



Ministry of Health

Malaria Epidemic Preparedness and Response in Kenya

Implementation Guide



**DIVISION OF NATIONAL
MALARIA PROGRAMME**





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Malaria Epidemic Preparedness and Response in Kenya Implementation Guide

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**DIVISION OF NATIONAL
MALARIA PROGRAMME**



FOREWORD

Malaria epidemic preparedness and response (EPR) is an important strategy for malaria control, involving early detection and early deployment of response interventions to contain the epidemics. Malaria epidemics usually occur among nonimmune or semi-immune populations because of their infrequent exposure to malaria infection. Therefore, malaria epidemics tend to create an emergency that requires urgent attention to prevent high morbidity and the potential for high mortality among affected vulnerable populations.

To address malaria epidemics effectively, the health systems should be able to predict and detect the evolution of malaria epidemics and have the flexibility to respond rapidly to contain detected epidemics.

The Ministry of Health, through the Division of the National Malaria Programme and its partners, has been supporting targeted counties and sub-counties to develop capacity for malaria EPR. This approach ensures that the health management teams in the targeted counties have developed EPR plans that include resources to prepare the health workforce to respond in the event of epidemics. Since the change of governance to the devolved system in 2012, a lot of changes in the delivery of health services and, by extension, malaria control, have occurred. Consequently, previously built capacity for malaria EPR has eroded over time owing to high health worker turnover both at the management and operational levels. In view of these changes, the Division of the National Malaria Programme recognised the need to devise a mechanism for continuous capacity development for malaria EPR in all 26 counties (127 sub-counties) prone to malaria epidemics.

This implementation guide has been developed to facilitate continuous capacity development for malaria EPR at subnational levels. This capacity comprises training, planning for, and implementation of EPR activities that include prediction, detection, and effective responses to contain malaria epidemics. The implementation guide can be scoped and adapted to address the knowledge and skill needs of every level of healthcare in Kenya. The guide will be useful to all stakeholders involved in malaria control: health managers, trainers, and service providers across all levels of the healthcare system.

I hope that the training approaches and content outlined in this guide will be reliable and sufficient to address malaria EPR knowledge and skill needs. I encourage all county and sub-county health management teams and their partners to use this guide for malaria EPR training. This will enhance the capacity of health workers to manage malaria during epidemics in their areas of jurisdiction.



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With the contribution of everyone mentioned here, we are proud of this final document that will be relied upon in strengthening capacity for malaria epidemic preparedness and response in Kenya.



Dr Grace Ikahu Muchangi
Head, Division of National Malaria Programme

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ABBREVIATIONS

DNMP	Division of the National Malaria Programme
EPR	epidemic preparedness and response
MOH	Ministry of Health
MOPHS	Ministry of Public Health and Sanitation
SITREP	(disease outbreak) situation report

BACKGROUND

Malaria epidemics are defined as sharp increases in the incidence of malaria in populations in whom the disease is rare, or seasonal increases above the normal patterns in areas of low-to-moderate transmission (Gilles & Warrell, 1993). Epidemics may be precipitated by natural climatic variations that favour increased vector breeding and increased transmission. Epidemics may also occur because of human factors, such as migration of nonimmune populations to areas of high transmission, development activities such as dam construction and irrigation, or breakdown of malaria control interventions.

In Kenya, malaria epidemics occur in the Western Highlands when climatic conditions favour sustained minimum temperatures around 18° C. These temperatures sustain vector breeding, resulting in increased intensity of malaria transmission. Extreme climatic conditions such as El Niño can also contribute to the occurrence of malaria epidemics in the arid and semi-arid parts of northern and southern-eastern Kenya, which experience short periods of intense malaria transmission during the rainy season. Epidemic preparedness and response (EPR) is one of the key approaches adopted to control malaria in Kenya in the Western Highlands and arid and semi-arid parts of the country.

Malaria epidemics can, to a large extent, be predicted through a combination of meteorological information, local epidemiological data, and knowledge of human population dynamics. Thus, multisectoral actions by stakeholders can help to predict and prevent epidemics. Continuous monitoring, early detection, and prompt response with recommended treatment and timely vector control methods can help minimise the impact of malaria epidemics.

In recent years, malaria epidemics have been experienced in various parts of the country. In 2012, epidemics occurred in the Pokot North region, in West Pokot County. In 2015, Igembe North experienced an upsurge of malaria cases. In September and October 2017, malaria upsurges were reported in Baringo, Isiolo, Mandera, Marsabit, Samburu, Tana River, Turkana, Wajir, and West Pokot. The upsurges caused more than 50 fatalities, 400 hospitalisation cases, and more than 2,000 adults and children diagnosed with the disease. Marsabit was the worst-hit county, with 1,300 adults and children diagnosed with malaria and 26 malaria deaths reported (Mulambalah, 2018). In 2019, malaria upsurges were again reported in Baringo, Elgeyo Marakwet, Turkana, and West Pokot counties. The increasing occurrence of malaria upsurges calls for intensified efforts to enhance surveillance to detect and respond to malaria epidemics.

The Division of the National Malaria Programme (DNMP) supports annual EPR data review and planning workshops in the Western Highlands and arid/semi-arid areas of the northern and south-eastern parts of the country. With the devolution of health services in 2013, the annual review workshops were conducted for county-level health management officers, with the expectation that they would cascade the training down to the sub-counties, health facilities, and communities. However, the officers trained at the county level faced challenges with cascading the training to the sub-counties. In 2019, DNMP decided to

include the sub-county health managers in the annual EPR data review and planning workshops. A rapid assessment conducted 8 to 10 months after the 2019 annual review and planning workshops showed that there were major gaps in malaria EPR at the county and sub-county levels because of challenges in cascading EPR training to lower levels.

