RBM Partnership To End Malaria

November 20, 2025

RBM Vector Control Working Group Webinar

We will start momentarily

Workstream 1: Enhancing the Impact of Core Interventions
Task team 2: Using on-biological data to address threats and inform decision making for ITNs/IRS

Improving post-market ITN surveillance for decision making

Workstream 1: Enhancing the impact of core interventions

Task team 2: Using non-biological data to address threats and inform decision making for ITNs/IRS

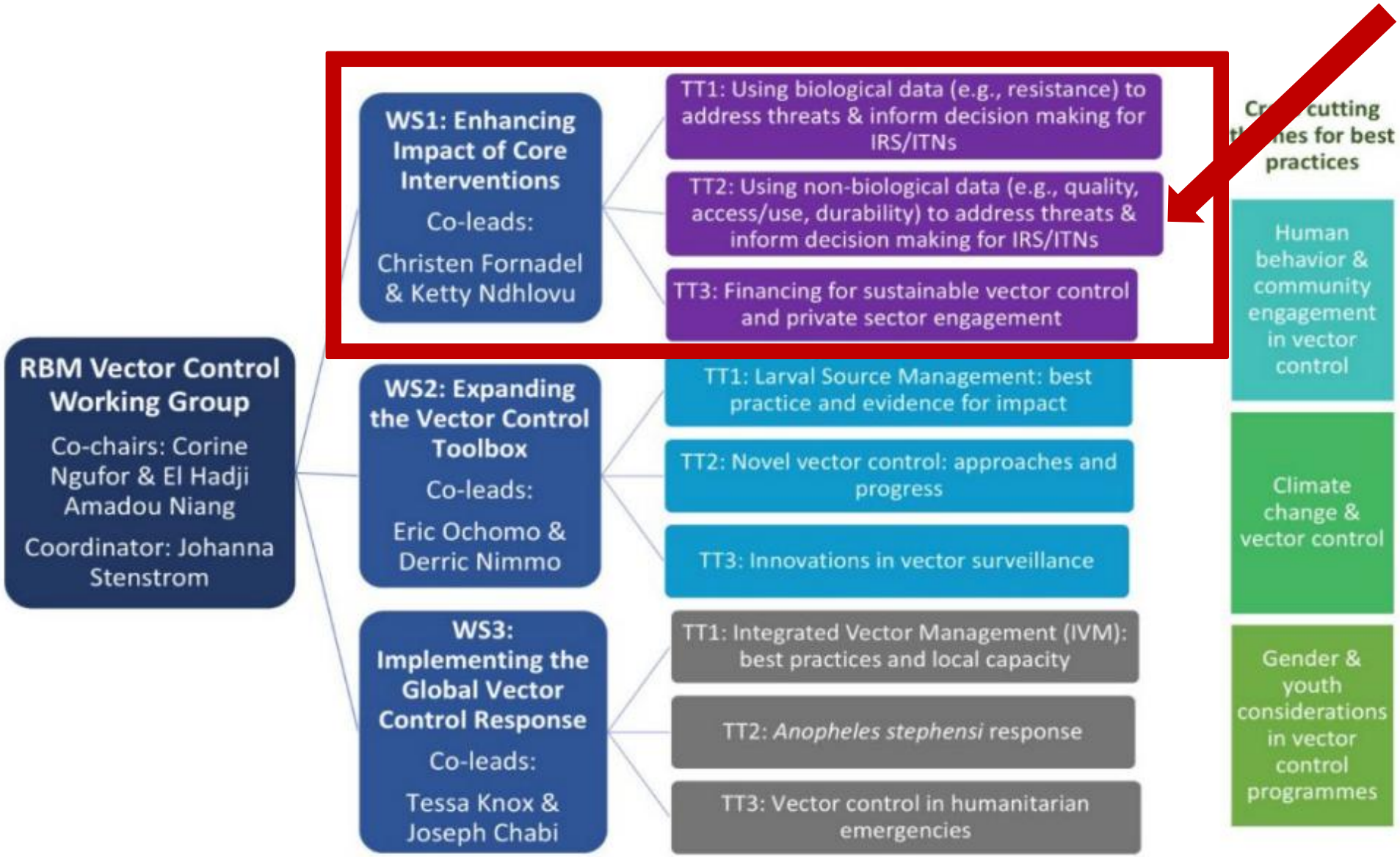
November 20, 2025

Presentations will be provided in English, with simultaneous translations in French and Portuguese



Please feel free to type your questions by clicking the Q&A icon.




RBM Vector Control Working Group
Co-chairs: Corine Ngufor & El Hadji Amadou Niang
Coordinator: Johanna Stenstrom
WS1: Enhancing Impact of Core Interventions
Co-leads:
Christen Fornadel & Ketty Ndhlovu
TT1: Using biological data (e.g., resistance) to address threats & inform decision making for IRS/ITNs
TT2: Using non-biological data (e.g., quality, access/use, durability) to address threats & inform decision making for IRS/ITNs
TT3: Financing for sustainable vector control and private sector engagement
WS2: Expanding the Vector Control Toolbox
Co-leads:
Eric Ochomo & Derric Nimmo
TT1: Larval Source Management: best practice and evidence for impact
TT2: Novel vector control: approaches and progress
TT3: Innovations in vector surveillance
WS3: Implementing the Global Vector Control Response
Co-leads:
Tessa Knox & Joseph Chabi
TT1: Integrated Vector Management (IVM): best practices and local capacity
TT2: Anopheles stephensi response
TT3: Vector control in humanitarian emergencies
practices
Human behavior & community engagement in vector control
Climate change & vector control
Gender & youth considerations in vector control programmes

Workstream 1: Enhancing the impact of core interventions



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Workstream 1, Task Team 2: Using non-biological data to address threats and inform decision making for IRS/ITNs



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Agenda

Welcome and introductory remarks – Keith Esch, PSI

Post-market surveillance toolkit update and overview – Julie-Anne Tangena, IVCC

Lot quality assurance sampling methodology and country examples – Nicole Alvarez, CHAI

ITN risk index measurement update and overview – Stephen Poyer, Independent Consultant

Question and Answers – Chrispin Williams, Liberia NMCP and Anna Trett, CHAI







Post-market surveillance toolkit update and overview

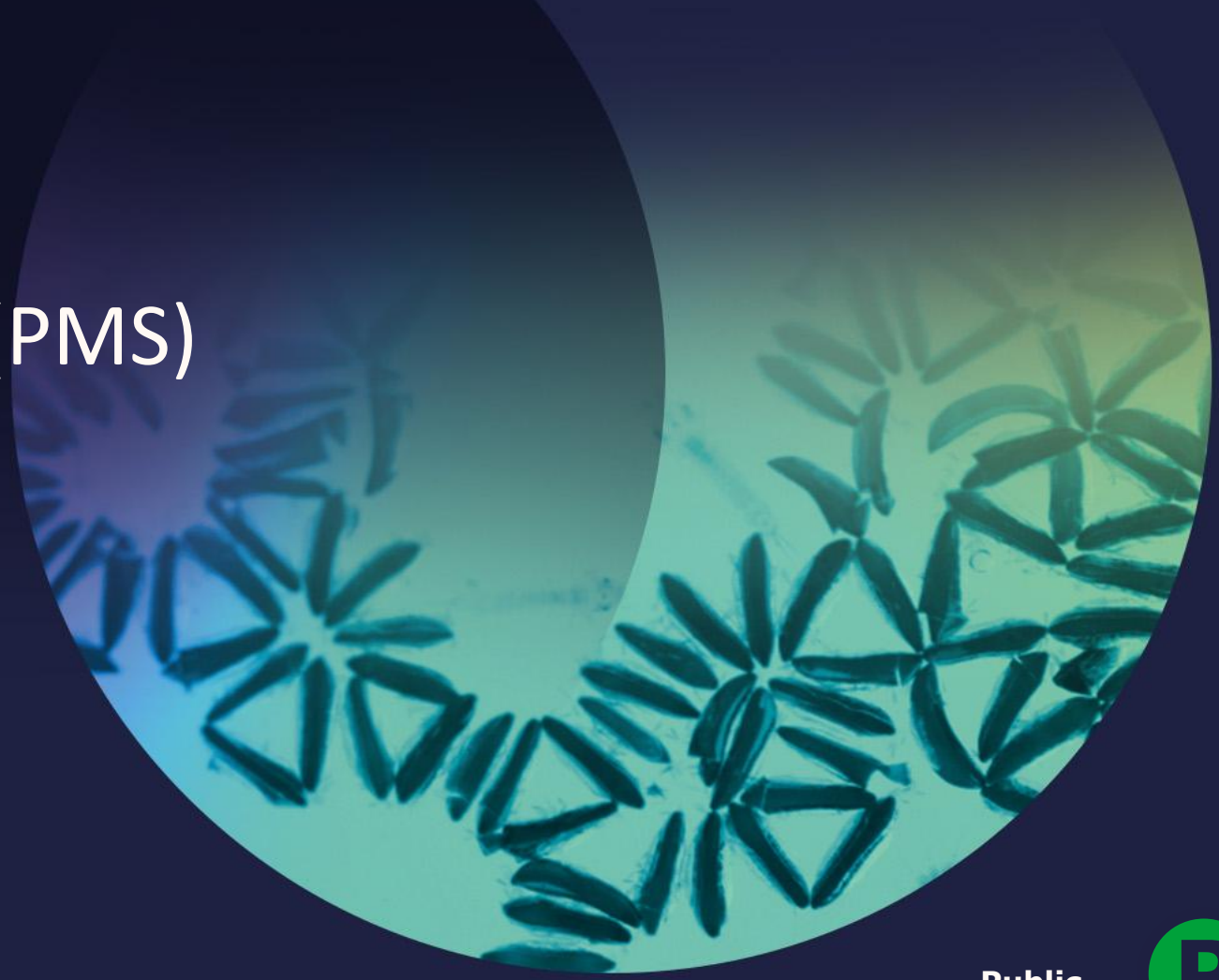
Julie-Anne Tangena, IVCC

Julie-Anne Tangena

20th November 2025

Post-Market Surveillance (PMS) Toolkit

RBM VCWG webinar



Public

Understanding ITN dynamics in the field is essential

Since 2004 >3.4 billion ITNs have been distributed.

- These nets vary **physically and chemically**, in yarn type, chemical treatment, knitting pattern, and size.
- **Net settings** are highly diverse, varying by climate, housing design, and household conditions.
- **Users and communities** are also highly diverse, varying in culture, behaviour, perceptions, and handling.


Flickr, Wonderlane 2009

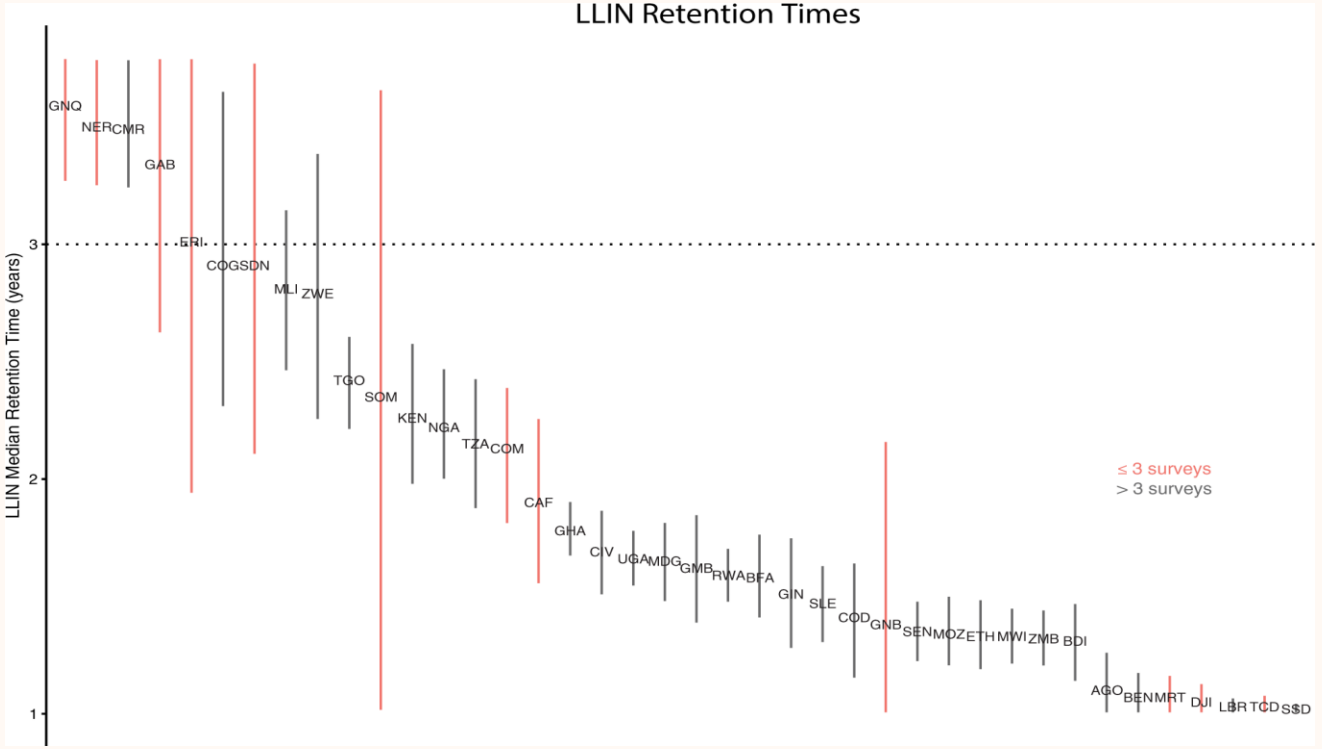



© The Global Fund / John Rae

ITNs are not lasting as long as expected/designed?

