

# Malaria Elimination Toolkit

Reactive Case  
Detection (RACD)  
Monitoring & Evaluation  
Tool

---

Malaria Elimination Initiative

**UCSF**

---

University of California San Francisco

The Malaria Elimination Initiative is a project  
of the Global Health Group at UCSF Global  
Health Sciences.

[shrinkingthemalariamap.org](http://shrinkingthemalariamap.org)

# Reactive Case Detection (RACD) Monitoring & Evaluation Tool

## About the Malaria Elimination Toolkit

The [Malaria Elimination Toolkit](#), developed by the Malaria Elimination Initiative (MEI) at the UCSF Global Health Group, provides national malaria programs and implementing partners with evidence-based, user-friendly tools to strengthen malaria elimination efforts worldwide. The toolkit offers approaches that aim to address the challenges confronting national malaria control programs in low-transmission settings. The MEI has built the toolkit around key areas that enable successful malaria elimination and prevention of reintroduction: advocacy, financing, regional collaboration, surveillance and response, and

vector control. By supplementing global malaria policy and guidance, these tools aim to accelerate efforts in the countries that are paving the way for malaria eradication.

The key area(s) to which this particular tool is related is highlighted below. The MEI requests that national malaria programs and implementing partners contact us when using any of the tools in the [Malaria Elimination Toolkit](#). Support in implementing the tool may also be available. Please contact Amanda Chung ([amanda.chung@ucsf.edu](mailto:amanda.chung@ucsf.edu)).



## RACD Monitoring & Evaluation Tool Background

Active case detection (ACD) is a World Health Organization (WHO) recommended strategy aimed at identifying and treating additional malaria infections in areas of low malaria transmission, often at the community and household level. ACD involves screening individuals that may be at risk for malaria, regardless of the presence of malaria symptoms such as fever. This approach potentially shortens the length of time that a person is infected and infectious, treats people before they get too sick, and provides information that can be used to target transmission areas with vector-control activities to reduce the risk of malaria.

Reactive case detection (RACD) is a commonly used form of ACD designed to identify and treat malaria infections as early as possible. RACD involves detecting additional

malaria infections through screening and treating household members and neighbors of the individual whose case was passively identified at a health facility. RACD takes advantage of the fact that in low-transmission settings, malaria infections are normally clustered spatially. RACD interventions are usually conducted in areas where a mosquito vector is present and there is a history of malaria transmission.

While RACD is a widely-used surveillance intervention, the approach is time and resource intensive, can be logistically difficult, and RACD methods vary widely across malaria-eliminating settings. Challenges in implementing RACD include deciding how wide the screening radius should be around the malaria patient's house and finding individuals who were absent at the time of the screening.

Recognizing that there were no standard metrics or tools to monitor and evaluate RACD activities, the MEI

developed the RACD Monitoring & Evaluation Tool to guide national malaria control programs (NMCPs) in identifying which RACD activities are being performed well and which can be improved.

## What is the RACD Monitoring & Evaluation Tool?

The MEI developed the RACD Monitoring & Evaluation Tool to guide NMCPs in assessing the performance of staff conducting RACD activities and identifying which RACD activities can be improved to strengthen surveillance. The tool assesses key components of RACD, identifies and evaluates the strengths and gaps of RACD activities, and estimates the costs of conducting RACD.

The RACD Monitoring & Evaluation Tool is comprised of four modules:

### Module 1: Reviewing Key Documents

Reviews the key documents and personnel involved in the RACD process; assesses whether standard operating procedures (SOPs), organizational diagrams, and activity and reporting flow diagrams exist; and determines if the SOPs are used by program staff who conduct RACD activities.

### Module 2: Assessing Key Malaria Indicators

Collects quantitative data to assess the quality of malaria case reporting, case investigation, and RACD activities on dimensions of completeness, timeliness, screening coverage, and additional positive malaria cases identified.

### Module 3: Evaluating Standard Operating Procedures

Uses a questionnaire to evaluate the baseline knowledge and practices of program staff in implementing the SOPs for case investigation and RACD activities.

### Module 4: Estimating the Costs

Estimates the costs of conducting case investigation and RACD activities at district and provincial levels. Monthly and annual cost expenditures are calculated to support NMCPs in budgeting the necessary resources to conduct case investigation and RACD.

