

The University of California, San Francisco

Malaria Elimination Initiative (MEI)



Module 4

Select sites and survey type

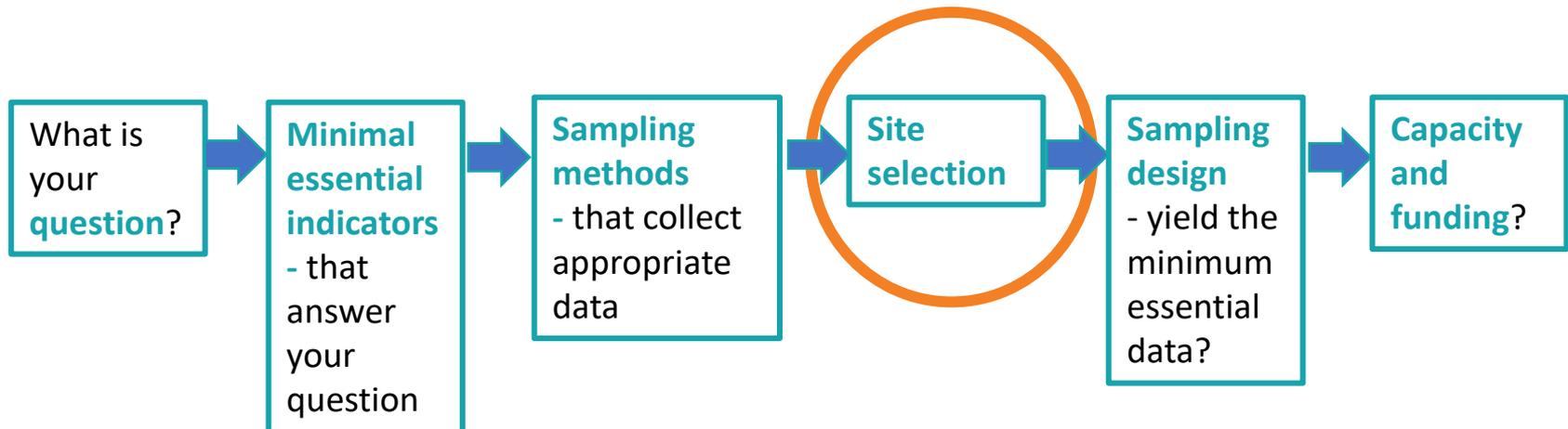
The Entomological Surveillance Planning Tool

Learning objectives: Module 4

1. Understand the different types of entomological surveillance sites and surveys in the ESPT
 2. Understand how to use the ESPT to select sites to most efficiently address priority program question(s) using available resources.
-

Where are we in the ESPT?

- Module 4 describes three site types and presents four survey types.
- Module 4 guides you in determining appropriate site type for your question by linking to corresponding question objective(s).



Key concepts

Site types:

Sentinel site: fixed sites that are part of a network of sites that represent different ecological and epidemiological regions of a country. Entomological surveillance based at sentinel sites is important for measuring trends over time.

Focus site: a defined area situated in a current or former malarious area that contains the epidemiological and ecological factors necessary for malaria transmission. Entomological surveillance in foci is important for informing the most effective response to reduce and interrupt transmission.

Targeted site: a site targeted for a spot survey to answer a specific question or set of questions. A targeted site could include an area experiencing an outbreak or an increase in importation risk or receptivity.

Key concepts



Survey types:

Baseline survey: surveys to help characterize transmission, inform intervention selection and deployment, inform foci response, and evaluate existing interventions.

Routine survey: surveys to monitor changes in vector populations over time, monitor the impact of interventions on local vectors, and identify emerging gaps in protection.

Focus survey: surveys to gather priority epidemiological, entomological, environmental, and intervention data to inform response to halt onward transmission.

Spot survey: time-bound surveys that target a specific area(s) with one or several questions in mind.

Types of surveys by type of site

- The ESPT puts forth:
 - 3 **site types**: [sentinel](#), [focus](#), and [targeted](#).
 - 4 **survey types**: [baseline](#), [routine](#), [foci](#), [spot](#) surveys.
- **Site selection** should be based on:
 - **program objective(s)**
 - **Survey type** needed to investigate program objective(s)
 - Heterogeneity of malaria transmission and geographic variation.
- Program capacity and resources will always limit scope and scale of entomological activities.
 - Priority must be in areas with higher malaria transmission (based on question)
- ▶ Use [Table 10](#) (page 27) to link **survey types** to their respective **site type**.
- ▶ Use [Figure 3](#) (page 26) for guidance on the **site selection process** based on your program objective(s).

