The Entomological Surveillance Planning Tool (ESPT)

Evaluating interventions based on functionality and gaps in protection

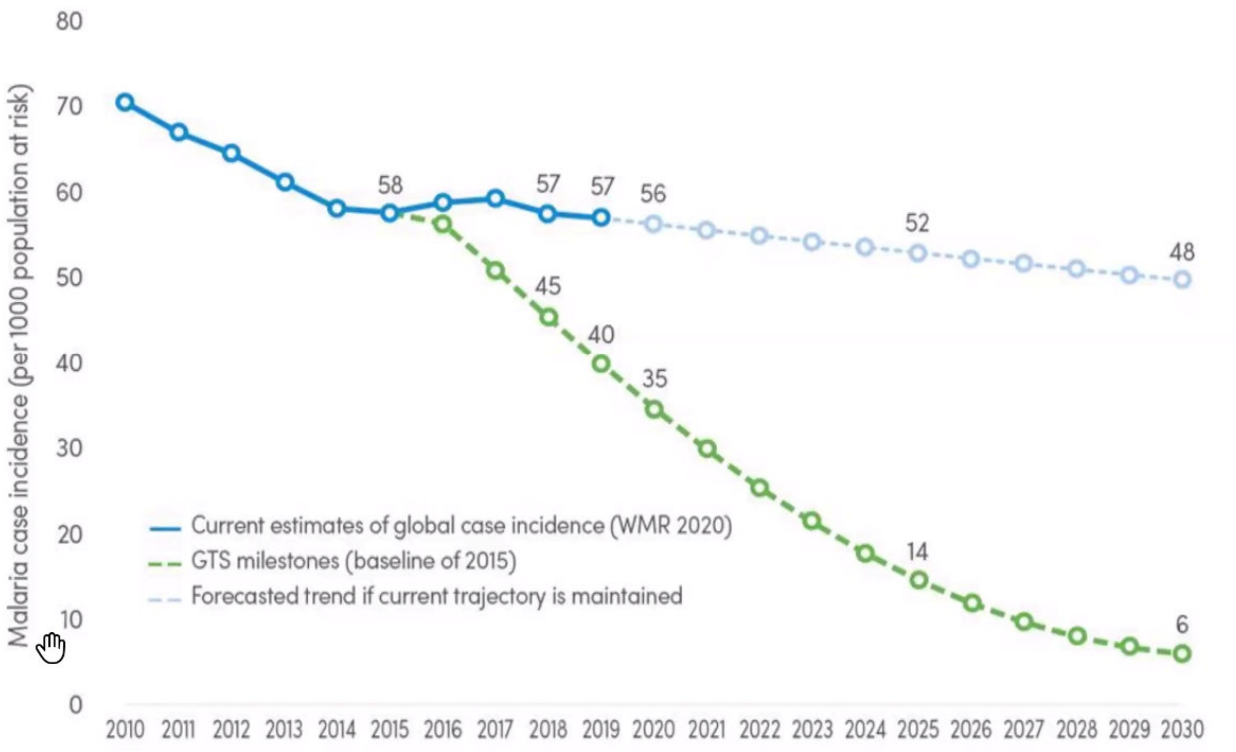
UCSF Institute for Global Health Sciences

