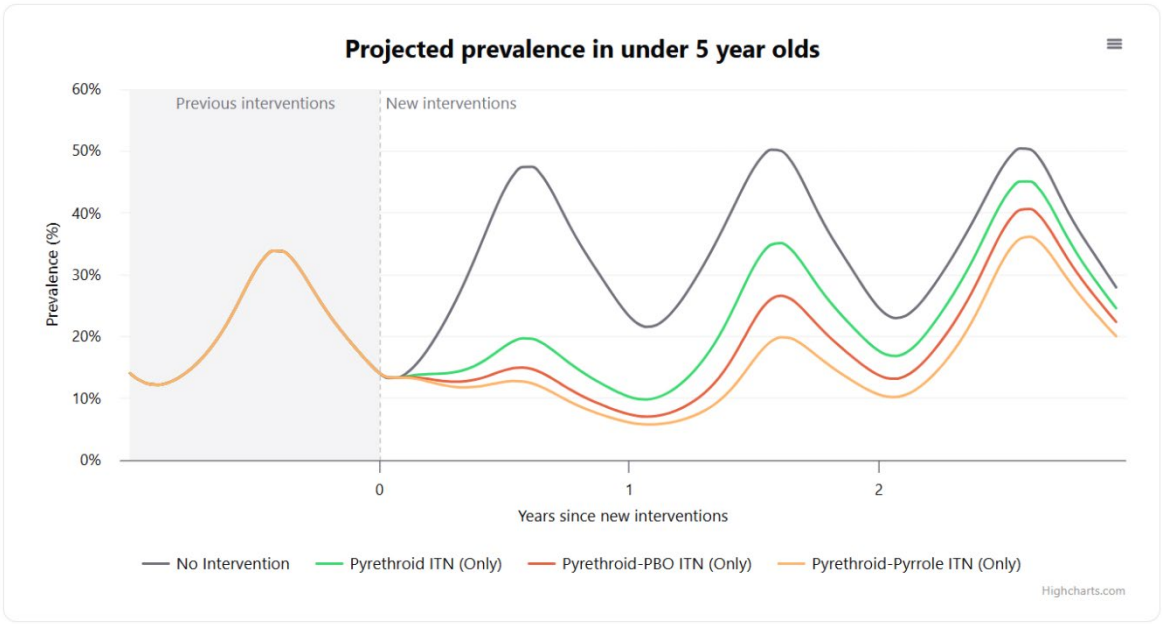
Pyrethroid-only ITNs, Pyrethroid-PBO ITNs, Pyrethroid-pyrrole ITNs, Pyrethroid-pyriproxyfen ITNs

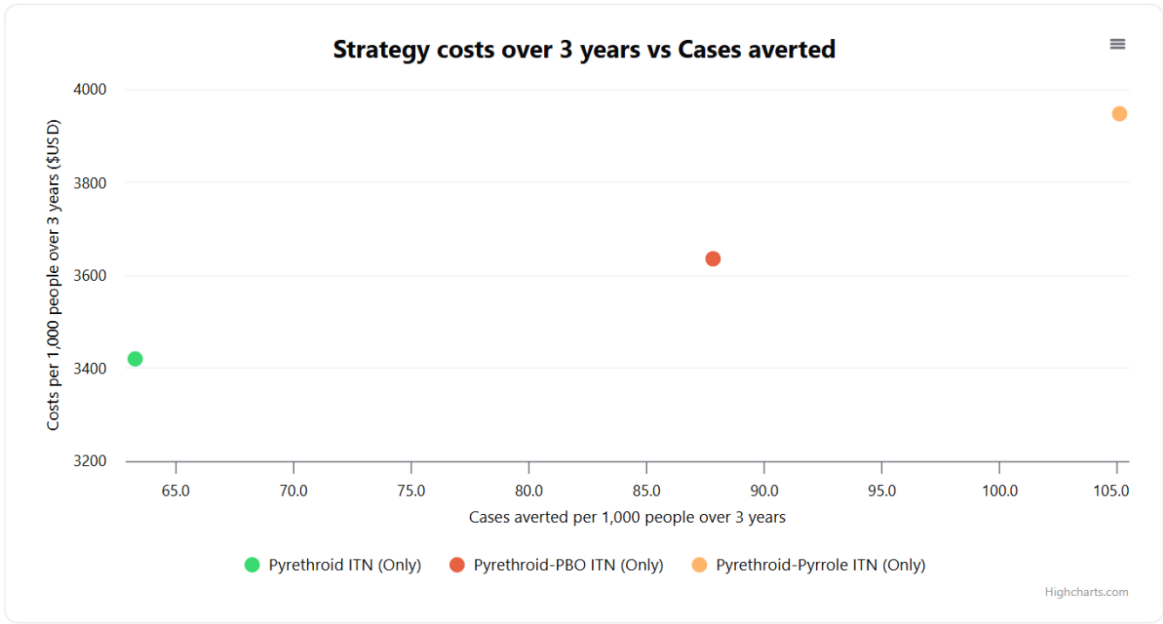
Continuous distribution of ITNs

Expected IRS coverage: 0%

Expected reduction in mosquito density achieved through larval source management: 0%

Step 4 Inspect regional cost-effectiveness



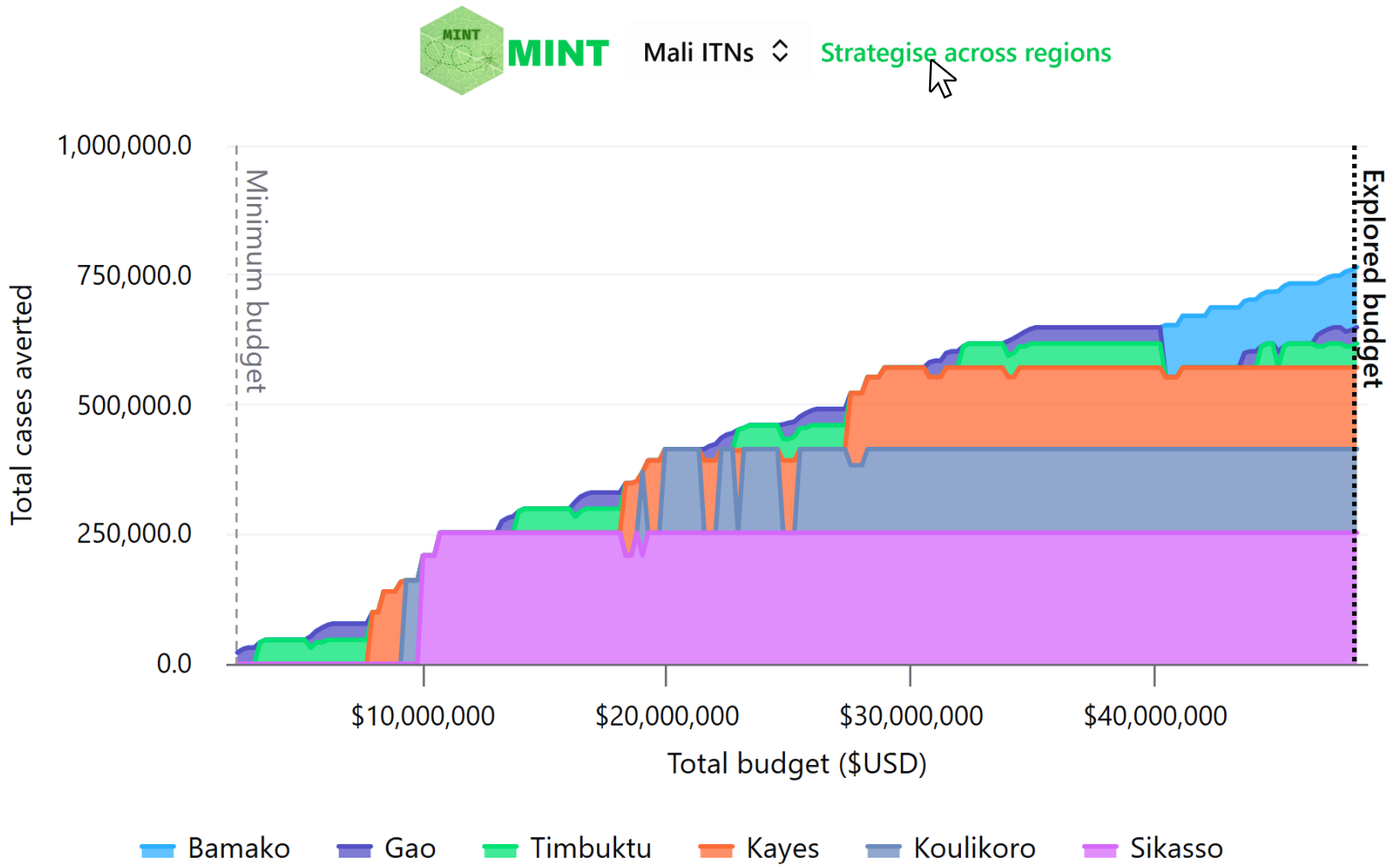


Malaria INtervention Tool (MINT)

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Step 5 Inspect optimised national strategies



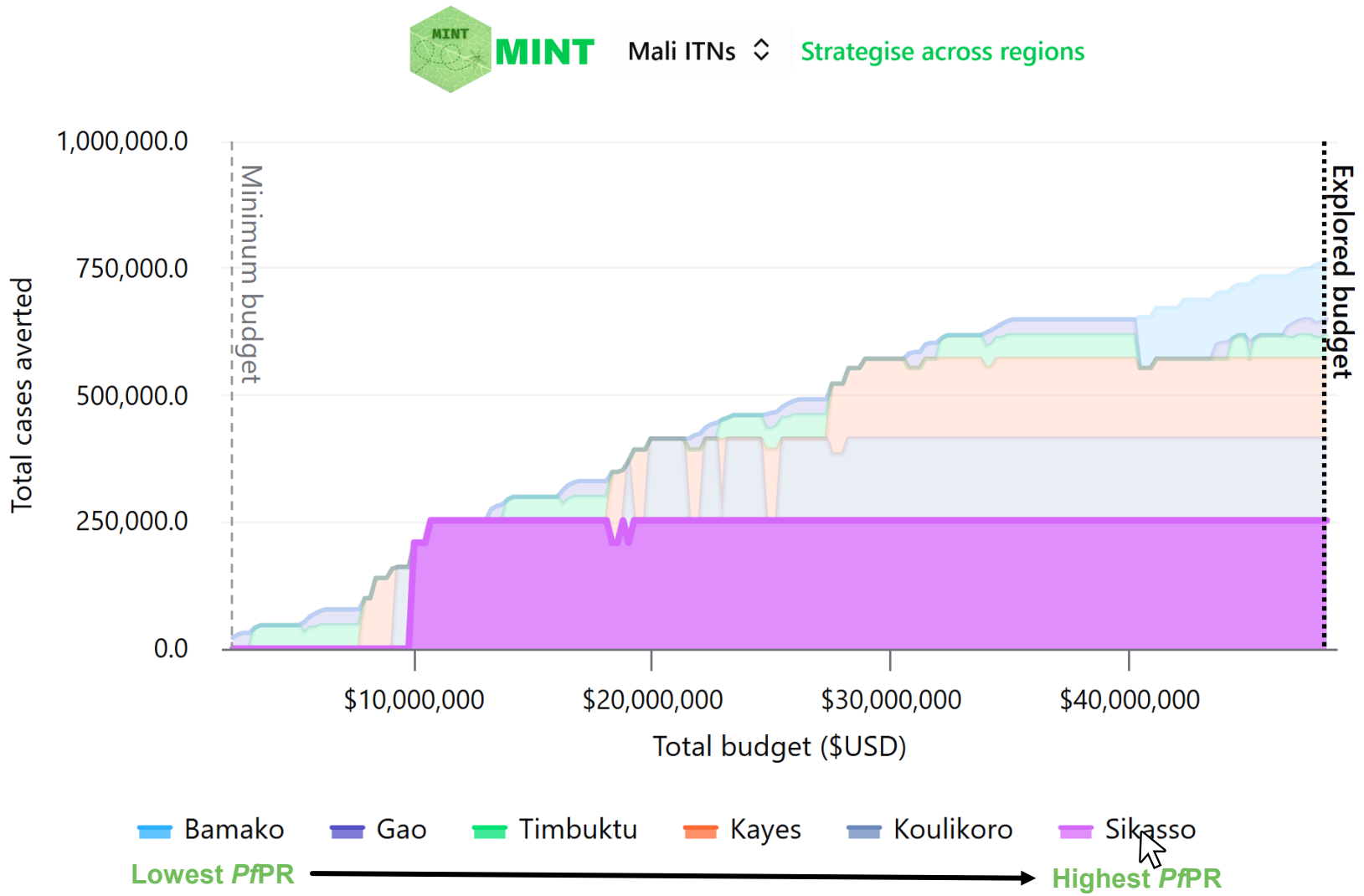
- ITNs interventions only considered here (IRS and LSM can be explored too)
- Strategises to maximise cases averted nationally under different budgets

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Step 5 Inspect optimised national strategies



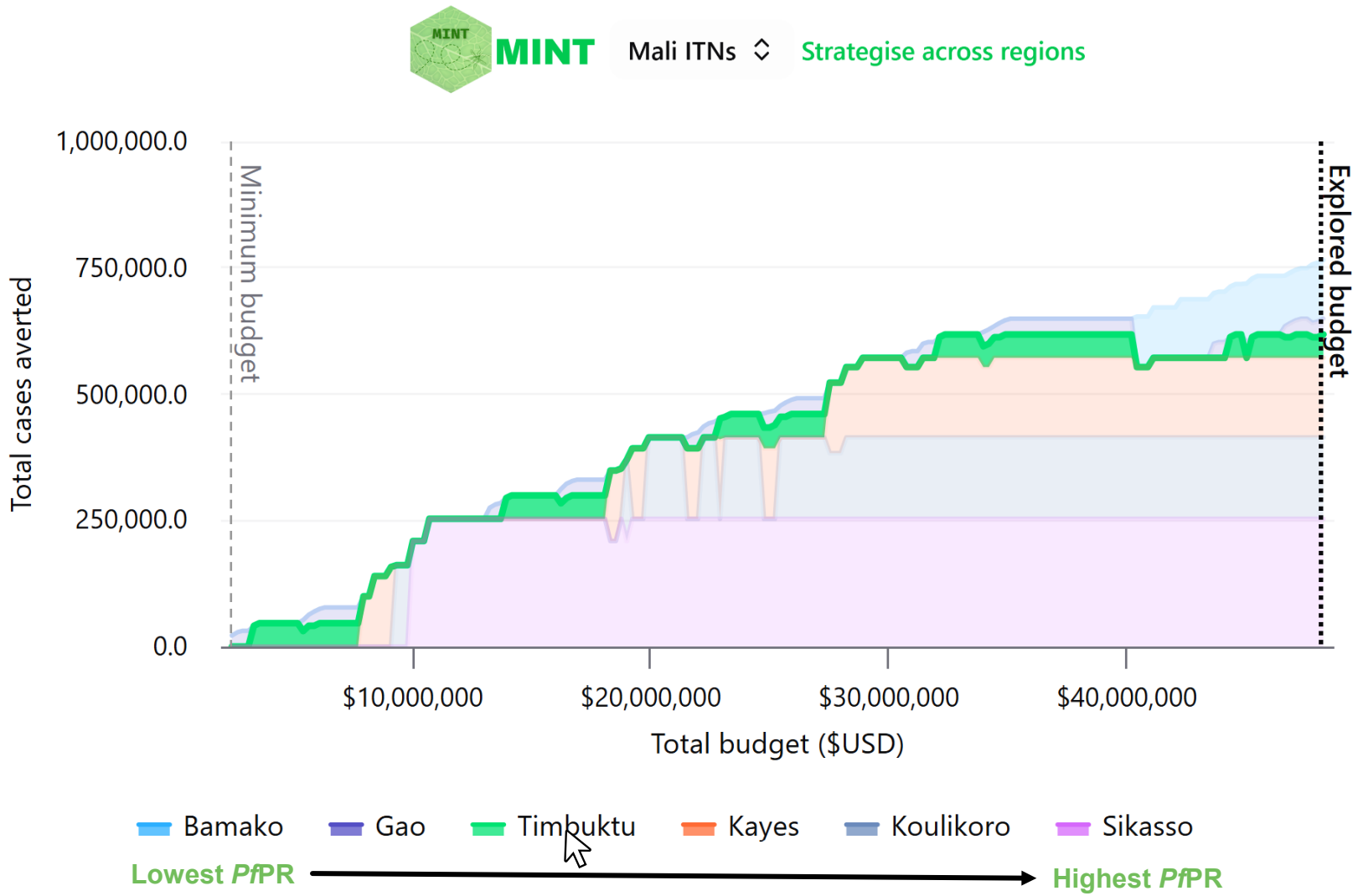
- ITNs interventions only considered here (IRS and LSM can be explored too)
- Strategises to maximise cases averted nationally under different budgets
- Interventions broadly prioritised in **higher transmission** settings

Malaria INtervention Tool (MINT)

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Step 5 Inspect optimised national strategies



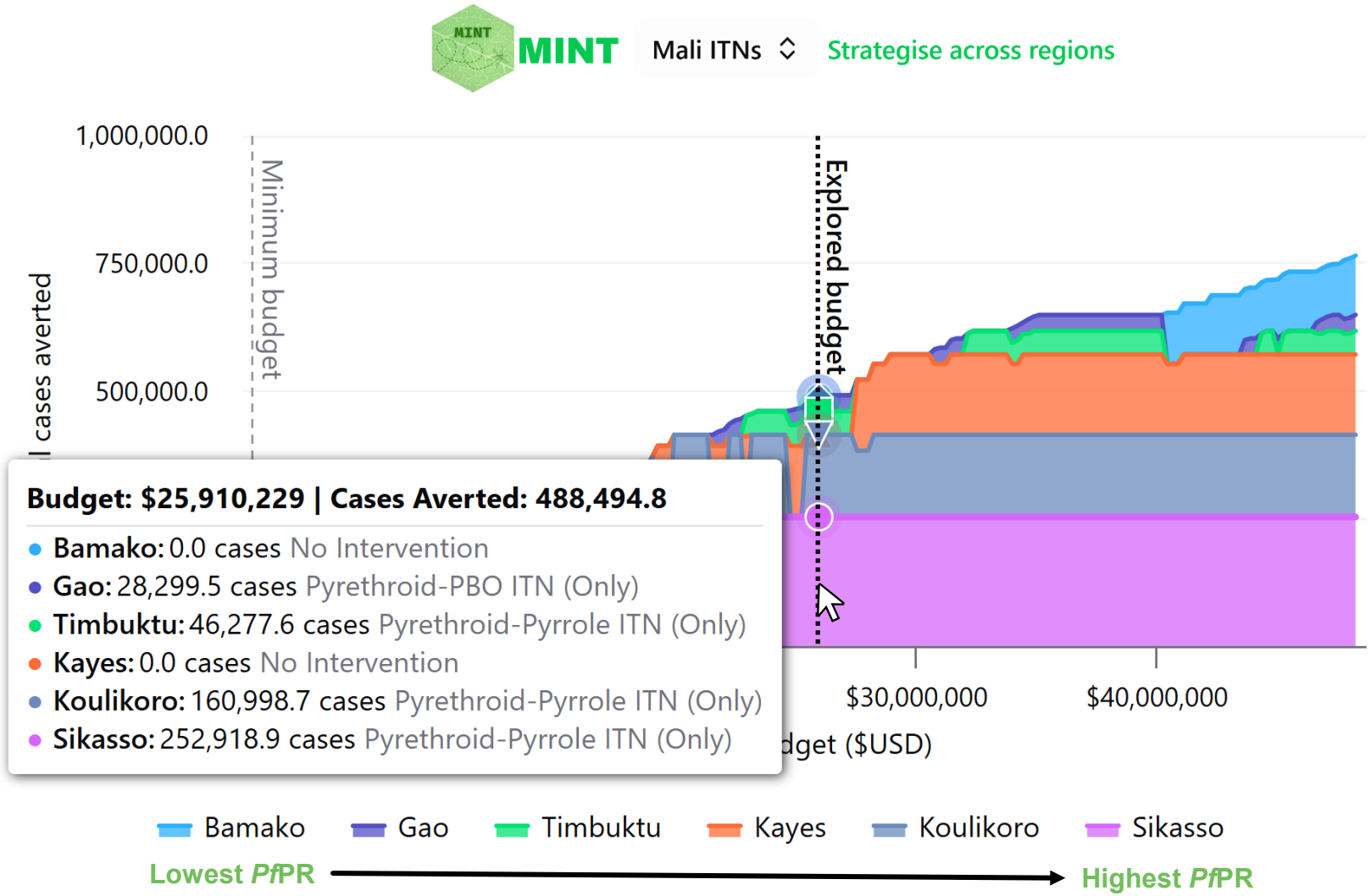
- ITNs interventions only considered here (IRS and LSM can be explored too)
- Strategises to maximise cases averted nationally under different budgets
- Interventions broadly prioritised in **higher transmission** settings
- Smaller populations prioritised at lower budgets

Malaria INtervention Tool (MINT)

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Step 5 Inspect optimised national strategies

