



The University of California, San Francisco

Malaria Elimination Initiative (MEI)

Module 1

Identify priority program questions

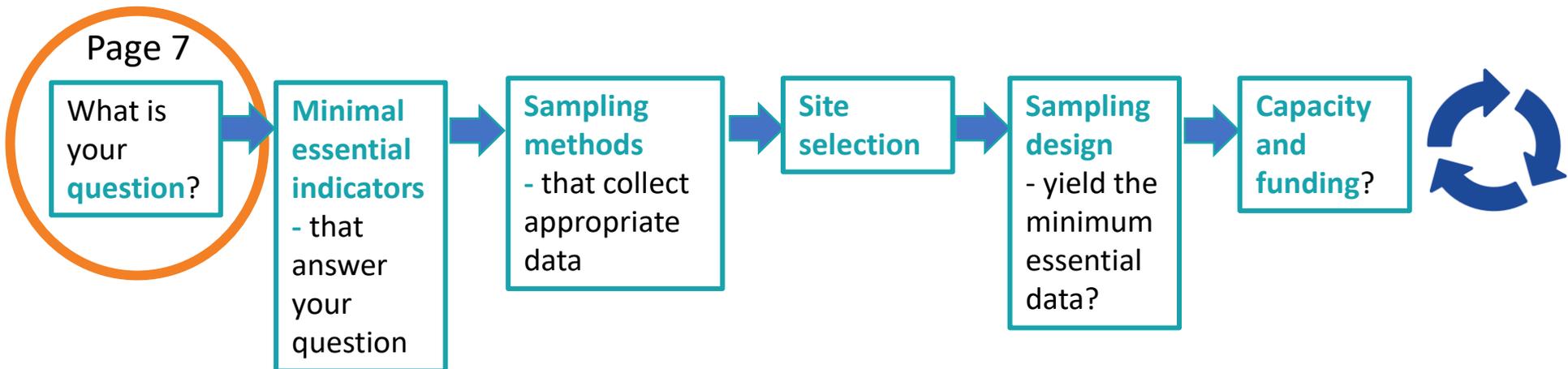
The Entomological Surveillance Planning Tool

Learning objectives

1. Understand the rationale put forth by the ESPT for using question-based entomological surveillance.
 2. Understand how to use the ESPT to identify and formulate programmatically-relevant questions to inform the design and collection of entomological surveillance data.
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Where are we in the ESPT?

- Module 1 is a short guide to formulating a **priority program question**
- 6 question themes are identified to help the user think through the different types of program questions
- Example questions are listed for each theme



Key concepts

Driver of transmission (or transmission driver)

Factor that contributes to malaria transmission, such as changes in epidemiology, vector bionomics (e.g., outdoor vector biting), climate (e.g., rainfall), population movement, and operational inefficiencies (e.g., stock-outs, suboptimal coverage of vector control interventions)

Gap in protection

Term used to describe a circumstance when an individual and/or household is potentially exposed to malaria infection (i.e., an infective mosquito bite) due to a lack of effective and/or adequate protective or preventive interventions to reduce mosquito exposure

High-risk population ('HRP')

Group of people who share socio-demographic, geographic and/or behavioral characteristics that place them at higher risk of infection, such as low utilization of health services or interventions, or behaviors associated with increased exposure to *Anopheles* mosquitoes

Question-based entomological surveillance

- For entomological data to be useful for malaria program decision-making, data collection should be guided by a **specific programmatically-relevant question**
- **Question directly informs the entomological surveillance design and planning**, including the selection of appropriate indicators, sampling methods, survey design, and sites
- Identifying and formulating a **priority program question is the *first* step** in designing your entomological surveillance plan