- Three years is the expected lifespan of ITNs.
- >50% report less than 2 years lifespan*.
- Large variability across net types and areas.

Essential to understand how long ITNs are lasting, accepted and effectively protecting communities for decision making?



Bertozzi-Villa A, Bever CA, Koenker H, Weiss DJ, Vargas-Ruiz C, Nandi AK, et al. Maps and metrics of insecticide-treated net access, use, and nets-per-capita in Africa from 2000-2020. Nature Communications. 2021; 12:3589.

Insufficient resources for durability monitoring



- Durability monitoring requires high level of resources and skills.
- Challenges in translating data into decisions.
- One size doesn't fit all.

→ Further exacerbated by recent funding cuts.

How can we help country programs collect the information they need for tailored decisions in a complex ITN landscape under severe resource constraints?

Need for toolkit for guidance on ITN durability surveillance

Listening exercises done in 2022 by Innovation 2 Impact (I2I) with five country programmes (Burkina Faso, Pakistan, Malawi, Uganda, Nigeria).

1. Need more granular durability monitoring data for targeted decisions (SNT).
2. Budget constraints call for more tailored monitoring focussed on key programmatic decisions.
3. Ensure the collected data is utilized to its fullest potential.

→ There was a clear call for guidelines that help identify and collect durability indicators for country decision-making.

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To summarize:

- **Wide diversity** in ITNs (materials, environments, users)
- **Shorter net longevity** then expected in many settings
- Full **durability monitoring** studies are **costly and unsustainable** in the current funding landscape → **PMS toolkit**
- **Practical tool is needed** to guide efficient, evidence-based monitoring

What is Post-Market Surveillance (PMS)?

According to ITN PMS document from WHO, the net life cycle:

Manufacturing: raw materials to product release

Before use: Storage, transport and distribution

In-use: Household use → end of ITN life

PMS

Manufacturing		Before use				In-use		
Manufacture/ Packaging	QC Testing/ Release	Storage (Includes sites of manufacturer or third parties)	Transport	Storage (on-site prior to distribution)	Distribution	Initiation of use	Continuation of use	End of life/ disposal

Purpose of PMS:

- Monitor **net performance** in real-world conditions
- Identify **factors affecting durability & effectiveness**
- Support stakeholders in **improving vector control decision-making**

The PMS toolkit

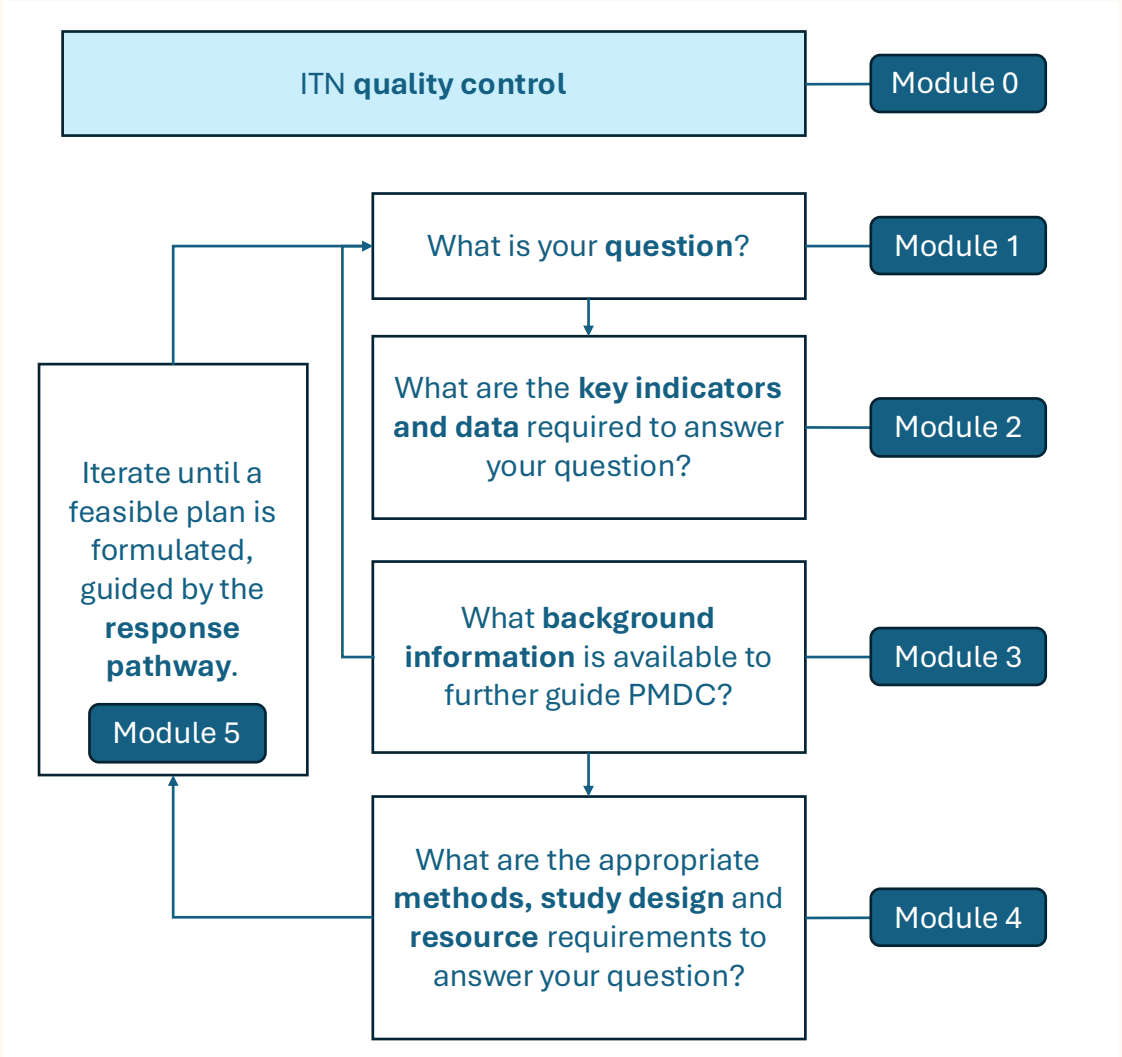
The toolkit helps NMPs to:

- **Prioritize indicators** within available resources
- Use **standardized methods** to assess ITN durability
- **Interpret data** in programmatic context
- **Align data collection** with decision-making needs

How: Modular approach inspired by the Entomological Surveillance Planning Tool (ESPT) developed by Malaria Elimination Initiative

Focus on: Programmatic decisions/actions related to procurement, distribution, monitoring.

The PMS toolkit



Includes a **glossary** of key terms



MODULE 1. IDENTIFY YOUR QUESTION(S)

To effectively support vector control programs, the PMDC toolkit starts off by developing well-defined questions. These questions will shape the study design and focus, ensuring that data collected are relevant for programmatic decisions.

Key Considerations

- HOW TO FORMULATE THE QUESTION(S) +
- KEY THEMES +
- IMPORTANT CONSIDERATIONS +

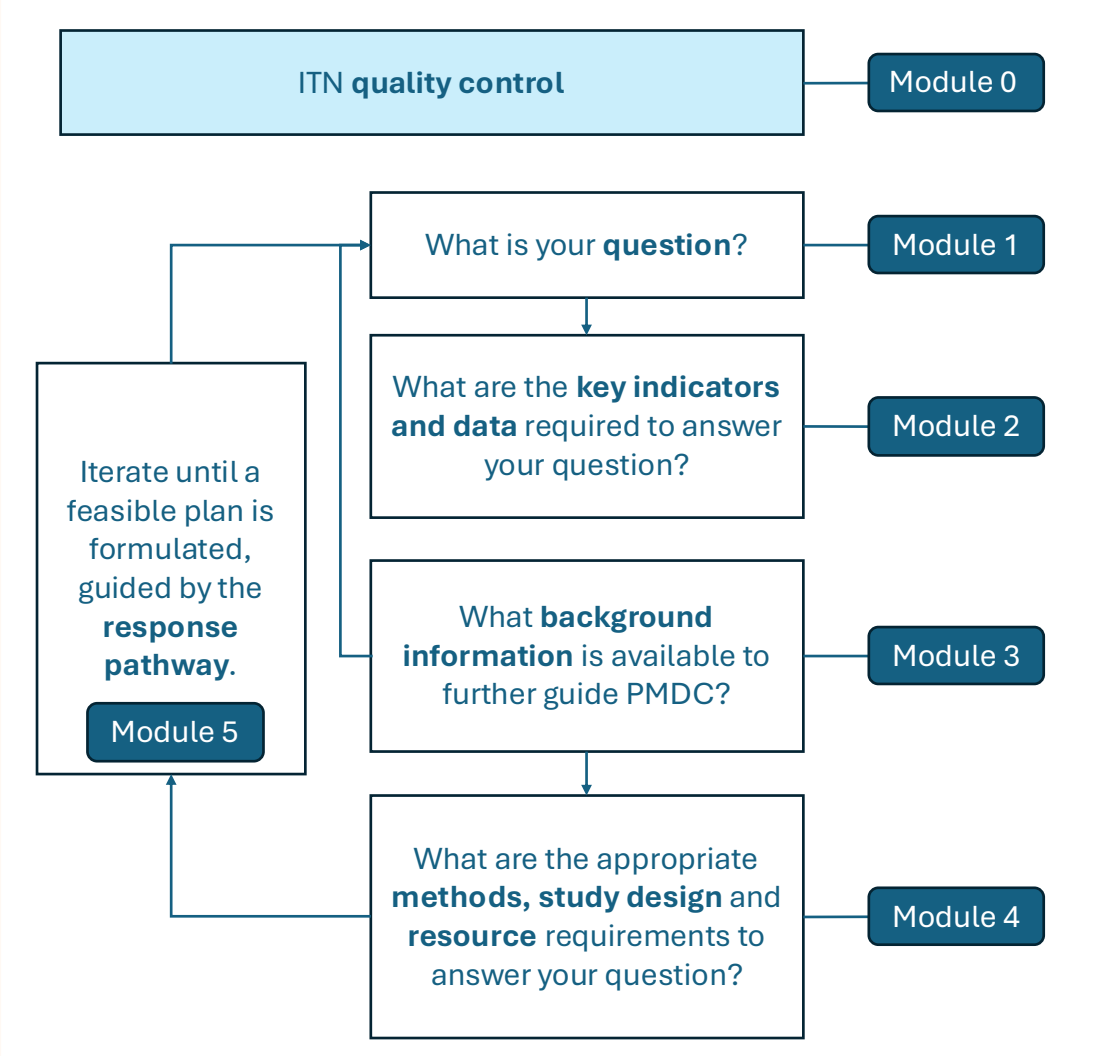
Resources

- MODULE OUTPUT WORKSHEET +

TOOLKIT NAVIGATION

- MODULE 0. NET QUALITY CONTROL
- MODULE 1. IDENTIFY YOUR QUESTION(S)

The PMS toolkit



Module 1: what is your question?

How to define your question(s)

- **Step 1: Define the decision**

  Frequency of ITN distribution campaigns

- **Step 2: Translate the decision into questions**

  What proportion of ITNs distributed in the past mass campaign are still present in good condition in the households?

- **Step 3: Organize by theme:**

  Physical durability

  Insecticidal/chemical activity

  Net use and individual behaviours

  Net use setting

- **Step 4: identify the study design**
  Retrospective cross sectional

- **Step 5: Study area**
  Two districts with the highest malaria incidence

Module 2: what are your key indicators and data?

How do you identify your key indicator and data needs?

- **Step 1: Report your programmatic decisions, key questions and themes**

  What proportion of ITNs distributed in the past mass campaign are still present in good condition in the households? ***Physical durability***

- **Step 2: Identify relevant indicators**

  Net survival in serviceable condition

Themes	Physical durability	Insecticidal/ chemical activity	Net use/ individual behaviours	ITN use setting
Primary Indicators				
Net survival in serviceable condition	X			
Physical integrity	X			
Median net survival	X			
Rate of ITN loss and reason	X			
Insecticidal /chemical bioefficacy		X		
Net access			X	
Net use			X	
ITN use: access ratio			X	
Net care attitude score			X	
Adverse effects			X	
Risk index: Net care and repair			X	
Risk index: Net handling/use			X	
Risk index: Environmental				X
socio-economic status (SES)				X
Urban/rural setting				X
Supplementary Indicators				
Fabric bursting strength	X			
Resistance to Damage score	X			
Resistance to hole formation	X			

Module 3: What background information is available?