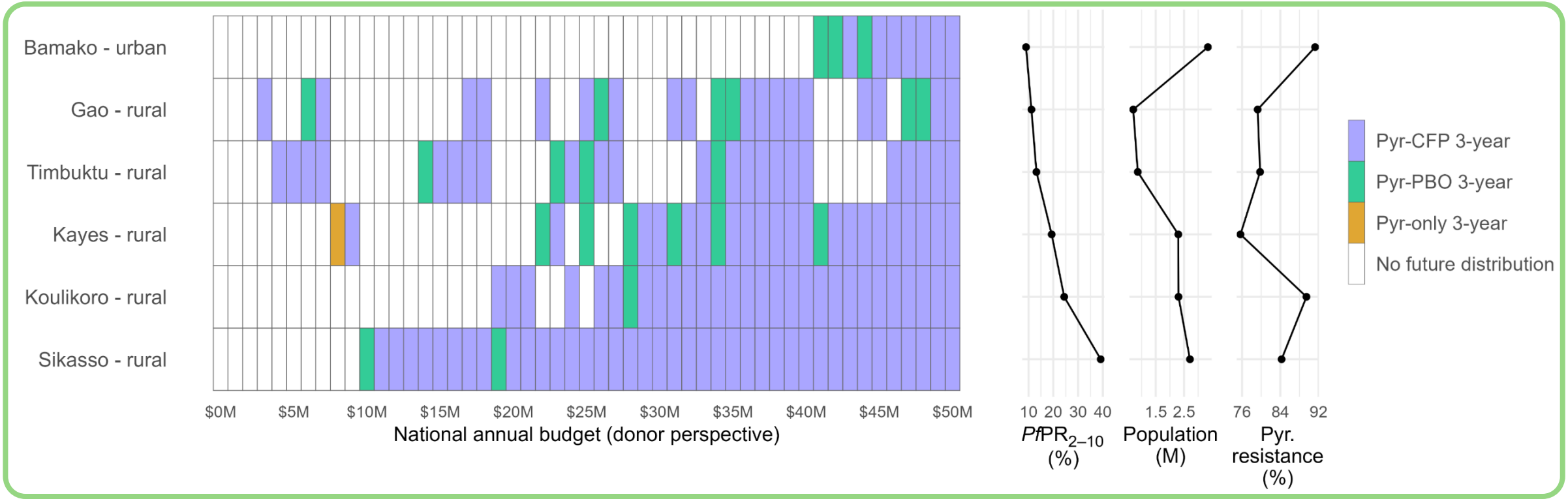


- ITNs interventions only considered here (IRS and LSM can be explored too)
- Strategises to maximise cases averted nationally under different budgets
- Interventions broadly prioritised in **higher transmission** settings
- Smaller populations prioritised at lower budgets
- **Pyrethroid-chlorfenapyr** (CFP/pyrrole) strategies broadly prioritised

Optimised strategies: MINT

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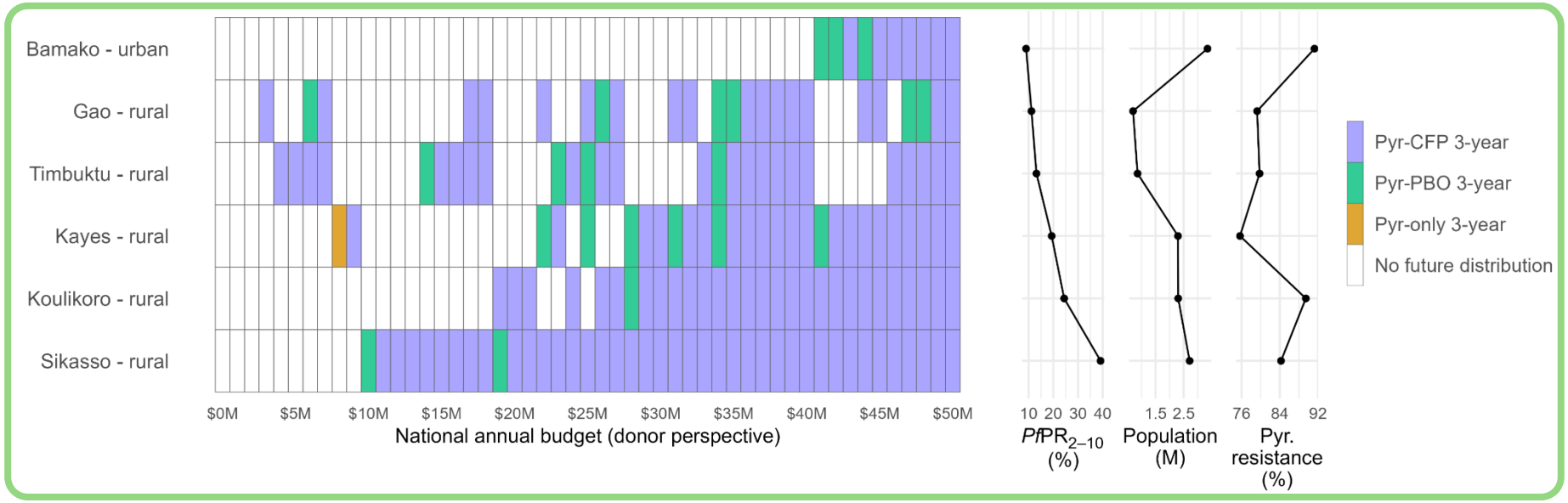
Simplistic cost model

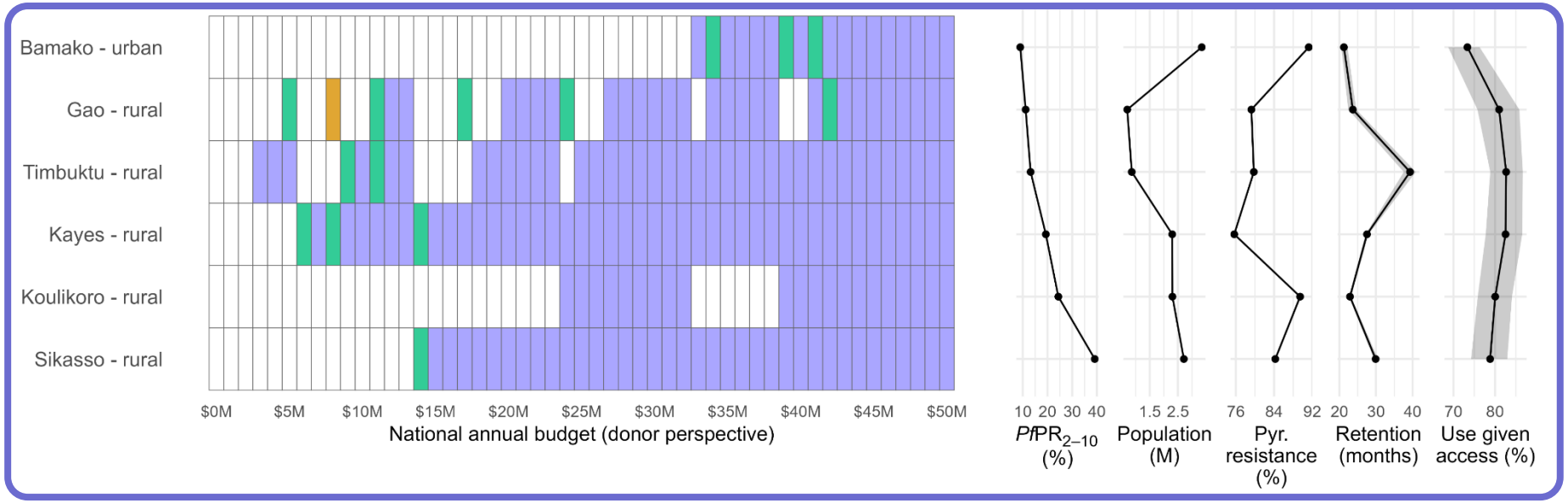
- **Donor perspective** — ITN procurement and distribution costs only
- **Financial costs** — Non-monetary costs not considered
- **Linear cost function** — Total cost = number of nets distributed * cost per net

Optimised strategies: MINT vs detailed SNT

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- Optimal expansion pathway qualitatively similar even though…
- **MINT** only accounts for:
  - Prevalence
  - Population
  - Pyrethroid resistance
  - Seasonal vs perennial trans.
  - Biting behaviour
  - Vector control (ITNs only here)
- More detailed **subnational tailoring (SNT)** can account for[1,2]:
  - Retention time
  - Use given access
  - Campaign vs continuous ITNs distributed
  - Demography
  - Richer seasonality
  - Vector composition
  - Case management
  - Blood disorders
  - Non-vector-control interventions

Summary

mint.dide.ic.ac.uk

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- MINT is a user-friendly tool (based on *malariasimulation*[3]) to explore the **cost-effectiveness of vector-control interventions**
- **MINT takes minutes** to use; more detailed **SNT takes weeks or months**
- Predicted optimal ITN strategies are similar: prioritise **pyrethroid-chlorfenapyr ITNs in higher transmission** settings
- Subnational tailoring is complicated:
  4 intervention options and 6 regions gives 4,096 national combinations
  10 intervention options and 20 regions gives 10^{20} national combinations
- MINT gives a **best estimate** of optimal national strategies for different budgets; different inputs can explore uncertainty
- More advanced economic models are needed to consider full cost-effectiveness of interventions

Acknowledgements

- MINT software development (Imperial): W. Hinsley; R. Fitzjohn; E. Russell
- Prior SNT research: H. Koenker (PATH); K. Kolaczinski (The Global Fund)
- Cost-effectiveness analysis discussion (LSHTM): D. Bath; C. Pitt

Funded by:

THE GLOBAL FUND

World Health Organization

IVCC

Medical Research Council

wellcome

References

[1]Glover AC et al. (2025). *Subnational tailoring of ITN distributions to maximise malaria control.* eLife. doi.org/10.7554/eLife.108745

[2]Winskill P (2026). *site: Site specific malariasimulation modelling*. R package version 1.0.10.

[3]Charles G et al. (2025). *malariasimulation: An individual based model for malaria*. R package version 2.0.2.

Supporting slide: MINT with IRS and LSM

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Cost Options

Procurement and Distribution Options

The delivery of nets and sprays is conducted differently in each country. Enter the procurement assumptions for the planned intervention options for this region.

People per ITN: 1.8

Average people per household: 4

Procurement buffer: 7%

Price of Interventions

Specify the product and implementation costs for different intervention options.

Price per pyrethroid-only ITN ($USD): 1.85

Price per pyrethroid-PBO ITN ($USD): 2.14

Price per pyrethroid-pyrrole ITN ($USD): 2.56

Price per pyrethroid-pyriproxyfen ITN ($USD): 2.86

ITN mass distribution campaign: delivery cost per ITN ($USD): 2.75

ITN continuous distribution campaign: delivery cost per ITN ($USD): 2.75

Estimated annual cost of IRS product per household structure ($USD): 12

Estimated annual cost of IRS deployment per household structure ($USD): 12

Estimated cost of LSM programme per person ($USD): 10

Intervention Options

Enter the details of the planned intervention options for this region.

Future Intervention Options

Expected ITN population usage: 80%

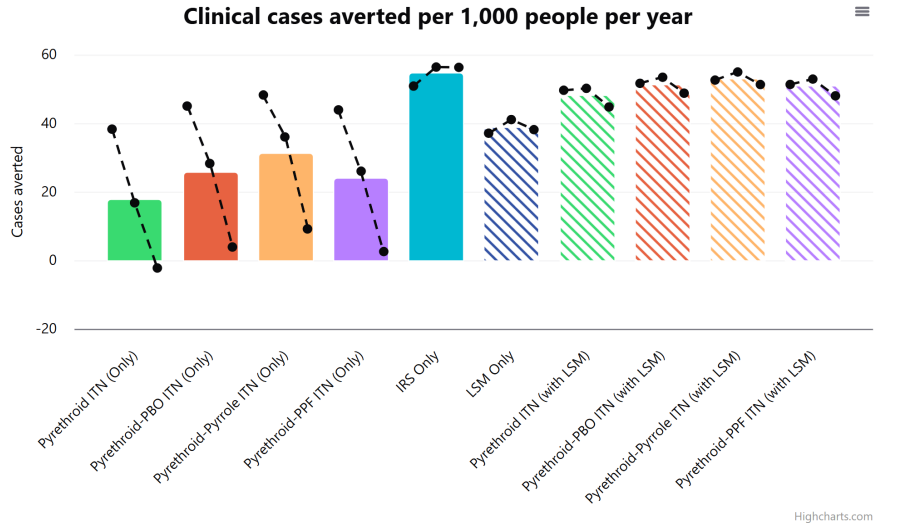
Future ITN types:

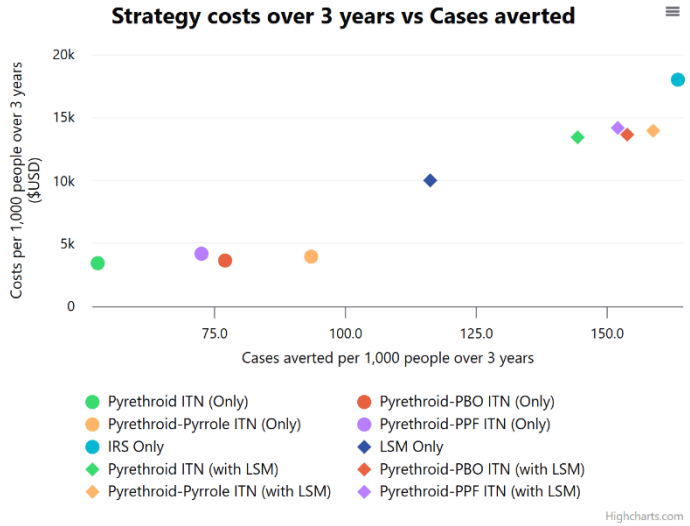
- [x] Pyrethroid-only ITNs
- [x] Pyrethroid-PBO ITNs
- [x] Pyrethroid-pyrrole ITNs
- [x] Pyrethroid-pyriproxyfen ITNs

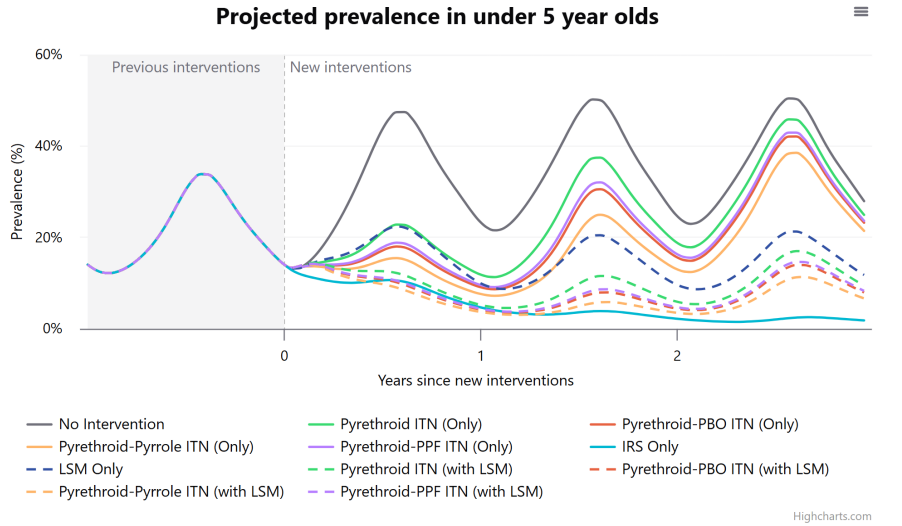
Continuous distribution of ITNs: On

Expected IRS coverage: 60%

Expected reduction in mosquito density achieved through larval source management: 70%





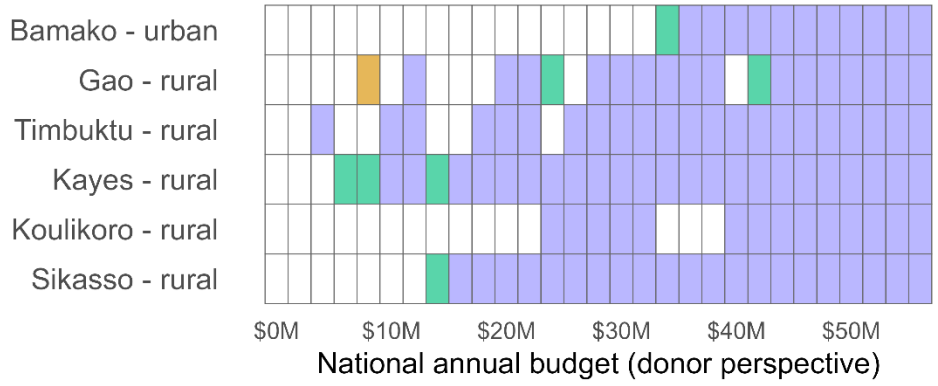


Supporting slide: SNT ITN distribution

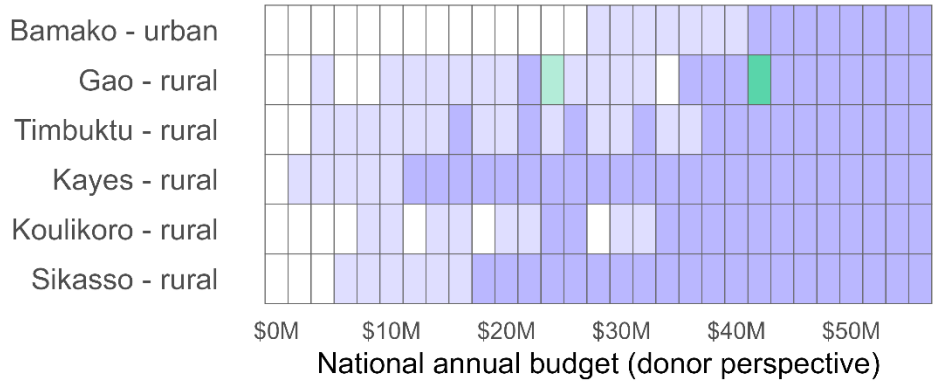
MRC Centre for Global Infectious Disease Analysis

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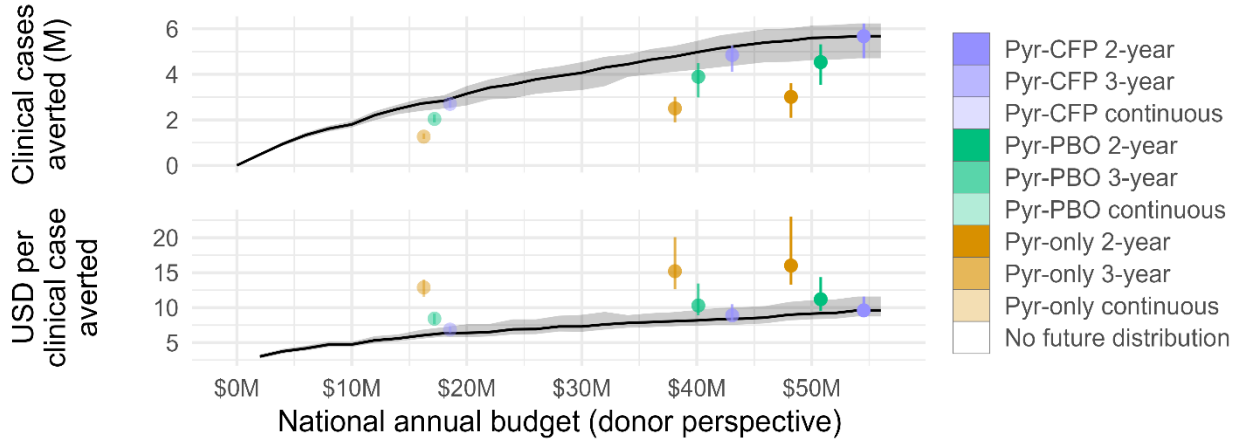
Distribution options 3-year campaigns

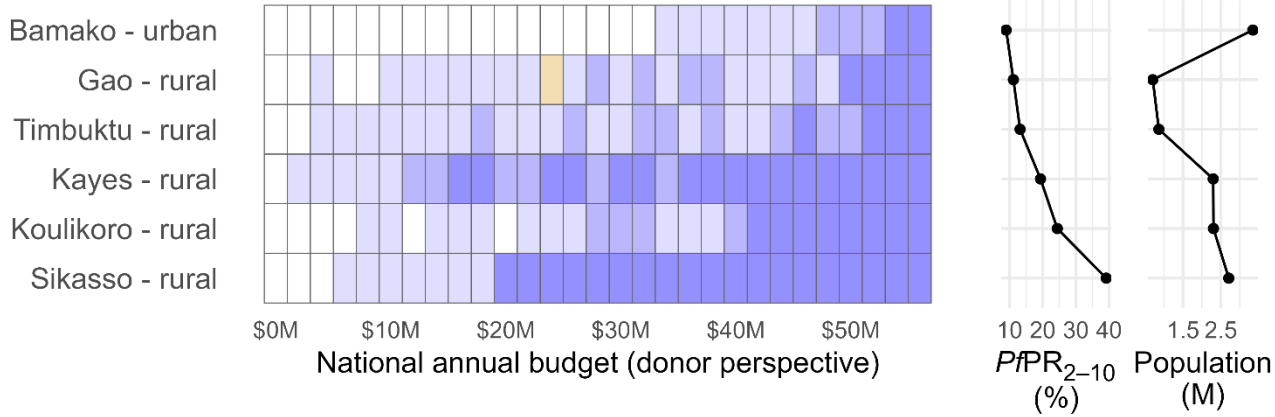


Distribution options 3-year campaigns, continuous only



Distribution options 3-year campaigns, 2-year campaigns, continuous only





RBM Partnership
To End Malaria

3 March 2026

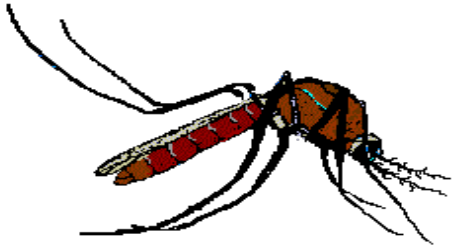
School Based Distribution of ITNs among School Pupils in the Bo and Bombali Districts, 2025