ECK INSTITUTE FOR GLOBAL HEALTH

BILL & MELINDA GATES foundation

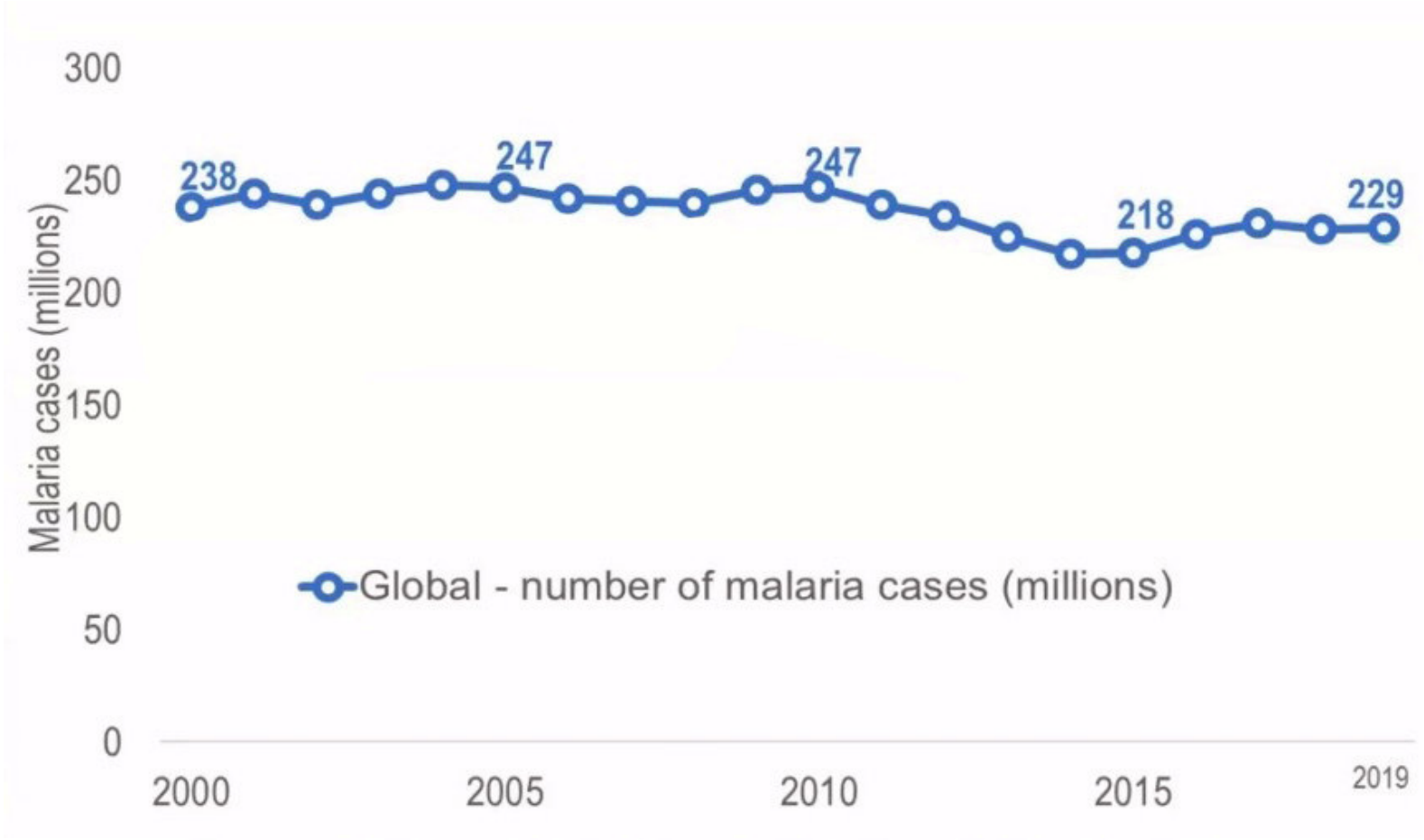
We are not where we want to be…

Comparison of global progress in malaria case incidence, considering two scenarios: current trajectory maintained (**blue**) and GTS targets achieved (**green**)



Source: WHO estimates

We are not where we want to be…



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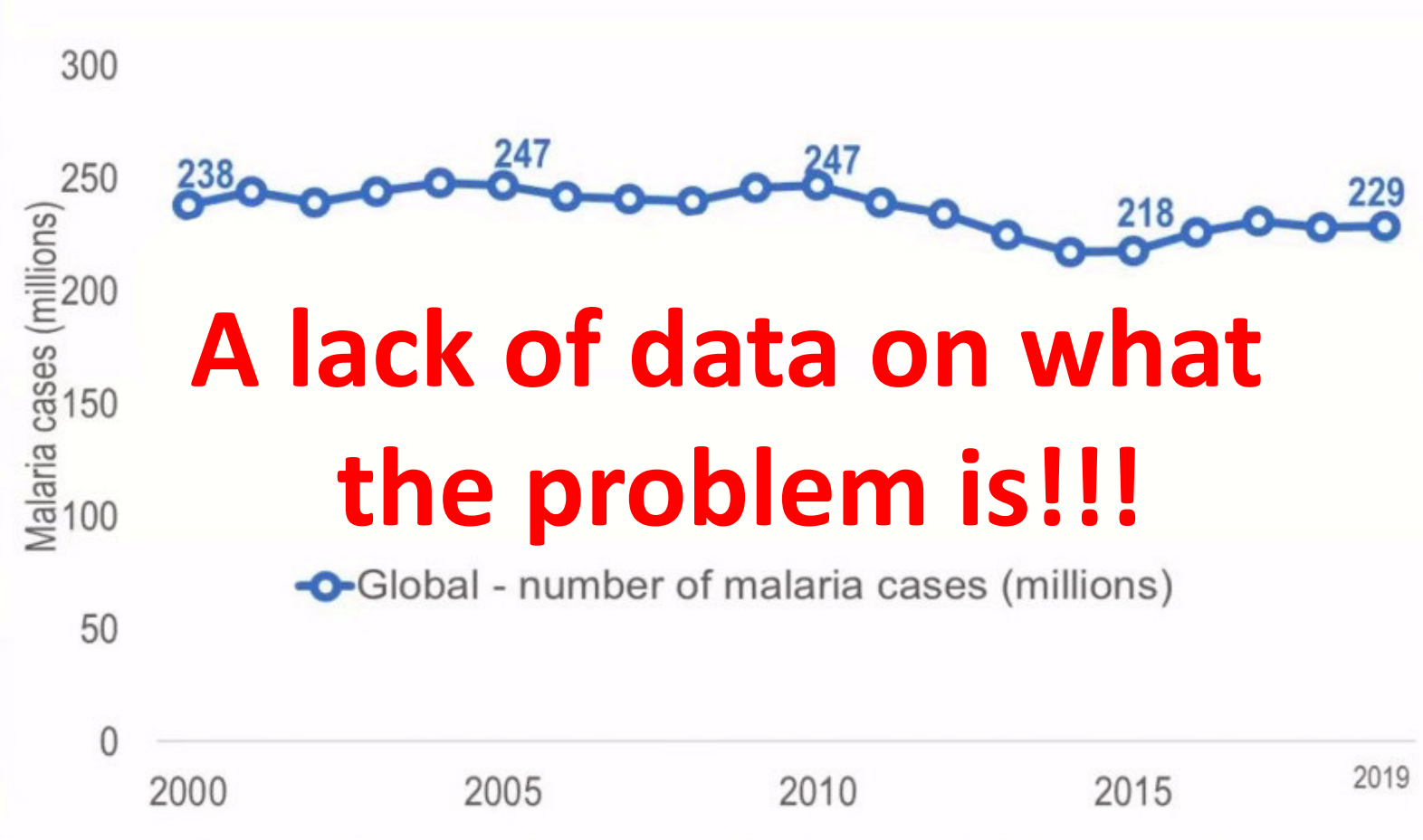
We are not where we want to be…