How to summarize key findings from existing data sources:

- **Step 1: Identify gaps.**
  Unknown if the same net type has been used elsewhere

- **Step 2: Engage stakeholders**
  NMP's from other countries, academics, procurers, manufacturers
-

- **Step 3: Investigate online resources.**
  PubMed, public reports from stakeholders, DM reports

- **Step 4: Synthesize information.**
  Same net type was used in neighbouring countries, where median lifespan was 1.2 to 2.6 years

- **Step 5: Refine question(s) and indicators.**
  Low acceptance or very low chemical durability identified: could prompt expansion of indicators

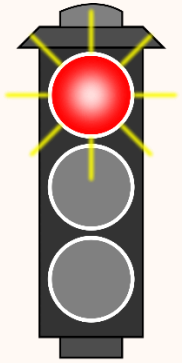
Module 4: What is your method, study design, resource requirements?

- **Step 1: Review available resources in country**
  Budget in M&E, ITN campaigns, funding opportunities.
- **Step 2: Select data collection methods.**
  Attrition surveillance
- **Step 3: Define decision criteria.**
  Are at least 60% of ITNs distributed in the last 24 months still in good condition (serviceable)?
- **Step 4: Calculate sample size.**
  Use data from prior durability monitoring studies where possible: calculate costs
- **Step 5: Iteration of your steps**
  Re-iterate process if cost exceeds resources

Module 5: What is your response pathway?

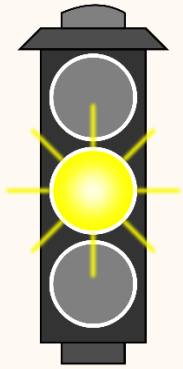
How to plan the response:

- **Step 1: Review indicators and methods.**
- **Step 2: Confirm decision criteria.**
- **Step 3: Define data flow and use.**
- **Step 4: Apply the traffic light system for action.**
- **Step 5: Decide on actions.**



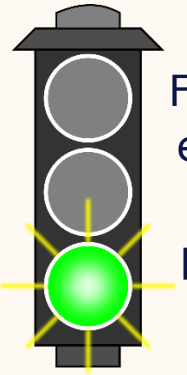
STOP

Findings exceed thresholds and require immediate action or change in ITN strategy.



SLOW

Findings are concerning but not conclusive. Further investigation and additional data are required.



GO

Findings meet expectations. Continue as planned until conditions change.

Module 5: Example

- **Indicator:** Attrition rate at 24 months.
- **Decision criteria:** Attrition ≤ 50% considered acceptable.

Traffic light	Threshold	Possible actions
STOP	> 60%	Direct engagement with Ministry of Health, donors, and stakeholders to revise ITN strategy.
SLOW	40-60 %	Conduct further monitoring, gather additional data (e.g., reasons for attrition such as retention, household practices, or environmental conditions).
GO	< 40%	No further monitoring required until a new ITN type is introduced or malaria indicators change.

The PMS Toolkit: A practical decision-making resource

It helps NMPs plan, conduct, and interpret ITN PMS:

- Centralizes key resources for easier access and use (modular approach or resource)
- Empowers programs to design adaptable, locally relevant surveillance activities

Purpose:

- Promotes a **structured, realistic approach** suited to local capacity
- Strengthens **ITN planning** and **vector control strategies**
- Supports **evidence-based decisions** grounded in PMS data and context

Our values



Partnership

We believe in the power of partnership, collaboration and teamwork.

Innovation

We embrace ideas that drive vector control innovation, deliver impact and save lives.

Respect

We value diversity and treat each other with respect.

Gates Foundation

UK International Development
Partnership | Progress | Prosperity

Australian Aid

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Swiss Agency for Development and Cooperation SDC

Lot quality assurance sampling methodology and country examples

Nicole Alvarez, CHAI



Lot Quality Assurance Sampling (LQAS) for LLIN Monitoring: Insights from the Field

CLINTON HEALTH ACCESS INITIATIVE

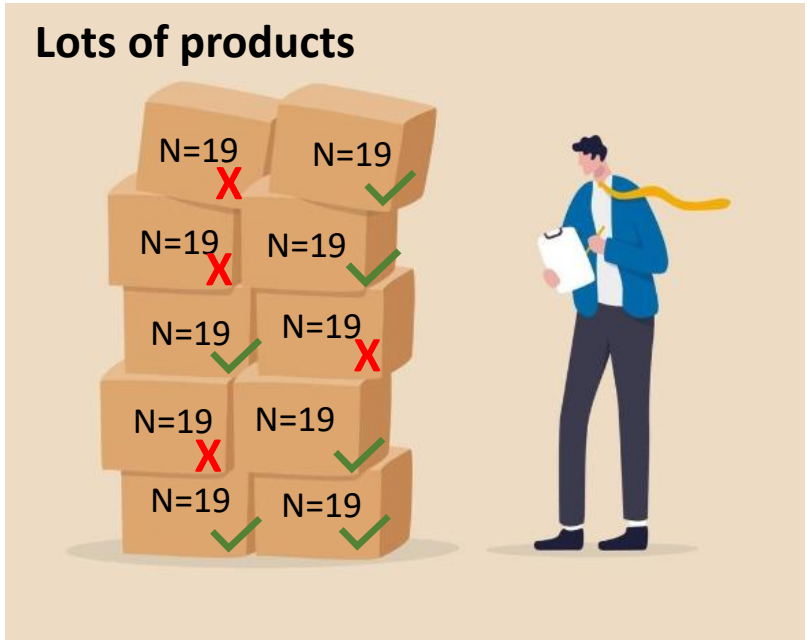
OPS Organización Panamericana de la Salud | Organización Mundial de la Salud Américas

OPS 120 ANIVERSARIO

CDC Centers for Disease Control and Prevention

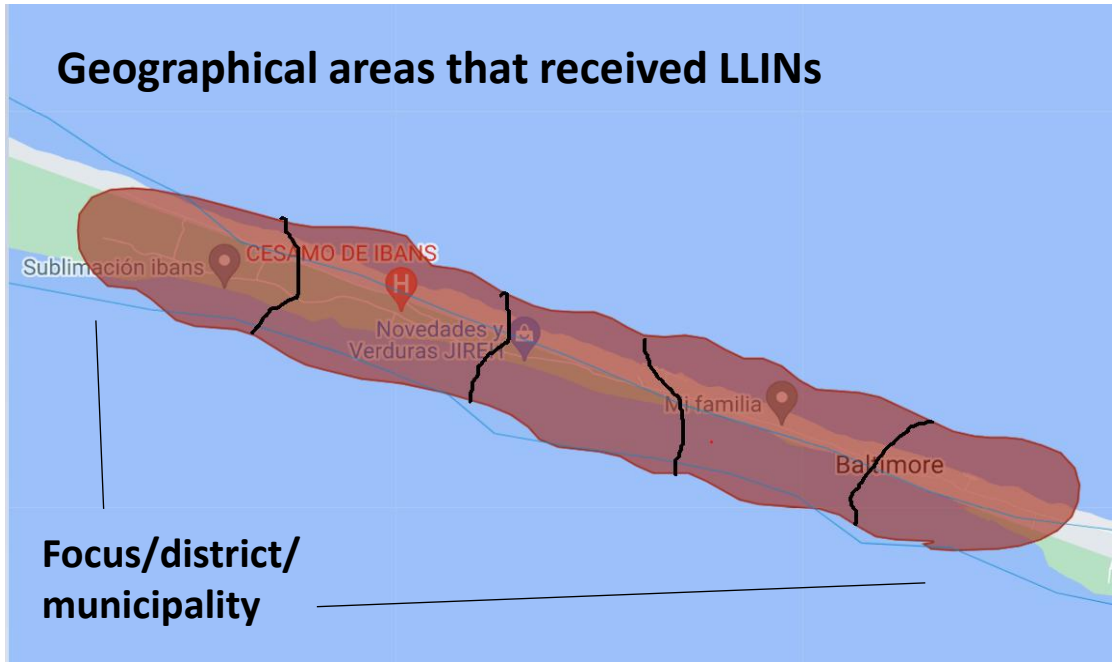
A cross-sectional LQAS-based monitoring of nets

Goal : To generate programmatic data to trigger actions, using a method easy to be adopted by local teams



Equivalence for LLIN monitoring

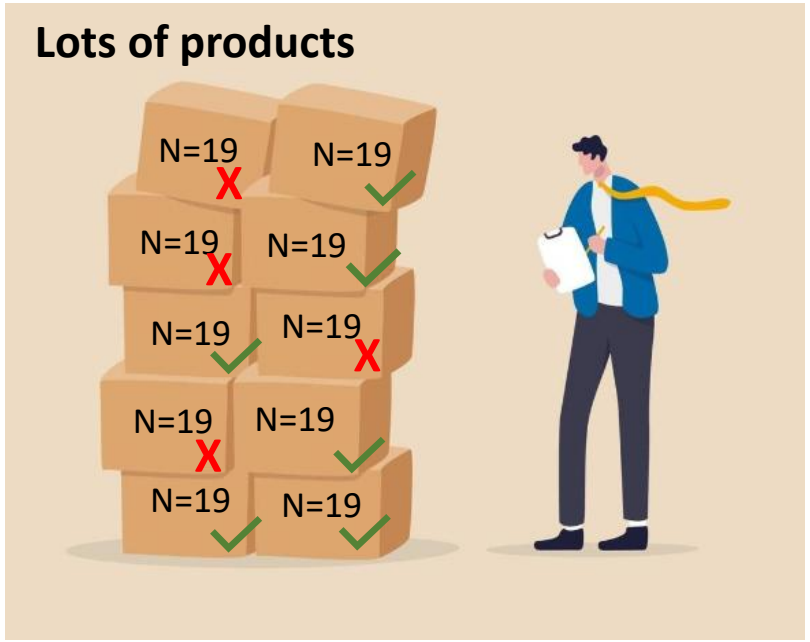
19 is the smallest sample size that allows at least 90% sensitivity and specificity for all targets from 10% to 95%.



19 random samples gives managers high probability of **rejecting substandard lots**

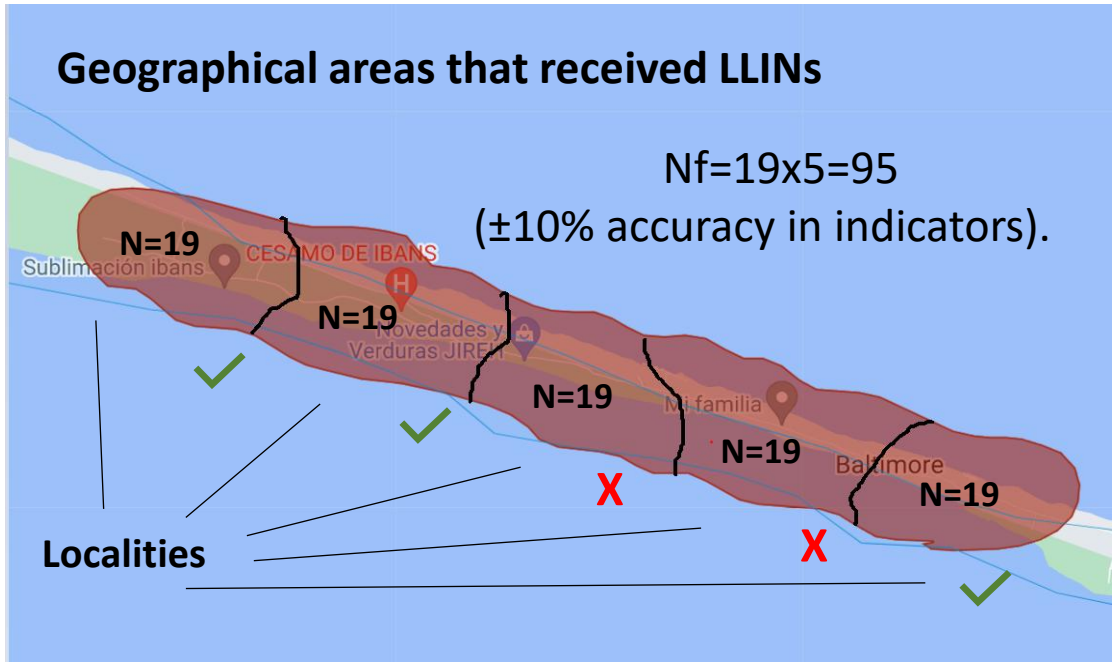
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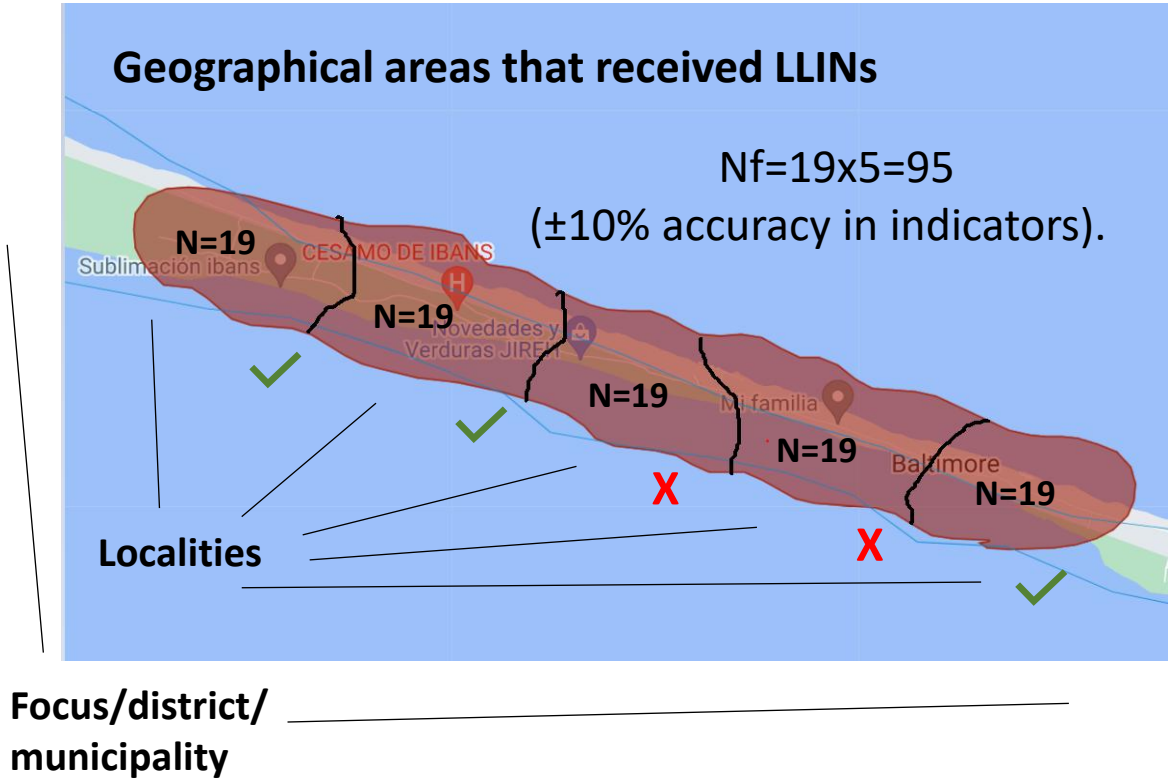