John Seppeh, Sierra Leone NMCP

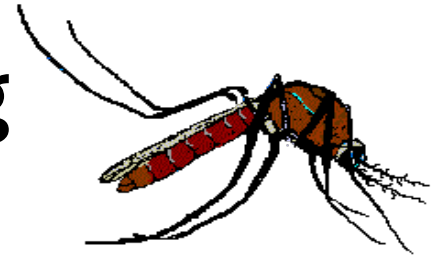
GOVERNMENT OF SIERRA LEONE

Ministry of Health

National Malaria Control Programme



School Based Distribution (SBD) of Insecticide Treated Nets (ITNs) among school pupils in the Bo and Bombali District, Sierra Leone 2025



John Seppeh-Malaria Epidemiology Surveillance Monitoring and Evaluation (MESME) Officer, NMCP-SL

Dr Abdul Mac Falama - Program Manager National Malaria Control MoH

Dr Kevin Opondo-Chief of Party, PMI Evolve

Dr Omowunmi Fiona Omoniwo-Malaria Expert, World Health Organisation, Sierra Leone

Mr Mohamed Sillah Kanu – Chief Executive Officer Informatics Consultancy Firm

Post Distribution Evaluation of Kono Pilot

- Survey 920 households' comparison two arms: Households with eligible children (intervention) vs non eligible children (control)
- Significant impact on household net ownership, population ITN access and ITN use between intervention and control households

Esch *et al. Malaria Journal* (2025) 24:149
https://doi.org/10.1186/s12936-025-05369-8

Malaria Journal

RESEARCH Open Access

Overcoming practical challenges to pilot Sierra Leone's first school-based distribution of piperonyl butoxide-synergist ITNs: findings from a 2023 assessment in Kono district

Keith Esch[1*], Fredrick Yamba[2], Kevin Opondo[3], Musa Sillah-Kanu[2], David Schnabel[4], Prince Owusu[5], Raymond Sudoi[6], Malia Skjefte[7], Wani Lahai[2], Mohamed G. Sheku[8], Mariama Kabba Jibatteh[8], Augustine Ngegbe[9], Jenny Carlson[10], Temitayo Labor[4], Djenam Jacob[11], Charlene Youseff[12], Elisabeth Tyler[1], Prince Nallo[12], Dennis Marke[2] and Stephen Poyer[13]

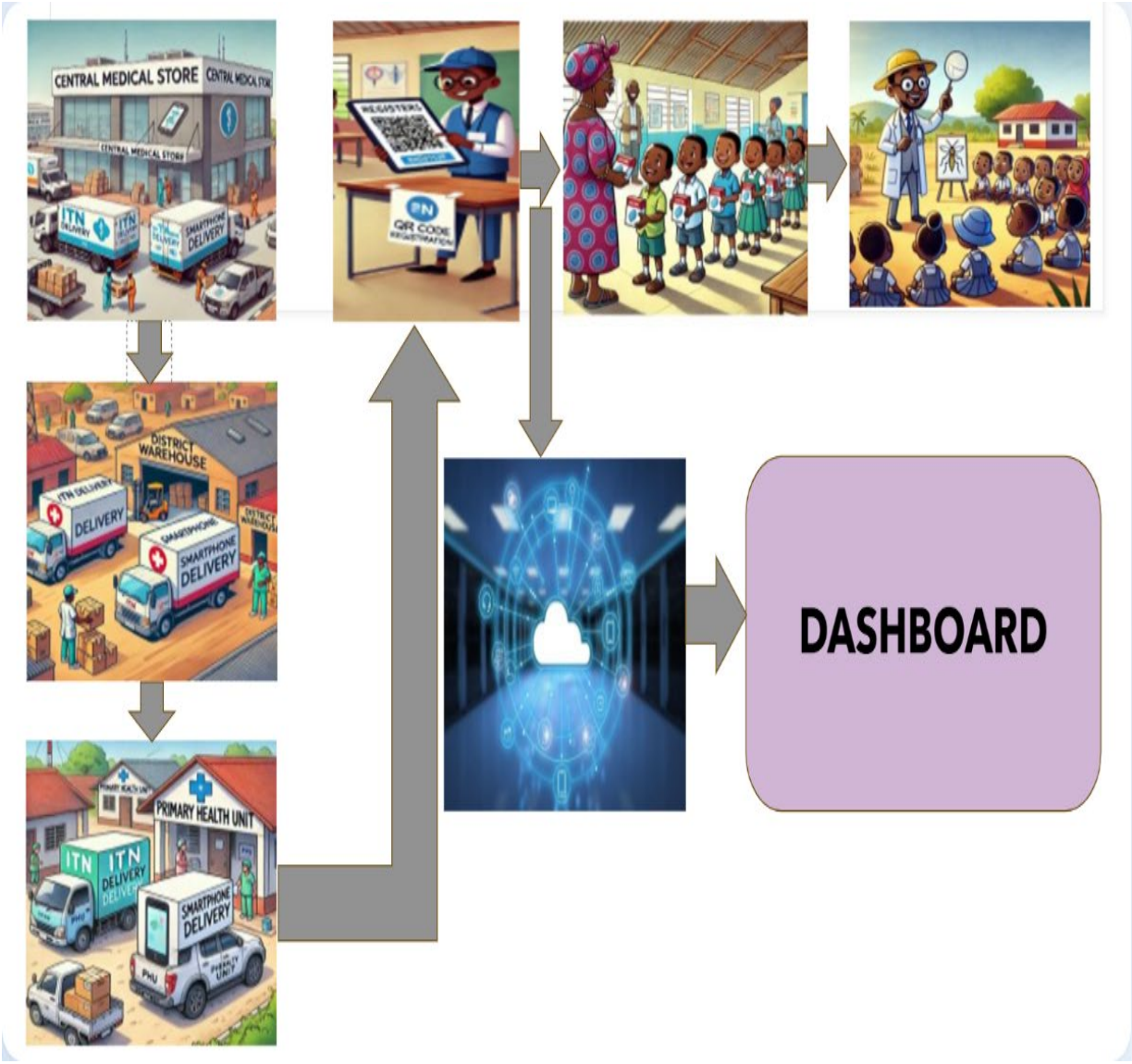
Key Findings

Indicators	Intervention	Control	P-value
Household owns at least one ITN	**93%**	**69%**	***<0.001***
Household owns at least one ITN per two people	**42%**	**24%**	***<0.001***
Population ITN access	**69%**	**46%**	***<0.001***
ITN use (previous night)	**71%**	**49%**	***<0.001***

Rationale for School-Based Distribution of ITN

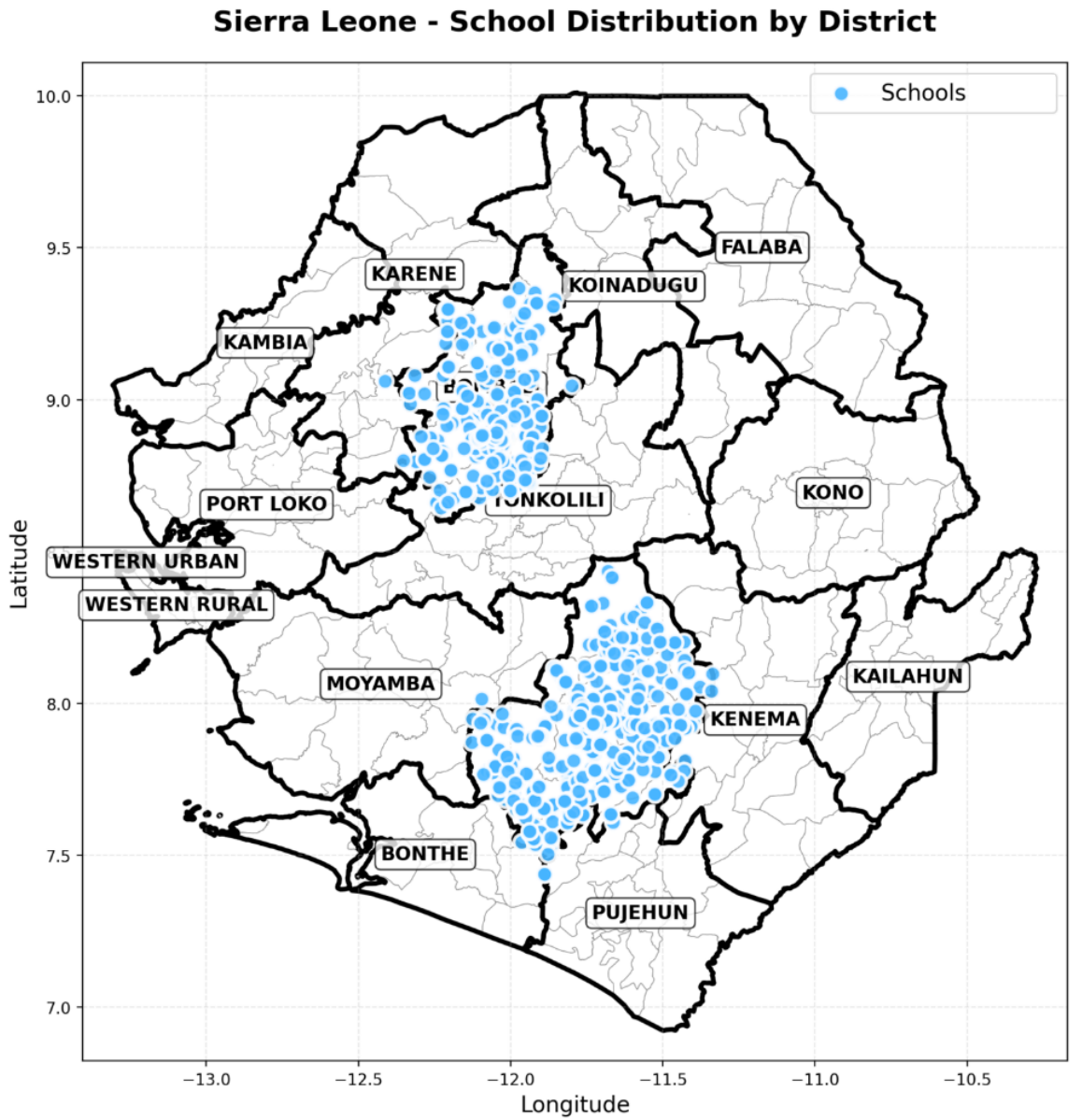
- School-Based Distribution (SBD) is a strategy aimed at maintaining universal coverage of insecticidal-treated nets (ITNs) through primary schools. **Goal = Increase access**

- The criteria for selecting of Bo and Bombali districts to prevent spike in malaria cases after **withdrawal of the IRS intervention.** Other criteria to consider for SBD are:
  - High malaria prevalence among children 5-9 years (32.3% SLMIS 2021),
  - Annual Parasite Incidence,
  - Access to ITN,
  - Contextual Factors of SBD implementation



SBD Implementation Outcome

Districts of implementation	Bo and Bombali
Number of chiefdoms	30
Type of ITN product distributed	PBO and IG2
Total number of schools covered	1,173
Targeted classes	1, 2, 3, 4 and 5
Total number of pupils enrollment (2025)	244,435
Total number of ITNs (given + left in schools)	227,823
Student coverage rate (%)	93.2%
Month/year of distribution	May 2025
Length of distribution	9 days



BOMBALI District - School Coverage Analysis

BIRIWA
35/48 (73%)



BOMBALI SEBORA
36/44 (82%)



BOMBALI SIARI
8/7 (100%)



GBANTI
38/40 (95%)



GBENDEMBU
24/30 (80%)



KAMARANKA
13/13 (100%)



MAGBAIMBA NDORWAHUN
13/17 (76%)



MAKARI
45/54 (83%)



MAKENI CITY
89/93 (96%)



MARA
14/15 (93%)



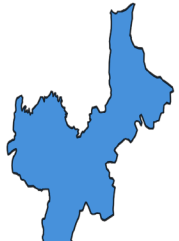
N'GOWAHUN
26/28 (93%)



PAKI MASABONG
29/29 (100%)



SAFROKO LIMBA
29/36 (81%)



Coverage Color Legend:

- Red: < 20%
- Orange: 20-39%
- Yellow: 40-59%
- Light Green: 60-79%
- Blue: 80-99%
- Purple: 100%+

BO District - School Coverage Analysis

BADJIA
11/9 (100%)



BAGBO
31/31 (100%)



BAGBWE(BAGBE)
13/18 (72%)



BO TOWN
119/86 (100%)



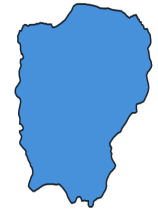
BOAMA
55/56 (98%)



BONGOR
14/18 (78%)



BUMPE NGAO
60/63 (95%)



GBO
10/10 (100%)



JAIAMA
24/25 (96%)



KAKUA
157/164 (96%)



KOMBOYA
9/17 (53%)



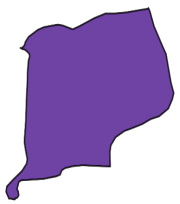
LUGBU
29/32 (91%)



NIAWA LENGA
20/25 (80%)



SELENGA
7/7 (100%)



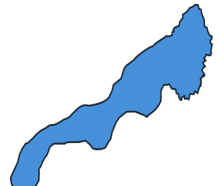
TIKONKO
99/89 (100%)



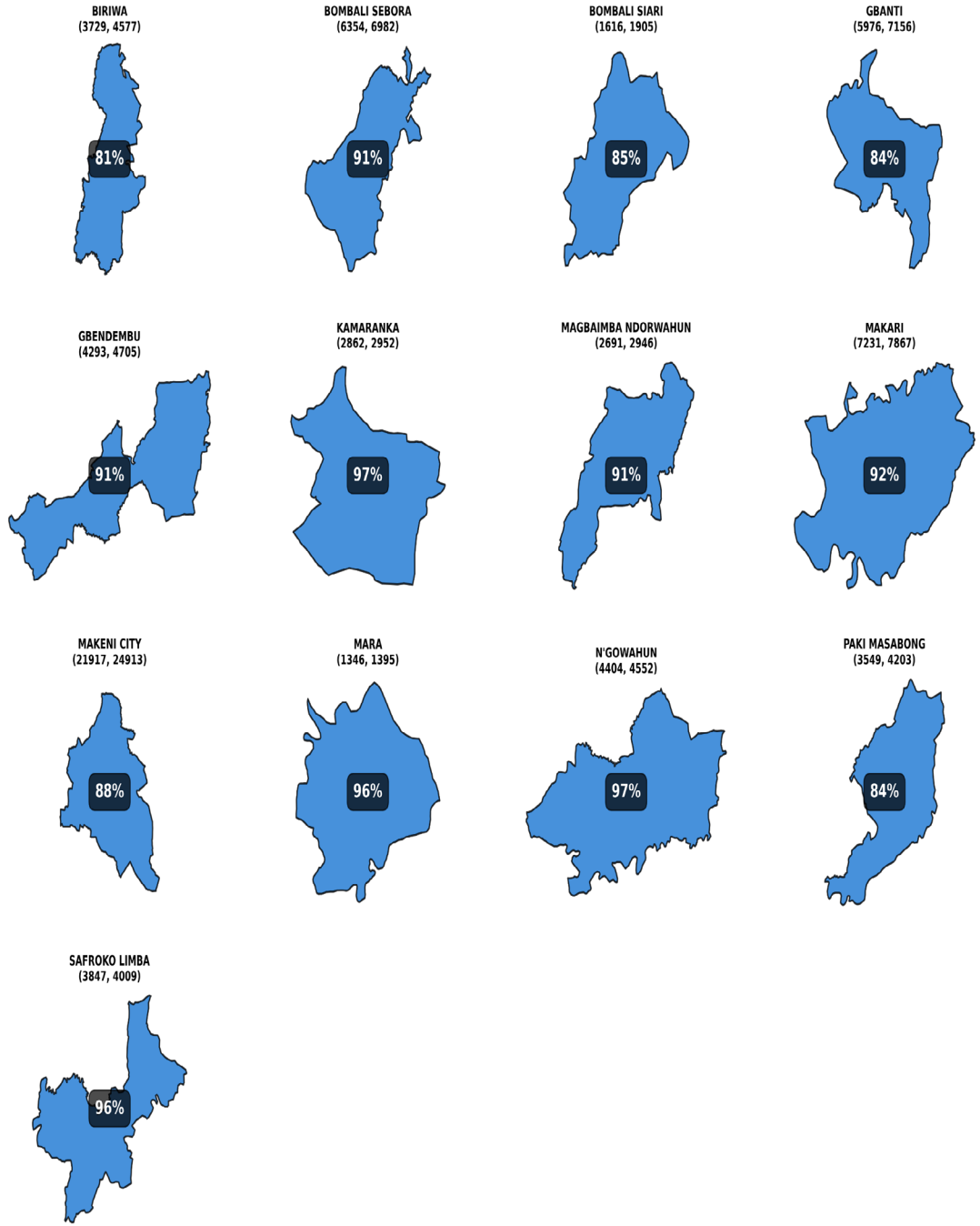
VALUNIA
35/38 (92%)



WONDE
12/13 (92%)



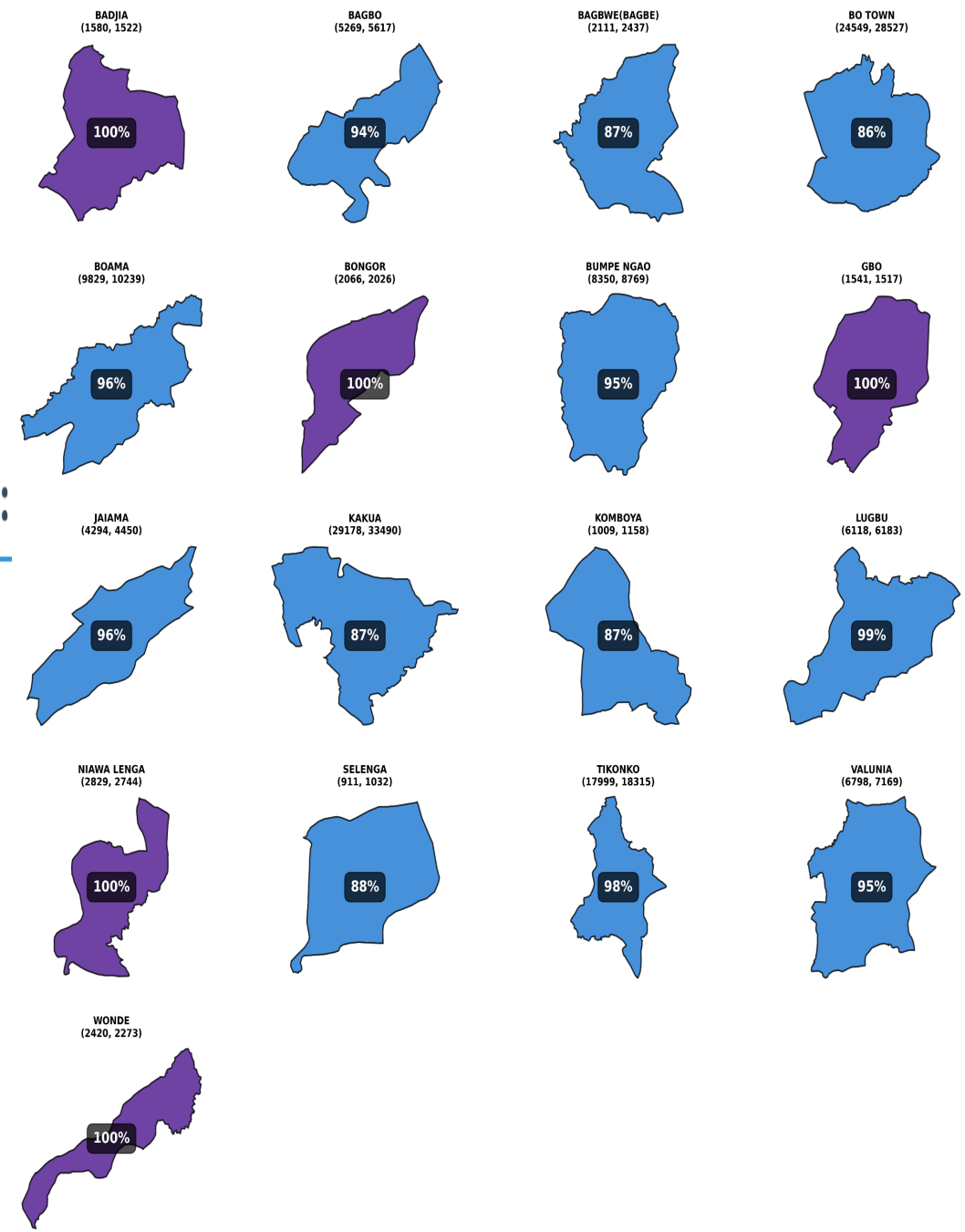
BOMBALI District - ITN Coverage Analysis



Coverage Color Legend:

- Red: < 20%
- Orange: 20-39%
- Yellow: 40-59%
- Light Green: 60-79%
- Blue: 80-99%
- Purple: 100%+

BO District - ITN Coverage Analysis



Key recommendations

- **Prioritize school-based distribution (SBD)** as an effective channel for maintaining universal coverage of insecticide-treated nets (ITNs) through primary schools.
- **School-based distribution should complement mass campaigns** to help maintain continuous coverage between cycles.
- **Mechanisms should also be in place** to ensure that non-enrolled children aged 5–9 years are reached, preventing gaps in coverage and increasing access in households.
- It is critical to **strengthen partnerships** among the Ministry of Health (NMCP), the Ministry of Basic and Senior Secondary Education authorities and partners (WHO, UNICEF, Global Fund, PMI, AMP) to ensure sustainability.
- **Regular monitoring** of ITN distribution, usage, care, and durability should be ensured to assess impact and guide adjustments.
- **Conduct awareness-raising campaigns** before, during, and after distributions to encourage proper use and care of nets through community engagement.