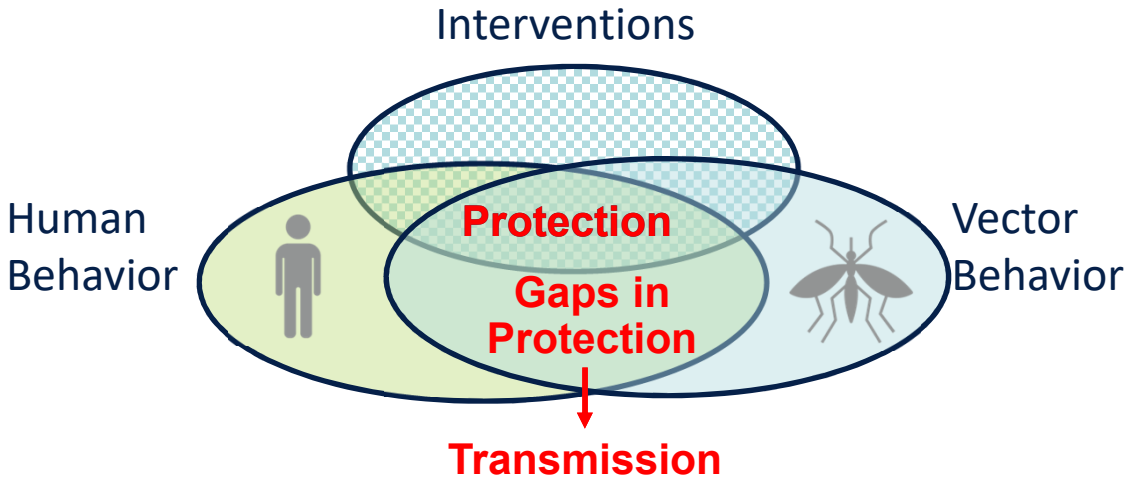
What is the actual problem?

- Transmission only happens when mosquito and human (behaviors) overlap

- Interventions only take advantage of specific mosquito behaviors!

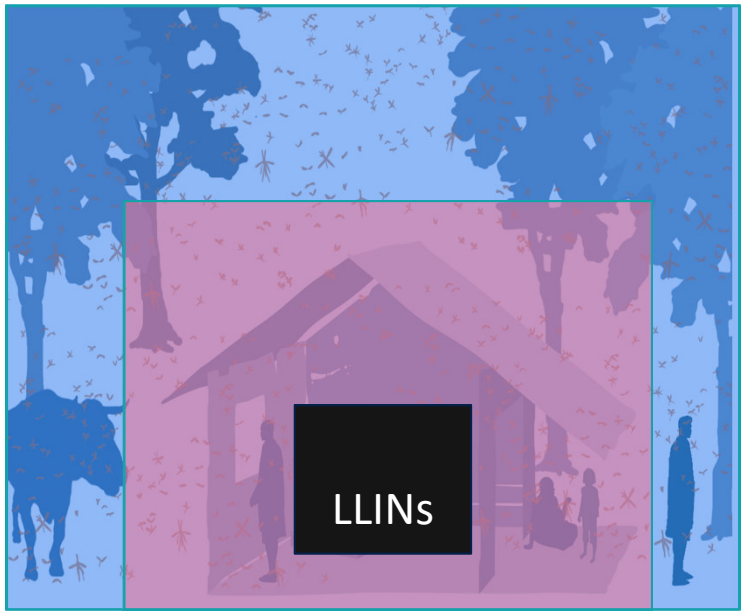
- We need to quantify the spatial and temporal protective efficacy of an intervention ***within the context of overall transmission***

- What are **THE GAPS IN PROTECTION** when using a specific intervention?



Gap in protection

- A circumstance when an individual is potentially exposed to an infective mosquito bite due to a lack of effective and/or adequate protective or preventive intervention in place
- Gaps in protection can be directly identified/quantified by understanding how interventions interact with local humans and vectors.
- LLINs and IRS,
  - Vector bionomic traits
  - spaces and times where interventions are not effective
  - Sub-optimal usage or coverage, etc.