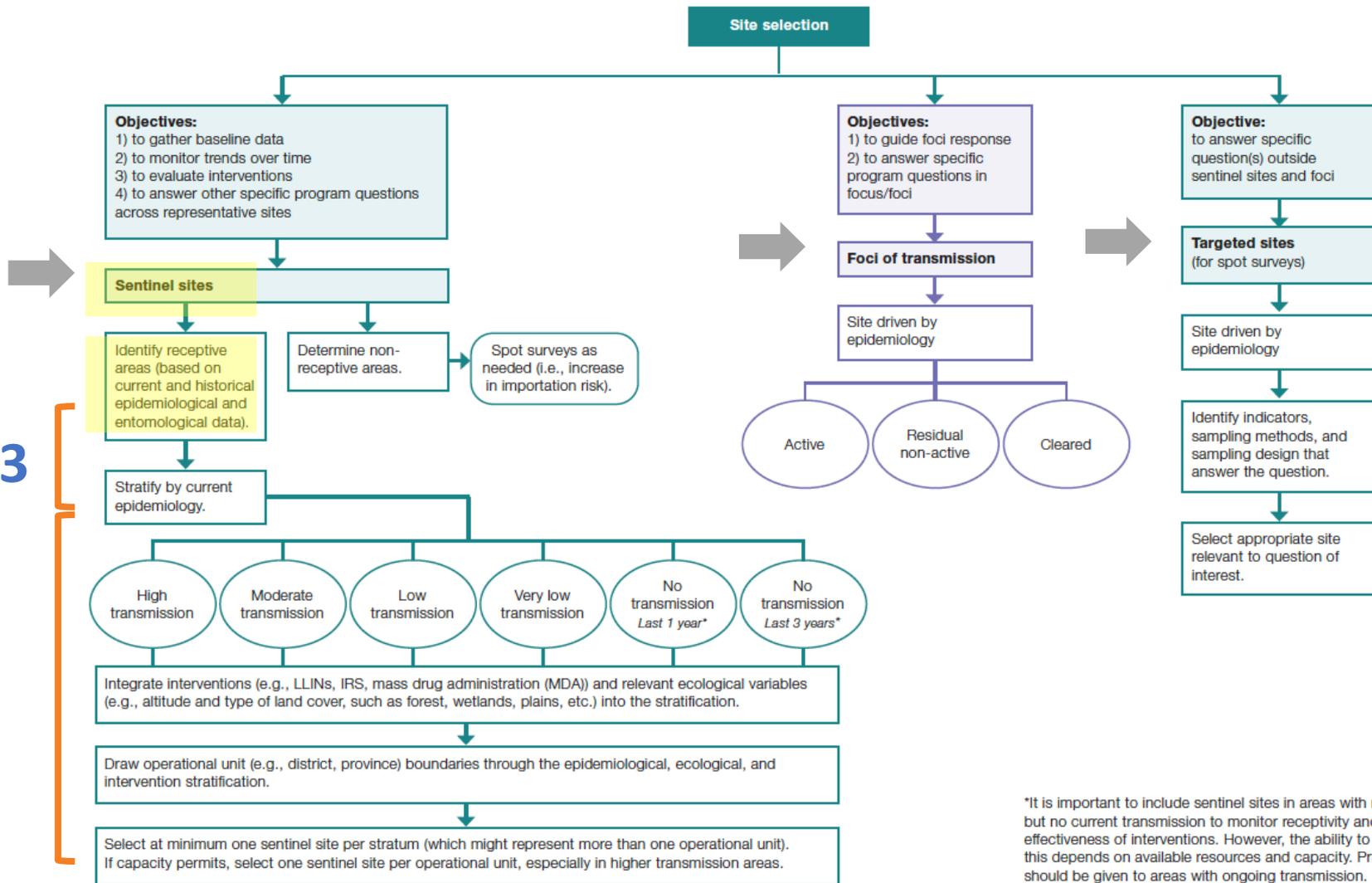


Table 10.
Sampling site and frequency by survey type



Type of survey	Trigger for survey ↑	Type of site for survey (sentinel, focus, targeted)	Minimum frequency of data collection within one year	Minimum frequency across years ↑
Baseline survey	Lack of data for multiple years	Sentinel, focus	One sampling period per site per season* over one year	Repeated every ~3 years (based on capacity) and/or when epidemiology, importation risk, and/or receptivity change significantly and/or when a new vector control intervention is under consideration
Routine survey	Continuous	Sentinel	One sampling period per site per season* over one year	Repeated every year
Foci investigation	Index case +	Focus	One sampling period per focus per season over one year	Repeated in active foci every year, triggered by the first few index cases of the malaria season
Spot survey	As needed to answer a specific question	Targeted site	Depends on the sampling method to answering the question	As needed

*Data collection during peak transmission season(s) is the priority; however, non-peak transmission seasons might have very different transmission dynamics and drivers that would ideally be captured as well.



*It is important to include sentinel sites in areas with recent but no current transmission to monitor receptivity and effectiveness of interventions. However, the ability to do this depends on available resources and capacity. Priority should be given to areas with ongoing transmission.