Conclusion

Improved Coverage

- School-based distribution of ITN significantly increases household access to nets, helping maintain universal coverage between mass campaigns.

Cost-Effective & Sustainable

- Leveraging schools reduces logistical challenges and provides a reliable, low-cost distribution channel compared to health facilities alone.

High Acceptance

- Communities trust schools, making this approach widely accepted and effective in reaching families.

Critical for Malaria Control

- Continuous ITN distribution through schools is a vital strategy for reducing malaria transmission in Bombali, where prevalence remains high.

Thank you all







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3 March 2026

Q&A and discussion

Anna Trett, Keith Esch, Chrispin Williams, VCWG Task Team leads

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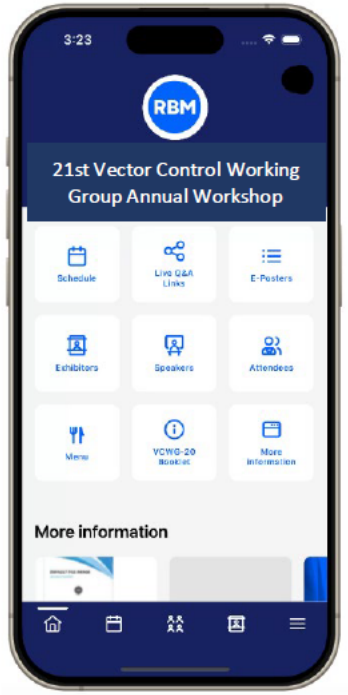
3 March 2026

Afternoon break

Attendee App on Smartphone

Update your profile, search for daily schedule, send messages, schedule appointments, and access more information

1. Download/Update App (GooglePay or AppStore) **"Cvent Event"**
2. Open the App
3. Search for the event "Vector Control"
4. Find "21st Vector Control Working Group Annual Workshop"
5. Download the event
6. Log in (name and email which you have registered)
7. Enter the verification code which will be sent to your email



- Daily Schedule
- Speaker information
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3 March 2026

Task Team 3: Engagement and mapping of private sector partners to support implementation

Introduction and outcomes of NMP Survey on private sector financing status and bottlenecks

Jess Rockwood, Andrew Saibu

RBM Partnership
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VCWG Workstream 1,Task Team 3

Private Sector Involvement for Sustainable Vector Control

March 3, 2026 |Nairobi, Kenya

Co-Leads: Jessica Rockwood-IPHA , Samuel Asiedu-AGAMAL & Andrew Saibu-IVCC

VCWG-Workstream 1-Task Team 3

The Vision

Enhanced NMP partnerships with the African private sector for expanded and sustainable vector control towards malaria elimination

The Objective

To support VCWG members in their efforts to foster sustainable ITN, IRS, LSM, and SE interventions through the capacity strengthening of NMCPs, local partners, and the private Vector sector implementers

Task Team 3: Who we classify as Private Sector (Target)

- Any company or organization with a malaria program for its employees and/or its catchment areas be it for-profit or non-profit with a vector control intervention (LLINS, IRS,LSM, SEs)
- ***We are NOT referring to Industry /manufacturers of vector control products***

- **Implementers/self funds, funds raised, other financing incentives**
  - Extractives (i.e., mines, gas/oil)-NLNG in Nigeria, Asanko Mines, Gold fields
  - Agricultural Related – Zamsugar (Zambia), Kakira Sugar (Ug) and Benso Oil Palm
  - NGOs (Pilgrim Africa(Ug), Mulanje Mission hospital (Malawi),GBM (Moz) -GF&Ps
  - Pest control Organization- Kill Pest- Ghana, Pestmetic-kenya /working with KEMRI
  - Society for Family Health/SFH-Rwanda (running sustainable model)
  - Faith Based Organization – ***Survey confirmed this***
  - Financial institutions e.g., Banks

- **What support is provided**
  - Technical Capacity building and Training
  - Guidance on available/applicable WHO prequalified products
  - Lesson learning from peers
  - Private Sector Vector Control Implementers adhering to NMP operational guidelines and policies

PUBLIC

Examples of Malaria Control Programs With Private-Sector Involvement

Country	Organization	Intervention
Malawi	Illovo Sugar	IRS
	Mulanje Mission Hospital	IRS and LLINs- for hospital catchment area
Ghana	AngloGold Ashanti	IRS, bed net distribution, environmental management, insecticide resistance management, education, surveillance
	Benso Oil Palm Plantation	IRS and LLINs for staff on its plantation
Uganda	Uganda National Oil Company -UNOC	VC for its work force
	Quality Chemicals, with guidance from the NMCP	IRS -New initiative in collaboration with the NMCD, IRS will be implemented o full recovery basis – commercial purpose project
DRC	Tinke Fungurume Mine	IRS and LLINS for mine workers
Brazil	Mineração Novo Astro S/A	Vector control and surveillance services, investments in staff, provision of equipment
Mali	Société d'Exploitation des Mines d'Or de Sadiola	IRS, larviciding, breeding site removal, household malaria education
Zambia	Zambia Sugar	IRS, malaria case management, IPTP, education and behaviour change communication
	Konkola Copper Mines, Mopani Copper Mines	IRS, malaria case management, IPTP, education and behaviour change communication
	Roan Antelope, Mufulira, Nkana-Kitwe, and Nchanga mines	IRS, malaria case management, IPTP, education and behaviour change communication
Chad, Angola, Cameroon	ExxonMobil, Petronas, Chevron	Insecticide-treated bed nets, chemoprophylaxis among nonimmune workers
Equatorial Guinea	Marathon Oil	IRS, bed net distribution, ACT introduced free of charge to children and pregnant women, IPTP, training of medical staff, communication campaign
Philippines	Shell	IRS, insecticide-treated bed net distribution, diagnostic and treatment provision, capacity building

NMP Bottlenecks for Private Sector Engagement

Current Status

Countries lack budget and operational capacity to implement their comprehensive IRM/IVM strategies

Concerns

- Will the reduced funding for high-impact vector control (LLINs, IRS, LSM, SEs, etc.) create greater than anticipated gaps?
- Will a reduced Vector Control market result in higher prices and possibly the withdrawal by manufacturers?
- How to pilot country level - locally led - deployment models for IRS and all Vector Control tools, while advocating for increased domestic funding and private sector adoption of Vector Control in partnership with NMPs?
- What are the most compelling business cases for various private partners for Vector Control interventions?
- How do private sector Implementers get competitive prices for Vector Control products?

VCWG TT3 NMP Private Sector Investment Survey

- 19 Country Responses with many different contexts, including private sector engagement, policies, and financing

Anglophone: (9)

- Namibia
- Nigeria
- Liberia
- The Gambia
- Uganda
- Zambia
- Zanzibar
- Zimbabwe
- Eswatini

Francophone(6)

- Démocratique du Congo (DRC)
- Senegal
- Tchad
- Togo
- République Centrafricaine (CAR)
- Mali

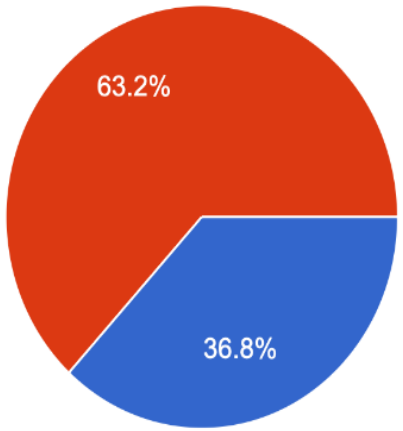
Lusophone (4)

- Angola
- Cabo Verde
- Guiné-Bissau
- Mozambique

VCWG TT3 NMP Private Sector Investment Survey 1/5

1. Do you have a private sector policy purposely ear-marked for increasing domestic funding for the NMEP?

19 responses





1a. If yes, when was this policy developed?

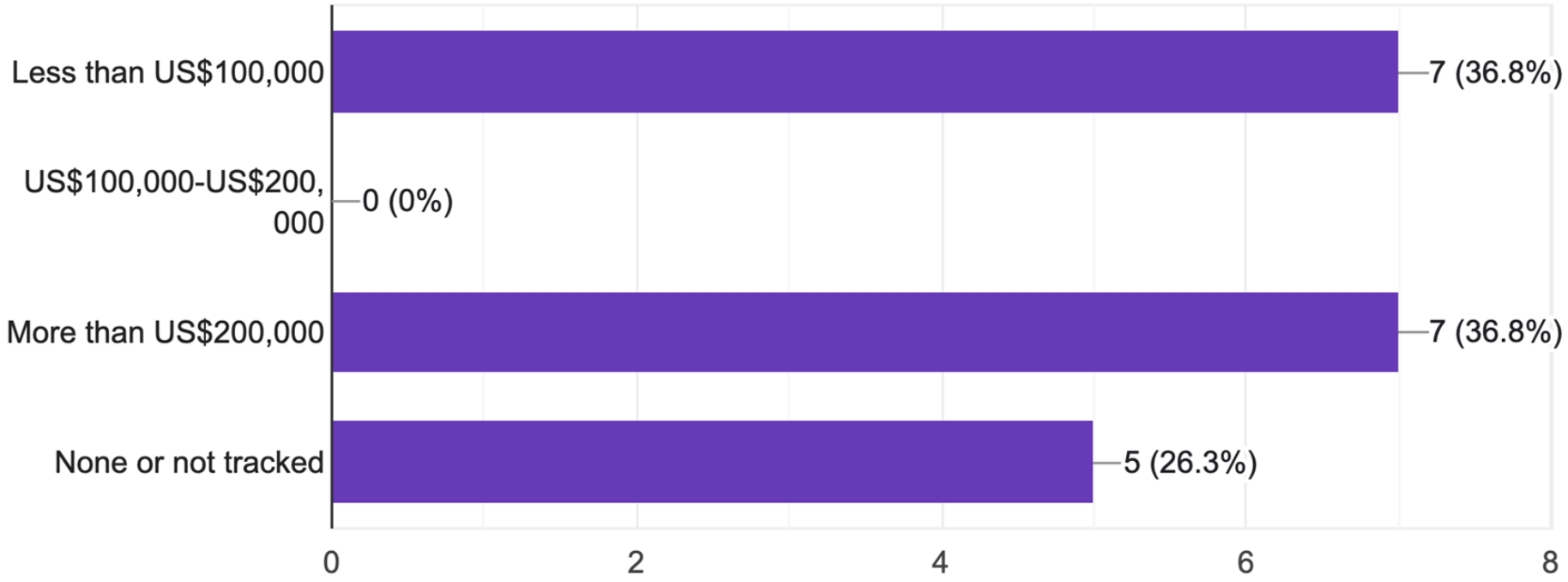
19 responses



VCWG TT3 NMP Private Sector Investment Survey 2/6

2. How much domestic funding (cash and in kind) has the NMEP mobilized in the last two years (2024& 2025)?

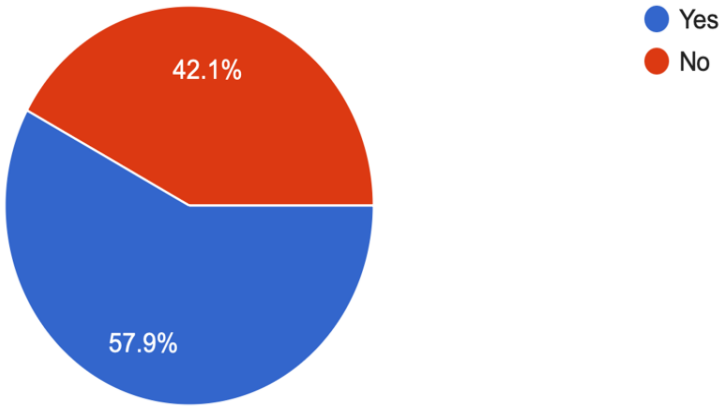
19 responses



VCWG TT3 NMP Private Sector Investment Survey 3/6

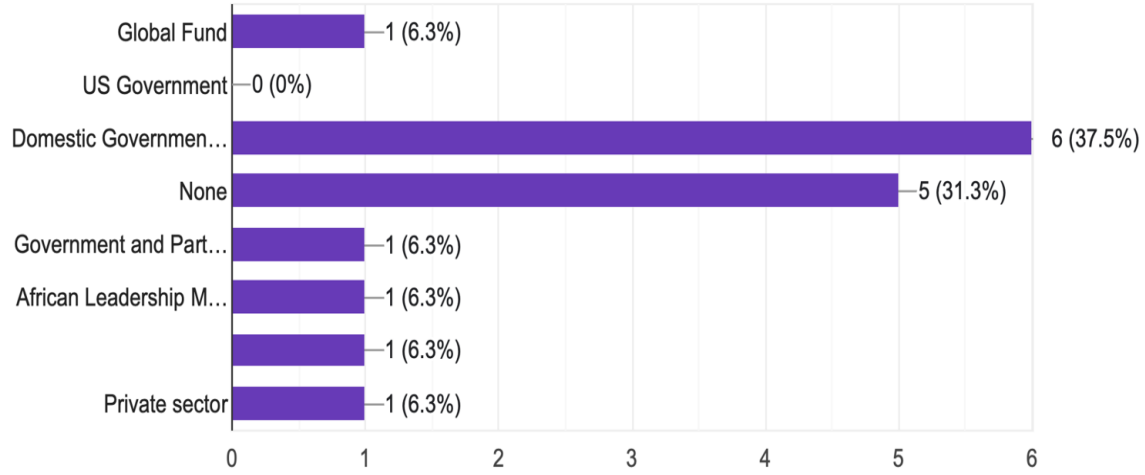
3. Does your malaria program have a dedicated person/staff responsible for engaging the private sector in country?

19 responses



3a. If yes, who funds the private sector desk officer?

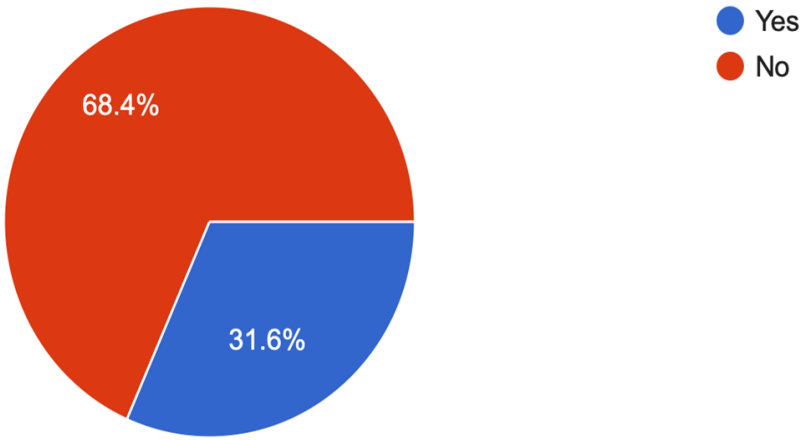
16 responses



VCWG TT3 NMP Private Sector Investment Survey 4/6

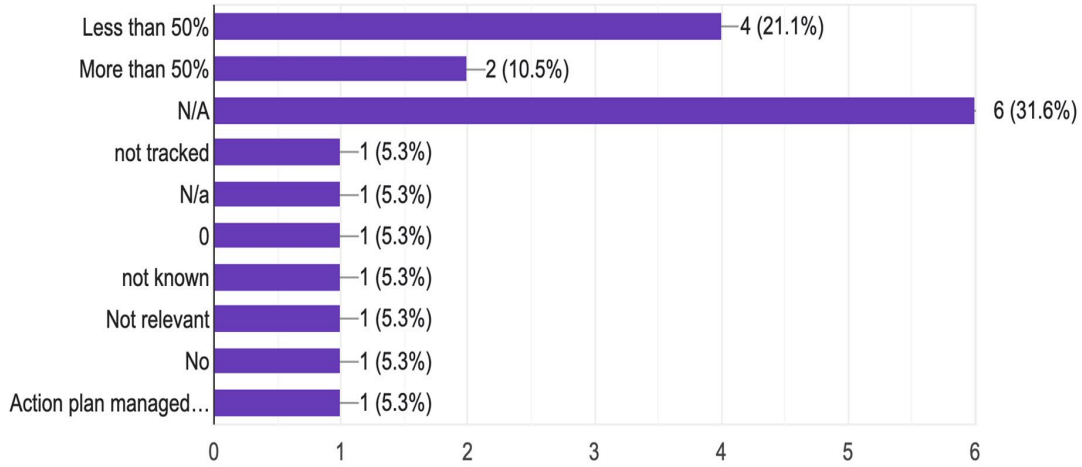
4. Do you have a funded private sector action plan?

19 responses



4a. If yes, what proportion of the action plan was achieved?

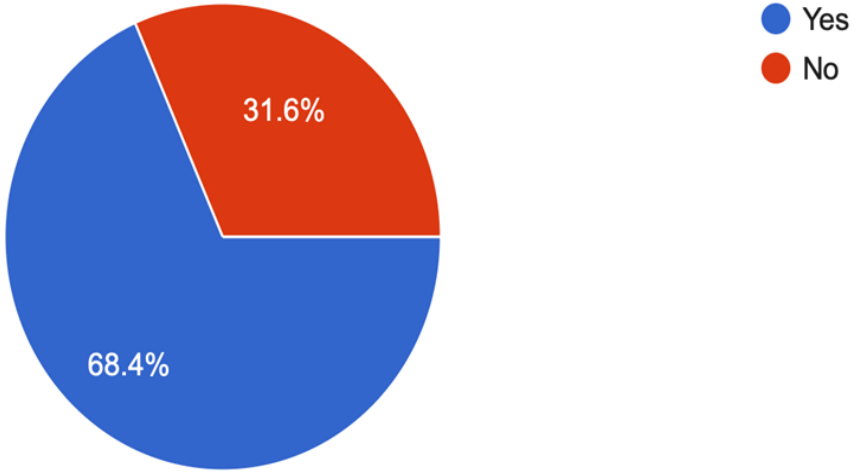
19 responses



VCWG TT3 NMP Private Sector Investment Survey 5/6

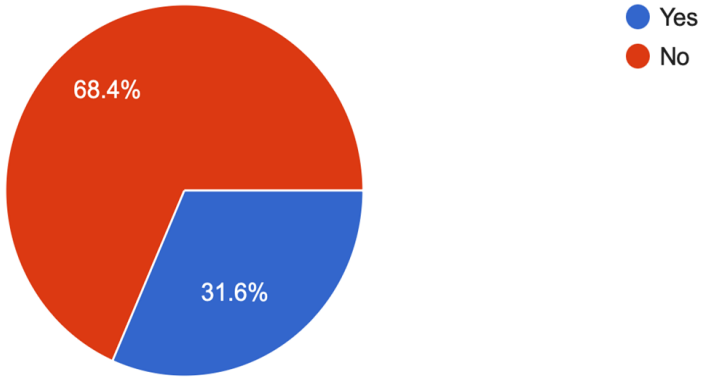
5. Are you aware of the 15% co-financing policy of the Global Fund?

19 responses



5a. If yes, has NMP ever met the requirements?

19 responses

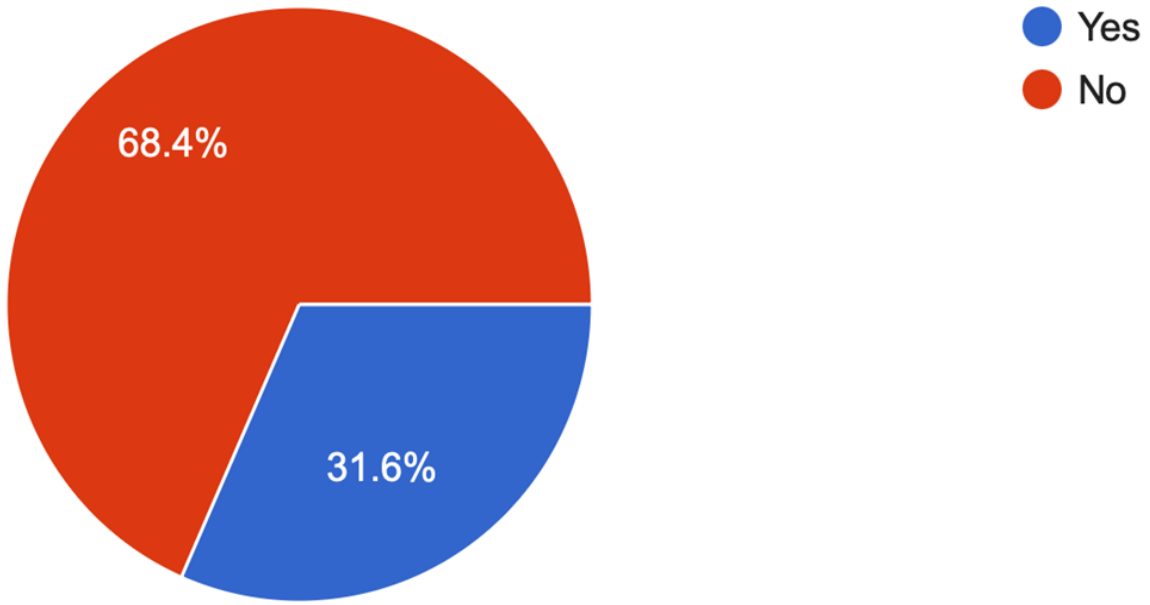


How do we increase the awareness and by who?