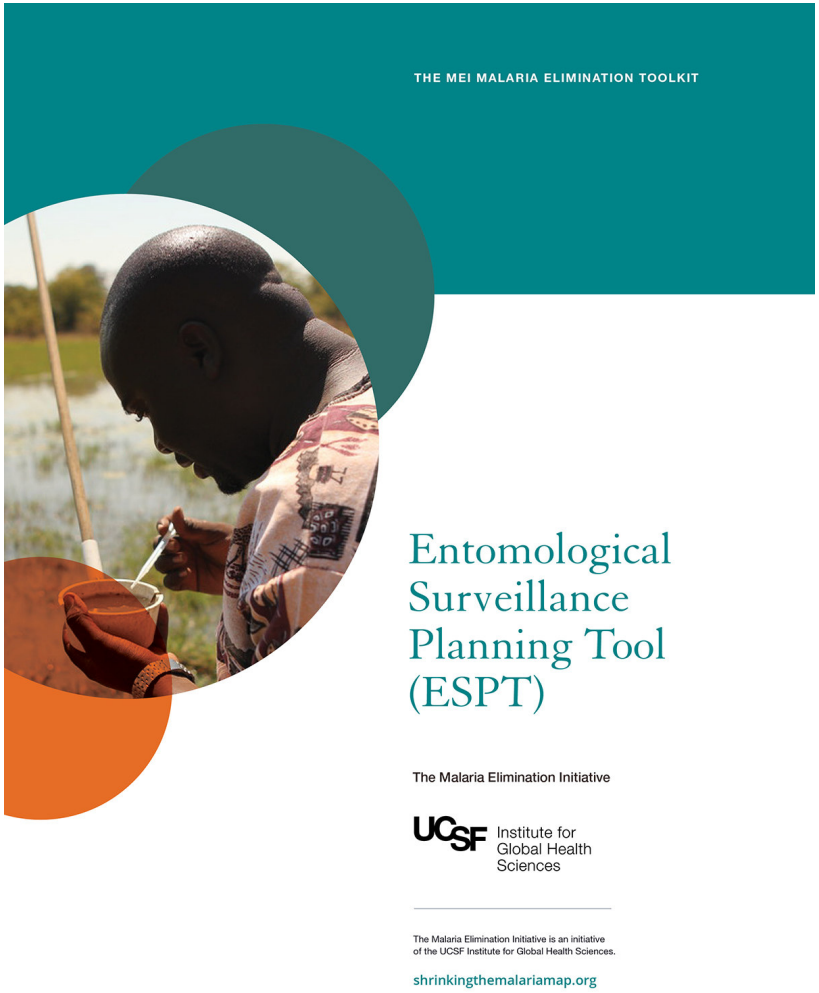


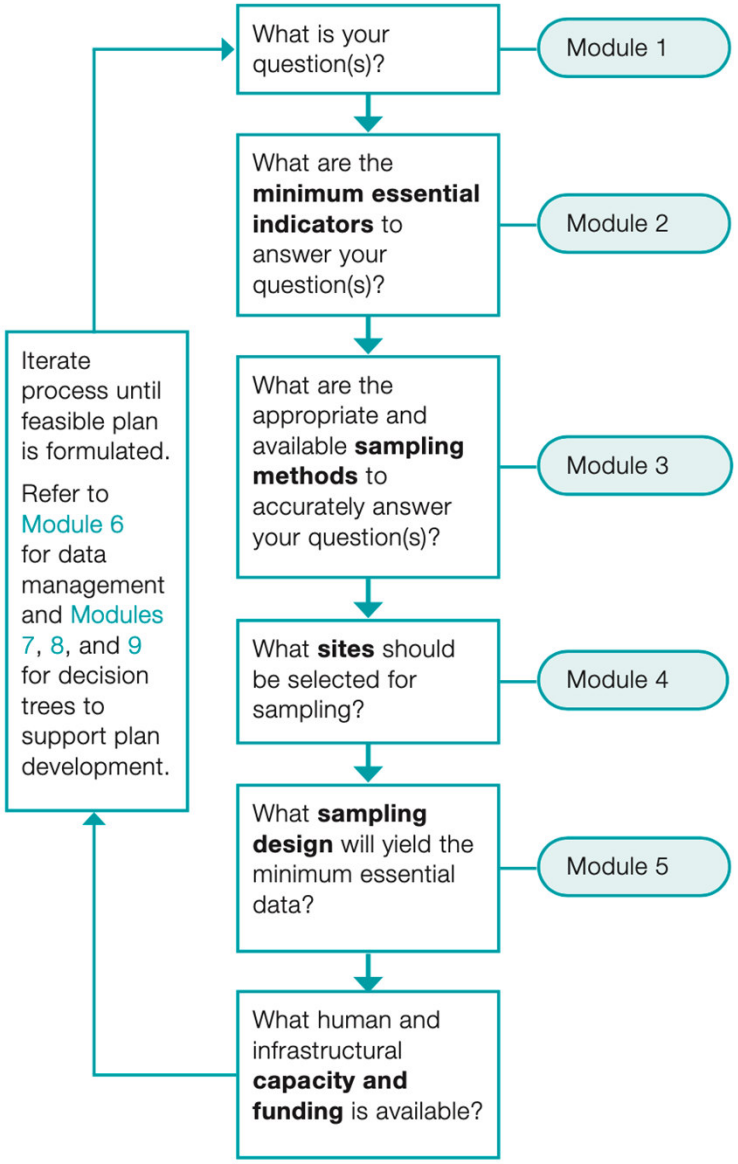
What is the Entomological Surveillance Planning Tool?