Considerations for identifying question

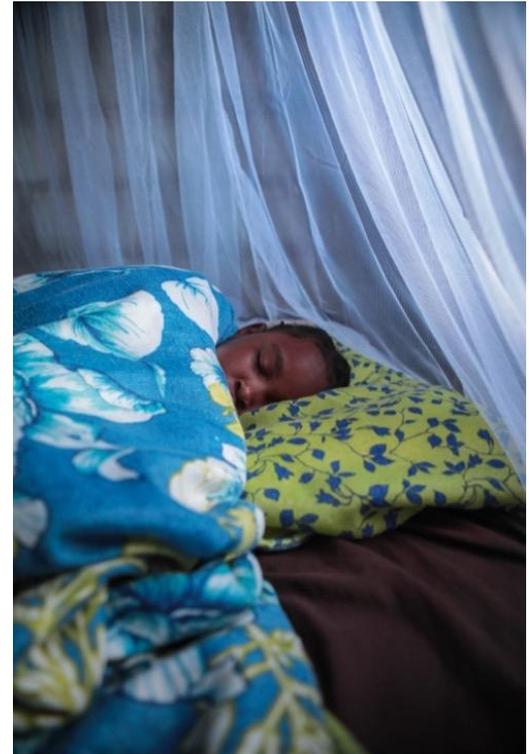
- Epidemiological case data and recent trends (e.g., outbreak, risk factors)
- Specific decisions that need to be made on the selection, procurement, and targeting and tailoring of vector control interventions; or related to annual work-planning

The ESPT groups common malaria program questions into 6 themes

1. Current vector control intervention performance

Sample malaria program questions:

- What is the baseline vector composition, distribution, and bionomics in an area where interventions are currently deployed?
- How do current interventions affect vector populations and malaria epidemiology over time?
- Are local vectors susceptible (or resistant) to insecticide-based interventions (e.g., ITNs, IRS)?
- Is IRS effective in Area A based on vector behavior, human behavior, and insecticide susceptibility?



2. Selection and evaluation of supplemental interventions

Sample malaria program questions:

- What is baseline vector composition, distribution, and bionomics prior to introduction of intervention?
- What are the gaps in protection, and what are the available interventions that can address the gaps?
- Where and when should a supplemental intervention be deployed in Area A?
- How do vector populations change after a supplemental intervention is introduced in Area B?



3. Drivers of malaria transmission

Sample malaria program questions:

- What are potential entomological drivers of malaria transmission in Area A (e.g., vector behaviors, species composition, insecticide resistance)?
- How does human behavior affect intervention usage, acceptance, and exposure to vector biting?
- What is the association between vector populations, rainfall, and malaria incidence? And how can that association inform the timing and targeting of vector control interventions?



4. Reductions in funding or capacity for surveillance

Sample malaria program questions:

- What are priority entomological surveillance activities if there is a reduction in available funding or capacity?
- What are the minimum essential indicators that should be collected to inform the vector control strategy?
- What entomological surveillance activities can be conducted with current program capacity?



5. Changes in receptivity in POR settings

Sample malaria program questions:

- How do vector populations change over time in areas trying to prevent re-establishment of malaria?
- How do these changes increase the potential for malaria transmission if imported parasites were introduced?
- What actions should be taken to address critical changes in receptivity in Area A?



6. Enhancing and tailoring surveillance activities

Sample malaria program questions:

- Can CDC light traps serve as a valid proxy for human landing catches in Area A?
- Can Anopheles species X be successfully reared in an insectary for insecticide resistance testing?
- Which method is most effective for collecting indoor resting mosquitoes in Area B: pyrethrum spray catches (PSCs) or indoor aspirations?



Illustrative example



Context:

- Malaria transmission persists in the village of Katosha, despite high coverage of bed nets
- Little is known about the vector composition and bionomics in Katosha as no entomological data have been collected in the last 5 years

What is a programmatically-relevant question needed to inform decision-making?

Are bed nets an appropriate intervention for the village community of Katosha?

What is the level of bed net use in Katosha?

When and where are people exposed to vectors in Katosha?

What might be some gaps in protection in Katosha?

Participant exercise



Part 1: Identify a priority program question that is **specific, measurable, and realistic.**

Tip 1: Consider program priorities, pending questions, upcoming procurement or planning decisions, changes in budget or capacity, and drivers of transmission.

Tip 2: Consider geographic area, target population, available baseline data, timeline.

Tip 3: Review ESPT question themes and sample questions if needed to prompt malaria program considerations and ideas for question formulation.

Part 2: Re-formulate question as needed to ensure that it is as specific, clear, and concise as possible

Use the identified priority program question for all remaining participant exercises