VCWG TT3 NMP Private Sector Investment Survey 6/6

6. Do you track the contribution of the private sector contribution to vector control (workplace programmes eg LLINSs LSM, IRS) and/or case management?

19 responses



VCWG TT3 NMP Private Sector Investment Survey Outcomes

- 63.2% **do not** have a private sector policy purposely ear-marked for increasing domestic funding for the NMEP.
  - Of the 26.3% with a policy, most were developed 3-5 years ago.

- Domestic funding (cash/in-kind) mobilized in 2024 & 2025
  - 36.8% <$100,000
  - 36.8% >$200,000
  - 26.3% None or not tracked

- NMP with dedicated staff for PS engagement
  - 42.1% NO
  - 57.9% YES

- Funding for NMP PS desk officer is rather unclear, but 37.5% note Domestic/Government Financing
- 68.4% **do not** have a funded Private Sector Action Plan
  - Of those that do, less than 17.6% have achieved less than 50% of the plan

- 68.6% **are aware** of TGF co-financing policy while 76.5% of responding NMPs **have not** met the requirements
- 68.4% **do no**t track the contribution of PS to vector control and/or case management
- 68.4% **do not** have a list of private sector companies procuring malaria commodities and implementation of malaria programming

Emerging Key Challenges & Themes

- Over reliance on external donors for Malaria funding
- Weak private sector engagement coupled with competing health priorities for Governments
- Parliamentarian/MoH Commitment, bureaucracy, no ownership, and leadership
- The absence of a framework/policy for the effective involvement of all stakeholders. Good plans alone does not deliver tangible results – need to operationalize investment cases
- Unstable Macro Economic environment in the country characterized by the high inflation, currency instability, and declining private sector investment confidence
- Lack of private sector capacity mapping - not well structured in most countries – thus difficult to derive the desired benefits

How can challenges be addressed?

- Train and resource a designated team to be responsible for mobilizing private sector financing; development of a policy for mobilizing operationalization of private sector financing
- Technical Assistant to support in developing a Business and Resource Mobilization Plan
- Conduct a mapping of the Private Sector
- Strengthen advocacy for a specific budget line for malaria control
- Implement a transition strategy towards increased domestic co-financing
- Develop formalized and incentive-based public-private partnerships
- Use epidemiological data to better position malaria as a development priority for Private Sector
- Integration of conditions or programmes within the MoH

RBM VCWG TT3 Country TA Requests

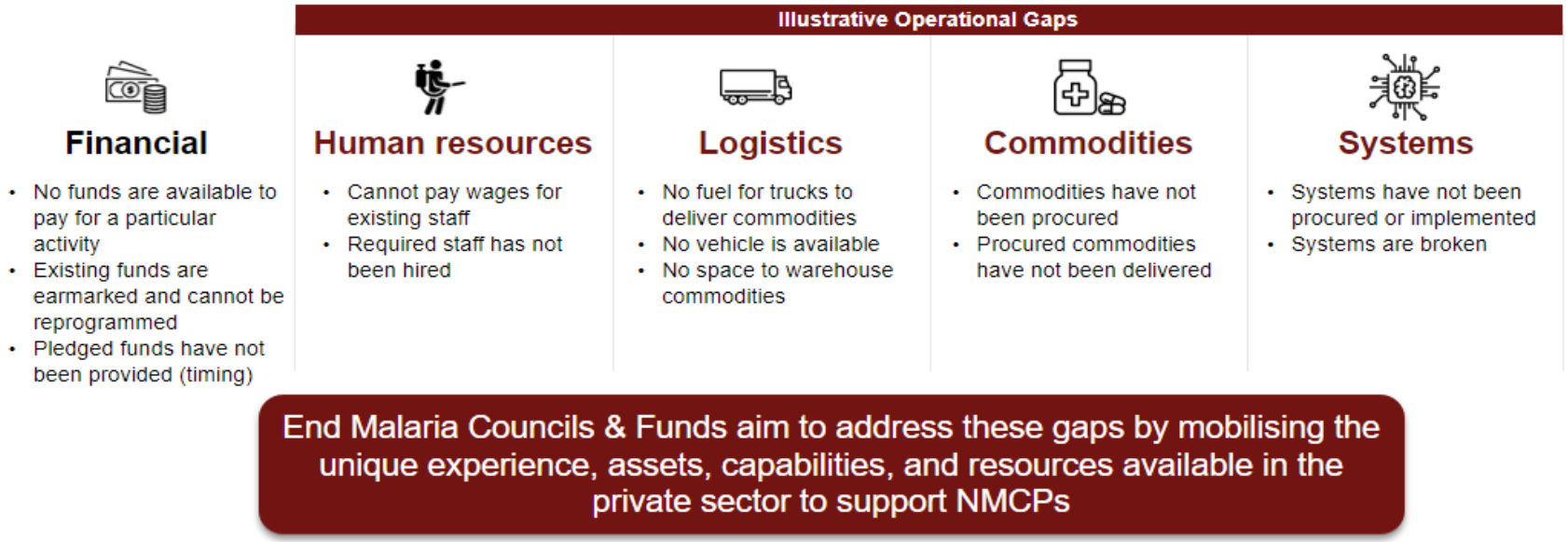
- Need to develop or update country specific resource mobilization and investment plans – local capacity required
- Strategic training of NMP colleagues on private sector initiatives and resource mobilization mechanisms
- Provide technical guidance on scaling vector control interventions
- Facilitate partnerships between program and private sector stakeholders
- Share the best practices and lessons learnt from other regions
- Expertise support in developing cost-effective strategies to strengthening the program effort of addressing the low uptake
- Advocate for central government co-develop malaria projects – funding, implementation and incentives for scale up
- Sharing good practices and developing tools to promote sustainable national investment

Call for Action and Country Selection

- RBM VCWG TT3-led Engagement with stake holders to:

- Select countries (4-5) based on criteria to be developed for private sector CEO engagement with the following stakeholders:

- RBM/CRSPC
- ALMA
- EMC
- COPEMA



Strategic partnerships and multi-sectoral collaboration should be promoted by all countries as the MOH cannot do it alone

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3 March 2026

Global Fund: Global Fund co-financing policy and incentivizing private sector investment

Matt Gordon (Manager, Health Financing Strategy & VFM)
John Fairhurst (Head, Private Sector Engagement The Global Fund)
Anthony Kinghorn, The Global Fund

THE GLOBAL FUND

Engaging Domestic Private Sector in Malaria Control

Engaging the private sector in malaria control

Barriers to Engagement - Structural, financial, and informational barriers

Why has the Private Sector Historically Not Invested in Malaria

- Malaria framed as a public-sector and donor-funded responsibility
- Weakly articulated business case (productivity losses not quantified)
- Limited formal platforms for engagement with governments/NMCPs
- Perceived high transaction, regulatory, and reputational risks
- Perceived misalignment between long-term malaria timelines and short business cycles

Why This Moment Could Be Different

- Perfect storm resistance, funding, climate patterns
- Malaria recognised as an economic and productivity constraint
- Declining donor financing increases need for domestic co-investment
- Stronger government-led platforms (e.g. End Malaria Councils, PPPs)
- Evidence that malaria investments deliver measurable ROI for companies
- Innovations in vector control and resistance coming on line soon

Examples of successful engagement – indicate some lessons

End Malaria Councils and Funds (multiple countries, 2019–ongoing): MoU with S.C. Johnson to support within a government-led platform that pools private, public, and philanthropic funding.

MOSASWA is a cross-border initiative launched in 2015 by Mozambique, SA, and Eswatini blends government, private sector, and philanthropic financing coordinating efforts in shared zones.

Zero Malaria Business Leadership Initiative (Ecobank, RBM, Speak Up Africa, 2020–ongoing): This initiative has mobilised about 6 million USD in cash and in-kind contributions from companies across Benin, Burkina Faso, Ghana, Senegal, and Uganda for nets

Zambia Sugar – End Malaria Council - Since 2019, Zambia Sugar has funded malaria prevention, case management, and community engagement through the End Malaria Council in line with national plans.

What these examples have in common

- Clear business relevance (productivity, labour stability, costs).
- Government leadership and policy clarity.
- Structured engagement platforms (EMCs, PPP frameworks, PPMs).
- Alignment with national malaria strategies.
- Visible and measurable impact documented over multiple years.

Where these elements were absent, private sector engagement tended to remain fragmented, short-term, or philanthropic.

Entry points for engaging the private sector

Not see it as mobilizing funding, but mobilizing resources

Mobilising domestic private sector resources for malaria control is about aligning economic incentives with public health goals, leveraging business capabilities beyond financing, and building sustainable national ownership of malaria elimination.

Workplace malaria programmes

- Targeting high-burden sectors such as agriculture, mining, construction, transport, and manufacturing through:
- Testing and treatment
- Preventive measures (ITNs, IRS where appropriate)
- Health education for workers and families

Co-financing and matching mechanisms

- Public, DFI, donor funds used to **de-risk private investment**, particularly for prevention and community-level interventions.

Non financial – e.g. Supply chain and digital roles

- Engaging domestic manufacturers, distributors, insurers, and logistics companies in:
- Commodity production and distribution
- Last-mile delivery
- Data and surveillance systems
- Digital systems and AI

Recognition and incentive frameworks

- Non-financial incentives such as:
  - Public recognition
  - ESG reporting alignment
  - Preferential consideration in public–private partnerships

Building the pathway to deeper engagement

Positioning and incentives

Creating a forward leaning environment (examples)

- Position malaria as a national economic priority
- Embed private sector roles explicitly in national malaria strategic plans
- Establish or strengthen structured platforms (e.g. End Malaria Councils, PPP units)
- Track, communicate, and publicly recognise private sector impact

Incentivizing broader action (examples)

- Innovation as a catalyst for new engagement – spatial emanators, pediatric formulations, nextgen bed nets, etc
- Co-financing and Blended finance: concessional capital to de-risk private investment in malaria interventions
- Domestic resource mobilisation (D2H): earmarked levies, solidarity contributions, or payroll-linked schemes
- Create incentives for action - deductions, credits, or exemptions linked to verified malaria investments
- Outcome-based financing to links rewards to measurable improvements

Thank You



The Global Fund to Fight
AIDS, Tuberculosis and Malaria

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Strengthening DRM via co-financing

Discussion CIFF and Global Fund

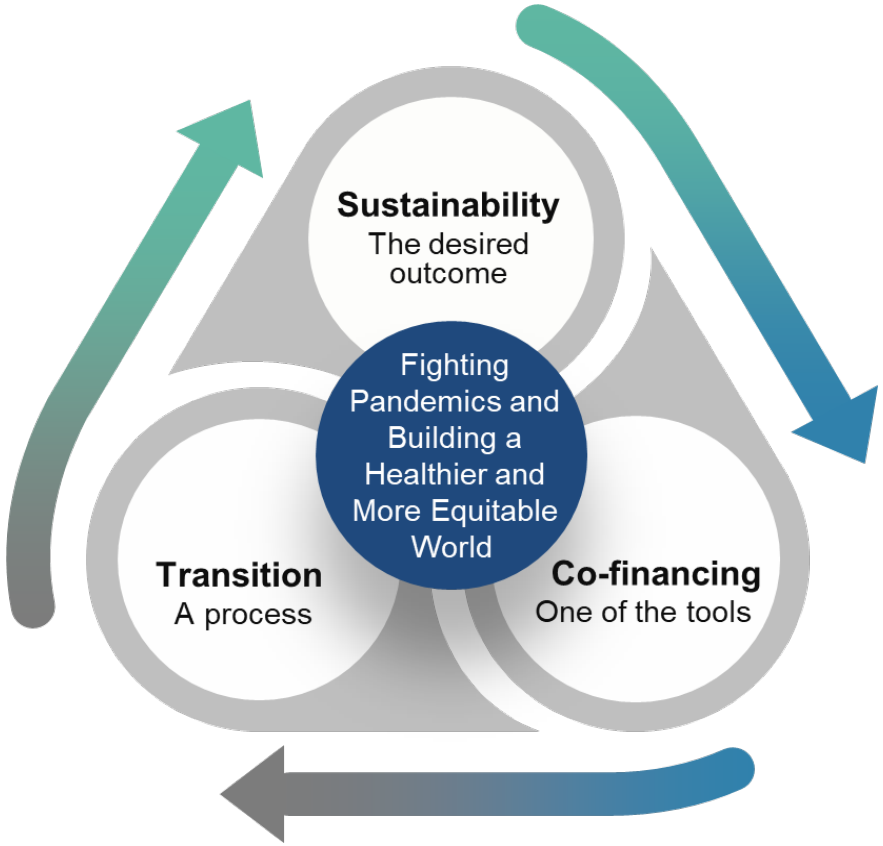
The Global Fund works to strengthen sustainability and support effective transitions through the Sustainability, Transition, and Co-Financing (STC) Policy

Global Fund has a suite of Board-approved policies designed to support sustainability of national responses and health systems

The STC Policy (passed in 2016 and revised in 2024) guides how the Global Fund engages on domestic financing, supports financial and programmatic sustainability, and manages the transition from external financing

Key elements include:

- **Co-financing requirements,** which require countries to make domestic investments to receive full Global Fund grants;
- **Transition funding** to "smooth" transition away from external financing;
- **Focus of funding requirements,** which stipulate how Global Fund financing can be used across income levels;
- Guidelines for **sustainability / transition planning** at country level;
- Principles for **implementation through country systems**



Differentiated to reflect the diversity of contexts in which the Global Fund operates

Co-financing is one way the Global Fund supports countries to strengthen financial sustainability – *it's a piece of a bigger puzzle*

Multipronged approach



MORE MONEY

Supporting countries to raise more money for health and the national responses



BETTER SPEND

Supporting countries to be more efficient in their use of existing resources



ALIGNED WITH NATIONAL SYSTEMS

Enhancing efforts to support on budget spend and implement through and use country systems



LESS DEPENDENT ON EXTERNAL SOURCES

Supporting countries to progressively move away from donor funding for health and/or specific interventions

IMPROVED HEALTH OUTCOMES & FINANCIAL SUSTAINABILITY

Examples of focus areas

- **Using co-financing to strengthening financing of national responses and health systems**
- Mobilizing increased resources for the health sector through blended finance and debt swaps
- Leveraging domestic financing advocacy to encourage investments in health

- Pooled procurement mechanisms for sustainable and uptake of innovative health technologies
- Efficient HTM integration health financing
- Implementation of VfM Framework
- **Using co-financing to encourage increased value for money**

- Technical assistance to support stronger health financing systems
- Improved use of and implementation through country systems, including strengthening of public financial management (PFM) systems

- **Leveraging co-financing to decrease dependency on the Global Fund for critical interventions**
- Risk mitigation for critical interventions linked to programmatic objectives



More programmatic impact



Progress towards UHC and RSSH



A case to bolster donor support



Country ownership and aid independence

The STC Policy was revised in 2024 and included key changes to the Global Fund's co-financing requirements

Key Focus Areas for GC8: Maintain focus on increasing overall health expenditure in LICs and LMICs (reinforcing health system financing), while increasing the focus on co-financing for specific programmatic interventions (reducing reliance on Global Fund financing)

1) More domestic financing for health	**Progressive government expenditure on health <u>only in LICs and LMICs</u>**
2) Progressive financing of key programmatic interventions	**Specific commitments to take up key programmatic interventions <u>in all countries</u>**
3) Disease and RSSH specific co-financing	**Increased co-financing of HIV, TB, Malaria, and RSSH, with more flexibility for RSSH in lower income contexts**

In general, there is more flexibility for the focus of commitments in lower income contexts

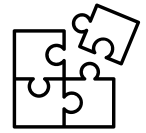
- For GC8, major focus on co-financing for specific programmatic interventions
- While countries are increasing their financing of overall health systems, we still see dependencies of critical interventions (including in Malaria)
- New stand-alone requirement in GC8 is designed to address this challenge more thoroughly

Understanding the basics of co-financing

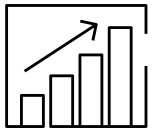
Key Objectives

- Leverage grants to countries to commit additional domestic resources to health systems and national HIV, TB, and malaria responses as a requirement to receive full Global Fund allocations.
- Foster greater ownership and accountability for externally funded national responses, support greater investments in health and community systems, and reduce dependencies on external financing, including for specific programmatic interventions.

Key Aspects of Implementation:



Co-financing Incentive: At least 15% of Global Fund allocations are conditioned on co-financing, and this increased by the Global Fund and/or waived in exceptional circumstances.



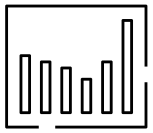
Size of Requirements: The Global Fund sets the overall size of the requirements at the beginning the grant cycle, taking into account economic circumstances, the size of Global Fund allocations, and historical co-financing commitments



Differentiation: Co-Financing requirements are differentiated based on income level and country context, to focus co-financing where it matters most. Final commitments vary heavily based on country context.



Commitment Letters: The Global Fund communicates co-financing requirements through allocation letters and countries formalize their commitments to meet these requirements through a Commitment Letter (CL), which is signed by government authorities



Monitoring, Tracking, and Compliance: Global Fund tracks realization of co-financing requirements during grant implementation and assesses compliance with requirements at the end of each grant cycle. If a country does not comply with co-financing requirements, the Global Fund reserves the right to reduce funding or provide (in exceptional circumstances) waivers

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3 March 2026

Overview of US Government Memorandums of Understanding (malaria) and Innovation Fund

Margaret McDonnell, Executive Director, United to Beat Malaria & UN Foundation

FEBRUARY2026

USG GLOBAL HEALTH MOUS RE MALARIA

THE U.S. IS COMMITTED TO THE FIGHT AGAINST MALARIA

APPROPRIATIONS PROGRESS

Just this month, the Senate Foreign Operations and Related Programs and Labor-Health and Human Services bills were released, which include $8.4 billion in global health funding, with $795 million to malaria programs and another $1.25 Billion to the Global Fund, and $29 million for CDC malaria programming.

GLOBAL FUND PLEDGE

The U.S. recently pledged $4.6 billion to the Global Fund to Fight AIDS, Tuberculosis and Malaria. Despite the decline relative to previous pledges, the U.S. will continue to match every $2 pledged from other countries with $1 of its own, amplifying impact and signaling continued U.S. leadership in global health.

PRIORITIZATION IN AFGHS

The prominence of malaria in the America First Global Health Strategy—a primary goal is listed as "reduce malaria mortality globally by at least 90% by 2030 (from 2015 levels"—shows that the Administration is adopting the issue as a priority.

AFGHS/MOUs DISEASE TARGETS

Figure 6: Global Goals that U.S. Health Foreign Assistance Will Contribute Towards

HIV/AIDS	TUBERCULOSIS	MALARIA	POLIO
• Ensure that 95% of people living with HIV know their HIV status, 95% of people who know their status are receiving HIV treatment, and 95% of people on treatment are virally suppressed • 90% reduction in HIV infections by 2030 (from 2010 levels) • 90% reduction in AIDS-related deaths by 2030 (from 2010 levels) • Ending Mother-to-Child Transmission in several high-burden countries.	• Reduce TB incidence rate by 80% by 2030 (from 2015 levels) • Reduce TB mortality rate by 90% by 2030 (from 2015 levels)	• **Reduce malaria mortality globally by at least 90% by 2030 (from 2015 levels)** • **Reduce malaria case incidence globally by at least 90% by 2030 (from 2015 levels)** • **Eliminate malaria in at least 35 countries by 2030** • **Prevent reestablishment of malaria in all countries that are malaria-free**	• Eradication of wild poliovirus type 1 (WPV1) by the end of 2027 • Elimination of circulating type 2 variant poliovirus (cVDPV2) by the end of 2029

Source: 2025 America First Global Health Strategy

AFGHS/MOUs: WHAT WE KNOW

Trend of Funding & Ownership

MOUs reflect decrease from USG & increase in funding & ownership from countries.

Process Moving Quickly

MOUs signed with **19** govts- 18 African, 1 LAC. Working on Implementation Plans due to start in April.

Evolving Priorities and Models

G2G? Prioritize FBOs, local CSOs (?); Private Sector Engagement; American Innovation? Procurement?