A **decision-support tool** for planning entomological surveillance activities, interpreting entomological data, and guiding programmatic vector control decisions.

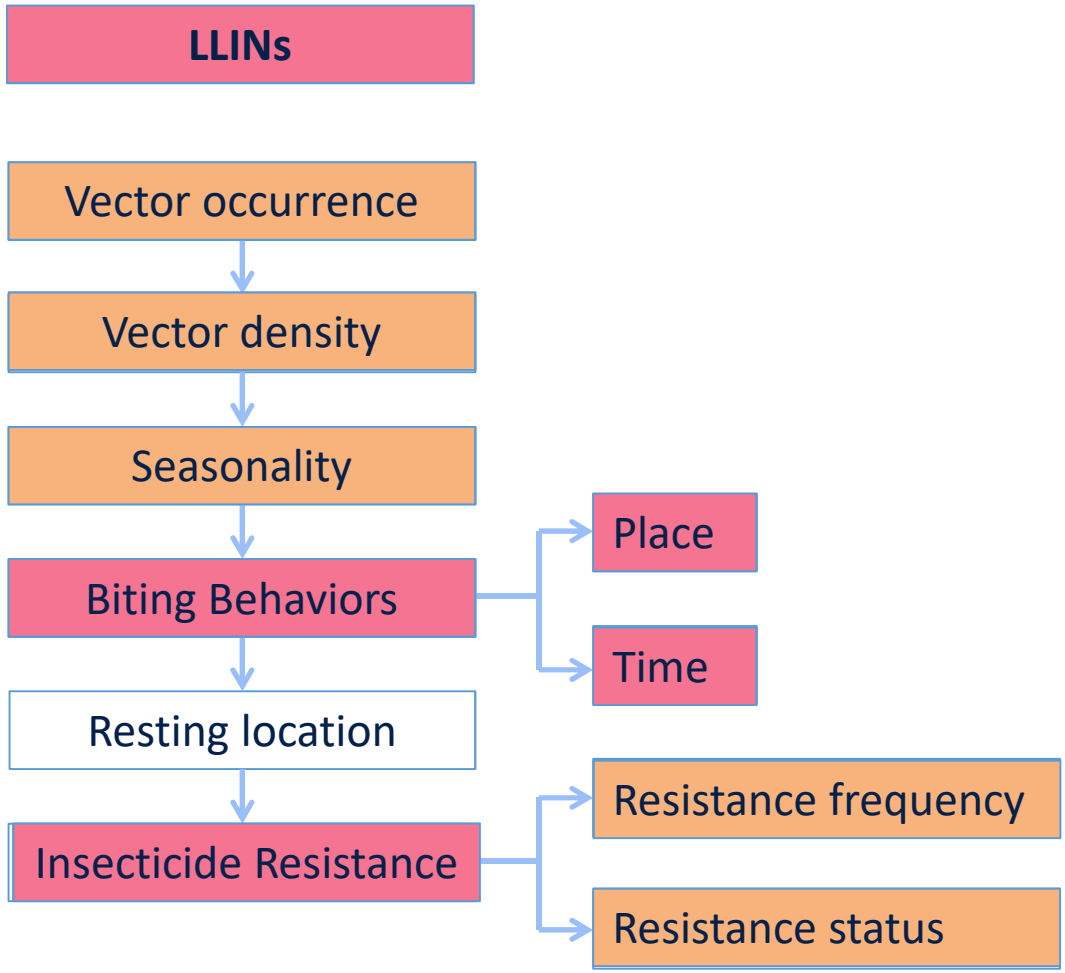
1. **Gap-filling** in operational guidance for entomological surveillance
2. WHO and PMI global normative guidance
3. **Question-based** minimum essential entomological indicators targeted at decision-making
4. **Integration of entomological, epidemiological, human (etc.) data**