19 random samples gives managers high probability of **rejecting substandard lots**

19 random people/HH gives managers high probability of **identifying underperforming areas (e.g. those with LLIN use below expectation) to focus their efforts.**

A cross-sectional LQAS-based monitoring of nets

Goal : To generate programmatic data to trigger actions, using a method easy to be adopted by local teams



Localities -> Qualitative results

E.g: Areas 3 and 4 need SBCC strategies to improve bednet usage.

Focus/district/municipality -> Quantitative results

E.g: 78.3% [70.8-85.8] of net usage



Need for a simple method for LLIN monitoring

- LLINs have been implemented in the region for more than 15 years.
- However important challenges remain in LLIN coverage and usage.
- Information about LLIN usage and overall handling practices not generally used to make decisions.
- Concerns about usage and washing practices have already been raised in some areas.
- Much smaller investments than in other regions due to malaria focalization (e.g. 20,000 LLINs being distributed in Panama last year).
- Large-scale M&E irrelevant due to malaria focalization.
- Interest in an M&E approach that guides decisions at a more local level (foci, micro-territories).

Indicators measured and process

Indicator	Definition	Target	Decision rule
Retention	% of LLINs distributed in a campaign that are still found in the same households (HH)		At focus level
Coverage	% of HH with enough LLINs to cover all sleeping spaces	80%	13
Usage	% of people that slept under a net last night	80%	13
Physical integrity	% of LLINs in serviceable condition	1 year: 80%	13
Washing	% of LLINs washed less than 20 times in three years (based on current washing frequency)	80%	13
Drying	% of LLINs dried in the shade	80%	13
Bioefficacy	% of LLINs that continue to kill 80% of the mosquitoes		At focus level
Chemical content	Average chemical content in LLINs		At focus level

Process:

1. Define indicators of interest.
2. Set targets that will help identifying underperforming areas.
3. Identify the decision rule for each indicator from reference tables:

LQAS Table: Decision Rules for Sample Sizes of 12-30 and Coverage Targets/Average of 10%-95%

Sample Size*	Average Coverage (Baselines) / Annual Coverage Target (Monitoring and Evaluation)																	
	10%	15%	20%	25%	30%	35%	40%	45%	50%	55%	60%	65%	70%	75%	80%	85%	90%	95%
12	N/A	N/A	1	1	2	2	3	4	5	5	6	7	7	8	9	9	10	11
13	N/A	N/A	1	1	2	3	3	4	5	6	6	7	8	8	9	10	11	11
14	N/A	N/A	1	1	2	3	4	4	5	6	7	8	8	9	10	11	11	12
15	N/A	N/A	1	2	2	3	4	5	6	6	7	8	9	10	10	11	12	13
16	N/A	N/A	1	2	2	3	4	5	6	7	8	9	9	10	11	12	13	14
17	N/A	N/A	1	2	2	3	4	5	6	7	8	9	10	11	12	13	14	15
18	N/A	N/A	1	2	2	3	5	6	7	8	9	10	11	11	12	13	14	16
19	N/A	N/A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
20	N/A	N/A	1	2	3	4	5	6	7	8	9	11	12	13	14	15	16	17
21	N/A	N/A	1	2	3	4	5	6	8	9	10	11	12	13	14	16	17	18
22	N/A	N/A	1	2	3	4	5	7	8	9	10	12	13	14	15	16	18	19
23	N/A	N/A	1	2	3	4	6	7	8	10	11	12	13	14	16	17	18	20
24	N/A	N/A	1	2	3	4	6	7	9	10	11	13	14	15	16	18	19	21
25	N/A	1	2	2	4	5	6	8	9	10	12	13	14	16	17	18	20	21
26	N/A	1	2	3	4	5	6	8	9	11	12	14	15	16	18	19	21	22
27	N/A	1	2	3	4	5	7	8	10	11	13	14	15	17	18	20	21	23
28	N/A	1	2	3	4	5	7	8	10	12	13	15	16	18	19	21	22	24
29	N/A	1	2	3	4	5	7	9	10	12	13	15	17	18	20	21	23	25
30	N/A	1	2	3	4	5	7	9	11	12	14	16	17	19	20	22	24	26

N/A: *Not Applicable*, meaning LQAS can not be used in this assessment because the coverage is either too low or too high to assess an SA. This table assumes the lower threshold is 30 percentage points below the upper threshold.
: light-shaded cells indicate where *alpha* or *beta* errors are greater than or equal to 10%.
: dark-shaded cells indicate where *alpha* or *beta* errors are greater than15%.

4. Identify the areas that will be monitored and select the HH for the surveys.

Implementation in Honduras

Focus Ibans-Cocobila (GAD)

When: 1 year after distribution.
Sample: 95 households in the focus.
Indicators: LLIN coverage, usage, washing and drying practices, physical integrity, bio efficacy and chemical content.

Subareas	Coverage	Usage	Washing	Drying	Physical integrity	Bioefficacy	Chemical content
Area 1	Not acceptable	Acceptable	Not acceptable	Not acceptable	Not acceptable		
Area 2	Not acceptable	Acceptable	Not acceptable	Not acceptable	Acceptable		
Area 3	Not acceptable	Not acceptable	Not acceptable	Not acceptable	Acceptable		
Area 4	Not acceptable	Acceptable	Not acceptable	Not acceptable	Acceptable		
Area 5	Acceptable	Acceptable	Not acceptable	Not acceptable	Not acceptable		
Results at focus level	74.6% [70.6-78.5]	78.3% [71.8-85.7]	18.8% [11.4-26.2]	28.9% [20.5-37.4]	59.7% [49.8-69.5]	70.9% [52.1-89.7]	0.5 g/kg



CONCLUSION for regional health managers:

- Ensure adequate coverage in areas 1, 2, 3 and 4.
- Improve usage in area 3.
- Improve washing and drying practices in all areas.
- Investigate factors for reduction in physical integrity in area 1 and 5.

Implementation in Honduras

Island: Roatán

When: 1 year after distribution and 3 months after a replacement campaign.
Sample: 114 households in the island.
Indicators: LLIN coverage, usage, washing and drying practices, physical integrity, bio efficacy and chemical content.



Subareas	Coverage	Usage	Washing	Drying	Physical integrity	Bioefficacy	Chemical content
Area 1	Not acceptable	Not acceptable	Acceptable	Not measurable	Acceptable		
Area 2	Not acceptable	Not acceptable	Not acceptable	Not acceptable	Acceptable		
Area 3	Not acceptable	Not acceptable	Acceptable	Not measurable	Acceptable		
Area 4	Not acceptable	Not acceptable	Not acceptable	Not acceptable	Acceptable		
Area 5	Not acceptable	Not acceptable	Not acceptable	Not acceptable	Acceptable		
Area 6	Not acceptable	Not acceptable	Not acceptable	Not acceptable	Acceptable		
Results at island level	35.4% [32.2-38.6]	17.4% [12.9-21.9]	53.8% [44.2-63.4]	33.4% [22.9-43.9]	78.5% [70.5-86.5]	100% [100-100]	0.9 g/kg

CONCLUSION for regional health managers:

- LLIN coverage and use is low in all localities despite a replacement campaign happening just few months before monitoring. Replacing strategies need to be revised.
- Washing and drying practices are poor in all localities. SBCC is urgently needed.
- Intense efforts would need to be made in this Island to ensure the success of nets, alternative other interventions should be considered.

Implementation in Honduras

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Due to low acceptance of bed nets, the NMCP shifted the vector control strategy to IRS only.

Implementation in Honduras - Summary



	Ibans-Cocobila	Roatán island
Coverage	74.6% [70.6-78.5]	35.4% [32.2-38.6]
Usage	78.3% [71.8-85.7]	17.4% [12.9-21.9]
Washing	18.8% [11.4-26.2]	53.8% [44.2-63.4]
Drying	28.9% [20.5-37.4]	33.4% [22.9-43.9]
Physical integrity	59.7% [49.8-69.5]	78.5% [70.5-86.5]
Bioefficacy	70.9% [52.1-89.7]	100% [100-100]
Chemical content	0.5 g/kg	0.9 g/kg

Implementation in Panama

Darién region
15 areas distributed in 3 foci

When: 8-20 months after distribution.
Sample: 285 households in the region.
Indicators: LLIN retention, coverage, usage, physical integrity, washing and drying practices.



Subareas	Retention	Coverage	Usage	Washing	Drying	Physical integrity
Area 1		Acceptable	Acceptable	Not Acceptable	Not Acceptable	Acceptable
Area 4		Acceptable	Acceptable	Not Acceptable	Acceptable	Acceptable
Area 5		Not Acceptable	Acceptable	Not Acceptable	Not measurable	Acceptable
Area 7		Acceptable	Acceptable	Not Acceptable	Not Acceptable	Acceptable
Area 8		Not Acceptable	Acceptable	Acceptable	Acceptable	Acceptable
Area 9		Acceptable	Acceptable	Not Acceptable	Not measurable	Acceptable
Area 10		Acceptable	Acceptable	Acceptable	Not measurable	Acceptable
Area 12		Acceptable	Acceptable	Not Acceptable	Not measurable	Acceptable
Area 13		Acceptable	Acceptable	Not Acceptable	Acceptable	Acceptable
Area 14		Acceptable	Acceptable	Not Acceptable	Acceptable	Acceptable
Area 15		Acceptable	Acceptable	Not Acceptable	Not Acceptable	Acceptable
Results at region level	82% [79.6-84.5]	89.2% [86.9-91.5]	87.4% [84.4-90.4]	57.9% [52.7-63.1]	48.4% [41.7-55.1]	96.3% [93.5-99.1]

CONCLUSION for regional health managers:
- Ensure adequate coverage in areas 5 and 8.
- Improve washing and drying practices in all areas, except area 8.

Implementation in Panama

Panamá Este region
15 areas distributed in 3 foci

When: 5-22 months after distribution.
Sample: 380 households in the focus.
Indicators: LLIN retention, coverage, usage, physical integrity, washing and drying practices.