## Why is the RACD Monitoring & Evaluation Tool useful?

With the RACD Monitoring & Evaluation Tool, NMCPs will be able to evaluate operational components in their current active surveillance program, such as completeness, timeliness, screening coverage, and additional positive malaria cases identified. Ensuring complete and timely follow-up of all positively identified malaria cases and high levels of screening coverage of RACD are both critical to reduce the potential for continued transmission in malaria-eliminating settings.

The RACD Monitoring & Evaluation Tool can provide support to NMCPs in making evidence-based decisions to strengthen their active surveillance strategies. By providing a modular approach, the RACD Monitoring & Evaluation Tool provides guidance to: 1) review case notification and reporting forms and assess whether program staff are using these forms effectively; 2) understand whether case reporting, case investigation, and RACD activities are complete and timely, have high screening coverage, and have identified additional positives; 3) review SOPs and determine the knowledge and practices of the surveillance staff implementing the field activities, as well as the challenges they face; 4) estimate the costs of conducting case investigations and RACD activity. NMCPs will be able to use the results from the RACD Monitoring & Evaluation Tool to make evidence-based improvements to their surveillance strategies that will result in programmatic efficiencies and accelerate efforts to interrupt malaria transmission.

## Who should use this tool?

The RACD Monitoring & Evaluation Tool is for national malaria control programs to monitor and evaluate their RACD strategies. The chief surveillance officer of the NMCP often leads the implementation of all modules, though surveillance team members at either national, provincial or district level often conduct the required activities in the modules.

## Where has this tool been used?

The RACD Monitoring & Evaluation Tool was piloted in several malaria-eliminating settings, including provinces in China (2013), Indonesia (2013), and Thailand (2015). The tool has been implemented in Zanzibar (2015).

Results from these settings indicate that case reporting from health facilities to the malaria database is rarely complete, most case investigations are not conducted in a timely manner, and RACD events often did not occur and within the timeframe specified by the program's guidelines.

For example, in Ranong Province, Thailand, reported monthly case investigation and RACD completion rates ranged from 55–81% and 22–72%, respectively. Furthermore, gaps were identified in screening procedures when conducting RACD in the community, highlighting the need for refresher trainings and additional monitoring of field activities to ensure that SOPs are being followed. Since the results of the evaluation were completed, several national-level trainings were conducted for surveillance staff involved in case investigation and RACD activities. Furthermore, indicators from the RACD Monitoring & Evaluation Tool have been integrated into Thailand's online malaria database to ensure standardized reporting from all districts.

Based on the results in Thailand and other countries that implemented the tool, further rollout of the tool was conducted in Yunnan Province, China (2015) and was scaled-up nationally in Thailand (2016). Additional rollout is planned in several more provinces in Indonesia and Zanzibar in 2017.

## How is this tool used?

The RACD Monitoring & Evaluation Tool has four modules. Each module has an accompanying manual and Microsoft Excel and/or Word templates. The templates were created to automatically calculate outputs of summary statistics and proportions, tailored to the data collected in that module. Malaria programs using the RACD Monitoring & Evaluation Tool can use the manual to guide them as they work through the Excel and/or Word templates. The manual includes simple diagrams of how to complete each component of the tool to facilitate the evaluation process.

The MEI requests that national malaria programs contact us when using any of the tools in the Malaria Elimination Toolkit. Support in implementing the tool may be available. If you are using the RACD Monitoring & Evaluation Tool, please contact Chris Cotter ([chris.cotter@ucsf.edu](mailto:chris.cotter@ucsf.edu)) at the Malaria Elimination Initiative, Global Health Group, University of California, San Francisco.

---

The **Malaria Elimination Initiative (MEI)** at the University of California San Francisco (UCSF) Global Health Group believes a malaria-free world is possible within a generation. As a forward-thinking partner to malaria-eliminating countries and regions, the MEI generates evidence, develops new tools and approaches, disseminates experiences, and builds consensus to shrink the malaria map. With support from the MEI's highly-skilled team, countries around the world are actively working to eliminate malaria—a goal that nearly 30 countries will achieve by 2020.

[shrinkingthemalariamap.org](http://shrinkingthemalariamap.org)