ESPT

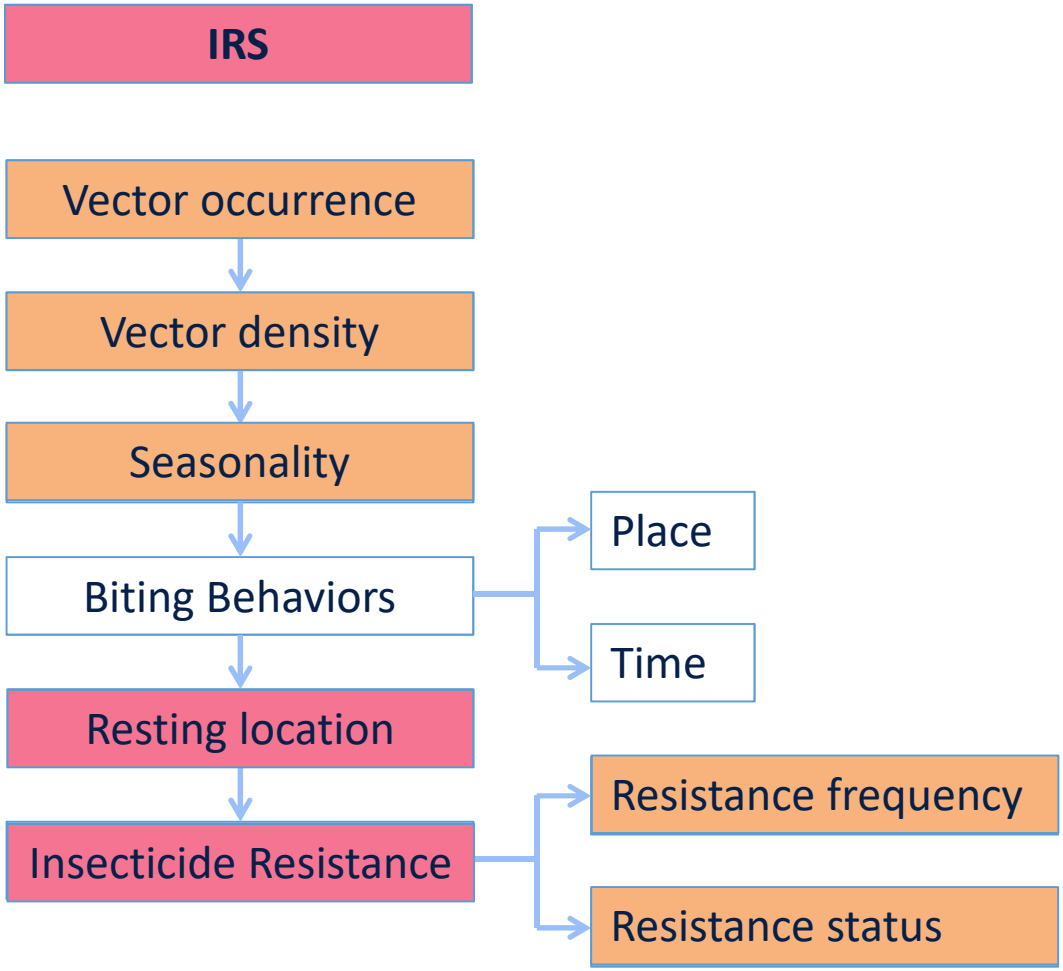

THE MEI MALARIA ELIMINATION TOOLKIT
Entomological Surveillance Planning Tool (ESPT)
The Malaria Elimination Initiative
UCSF Institute for Global Health Sciences
The Malaria Elimination Initiative is an initiative of the UCSF Institute for Global Health Sciences.
shrinkingthemalariamap.org


What is your question(s)?
Module 1
What are the **minimum essential indicators** to answer your question(s)?
Module 2
What are the appropriate and available **sampling methods** to accurately answer your question(s)?
Module 3
What **sites** should be selected for sampling?
Module 4
What **sampling design** will yield the minimum essential data?
Module 5
What human and infrastructural **capacity and funding** is available?
Iterate process until feasible plan is formulated.
Refer to Module 6 for data management and Modules 7, 8, and 9 for decision trees to support plan development.