Subareas	Retention (other sleeping spaces)	Retention (Hammocks)	Coverage (other sleeping spaces)	Coverage (Hammocks)	Usage	Washing	Drying	Physical integrity
Area 1			Not acceptable	Not acceptable	Not acceptable	Not acceptable	Not acceptable	Acceptable
Area 2			Not acceptable	Not acceptable	Not acceptable	Not acceptable	Not acceptable	Acceptable
Area 3			Acceptable	Acceptable	Acceptable	Not acceptable	Not acceptable	Acceptable
Area 4			Not acceptable	Not acceptable	Acceptable	Not acceptable	Not acceptable	Acceptable
Area 5			Not acceptable	Not acceptable	Acceptable	Acceptable	Not acceptable	Acceptable
Area 6			Not acceptable	Not acceptable	Acceptable	Acceptable	Not acceptable	Acceptable
Area 7			Not acceptable	Not acceptable	Not acceptable	Acceptable	Not acceptable	Acceptable
Area 8			Not acceptable	Not acceptable	Not acceptable	Not acceptable	Not acceptable	Acceptable
Area 9			Acceptable	Acceptable	Not acceptable	Acceptable	Not acceptable	Acceptable
Area 10			Not acceptable	Not acceptable	Not acceptable	Not acceptable	Not acceptable	Acceptable
Area 11			Not acceptable	Not acceptable	Acceptable	Not acceptable	Not acceptable	Acceptable
Area 12			Not acceptable	Not acceptable	Acceptable	Not acceptable	Not acceptable	Acceptable
Area 13			Not acceptable	Not acceptable	Not acceptable	Not acceptable	Not acceptable	Acceptable
Area 14			Not acceptable	Not acceptable	Acceptable	Not acceptable	Not acceptable	Acceptable
Area 15			Not acceptable	Not acceptable	Acceptable	Not acceptable	Not acceptable	Acceptable
Results at region level	91.8% [89.5-94.1]	78.1% [78.1-78.1]	91.2% [89.3-93.1]	86.1% [84.4-87.8]	65.1% [60.9-69.3]	54.1% [49.3-58.9]	34.7% [28.3-41.2]	95.3% [93.3-97.4]

CONCLUSION for regional health managers:

- Improve LLIHNs retention in the region.
- Ensure adequate LLIN and LLIHNs coverage in all areas, except 3 and 9.
- Improve usage in areas 1, 2, 7, 8, 9, 10 and 13.
- Improve washing and drying practices in all areas.

Implementation in Panama - Summary

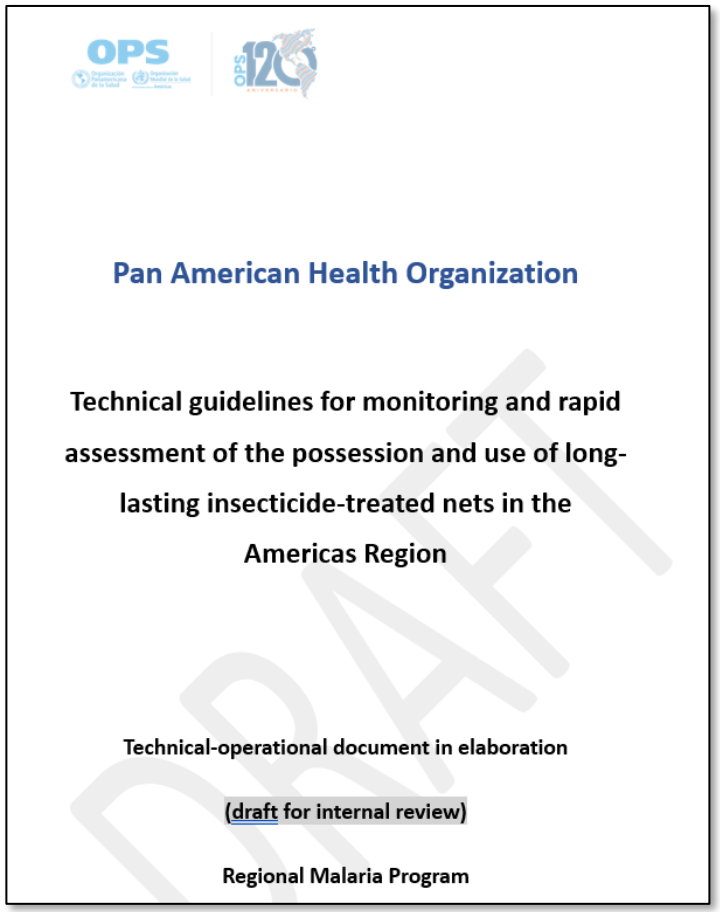


	Darién	Panamá Este
Retention (other sleeping spaces)	82% [79.6-84.5]	91.8% [89.5-94.1]
Retention (Hammocks)	-	78.1% [78.1-78.1]
Coverage (other sleeping spaces)	89.2% [86.9-91.5]	91.2% [89.3-93.1]
Coverage (Hammocks)	-	86.1% [84.4-87.8]
Usage	87.4% [84.4-90.4]	65.1% [60.9-69.3]
Washing	57.9% [52.7-63.1]	54.1% [49.3-58.9]
Drying	48.4% [41.7-55.1]	34.7% [28.3-41.2]
Physical integrity	96.3% [93.5-99.1]	95.3% [93.3-97.4]

Implementation in other countries and tool kit

Central America




OPS

Pan American Health Organization

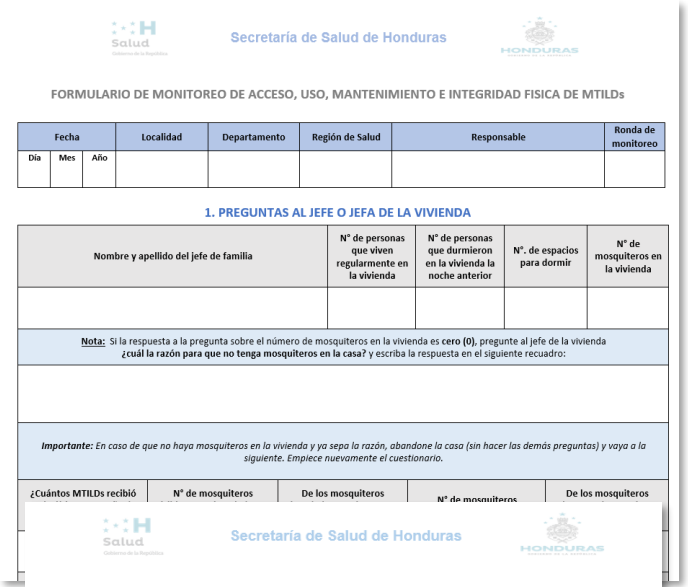
Technical guidelines for monitoring and rapid assessment of the possession and use of long-lasting insecticide-treated nets in the Americas Region

Technical-operational document in elaboration

(draft for internal review)

Regional Malaria Program

DRAFT


Secretaría de Salud de Honduras

FORMULARIO DE MONITOREO DE ACCESO, USO, MANTENIMIENTO E INTEGRIDAD FISICA DE MTILDs

Fecha			Localidad	Departamento	Región de Salud	Responsable	Ronda de monitoreo
Día	Mes	Año					

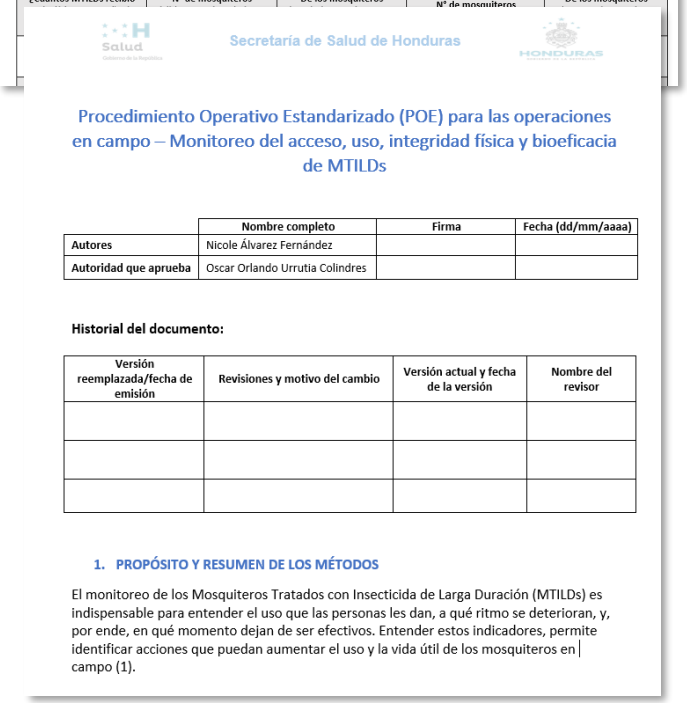
1. PREGUNTAS AL JEFE O JEFA DE LA VIVIENDA

Nombre y apellido del jefe de familia	N° de personas que viven regularmente en la vivienda	N° de personas que durmieron en la vivienda la noche anterior	N°. de espacios para dormir	N° de mosquiteros en la vivienda

Nota: Si la respuesta a la pregunta sobre el número de mosquiteros en la vivienda es **cero (0)**, pregunte al jefe de la vivienda **¿cuál la razón para que no tenga mosquiteros en la casa?** y escriba la respuesta en el siguiente recuadro:

Importante: En caso de que no haya mosquiteros en la vivienda y ya sepa la razón, abandone la casa (sin hacer las demás preguntas) y vaya a la siguiente. Empiece nuevamente el cuestionario.

¿Cuántos MTILDs recibió	N° de mosquiteros	De los mosquiteros	N° de mosquiteros	De los mosquiteros


Secretaría de Salud de Honduras

Procedimiento Operativo Estandarizado (POE) para las operaciones en campo – Monitoreo del acceso, uso, integridad física y bioeficacia de MTILDs

	Nombre completo	Firma	Fecha (dd/mm/aaaa)
Autores	Nicole Álvarez Fernández		
Autoridad que aprueba	Oscar Orlando Urrutia Colindres		

Historial del documento:

Versión reemplazada/fecha de emisión	Revisiones y motivo del cambio	Versión actual y fecha de la versión	Nombre del revisor

1. PROPÓSITO Y RESUMEN DE LOS MÉTODOS

El monitoreo de los Mosquiteros Tratados con Insecticida de Larga Duración (MTILDs) es indispensable para entender el uso que las personas les dan, a qué ritmo se deterioran, y, por ende, en qué momento dejan de ser efectivos. Entender estos indicadores, permite identificar acciones que puedan aumentar el uso y la vida útil de los mosquiteros en campo (1).

CLINTON HEALTH ACCESS INITIATIVE

OPS Organización Panamericana de la Salud Organización Mundial de la Salud Américas

OPS 120 ANIVERSARIO

Implementation in other countries and tool kit

INDICADOR COBERTURA - INSTRUCCIONES DE CÁLCULO
1. En la celda I5: seleccione la meta para el indicador.
2. Las áreas de supervisión aparecerán automáticamente para todos los indicadores en la columna F; una vez las especifique en la pestaña "Planificación de áreas".
3. En la columna G: escriba el tamaño de muestra obtenido por cada área de supervisión; es decir, la cantidad de encuestas realizadas al terminar el

INDICADOR COBERTURA: % de viviendas que tienen suficientes MTILDs para cubrir todos los espacios para dormir.

PREGUNTA DE CLASIFICACIÓN: ¿La vivienda tiene suficientes MTILDs para cubrir todos los espacios para dormir?

Meta del indicador
80%

Áreas de supervisión	Tamaño de muestra	Respuestas afirmativas	Resultado cualitativo
Betania + Piñales	19	9	No aceptable
Ibans (área 1)	24	5	No aceptable
Ibans (área 2)	19	7	No aceptable
Coyoles Ibans + Cocobila Barrio Sikia	19	7	No aceptable
Cocobila Barrio Castillo + Barrio Raistá + Barrio Centro	27	18	Aceptable

Resultados del monitoreo simplificado de MTILDs para cada indicador a nivel de área de interés

INDICADOR RETENCIÓN: % de MTILDs distribuidos durante la última campaña que continúan en las viviendas.