Figure 3

Figure 3 - Foci sites

- Entomological surveillance as part of a **focus investigation** is key for informing focus response to reduce and interrupt transmission.
- Focus site selection should be guided by **epidemiology**.
 - Active
 - Residual non-active
 - Cleared

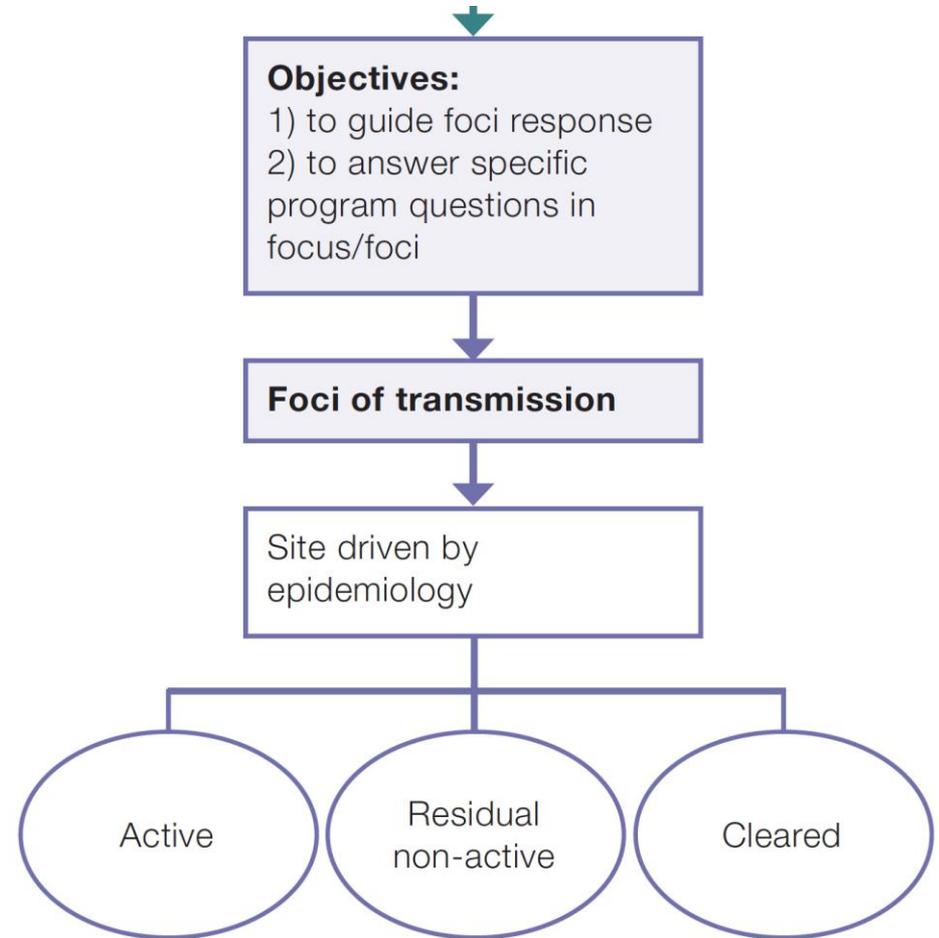
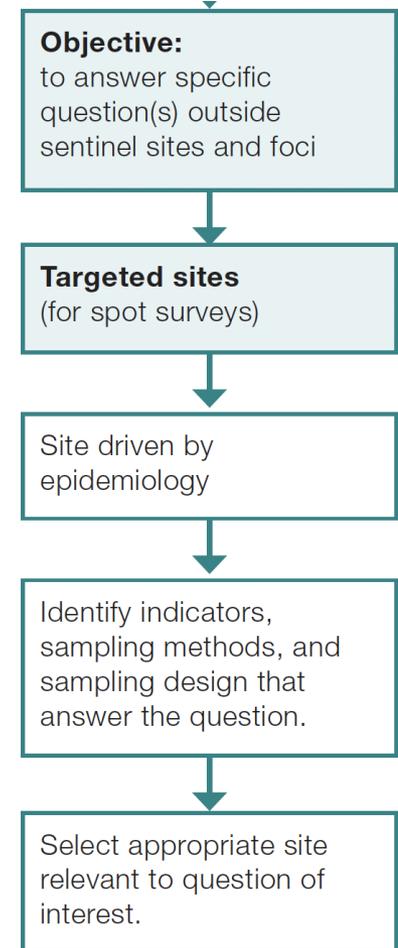


Figure 3 - Targeted sites

- Targeted sites are selected based on a specific question for a spot survey, outside of sentinel and foci sites.
 - **Example:** a target site might be a district experiencing a malaria outbreak, and the program wants to understand the drivers of this outbreak.



Participant exercise



For this exercise, you will need the priority program question you identified through Module 1.

Determine which site type and sampling frequency is most appropriate for your priority program question (i.e., program objective)?

1. Use Figure 3 to help you determine your appropriate site type. Refer to the supporting text for additional guidance as you work through Figure 3.
2. Then, use Table 10 to decide on a sampling frequency (remember, there is no right or wrong answer when it comes to sampling frequency!)