A focus on Minimum Essential Indicators

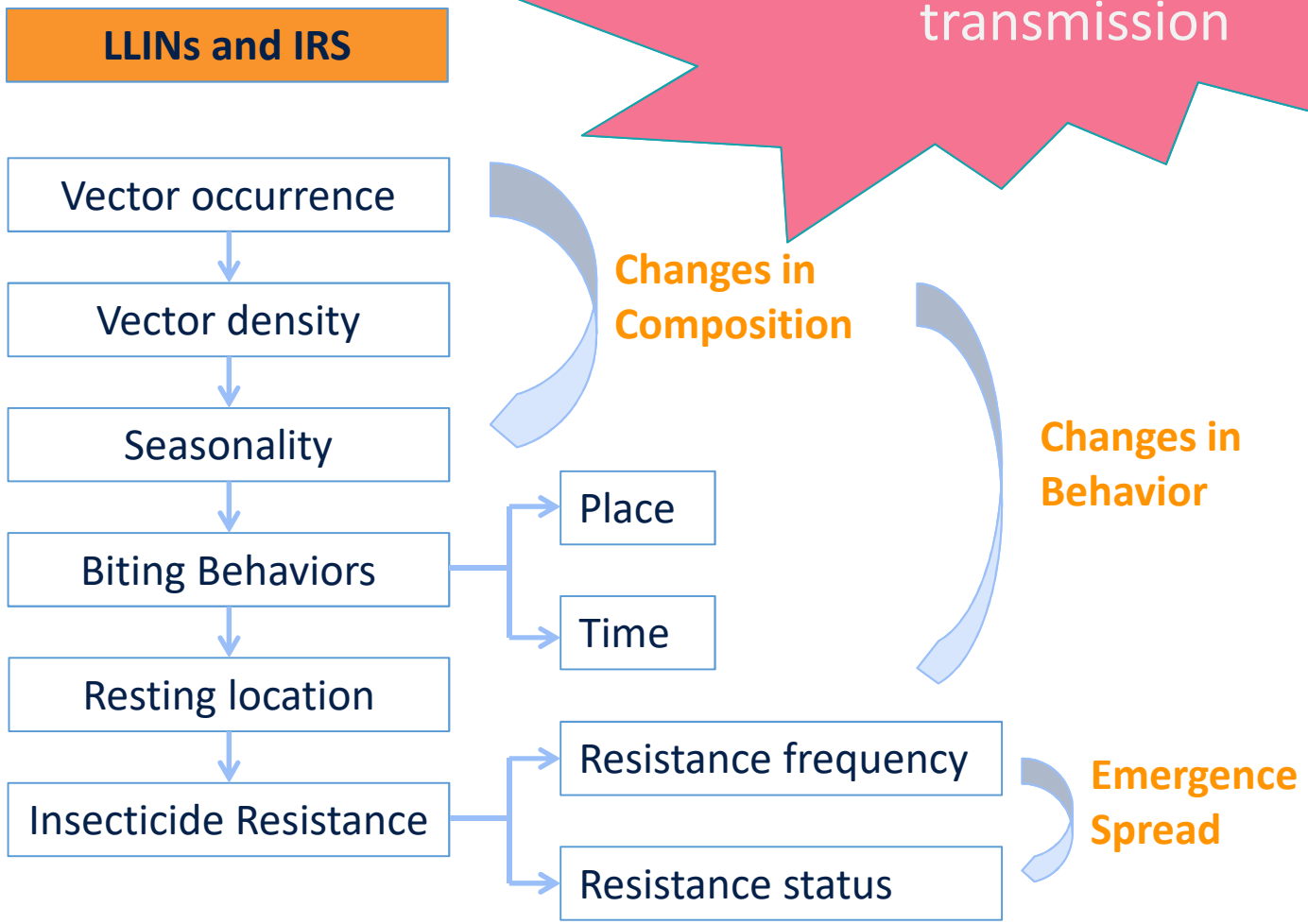


A focus on Minimum Essential Indicators

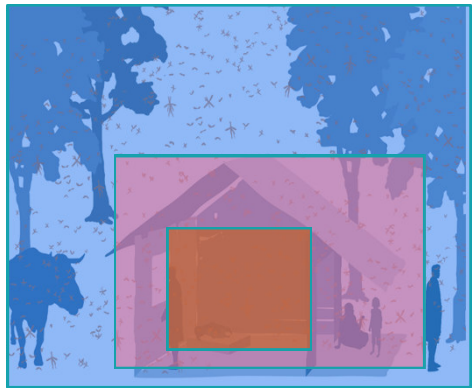


A focus on Minimum Essential Indicators

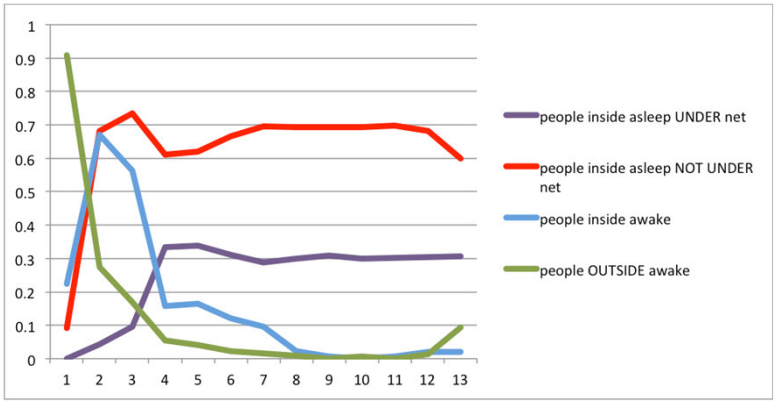
and…interventions intrinsically change transmission



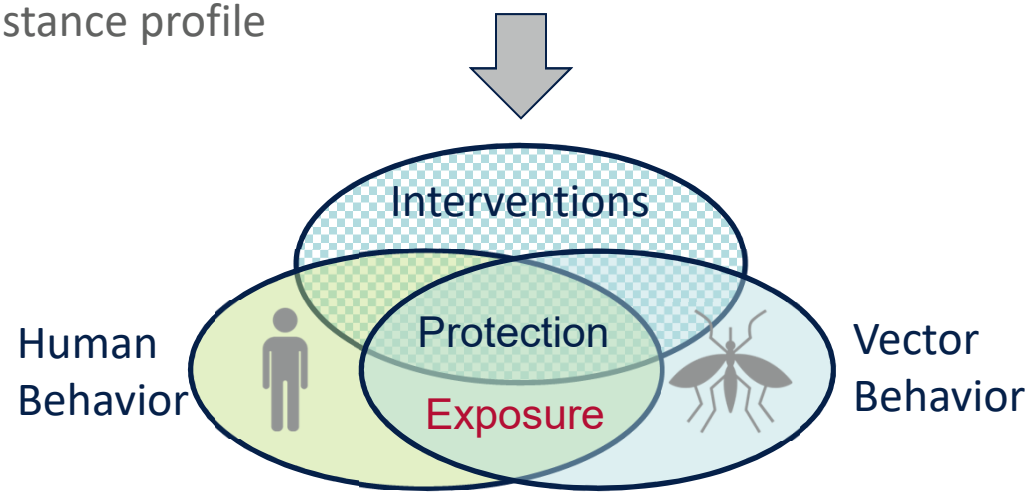
Example ESPT question:
Are LLINs an effective tool in “X” setting?