Sticking Points & Conditions

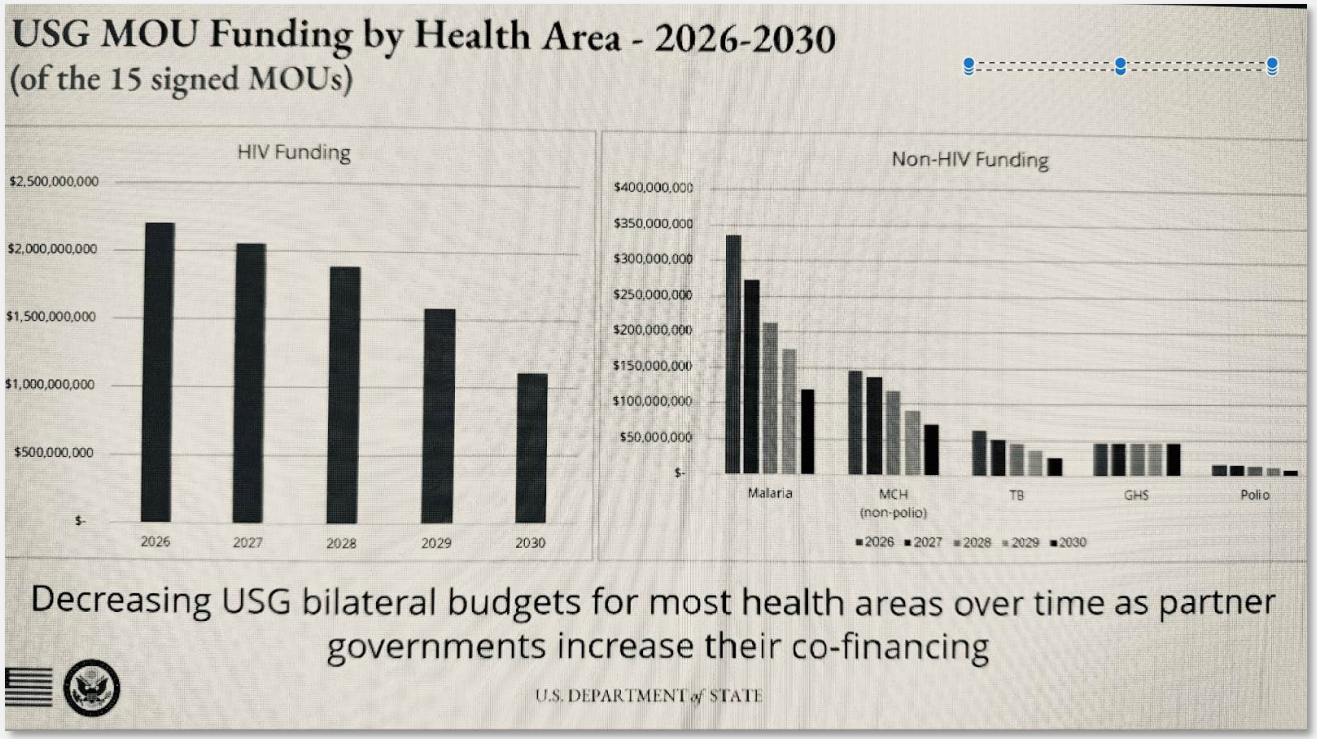
Concerns re specimen & data sharing agreements. Conditions re access to land and mineral rights.

Health Integration w/ Malaria Metrics

Focus on integration into health systems & reporting. But distinct metrics per disease, incl malaria (ie: # malaria deaths; # nets)

AFGHS/MOUs:

FUNDING TRENDS



Source: Partners in Health

EXAMPLE: KENYA COUNTRY MOU

OVERALL GLOBAL HEALTH

- FY24: Kenya received **$409M** from USAID/USG for GH
- MOU: USG committed $1.6B over 5 years (average of **$320M/ year** or 22% decrease)- decline from **$414.3 in 2026 to $161.5M in 2030.**
- Kenya will increase its commitment from **US$34M in 2027 to US$141.9M in 2030**

MALARIA SPECIFIC:

- FY24: Kenya received **$33.5M** from USAID/USG **PMI**
- MOU: for malaria, USG committed **$20M in 2026**, so seemingly 40% decrease) to $0 in 2030**.**
- **BUT, funding available for Strategic Investments, GHS, MCH, HWs, Surveillance & Lab Capacities!**

COUNTRY	Kenya
% Surveillance	1.4%
In millions USD	*22.5*
% Lab commodities + workers	2.7%
In millions USD	*44*
Commodities	14.0%
In millions USD	*229*
% HRH FHWs	4.7%
In millions USD	*76*
% Data Systems	10.7%
In millions USD	*175*
% Strategic Investments	45.8%
In millions USD	*747.6*
% USG ops or admin	14.7%
In millions USD	*239*
Total $	1,361m

AFGHS/MOUs: QUESTIONS AND OPPORTUNITIES

Leverage $ for Progress Against Malaria

How do we leverage funding envelopes (Strategic Investments, Health Workers, Surveillance, etc) to reach malaria goals?

Mobilize Resources & Financing

How to help ensure countries meet their funding targets? Role of govt, civil society, private sector? New revenue generation via debt relief, taxes, malaria bonds, etc?

Implementation Planning

How can NMPs work with MOHs & be involved in planning? How to identify & address gaps in funding & capacities?

Additional Funding Incentives?

Will the U.S. allocate funds to incentivize innovation, transition & performance? Will US companies have advantage? Opp for local manufacturing?

Implementation Partners

What is the role of U.S. vs in-country IPs (FBOs, CSOs, etc)? How will the work be coordinated with multilaterals like Global Fund, UNICEF, etc.?

Procurement Mechanisms

What will procurement look like and how do we ensure high efficacy & quality standards as well as affordable prices? How to leverage PPMs (like GF?) and derisk for PS?


THANK YOU

RBM Partnership
To End Malaria

3 March 2026

Pilgrim Africa: Private Sector Vector Control Investment & Outcomes in Uganda

Dorothy Echodu, CEO, Pilgrim Africa

Pilgrim Protect - Private Sector Vector Control in Boarding Schools in Uganda

Dr. Dorothy Echodu
CEO, Pilgrim Africa

VCWG, March 3-5 2026

Nairobi, Kenya

THE REPUBLIC OF UGANDA
MINISTRY OF EDUCATION AND SPORTS

MALARIA FREE UGANDA

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MINISTRY OF HEALTH

PILGRIM AFRICA

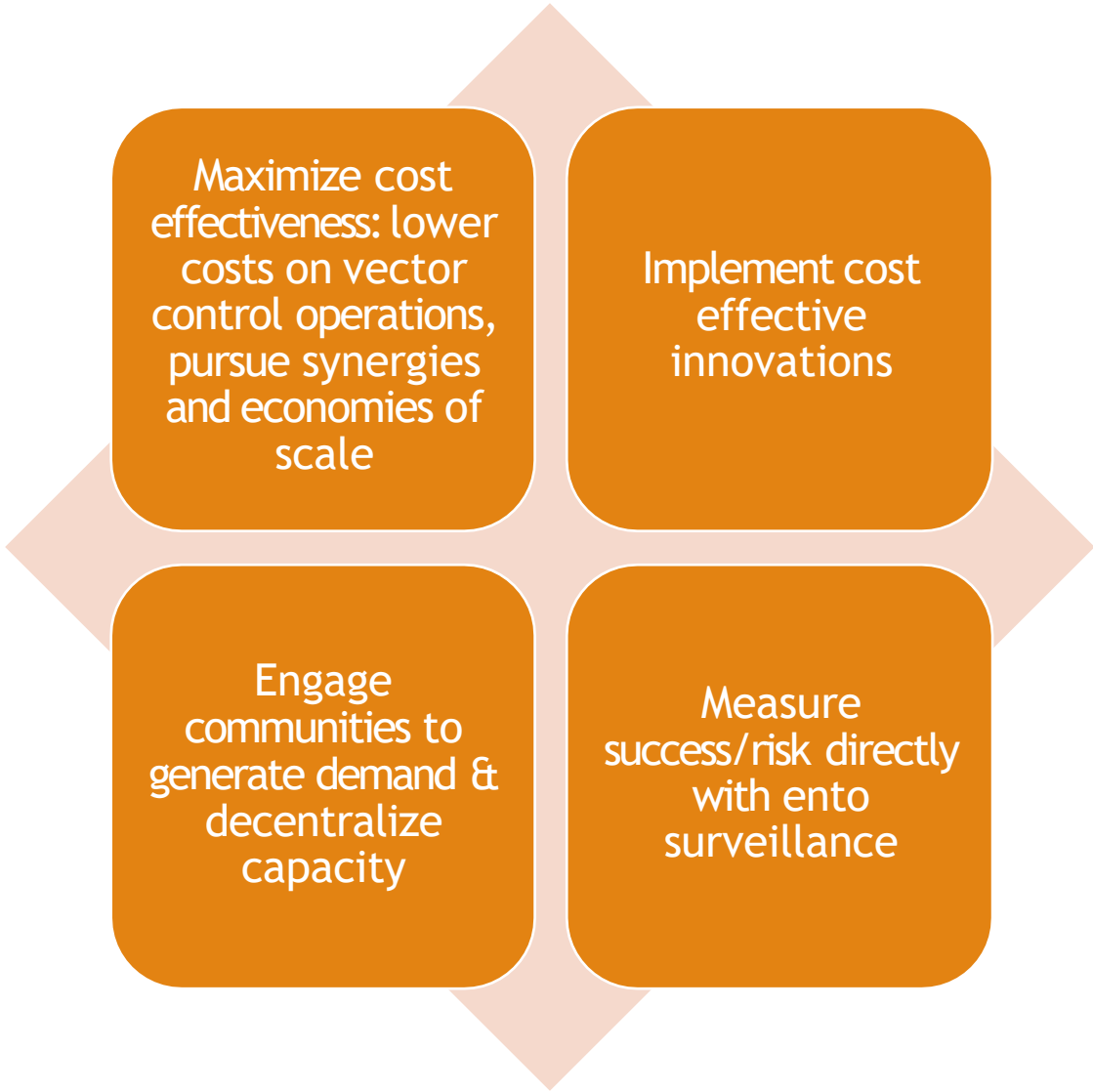
PILGRIM AFRICA

Who: Faith-based Ugandan NGO focused on accelerating the path to malaria and NTD elimination in partnership with NMED/MOH, VBNTD, MOES and other national ministries

Core perspective: malaria control and elimination in Africa is "vector control limited" – access to sufficient effective vector control is constrained by resources for most countries. The best sub-nationally tailored plans often fail to cover all the areas at risk, e.g. Uganda has at least 60 high transmission districts that need IRS, and only 10-15 that receive it

Core aim: increase the amount of effective vector control available in high burden regions in Uganda and other African countries

PILGRIM AFRICA: CORE STRATEGIES



FORMATIVE EXPERIENCES

2008- 1st district wide spraying combined with presumptive treatment if children 15 and under, in partnership with private foundation in NY, USA ➔ 67% reduction pre/post

- Ongoing, long-term implementation experience with IRS ➔ keen awareness of cost issues & resource needs

2010-2026 –multi-partner collaborations with private foundations, World Concern, Rotary International, The Gates Foundation, then DFID, PMI, World Vision and individual donors

- Focus on attracting novel investment for cost-effective acceleration investments

SAMPLE INVESTMENTS/IMPACT 2016-2026

2016-2018
community IRS + MDA :80% reduction in infection risk 5 -7 months after a single round of each (15% from MDA)

2018-2020
OR ProCCM + PBO LLINs: the combo does not prevent IRS resurgence (proactive ICCM may not be worth cost)

2020-2022 engaged Rotary to fund ICCM training and supply in two districts in support of national plan

2023-2026
sustainable school-based malaria control

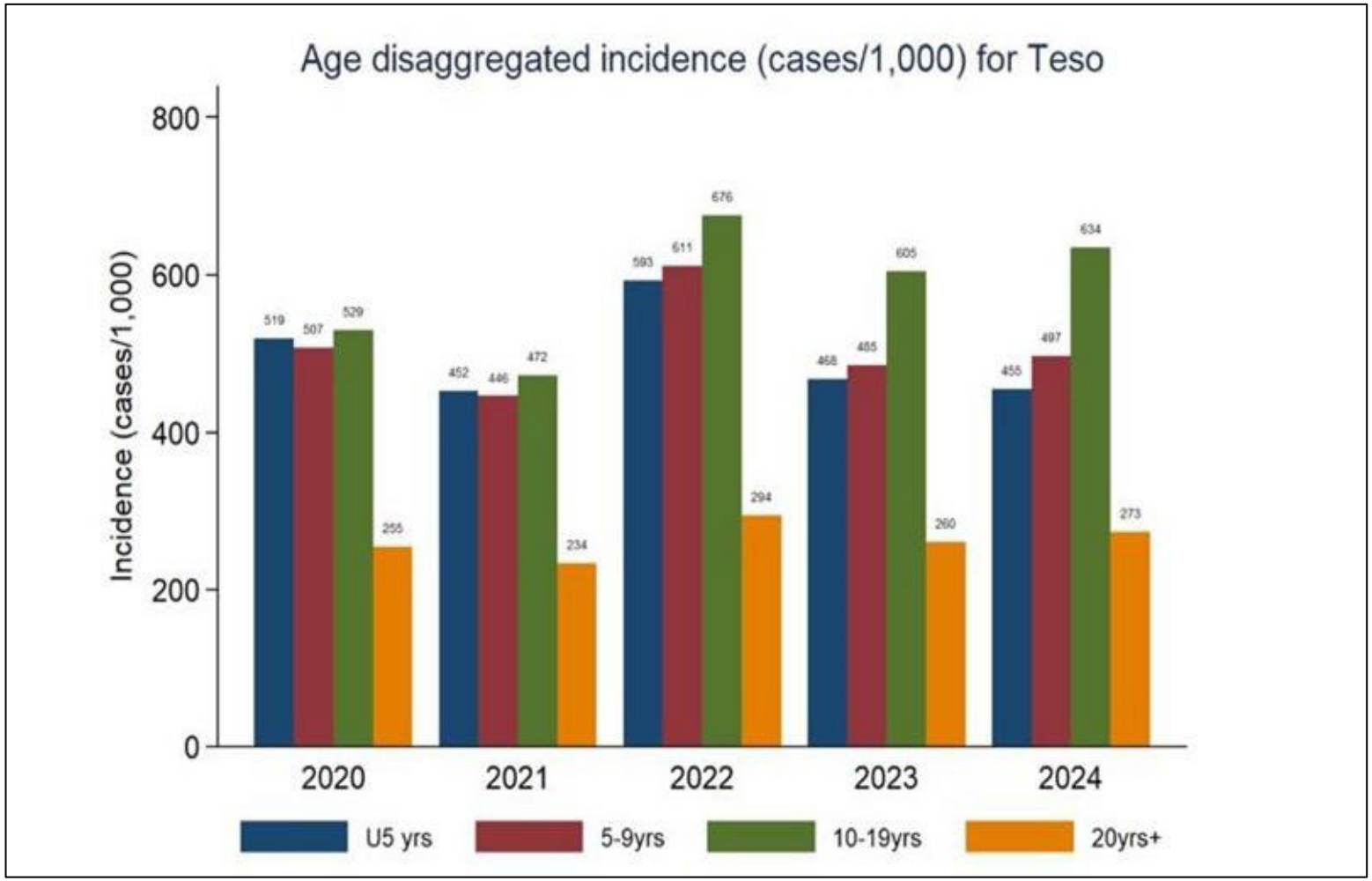


PILGRIM PROTECT

MALARIA FREE SCHOOLS

FOSUN PHARMA,MOH, MOES, P

GROWING BURDEN IN OLDER CHILDREN



BOARDING SCHOOLS: HIGH-TRANSMISSION HUBS

- Unique challenges for malaria control:
  - congregate sleeping arrangements increase infective biting risk
  - standard LLINs less effective given stacked bunks, night preps in classrooms
  - physical plant maintenance may not include screen repair, etc.
- High infection rates in high transmission areas: 1 or >1 case per student per year.
- National strategy calls for IRS, but schools are not implementing
  - Limited access to effective WHO IRS insecticides/unavailable on the local market
- National strategy also calls for IPTsc but this is also not being implemented.

➔ **Role for private sector vector control partner**

CORE STRATEGIES IN SCHOOLS

- Lower vc operational costs
  - Partnership with Goizper & IK SmartLight -IK SL can lowers costs in two ways: 30% of insecticide is saved + fewer days spent on training & fewer supervisors needed
  - Adds to already efficient training and supervision at PA
- Economies of scale
  - Congregate settings privilege VC methods (like IRS, SEs) that match spatial area rather than numbers of people, beds (like topical repellants, nets)
- Engage communities to generate demand & create capacity
  - Demonstrate savings to schools & encourage budget inclusion of IRS
  - Train district spray teams to address several schools at once
- Measure success/risk directly with ento surveillance /pursue innovation
  - Baseline work at schools assessing entomological/enfironmenetal risk
  - Partnership with VectorCam/VectorCatch to measure densities atvery low cost

IK SMARTLIGHT PUMPS FROM GOIZPER



Pilgrim Africa pilots smart spray innovation in Amuria to lower IRS costs and boost efficiency

	COST PER PERSON	% INSECTICIDE	% OPERATIONS
PA Community IRS	$3.94	79%	21%
PA school-based IRS	$.66	68%	32%

IRS IN CONGREGATE SETTINGS ➔ ECONOMIES OF SCALE

VECTORCAM AND VECTORCATCH



Figure 1: (left) Field deployment of VectorCatch designed to mimic the CDC – Light Trap. (right) 3D-rendering of components in the VectorCatch mosquito trap.



ENVIRONMENTAL FACTORS BOARDING SCHOOLS (1 OF 2)

Intervention School	Type of breeding site(s)	Status	Proximity of outside breeding site(s) to the school (meters)	Proximity of outside breeding site(s) to the nearest HH (meters)	Approxi number of HHs surrounding the school (500m radius)	Is the grass regularly cut and maintained?	Is the compound free of stagnant water?
Soroti Municipal Secondary School							
Halcyon High School	Puddles	Passive	5	5	150	Yes	Yes
Jeressar High School	Brickpits, Swamp edges	Active	200	300	200	No	Yes
Teso Day & Boarding Primary School							
Olila High School	Brickpits	Active	100	100	500	Yes	Yes
Holy Angels Secondary School	NA	NA	NA	NA	80	No	Yes
Madera Girls Primary School	NA	NA	NA	NA	180	Yes	Yes

ENVIRONMENTAL FACTORS BOARDING SCHOOLS (2 OF 2)

Intervention School	Open containers in the compound ?	Drainage systems functional?	Water tanks covered and well maintained?	Wall type	Dormitory doors and windows closed at the night?	If yes, what time are they closed?	Do the dormitory windows have mesh screens?
Soroti Municipal Secondary School					Yes	10:00pm	No
Halcyon High School	No	Yes	Yes	Smooth painted finish,Plastered	Yes	12:00am	No
Jeressar High School	Yes	Yes	No	Smooth painted finish,Plastered	Yes	12:00am	No
Teso Day & Boarding Primary School					Yes	-	No
Olila High School	No	Yes	Yes	Brick plain	Yes	10:00pm	No
Holy Angels Secondary School	No	Yes	Yes	Smooth painted finish,Plastered	Yes	10:00pm	No
Madera Girls Primary School	No	Yes	Yes	Tiled,Smooth painted finish,Plastered	Yes	06:00pm	No

VARIABLE NET USE IN HIGH BURDEN BOARDING SCHOOLS

Intervention School	Number of beds in use (1 student/bed)	Number of mosquito nets hung up	Percentage net usage (%)
Soroti Municipal Secondary School	485	107	22.1
Halcyon High School	147	32	21.8
Jeressar High School	229	82	35.8
Teso Day & Boarding Primary School*	395	301	76.2
Olila High School	493	375	76.1
Holy Angels Secondary School	253	110	43.5
Madera Girls Primary School*	214	214	100
	2216	**1221**	**55.1**

*primary schools (7-12)

PILGRIM PROTECT SCHOOLS

- Economies of scale make IRS very affordable in congregate settings like schools (PA cost per student = .66 USD)
- Schools can afford to add IRS to the budget if private sector partner helps with logistics of ordering insecticide, conducting spraying
- Sustainable funding possible

PROGRAM DETAILS

- Schools eligible for recruitment have: 50% or more boarders, nursing/staff unit to report monthly case data
- MOU: Data sharing, 1st year free, 2nd year half price, 3rd year full price; process engages district, schools, parents & students
- IRS with local spray operators in term breaks

2025: DISTRICT EXPANSION

Soroti

5 schools received IRS in 2025

4/5 received IPTsc Term 3

2026: 10 schools targeted for enrollment & case reporting

Amuria

93 Schools received IRS in 2025

- 59 schools with permanent boarding facilities (Tier 1)
- 34 schools with temporary P7 only boarding (Tier 2)

2026: 14 reporting case data

SOROTI SCHOOLS

Soroti Summary

Intervention Coverage

IRS Program	IPTsc Program	Enrollment Data	No Enrollment Data	Boarding Facilities	Case Data
5	4	5	0	5	5

Protected Population

Year	Total Enrollment	Total Boarder	Percentage Boarders	Total Cases
2025	6439	5957	92.5	2985
2024	6233	5813	93.3	5004

AMURIA SCHOOLS: POPULATION PROTECTE (2025)

