

# Ideal surveillance for malaria elimination

## KEY MESSAGES

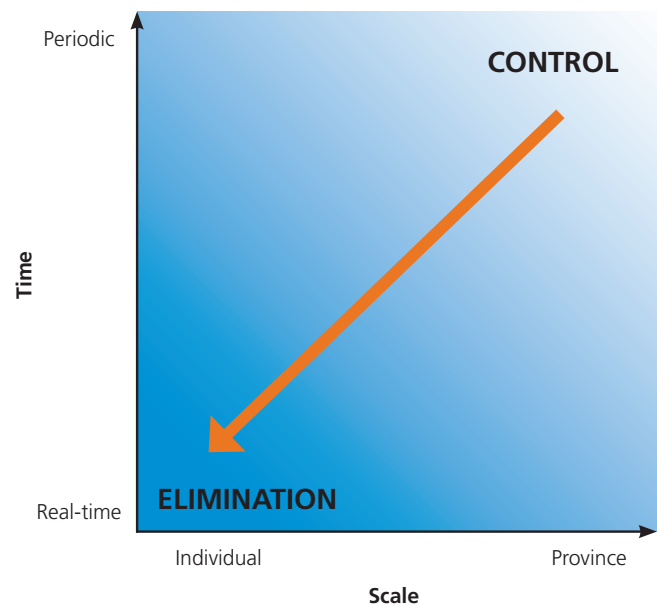
- Reporting clinical cases within 24 hours of diagnosis is essential for rapid response and to prevent onward transmission in an elimination setting.
- Surveillance for elimination must include spatial information that informs decision-making about how to target resources and interventions to the highest risk areas and populations.
- Ideal malaria elimination surveillance systems facilitate reporting, data access, and decision-making at local, district and national levels of the health system.
- Elements of an ideal malaria elimination surveillance system exist in several countries and can inform implementation.

## WHAT DOES SURVEILLANCE FOR MALARIA ELIMINATION ENTAIL?

Surveillance for malaria control aims to estimate the burden of malaria and inform population-level programs, whereas surveillance for malaria elimination strives to capture and respond to every malaria case. For elimination, the surveillance system must include real-time case reporting, ideally within 24 hours, and rapid response to individual geo-located cases. Data collection, analysis, and case investigation must occur quickly to identify symptomatic and asymptomatic cases, and prevent additional malaria infections. Internet and communication technologies can improve surveillance and response, however, malaria programs should use them only in locations where the capacity and infrastructure exist to implement and maintain them. National malaria programs should plan for elimination early in the development of a malaria strategy. This allows them to prepare for needed changes in scale—from reporting on a population level to the individual level, and changes in reporting times—moving from periodic to immediate, when approaching elimination (Figure 1).

**Figure 1. Targeted surveillance and response in the shift to elimination**

*Darker blue indicates a more focused targeting.*



## WHAT SHOULD AN IDEAL ELIMINATION SURVEILLANCE SYSTEM INCLUDE?

**Rapid and complete reporting:** The surveillance system collects data at the lowest level and in the most direct manner possible. It captures the data in a rapid, feasible, locally appropriate, and sustainable way.

**Incorporation of additional data:** The ideal system incorporates existing external data into the system, such as climate and census information, to ensure that decisions are based on all relevant and available information.

**Accessible data storage and management:** The surveillance system ensures that key members of the health system have access to program data, including those working at the community level.

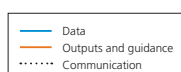
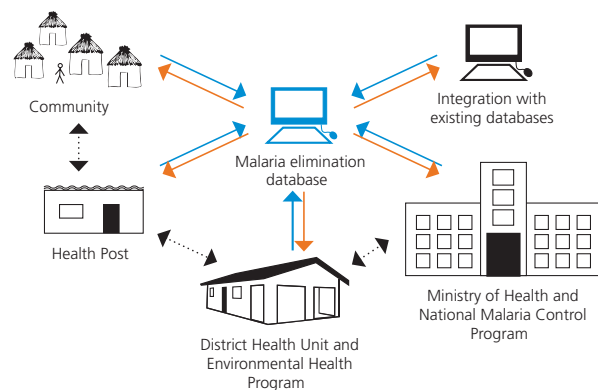
**Automated and expert analysis:** The surveillance system includes automated data analysis to ensure timely and consistent outputs. Expert analysis provides interpretation and guidance on program implementation.

**Customized output and feedback:** The ideal system automatically generates tailored outputs, such as charts, graphs, work task lists, needed resources, and reports.

**Targeted response:** The ideal surveillance system provides instructions to the malaria program about how best to respond to outputs in a timely, effective and targeted manner.

An ideal malaria elimination surveillance system (Figure 2) collects and transmits data about cases and program activities swiftly, incorporates existing information, and analyzes data to inform rapid response strategies. The system directs customized outputs to stakeholders at local, national, and regional levels. These outputs need to be accessible at all three levels to inform strategy development, improve coordination, and contribute to local action.

Figure 2. Ideal malaria surveillance



*In an ideal malaria surveillance system, all levels contribute data to a central database, the central database provides data analysis and guidelines to all levels, and communication is bi-directional.*

## RECOMMENDATIONS

**Make malaria a reportable disease.** Require and enforce real-time reporting. Countries should move to integrated notifiable disease reporting, including mandating that all health facilities report to the surveillance system regularly, even when zero cases have occurred, to ensure that all health facilities contribute data and to help prevent resurgence.

**Ensure expert epidemiological oversight of surveillance.** It is critical to have qualified and motivated surveillance staff at the national and provincial levels. The national malaria program must be able to manage the malaria elimination database.

**Standardize indicators and methods for malaria surveillance.** Develop and implement standard and streamlined operating procedures to improve consistency and decision-making.

**Feed analyzed surveillance data back to community-level health workers.** Surveillance must be an intervention at the local level. To accomplish this, malaria programs must ensure real-time feedback and response, and monitor effectiveness by capturing intervention timing, coverage and effectiveness.

**Collect and report data accurately to ensure high-quality outputs and recommendations from the surveillance system.** A surveillance system is only as good as the data captured and reported. Ensuring accurate malaria diagnosis is critical. Case confirmation will be a key method to track quality. Quality control of all measurements is crucial.

**Integrate geographic information systems (GIS) and decision support systems.** Malaria elimination surveillance systems need spatial data, including the likely location of transmission, to guide effective, targeted response.

**Apply new technologies to support data quality improvements.** Improve reporting rates, timeliness and data quality by implementing locally appropriate Internet and communication technologies, such as mobile phone and web-based systems.

**Guarantee free communication among members of the malaria program.** Prioritize the expansion of programs to subsidize or donate communication materials and air time to ensure sustainability.

**Ensure political and financial commitment.** Work with the Prime Minister and Ministries of Health and Finance to develop political and financial capital to promote malaria elimination.