Áreas de supervisión	MTILDs que las viviendas visitadas recibieron durante la campaña	Número de MTILDs encontrados en las viviendas visitadas	Número medio de espacios para dormir por vivienda	Número de viviendas	MTILDs distribuidos en el área de supervision durante la última campaña (Núm. de viviendas * Núm. medio de espacios para dormir por vivienda)	Peso (por MTILD)	Proporción (resultado de los MTILDs que quedan)	Proporción ponderada (Peso * Proporción)	Calculo de error ponderado: Peso^2	Calculo de error ponderado: Proporción * (1-proporción)	Calculo de error ponderado: Peso^2 * (Proporción * (1-proporción)) / n
Betania + Piñales	45	54	3.84	145	557	0.23	120.00%	27.54%	0.05	-0.24	-0.03%
Ibans (área 1)	46	55	4.29	102	438	0.18	119.57%	21.56%	0.03	-0.23	-0.02%
Ibans (área 2)	60	59	4.32	102	440	0.18	98.33%	17.83%	0.03	0.02	0.00%
Coyoles Ibans + Cocobila Barrio Sikia	55	64	4.26	103	439	0.18	116.36%	21.05%	0.03	-0.19	-0.01%
Cocobila Barrio Castillo + Barrio Raistá + Barrio	71	96	3.93	141	554	0.23	135.21%	30.83%	0.05	-0.48	-0.03%

RESULTADO: % de mosquiteros distribuidos durante la campaña que continúan en las viviendas		
Proporción ponderada	118.8%	
IC 95% ponderado (min)	112.9%	
IC 95% ponderado (máx)	124.7%	
Tamaño IC	11.8%	0.06

ITN risk index measurement update and overview

Stephen Poyer, Tropical Health

Risk Index: Quantifying the social and environmental risk for ITN lifespan

Stephen Poyer | Senior Technical Advisor, Tropical Health

in collaboration with Julie-Anne Tangena (IVCC)

RBM VCWG | 20 November 2025

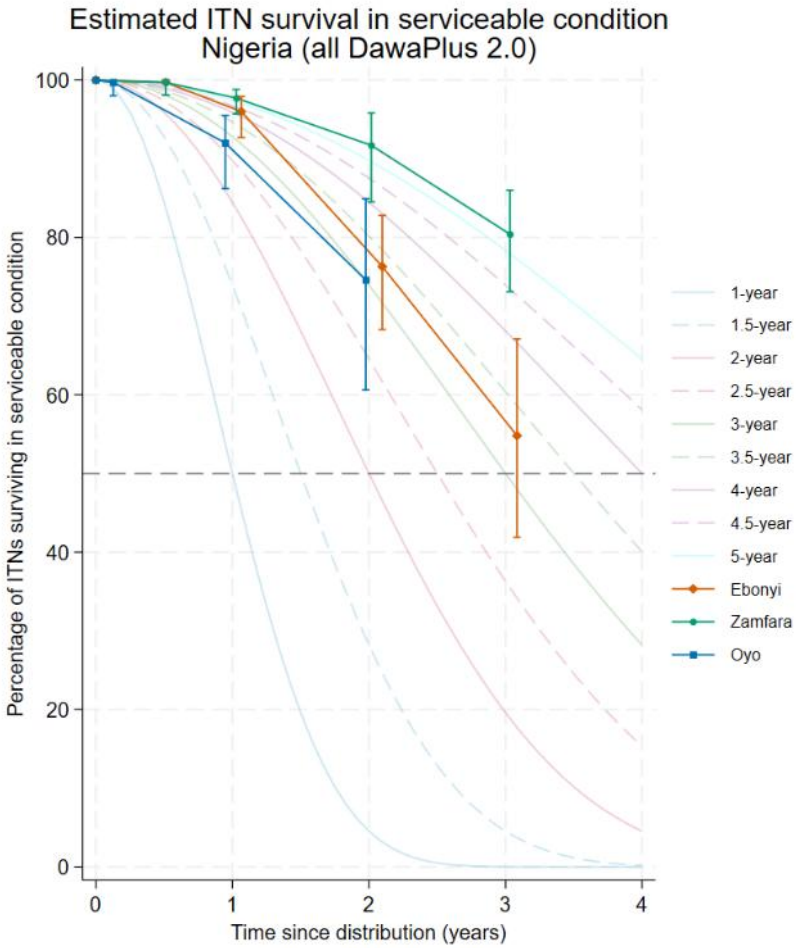
TROPICAL HEALTH

IVCC

High heterogeneity in net lifespan within and across countries that cannot be explained by physical durability alone.

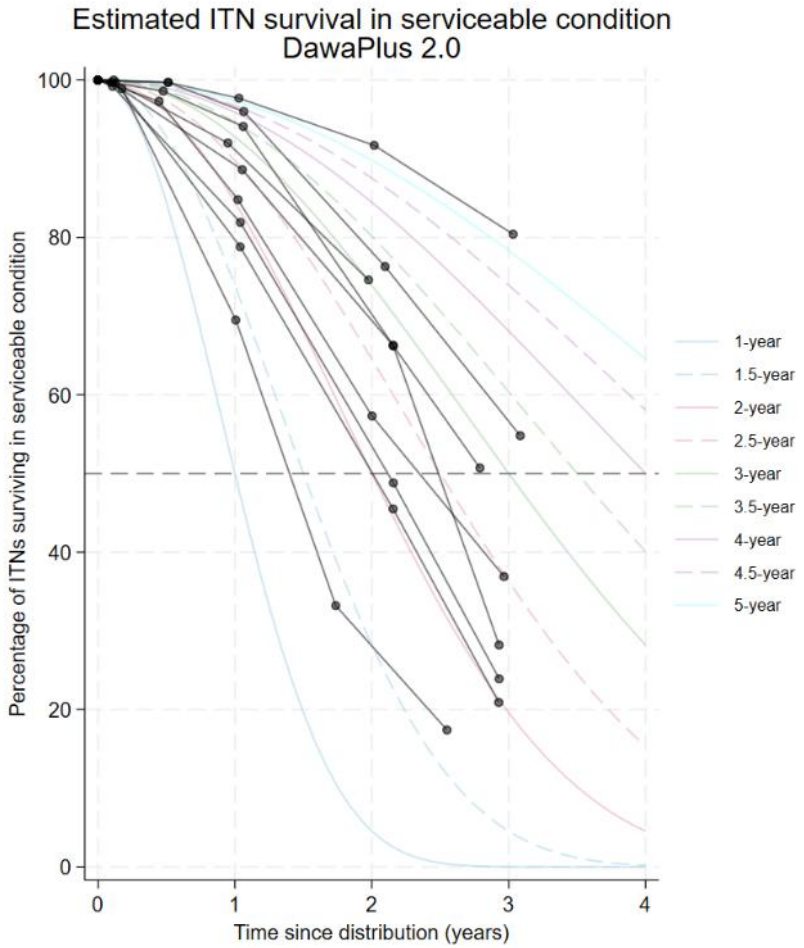
Similar variation seen for **PBO and CFP ITNs.**

DawaPlus 2.0 (Nigeria)



Range of median lifespans
3.2 - 5.3 years

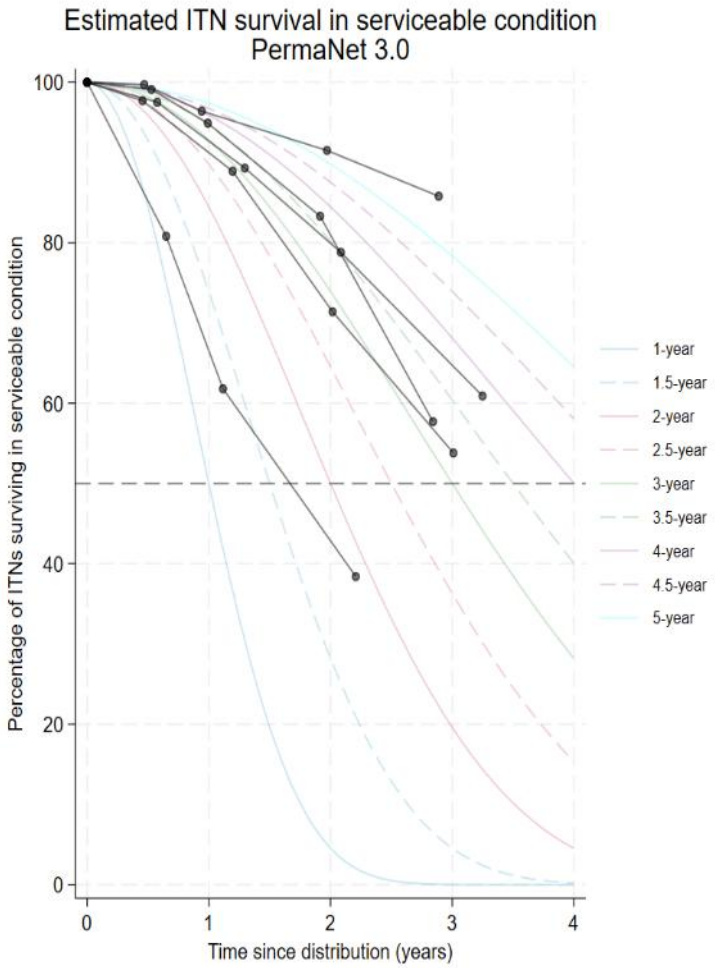
DawaPlus 2.0 (all sites)



Range of median lifespans
1.6 years (DRC) -
5.3 years (Nigeria)

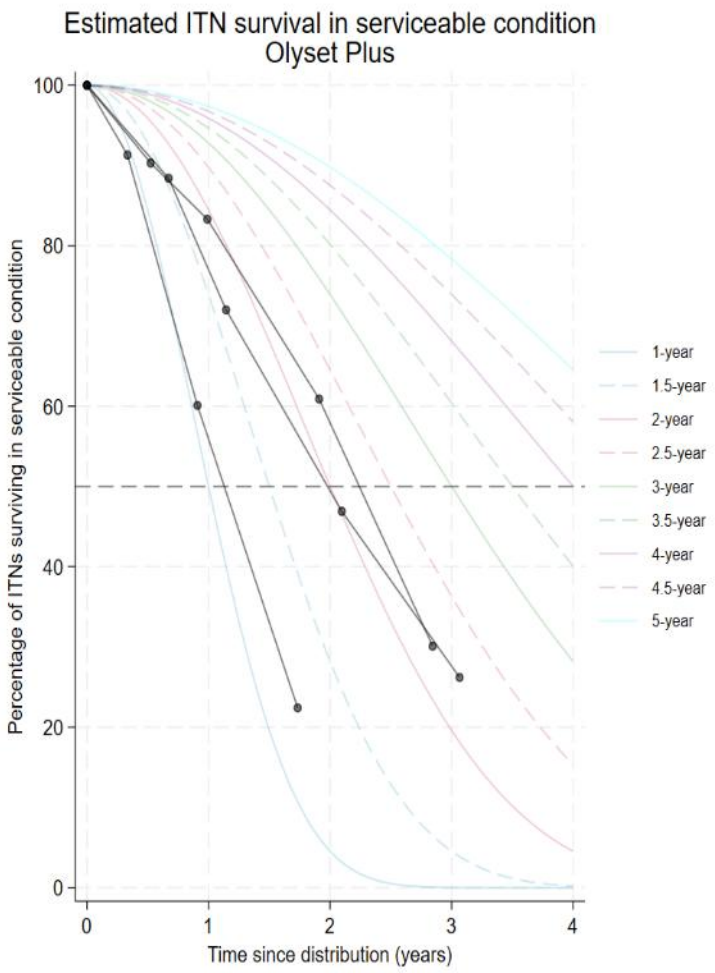
Data source: https://www.durabilitymonitoring.org/

PermaNet 3.0 (all sites)



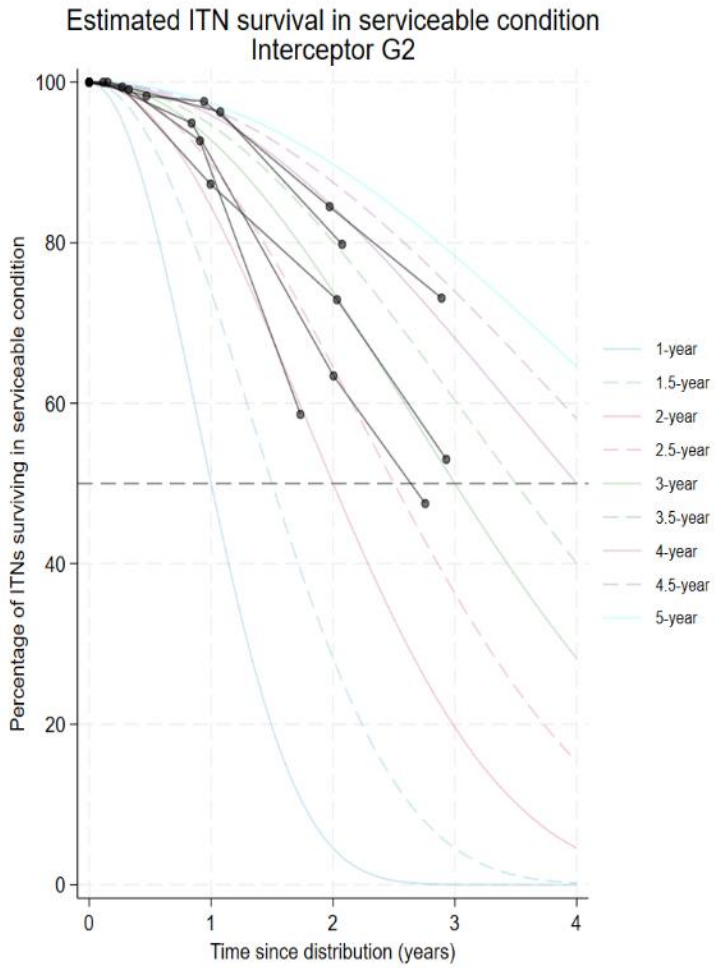
Range of median lifespans
1.9 to 6.0 years

Olyset Plus (all sites)



Range of median lifespans
1.2 to 2.3 years

Interceptor G2 (all sites)



Range of median lifespans
2.0 to 4.3 years

Data source: https://www.durabilitymonitoring.org/

Our collective aim: Improve ITN field retention



Design

Does the product's **physical specification impact retention**

RD score



Quality

Is the **product formulated and manufactured as declared / expected?**



User Behavior & Environment

How does the **user and environment affect ITN lifespan?**

Risk Index

TROPICAL HEALTH IVCC

The Risk Index (RI) is a useful metric to quantify the social and environmental risk for ITN lifespan



Net use setting with relatively low RI



Net use setting with relatively high RI

ITNs in sites with **lower RI** scores tend to have a **greater median survival** compared to those at sites with higher RI scores.