Amuria Summary

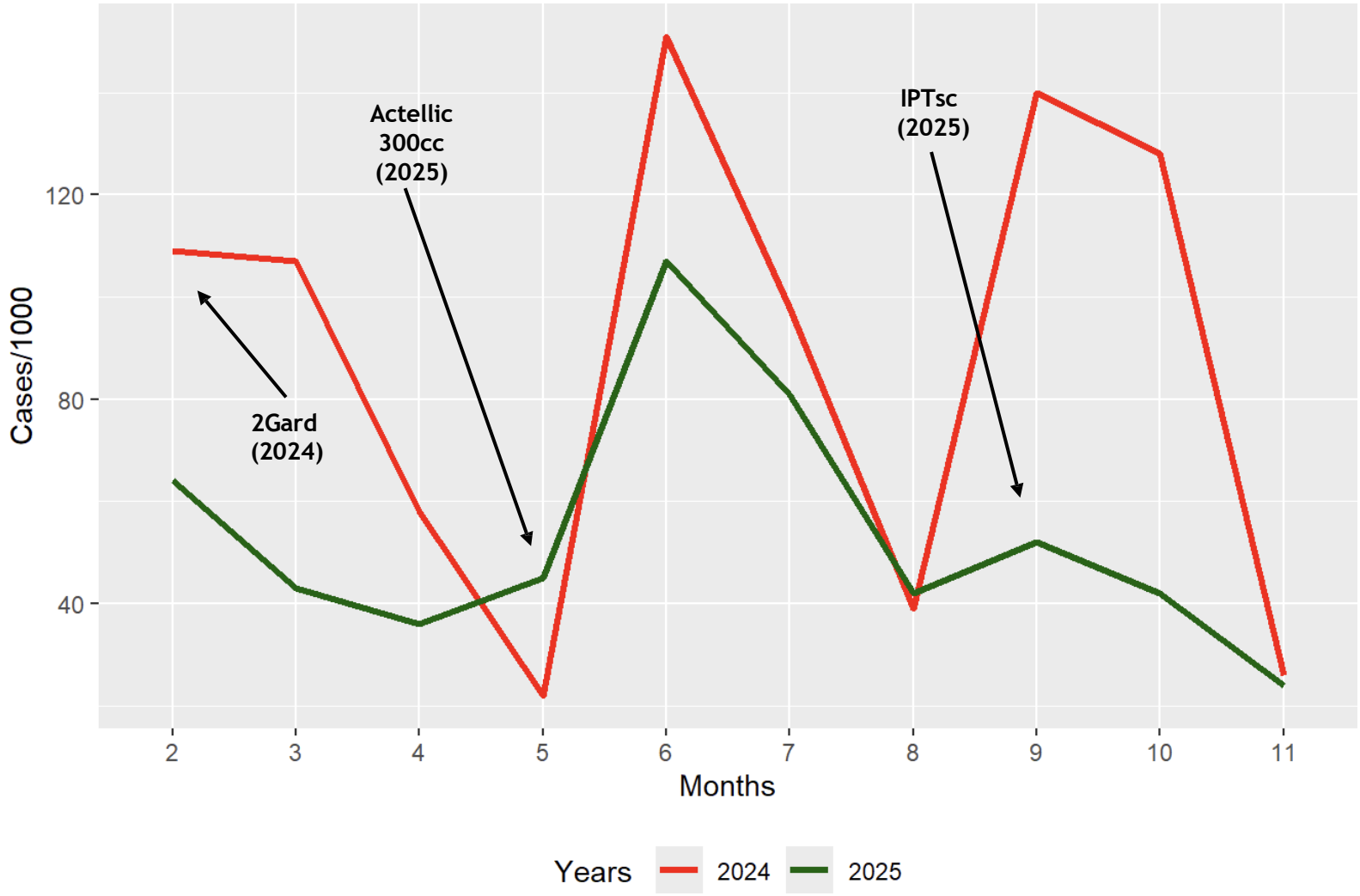
Intervention Coverage

IRS Program	Enrollment Data	No Enrollment Data	Boarding Facilities	Case Data
93	59	34	42	14

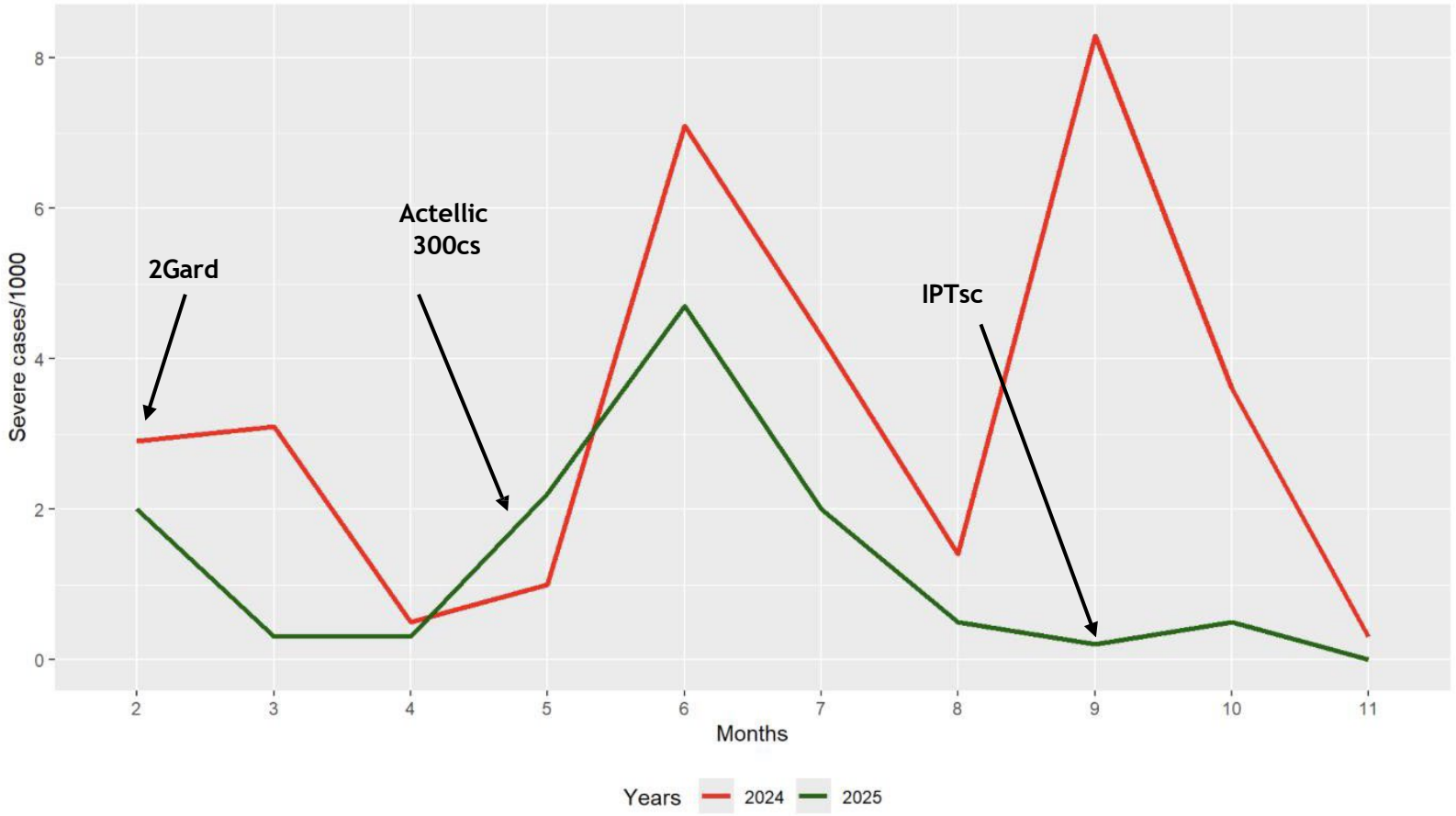
Protected Population

Year	Total Enrollment	Total Boarder	Percentage Boarders	Total Cases
2024	2720	2271	83.5	1679
2025	2838	2317	81.6	1420

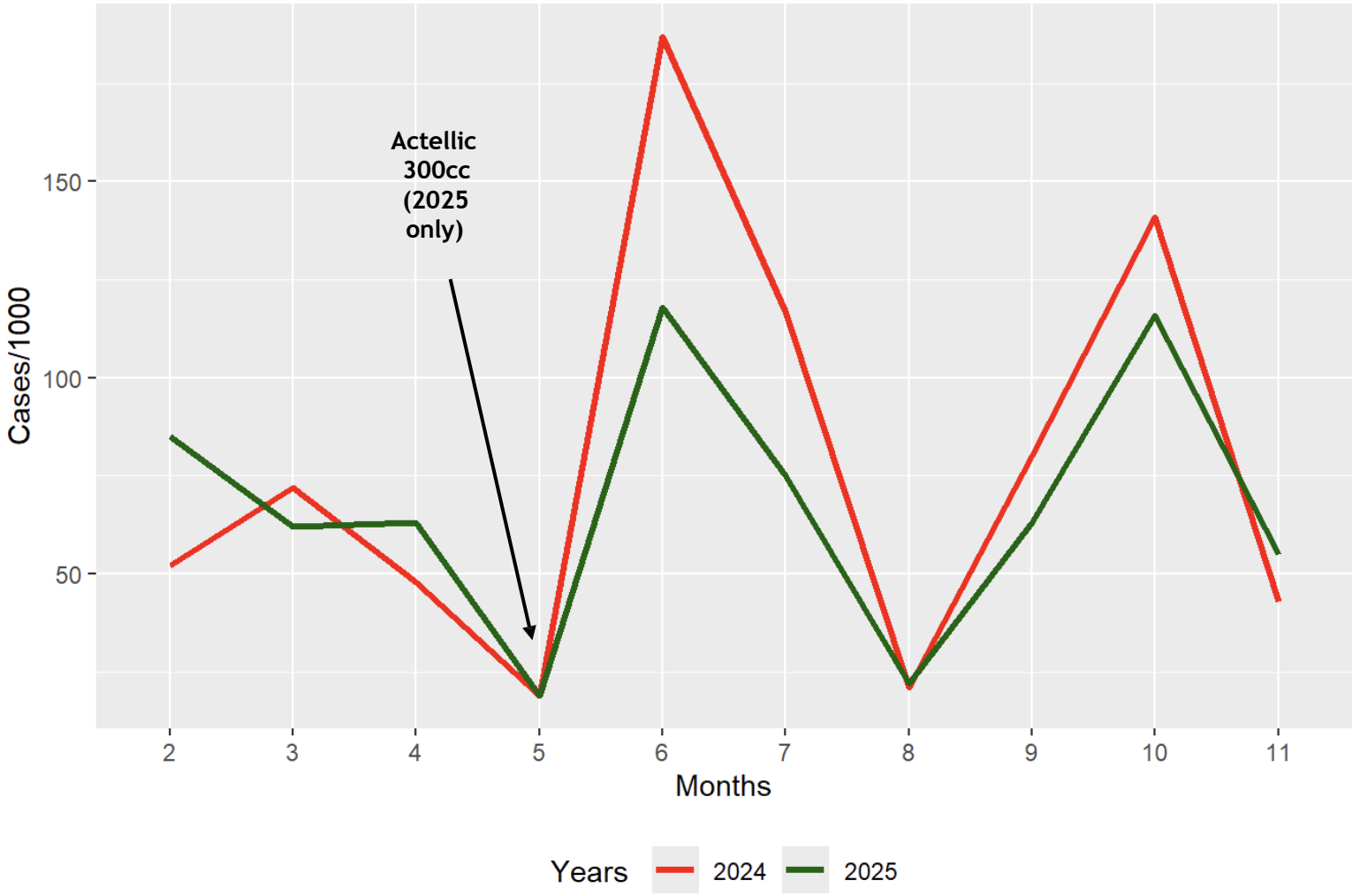
SOROTI: MONTHLY INCIDENCE (IPTSC SCHOOLS ONLY)



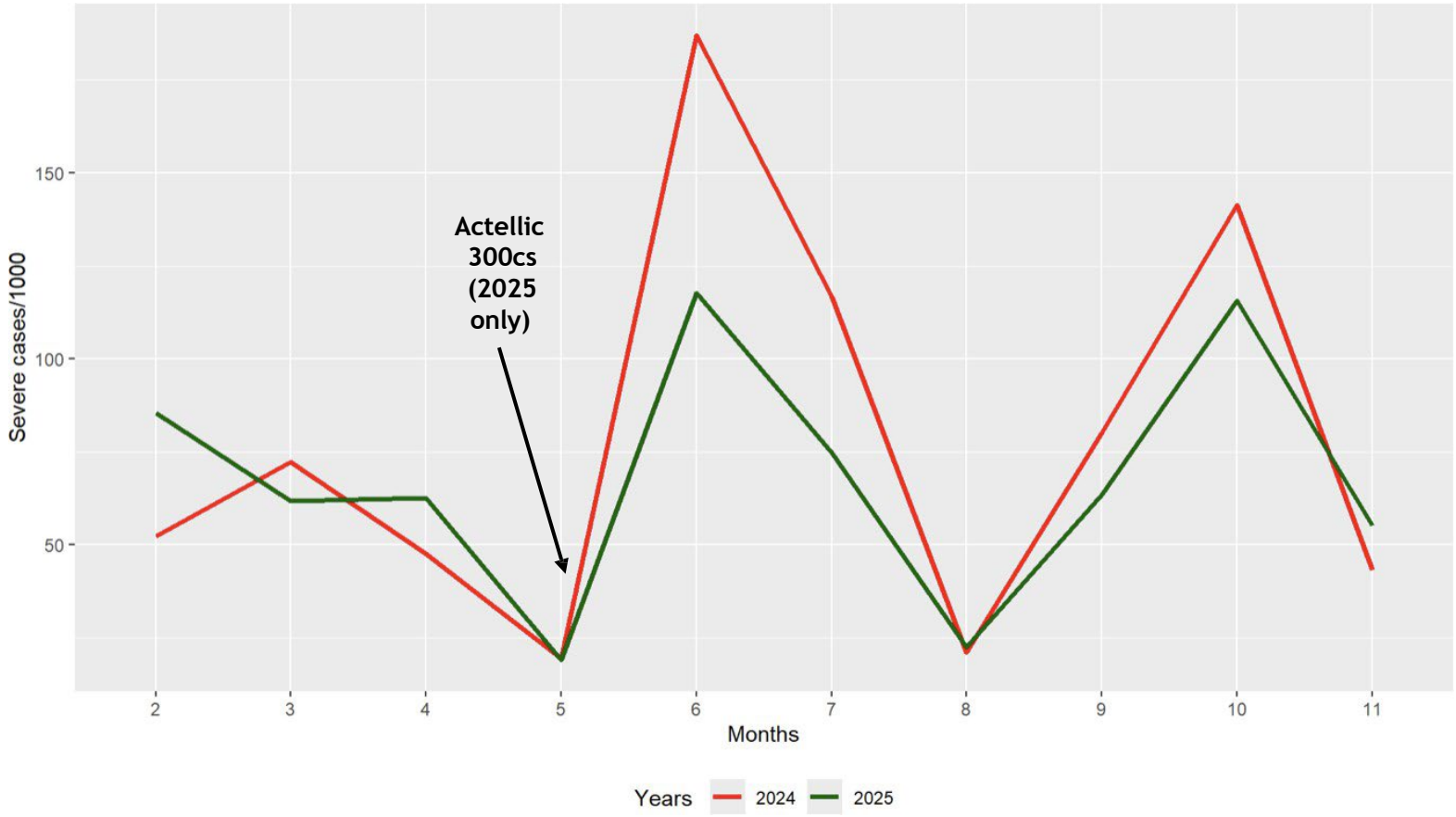
SOROTI: INCIDENCE OF SEVERE MALA



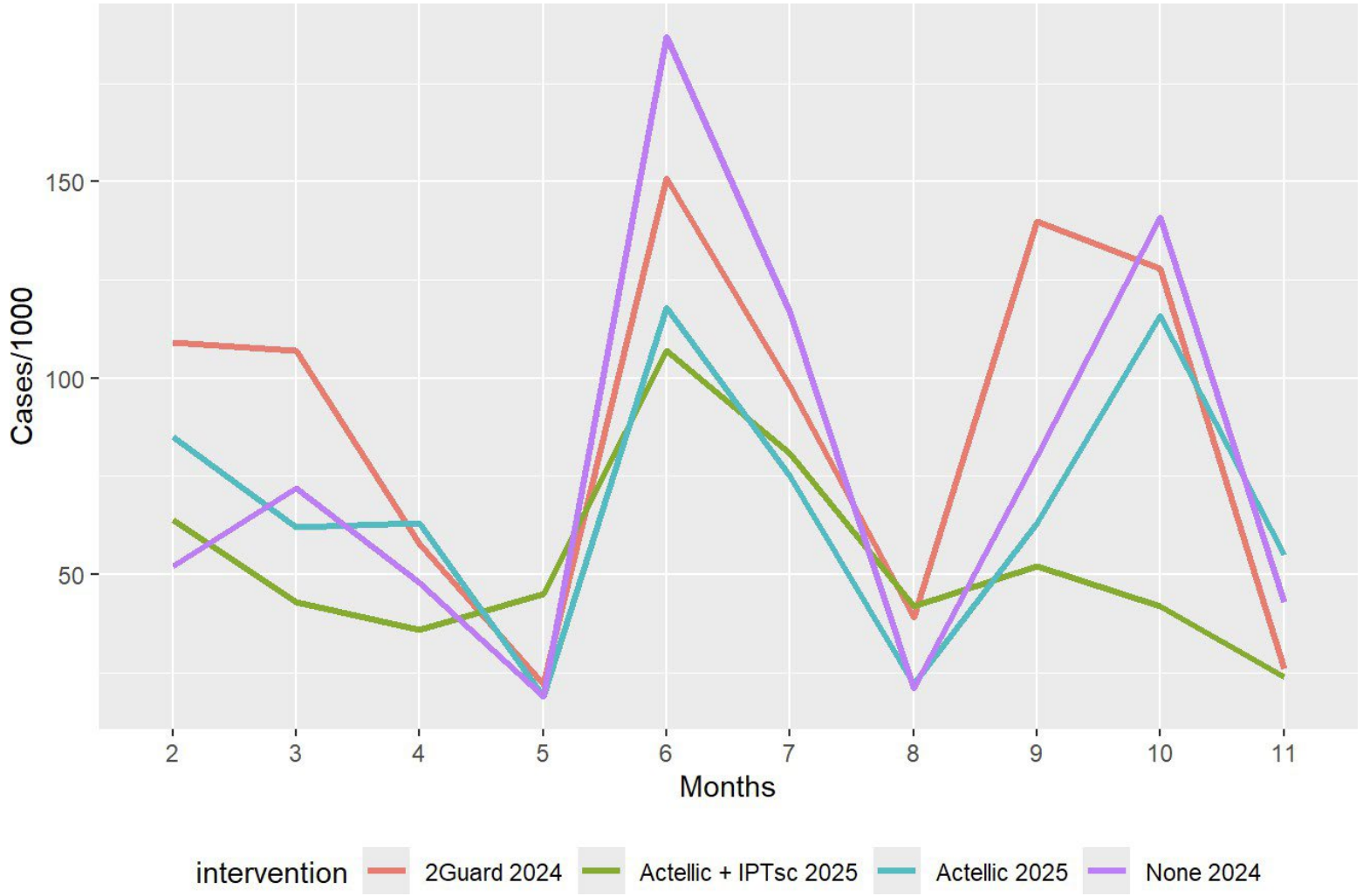
AMURIA: MONTHLY INCIDENCE



AMURIA: INCIDENCE OF SEVERE MAL



INTERVENTION COMPARISON (DATA FR
BOTH DISTRICTS)



2026-2027 PILOT EXPANSION

2026

- 24 schools sharing data
- 10 schools under cost share MOUs
- 14 no IRS
- 6 IRS only
- 4 IRS +IPTsc

(PRELIMINARY) IMPACT

- Actellic schools had ~28% lower incidence relative to 2Gard schools (4 schools)
- Actellic schools had ~18% lower incidence* relative to schools without IRS (*15 schools, but almost certainly understated bse data reporting improved in 14 from 2025 > 2024)
- Actellic schools had slightly lower incidence of severe malaria relative to schools with 2Gard or without IRS (18 schools) but schools with the combination of Actellic + IPTsc had 58-60 % fewer episodes relative to schools with 2Gard alone
- a single IPTsc round at 77% coverage protected by IRS with Actellic has dramatic additional impact, reducing malaria by 58-60% relative to 2Gard (4 schools, very preliminary)
- School leadership perceive cost savings
- 10 schools engaged in cost sharing/full funding IRS in 2026

DEVELOPING COMPREHENSIVE SBCC F BOARDING SCHOOLS…

Malaria clubs (4 running currently)

- Avenues for SBCC
- Can be part of surveillance and implementation
- Can investigate what sustains transmission at their school and pursue low-cost mitigation
- Opportunity to expand SBCC efforts outside school, e.g. vector control protection during holidays, termly testing and treatment before returning to campus



LESSONS FOR FUTURE

- Retroactive baseline data incomplete and understates malaria infection- **control group data hard to obtain in project mode** (however, new Soroti IRS-only schools have slightly bette record keeping)
- More severe malaria episodes in older children than expected
- IPTsc coverage can easily improve with greater organization/familiarity- should aim for 95% (eg Teso Primary)
- LLIN use highly variable in high burden schools and should be emphasized in SBCC
- Additional low cost environmental/SBCC interventions could increase impact (adding screens, closing dorms earlier, covering water tanks, etc.)
- Student-led Malaria clubs could engage in SBC / surveillance / increasing coverage / environmental modification

IMAGES FROM SOROTI PILOT













THE REPUBLIC OF UGANDA
MINISTRY OF EDUCATION AND SPORTS

MALARIA FREE UGANDA

Goizper Group
Growing through cooperation

iK

Chase Malaria to Zero

FOSUN PHARMA

THE REPUBLIC OF UGANDA
MINISTRY OF HEALTH

SOROTI MUNICIPAL S.S
VOICE OF HOPE

JERESSAR HIGH SCHOOL
GOD OUR HOPE

THANK YOU!