Entomological indicators: Species, Behaviors, Insecticide resistance profile

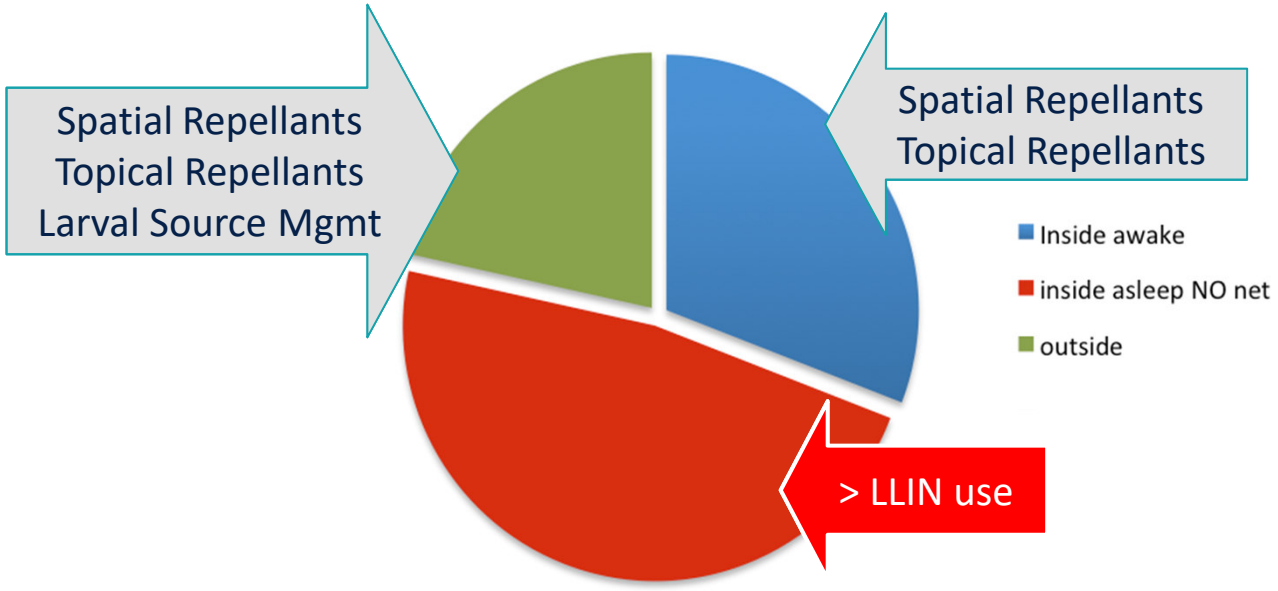


Human Behaviors (April Monroe)



We can measure where and when exposure occurs

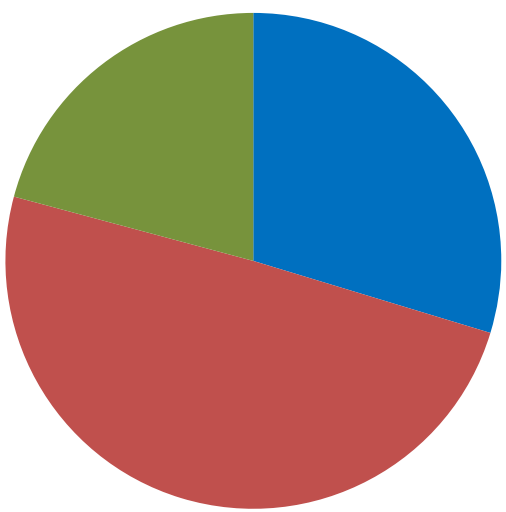
Where is exposure occurring over a night?



Intervention protection is also quantified

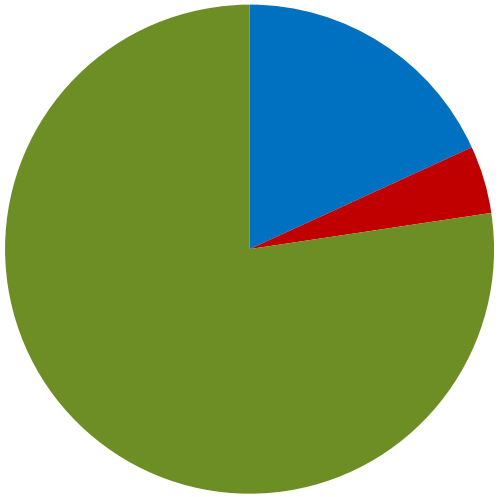
What did the program decide?

Human behavior adjusted exposure to mosquito bites



Collection period 1

LLIN distribution + Social and Behavior Change Communication (SBCC)



Collection period 2

Slide 14

TA18 I changed dates to more general collection periods to keep it agnostic

Tatarsky, Allison; 09.04.2021

Summary

We need a paradigm shift where we focus on

- Where and when interventions work
- Where and when interventions **do NOT** work
- How **transmission adapts** to interventions

We need to know WHERE and WHEN present transmission is coming from – the problem!

The ESPT supports this shift for programmatic entomological surveillance activities