TROPICAL HEALTH IVCC

The Risk Index calculation

Storing food in sleeping room
Cooking in sleeping room
Nets dried on bushes/fences after washing
Percentage of nets that are hanging
Nets hanging loose when not in use

Having a very positive net care attitude
Recall key net messages: "Care for your net"
Recall key messages: "Repair your net"

House walls are grass/mud
Cooking using firewood
Rodents seen around house
Type of sleeping space (floor, mattress, bed)

Assessed by study site

45% Net handling

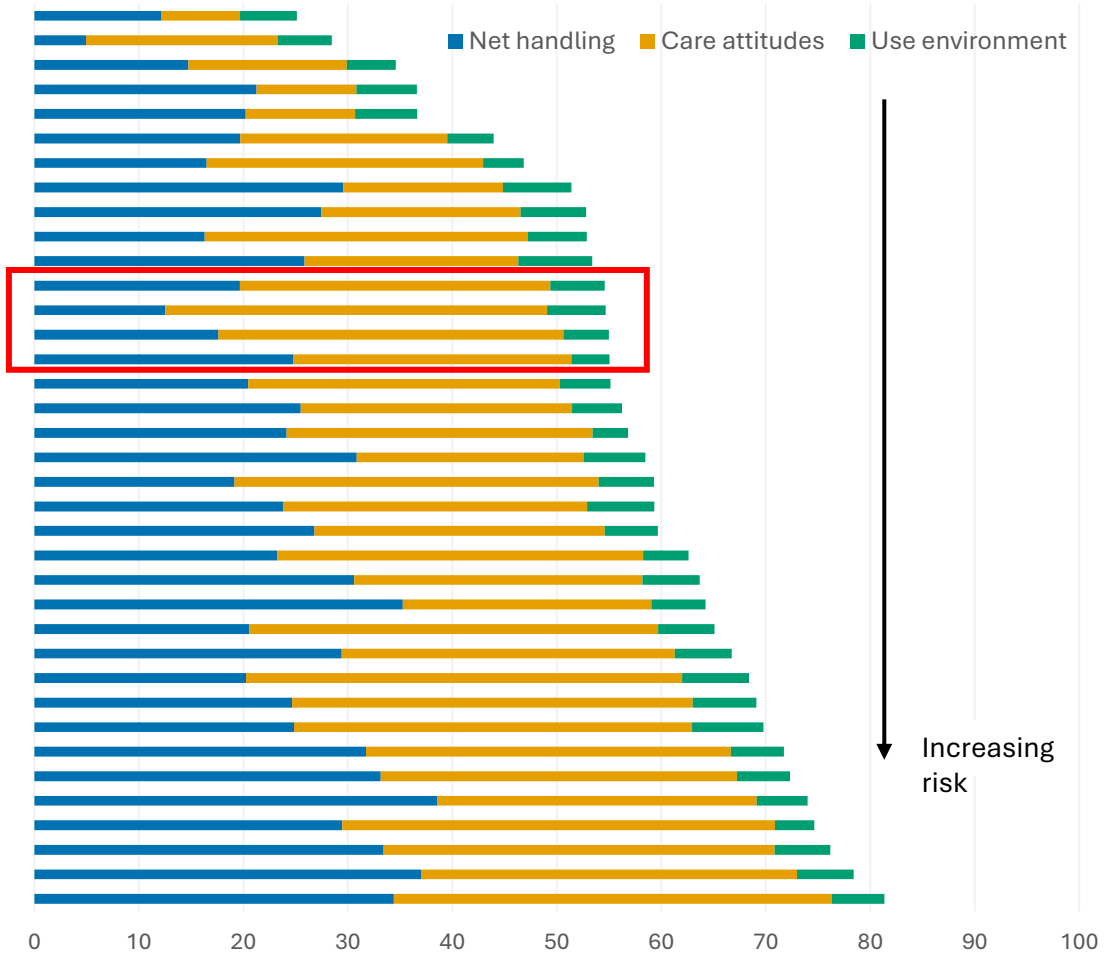
45% Net care attitudes

10% Net use environment

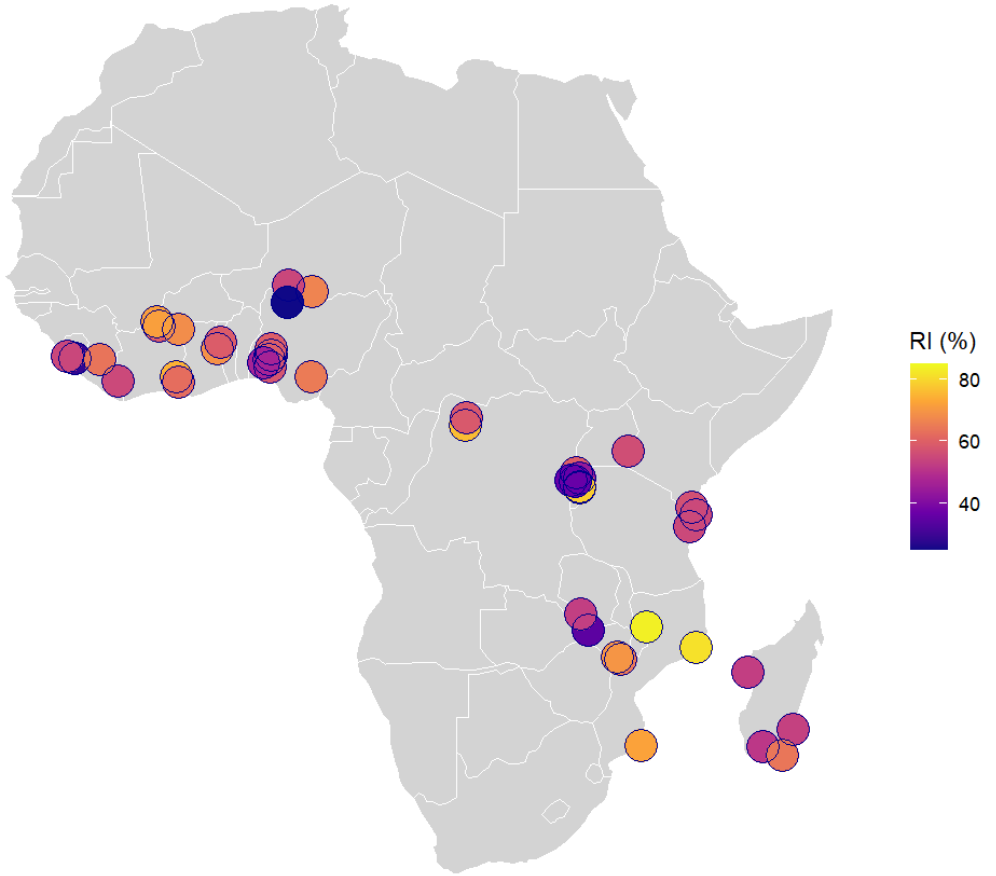
Durability Monitoring Risk Index (RI)

Risk Index scores display high heterogeneity across sites

Site RI score decomposed by weighted component scores



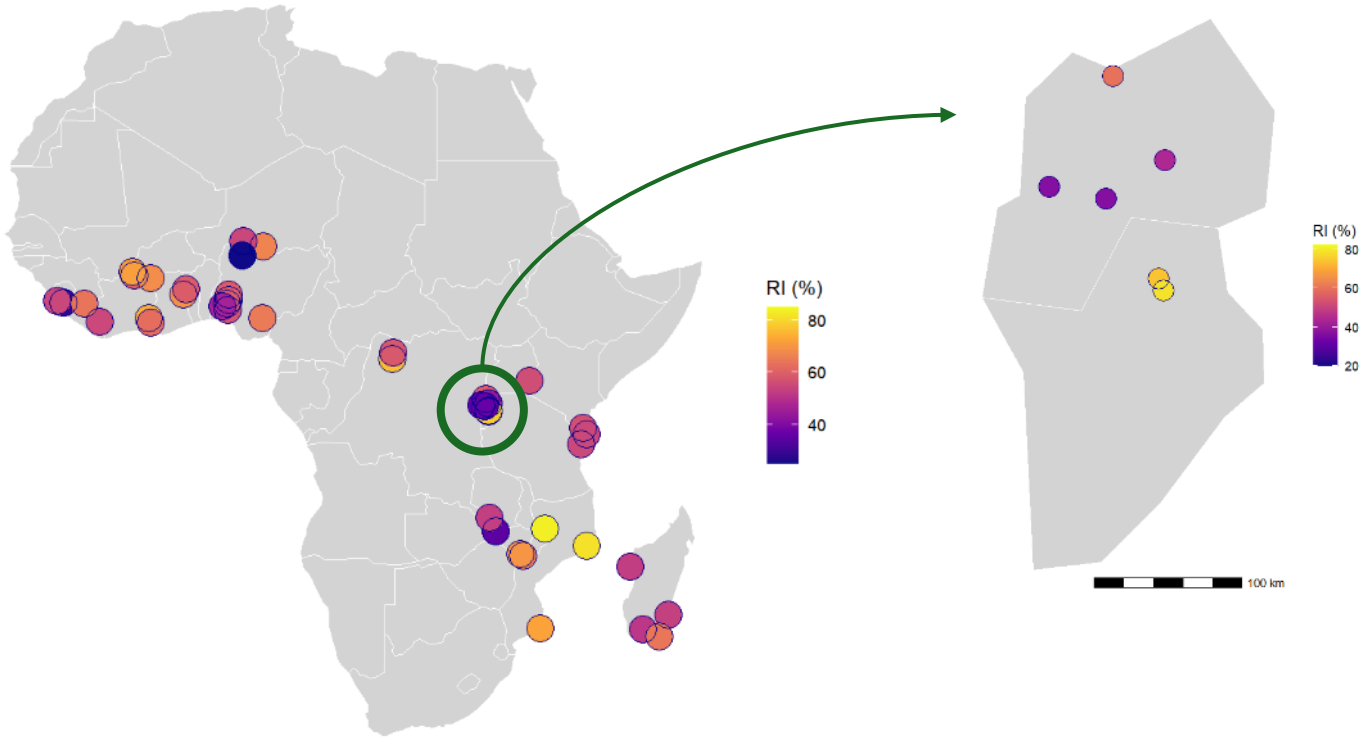
Geographic distribution of site RI scores



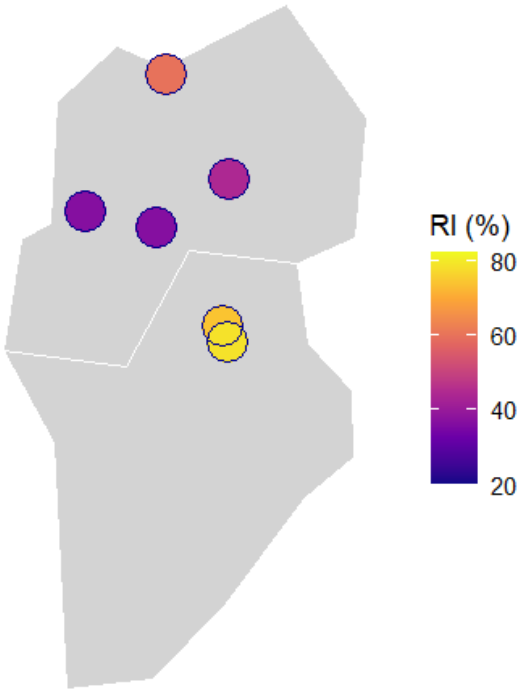
RI could explain difference in outcomes for ‘similar’ ITNs

Why do ITNs in Rwanda and Burundi with similar RD scores have such different lifespans?