HALCYON HIGH SCHOOL
PEACE A KEY TO QUALITY EDUCATION

TESO BOARDING PRIMARY SCHOOL
WISDOM AND KNOWLEDGE

VINEYARD CHRISTIAN SCHOOL
WISDOM & PEACE

PILGRIM AFRICA

RBM Partnership
To End Malaria

3 March 2026

Uganda: Private Sector Policy & Financial Reporting Requirements

Catherine Maiteki, Deputy Program Manager, Uganda NMED

NATIONAL MALARIA CONTROL PROGRAM

PRIVATE SECTOR POLICY & FINANCIAL REPORTING

PROGRESS IN UGANDA

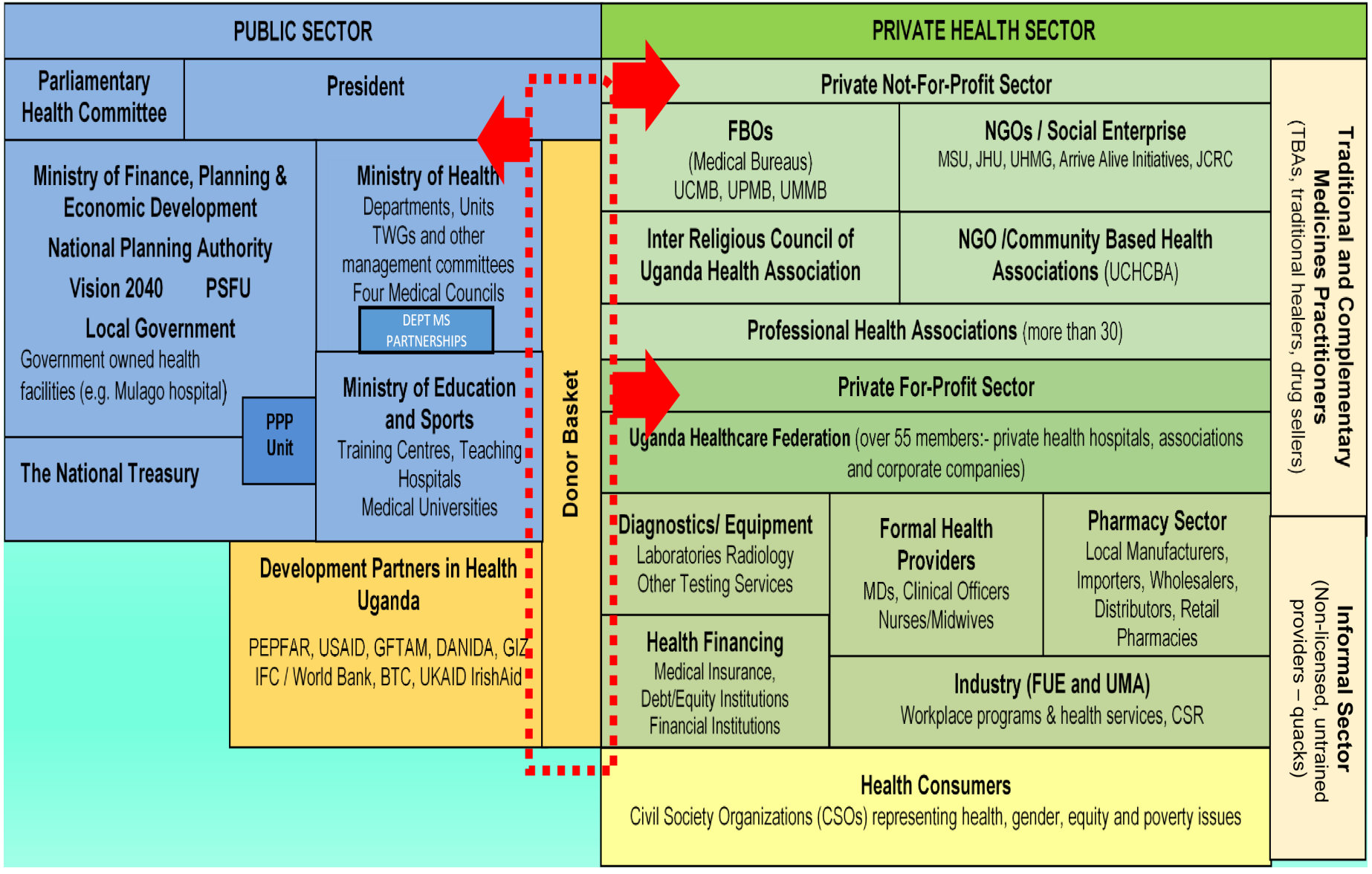
VCWG Meeting 3 March, 2026

2026-2030 - What will be done differently?



Centralised, top-down malaria control program	1	**Mobilize local leadership:** Empower every district, sub-county, and village to lead malaria elimination
Malaria as medical problem under health workers "owned knowledge/tools"	2	**Flip the narrative:** Reframe malaria as a community problem, controlled by factors in community requiring collective solutions.
Passive surveillance system based on aggregated malaria case data	3	**Activate Uganda's surveillance muscle**: Move from passive to proactive, detect every household and case, trace every hotspot
Deploying singular interventions (IRS and LLINs)	4	**Implementing synergistic and simultaneous** preventive and curative intervention packages
Health sector only response, focusing on merely deploying health sector technical actions and tools	5	**Breaking silos**: Involve all sections of society (institutions, planners, farmers, SACCOs, constructors) working concurrently community malaria drivers
Highly donor dependent funding limited in time, scope and adaption of interventions	6	**Domestic funding** that is predictable, flexible, diversified and sustainable and responds to continuously evolving needs for micro-level elimination

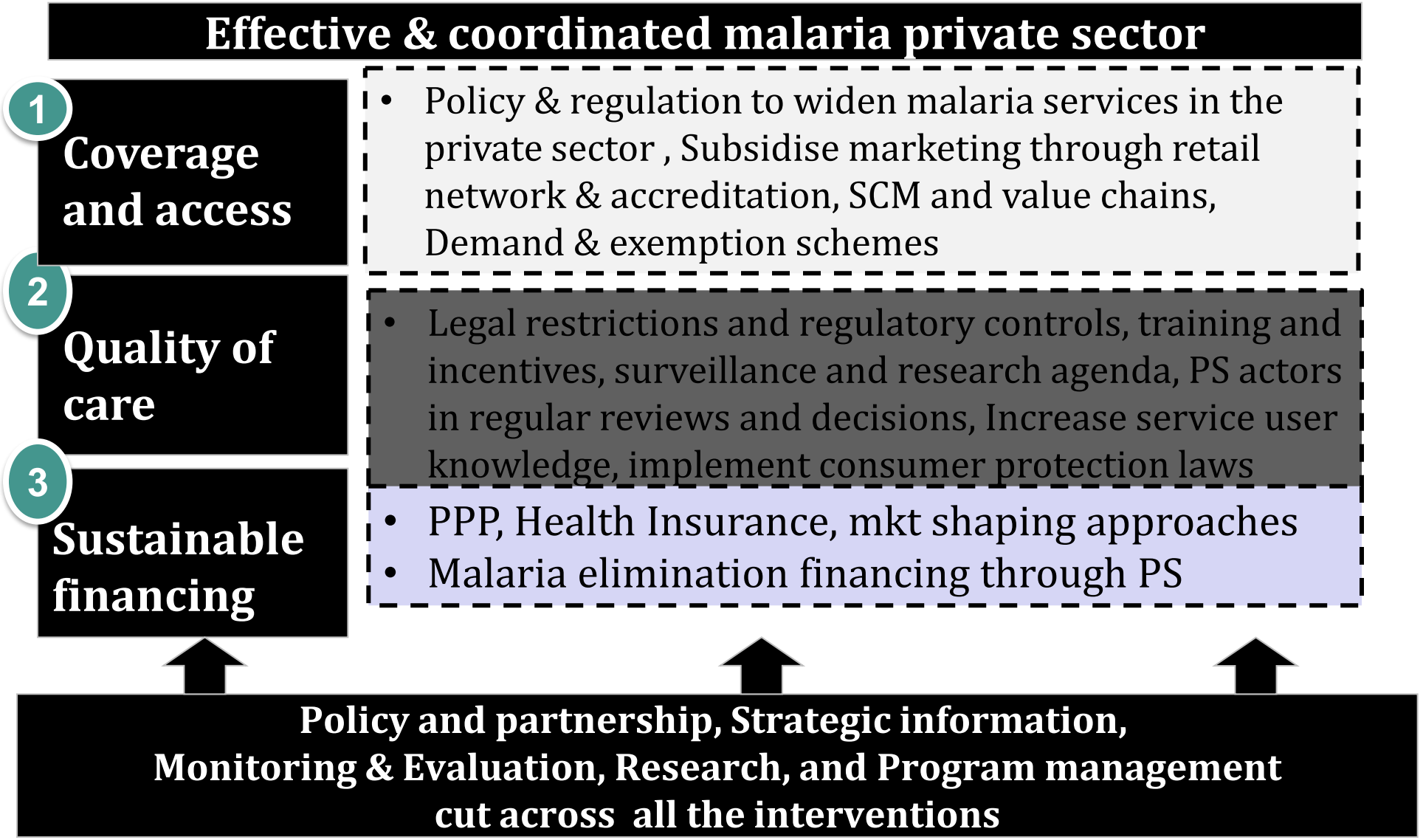
The Healthcare System in Uganda



Why the Private Sector Matters for Malaria

- Big complementary care platform accounting for over 50% of care provided
- Shifting/ Shrinking donor pocket
- Complementary financing for malaria
  - Out of pocket
  - Health Insurance
  - Human resource
- The quality of care/ products – Very good to bad, to ugly
- Surveillance information source
- Innovations and access to new technologies

Uganda Malaria Private Sector Strategy



Private sector policy

- **Policies are aligned to global guidance**
  - 2025-2030 Malaria Elimination Strategic Plan for Uganda;
  - Uganda National Malaria Control Policy MoH (2014).
  - Private Sector Strategy
- **Focus areas**
  - Limited reporting - Black hole - $, service coverage, products, cases
  - Price regulation
  - Product regulation / registration
  - Tax exemptions for Public Health Pesticides and equipment
  - Coordination of Private sector actors
  - Limited research on private sector

Opportunities

- Private sector is a critical stakeholder in health including vector control
- Needs to be adequately integrated in existing policy framework
- Favourable public private partnership coupled with adequate private sector engagement across all value players
  - Partner portal, all required to register, MOUs these allow them to benefit from initiatives, report on their finances
  - Malaria Free Uganda
- Create an enabling environment for implementation of private sector policies including, implementation, monitoring, supervision and quality control
  - Working groups, committees, regulation bodies, joint initiatives


danke
謝謝
ngiyabonga
teşekkür ederim
thank you
gracias
спасибо
dank je
mochchakkeram
bedankt
dziękuje
go raibh maith agat
obrigado
sukriya
kop khun krap
arigaló
dakuje
grazie
terima kasih
merci
감사합니다
Мерси

RBM Partnership
To End Malaria

3 March 2026

Zambia: Outcomes of Private Sector Engagement

Charles Fanaka, NMCP Program Manager, Zambia

MINISTRY OF HEALTH

DEPARTMENT OF PUBLIC HEALTH

National Malaria Elimination Centre

Zambia: Outcomes of Private Sector Engagement

Global Context

- External malaria financing is stagnating
- Countries must increase domestic financing
- Private sector engagement remains underutilised in vector control

Zambia Situation

- Persistent funding gap in malaria elimination
- Need for sustainable domestic financing
- Domestic financing is essential to:
  - Increase implementation rate from 72% → 95% by 2026.
  - Close the national malaria financing gap identified in the NMESP
- DRM strengthens sustainability and reduces vulnerability to external shocks
- DRM supports Zambia's transition toward shared ownership of malaria elimination

Governance Architecture: End Malaria Council

- High-level multisectoral leadership platform
- Government, private sector, faith, civil society
- Functions as a high-level financing and advocacy platform aligned to:
  - NMESP Implementation Framework
  - Supports mobilization of both cash and in-kind contributions
  - Contributions ring-fenced to priority interventions
- Operates the End Malaria Fund financing mechanism



Private Sector In-Kind Contributions (2025)

- USD 4.96M in 2025 mobilized to support:
  - IRS scale-up in high-transmission districts.
  - CHW mobility strengthening for case investigation.
  - Community engagement to improve intervention uptake.
- **Alignment to NMESP:**
  - Contributes to vector control strengthening
  - Reinforces elimination architecture through surveillance logistics

Operational Outcomes Enabled

- In-kind contributions enabled:
  - Expansion of IRS coverage in prioritized high-burden HFCAs.
  - Improved timeliness of case notification and investigation (1–3–7 framework).
  - Strengthened community-level service delivery
- **Contribution to NMESP Targets:**
  - Supports reduction in incidence toward 201 per 1,000
  - Strengthens elimination in low-transmission strata



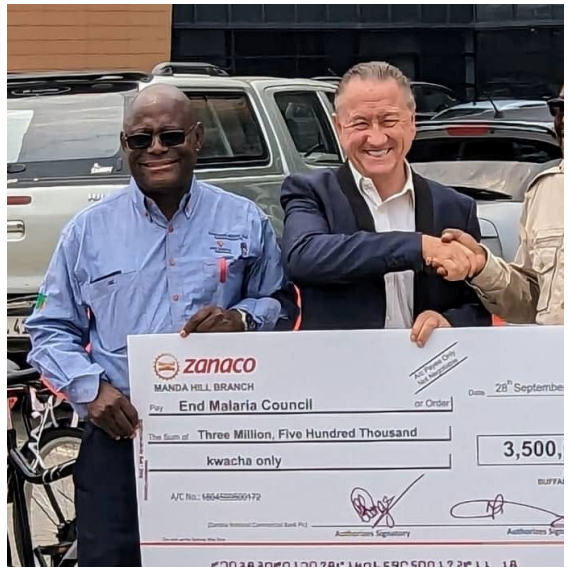




Cash Contributions – Flexible Operational Capital (2025)

- Cash mobilized supports:
  - Targeted Mass Drug Administration (MDA) in selected strata
  - Programme operational costs in elimination districts
  - Logistics to improve implementation rate
- **Strategic Role:**
  Cash complements in-kind support by financing flexible operational gaps not covered in commodity budgets





Government Co-financing Trajectory

- Government malaria financing increased:
- 2025: USD 15.2M
- 2026: USD 21.5M
- **NMESP Alignment:**
  - Demonstrates progressive domestic assumption of programme costs.
  - Reinforces sustainability of:
    - Routine case management
    - Procurement and supply chain strengthening
    - Core vector control investments

Leverage Effect

- Domestic private sector financing:
  - Catalyzes additional operational scale.
  - Expands coverage beyond government and donor-funded ceilings.
  - Reduces programme vulnerability to funding volatility
- **Strategic Impact:**
  Enhances Zambia's ability to sustain malaria programmes

Governance & Accountability

- DRM funds are integrated into national systems through:
  - NMEC oversight.
  - Scorecard performance monitoring.
  - Transparent financial tracking mechanisms.
- **Alignment:**
  Supports NMESP financial governance and accountability framework



Key Lessons & Implications for VCWG

- Domestic financing can materially expand vector control scale
  - In-kind support addresses operational bottlenecks
  - Flexible cash improves execution fidelity
  - DRM strengthens elimination sustainability under constrained global financing
- High-level political leadership accelerates domestic financing
- Structured engagement yields predictable contributions





Challenges

- Key risks include:
  - Valuation and reporting of in-kind contributions.
  - Maintaining annual corporate engagement.
  - Diversifying financing beyond mining sector concentration.
- **Mitigation Strategy:**
  Integrate DRM indicators into NMESP M&E framework to ensure sustainability tracking

Implications for RBM VCWG

- Zambia's experience demonstrates:
  - DRM can significantly support vector control expansion.
  - Domestic financing accelerates elimination in low-transmission settings
  - Multisectoral platforms enhance sustainability of malaria programmes

Recommendations

- Institutionalize DRM within NMESP annual operational plans
- Establish annual domestic financing targets as % of total malaria budget
- Develop standardized valuation framework for in-kind contributions
- Link DRM performance to elimination milestones

Conclusion

- DRM is a critical pillar of Zambia's NMESP 2022–2026
- By strengthening government investment and leveraging private sector contributions, Zambia is:
  - Improving implementation efficiency,
  - Expanding vector control coverage,
- Malaria elimination in Zambia requires sustained, shared ownership

Acknowledgements

- End Malaria Council Zambia
- CEO Africa Roundtable – Zambian Chapter
- First Quantum Minerals Limited
- Konkola Copper Mines
- Zambia Sugar Company
- Bankers Association of Zambia
- Engineering Institute of Zambia


MALARIA FREE ZAMBIA
MALARIA ENDS WITH ME.

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3 March 2026

Q&A and discussion

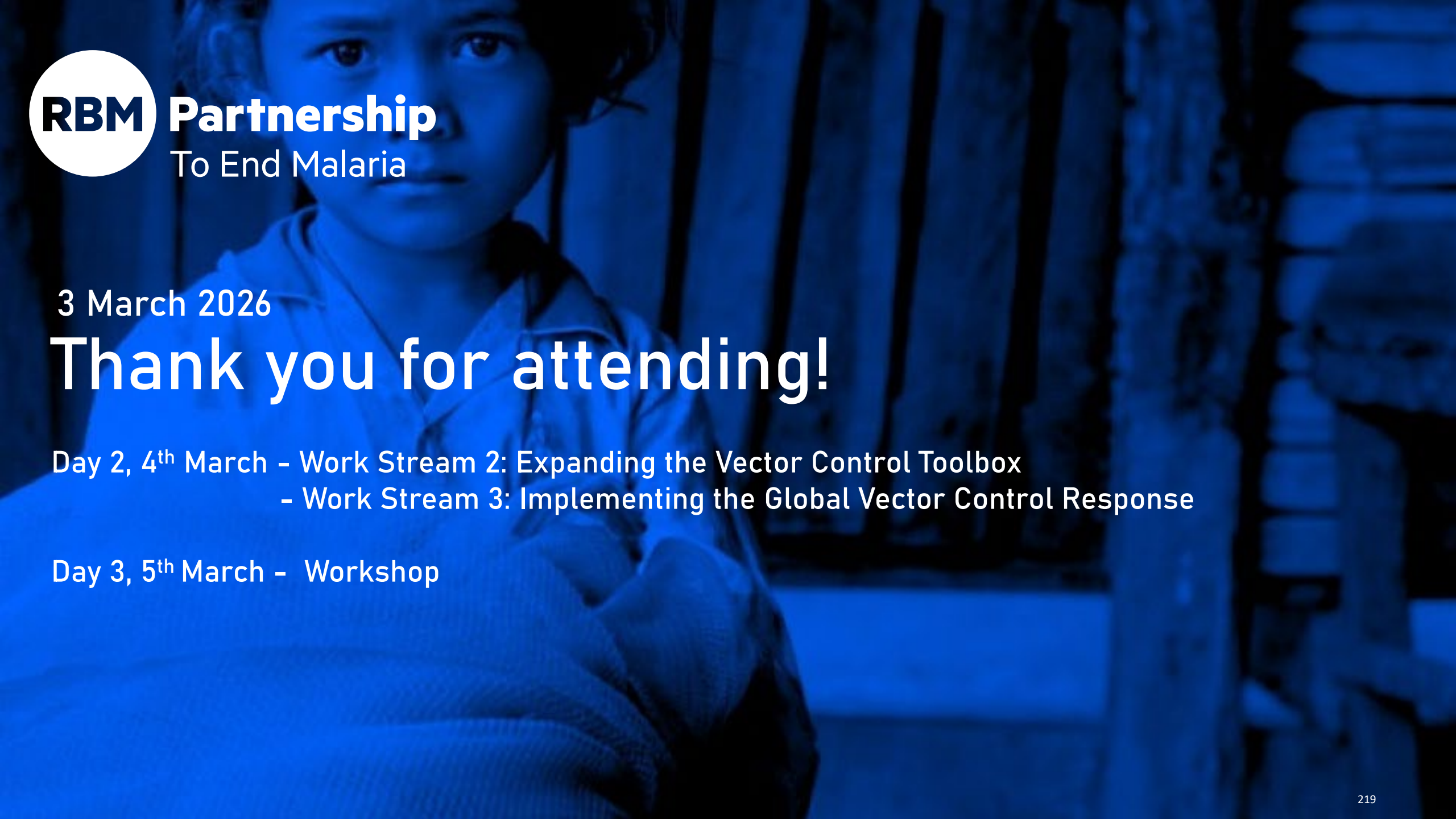
Moderated by Jessica Rockwood & Andrew Seibu, VCWG Task Team leads

RBM Partnership
To End Malaria



3 March 2026

18:30 VCWG & IVCC Pool Side Cocktail



RBM Partnership
To End Malaria

3 March 2026

Thank you for attending!

Day 2, 4th March - Work Stream 2: Expanding the Vector Control Toolbox
- Work Stream 3: Implementing the Global Vector Control Response

Day 3, 5th March - Workshop