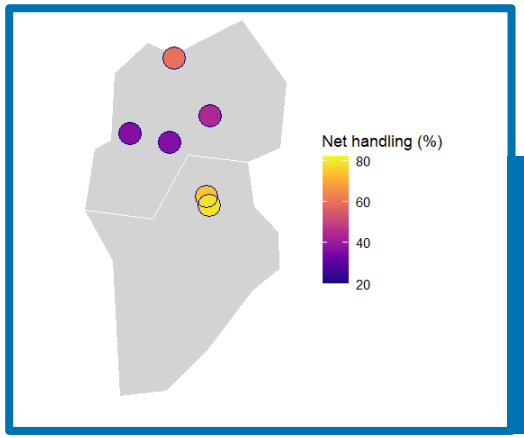
Country	Campaign	Net lifespan (yrs)
Burundi	2019	**1.7 - 1.9**
Rwanda	2020	**2.2, 3.1, 4.0, 4.1**



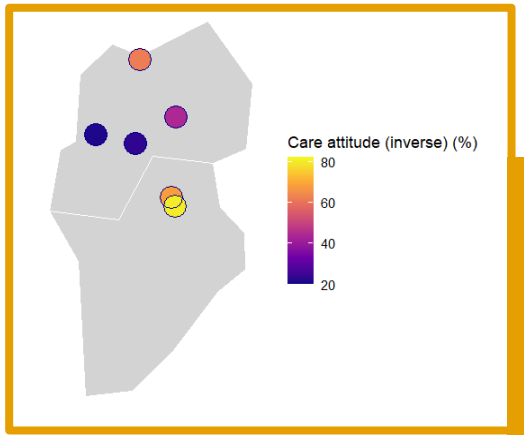
RI could explain difference in outcomes for ‘similar’ ITNs



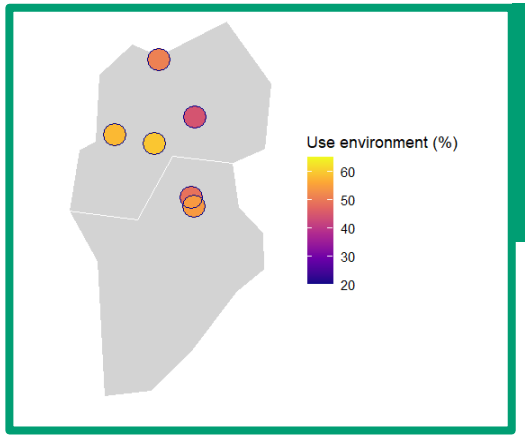
Country	Campaign	Net lifespan (yrs)
Burundi	2019	**1.7 - 1.9**
Rwanda	2020	**2.2, 3.1, 4.0, 4.1**



Net handling: Burundi rarely have nets tied (0-20%) compared to 60% Rwanda



Net care attitudes: Rwanda high net care attitude (77%) compared to 20-50% Burundi

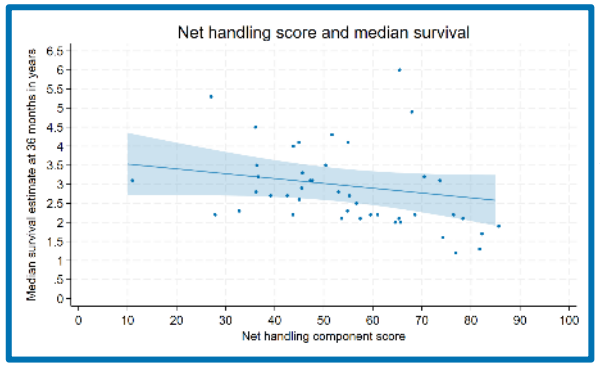


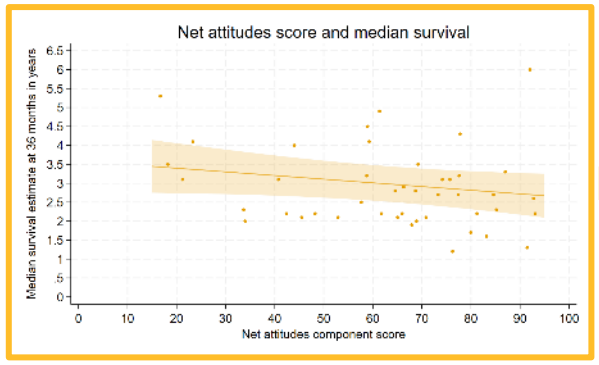
Net use environment: Consistent across sites

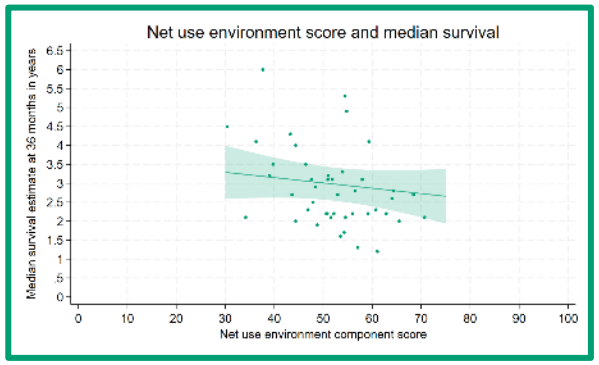
TROPICAL HEALTH IVCC

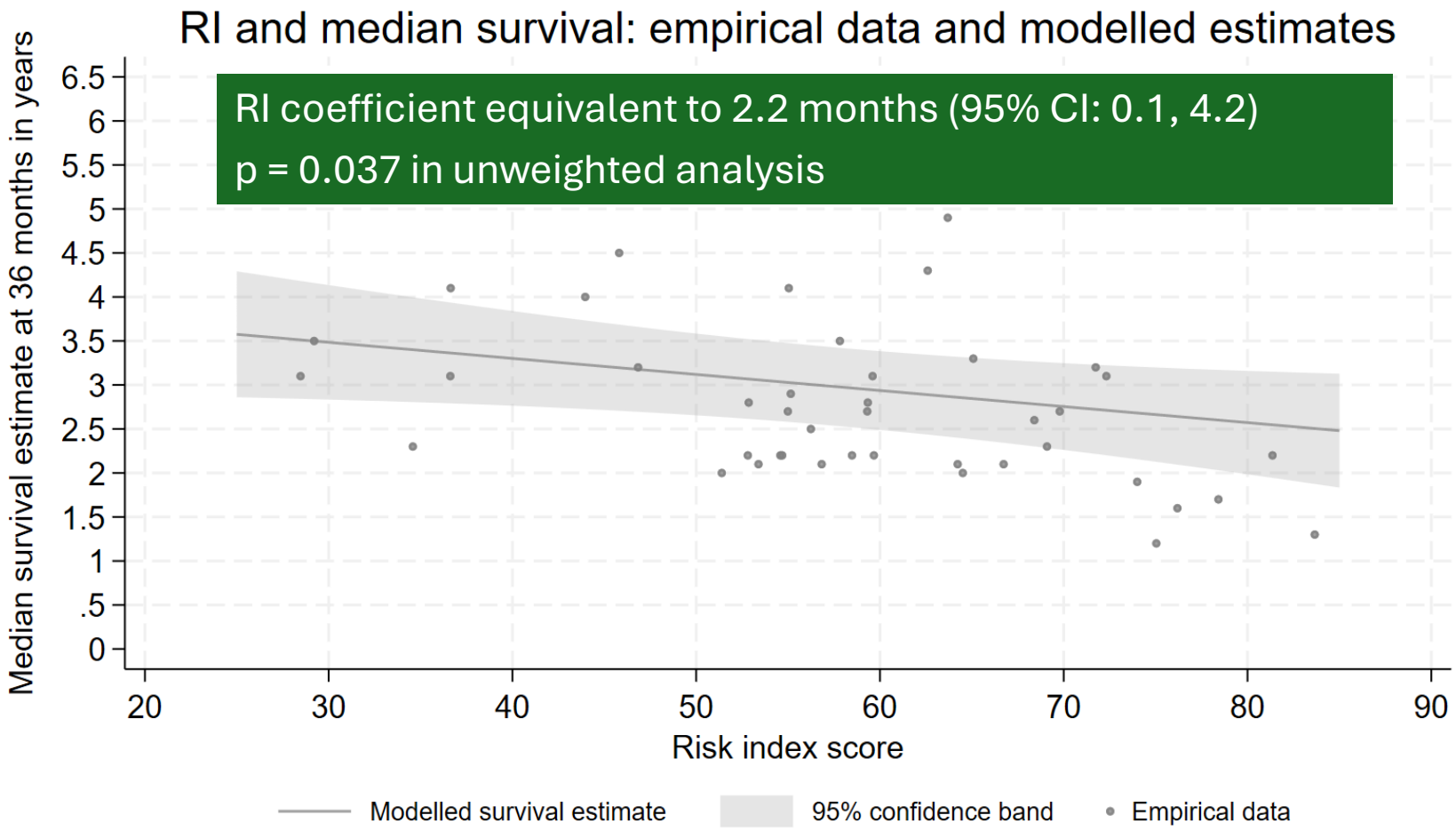
The Risk Index is associated with ITN survival in the field

A 10-point decrease in RI score is associated with a 2-month survival gain.







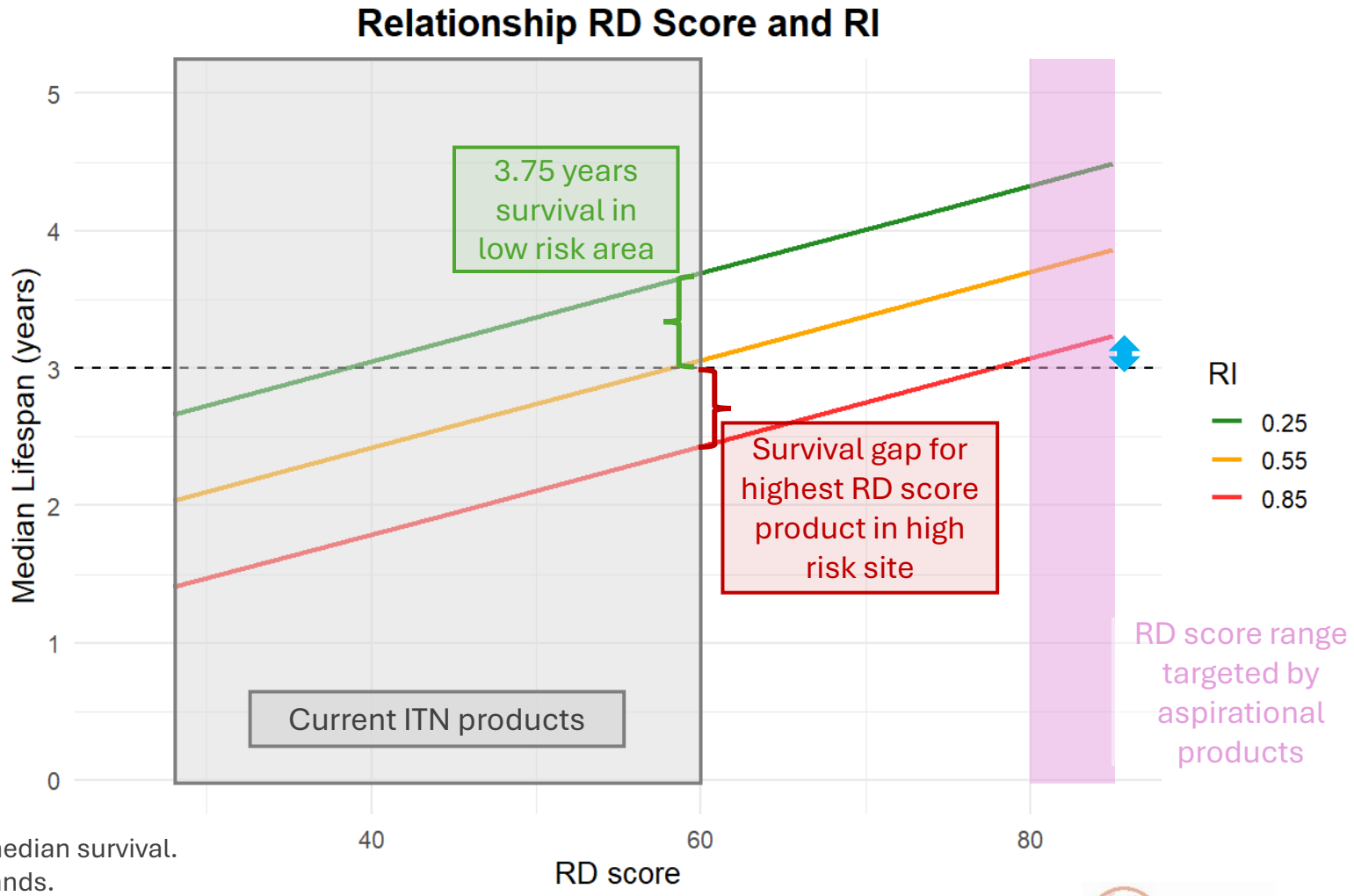


Multivariate model of the effect of RD and Risk Index on ITN median survival, using data from 44 sites in 15 countries representing 14 brands.
RI results are shown for the median RD value.

No evidence of interaction between RD and RI scores

...this means a higher RD score net has the same predicted survival gain in both low RI and high RI sites.

Critically, ITNs in sites with high RI scores will struggle to reach 3 years lifespan under current range of product RD scores



Multivariate model of the effect of RD and RI on ITN median survival.
Data from 44 sites in 15 countries representing 14 brands.
(Same model as previous slide)

Risk Index use cases

- Strategic ITN deployment in a resource constrained environment requires **making the most of available data** on net performance (and distribution channels).
- RI scores can complement RD scores, IR data, and other inputs to **guide decisions on ITN choice and delivery channel**.
- While RI variables are not causal, sub-national RI scores can still help **identify priority geographic areas for SBC planning**.





Next steps: explore simplifying the RI metric

Objective: Focus on **fewer variables** while **maintaining or increasing predictive strength** of the original RI. Reduce data collection burden and increase likelihood of use, especially in a context of reduced funding for M&E.



Empirical approach

What does a deep-dive into the data tell us?

Methods: Exploratory Factor Analysis (EFA)



Theory-driven approach

What are we trying to achieve?

Methods: Literature review to identify missing determinants and step-wise model optimisation

In progress

Watch this space!

Take home messages

- The RI **quantifies social and environmental risks that affect ITN durability**: A 10-point lower RI score is linked to a 2-month increase in ITN survival.
- The RI supports smarter decisions on **distribution strategy and vector control suitability**.
- It's **quick, practical**, and requires only a limited number of questions.
- The current **RI delivers strong value**. Future versions may further reduce data collection needs.

Questions and answers