This was partly attributed to the lack of standardised EPR training manuals and reference materials to support cascading the training. This made it difficult for DNMP to assess the effectiveness of the training workshops conducted over the years as the epidemics recurred with low detection and suboptimal response. In view of this, DNMP, with support from the U.S. President's Malaria Initiative (PMI) through the United States Agency for International Development and PMI-funded MEASURE Evaluation project, developed this EPR training implementation guide for use by healthcare providers and health managers in all areas prone to malaria epidemics.

Purpose of This Guide

This implementation guide, consists of an outline of the EPR training modules, lesson plans and reference materials. The guide details the content of each module, mode of delivery and training materials to be used. This guide provides additional information and useful tips for facilitators.

Target Audience

This implementation guide is designed to be used by health managers to build capacity for malaria EPR at the county, sub-county and health facility level. Policymakers and other stakeholders at the national and country levels will also find the guide useful in understanding the concepts of malaria EPR and how they are applied in the local context.

Objectives of the Course

The overall objective of the EPR training course is to build the capacity of healthcare workers to routinely monitor, detect, and respond to malaria epidemics. The specific objectives of the course are to enable health care providers and managers to do the following tasks:

- ◆ Undertake malaria surveillance tasks related to EPR
- ◆ Predict, detect, and verify malaria epidemics
- ◆ Undertake activities relating to malaria epidemic preparedness
- ◆ Undertake activities to respond to malaria epidemics
- ◆ Conduct post-epidemic assessments
- ◆ Develop and implement a malaria EPR plan

Course Organisation

The course has eight modules, each with several units. The modules and units are best covered in sequential order. The course is designed for classroom delivery and has components for facilitators/trainers and participants. The facilitator component has training slides, instructions, and notes to assist the facilitator in delivering the course. The participant component has training slides and spaces for notes. The course modules are outlined in the following section.

Table 1. Outline of Course Modules

Module	Unit	Duration	Content
Module 1: Introduction to Malaria Epidemic Preparedness and Response (EPR)	Unit 1	30 minutes	Introduction to malaria epidemiology in Kenya
	Unit 2	30 minutes	Introduction to malaria epidemics
	Unit 3	30 minutes	Factors contributing to malaria epidemics
	Unit 4	15 minutes	Basic concepts of malaria epidemic preparedness and response
Module 2: Prediction, Detection, & Verification of Malaria Epidemics	Unit 1	45 minutes	Malaria early warning and detection systems
	Unit 2	45 minutes	Timely detection of malaria epidemics
	Unit 3	30 minutes	Verification of malaria data for epidemic confirmation
Module 3: Malaria Surveillance in the Context of Epidemic Preparedness and Response	Unit 1	30 minutes	Malaria case definitions and detection
	Unit 2	45 minutes	Malaria surveillance data reporting
	Unit 3	45 minutes	Epidemic detection methods and threshold setting
	Unit 4	30 minutes	Malaria data analysis, interpretation, and dissemination
	Unit 5	30 minutes	Data demand and use
Module 4: Basic Concepts of Malaria Entomology	Unit 1	20 minutes	Basic concepts of malaria entomology
	Unit 2	55 minutes	Mosquito surveys and key entomological indicators
Module 5: Malaria Epidemic Preparedness	Unit 1	30 minutes	Introduction to malaria epidemic prevention strategies
	Unit 2	45 minutes	Quantification, procurement, and appropriate placement of essential and emergency malaria commodities
	Unit 3	45 minutes	Coordination structures and capacity to prepare and respond to malaria epidemics

Module	Unit	Duration	Content
Module 6: Malaria Epidemic Response	Unit 1	45 minutes	Malaria Epidemic/outbreak Investigation
	Unit 3	75 minutes	Epidemic Response Interventions
Module 7: Post-epidemic Evaluation	Unit 1	30 minutes	Declaration of end of epidemic
	Unit 2	45 minutes	Post-epidemic evaluation
	Unit 3	45 minutes	Documenting and disseminating a malaria epidemic report
Module 8: Malaria EPR Planning	Unit 1	30 minutes	Introduction to EPR planning
	Unit 2	8 hours	Developing a malaria EPR plan
	Unit 3	30 minutes	Adoption and implementation of a malaria EPR plan

Course Duration

The recommended duration for this course is five days. The modular approach ensures that it can be tailored to address various audiences and needs.

Course Facilitators

Facilitators should have completed a training of trainers guide on malaria surveillance and participated in malaria EPR data review and planning workshops. Facilitators must demonstrate a good grasp of the malaria surveillance systems and basic principles and concepts of EPR. Prior training in malaria case management and monitoring and evaluation is highly recommended.

Course Participants

The course participants should be frontline healthcare workers and managers who routinely generate, process, transmit, and use malaria surveillance data for decision making. Participants should have taken the malaria surveillance training. The course is recommended for the following county and sub-county health management team members: disease surveillance coordinators, malaria control coordinators, and health records and information officers. At the health facility level, the course is recommended for disease surveillance officers, health records clerks/officers, clinicians who routinely see patients in the outpatient departments, and laboratory officers who routinely test and report data on malaria testing.

Participants should bring the following to the course:

- ♦ Five-year retrospective data on weekly numbers of confirmed malaria cases reported through the integrated disease surveillance and response platform for at least five health facilities

Note: The health facilities should be representative of the malaria epidemiology in the sub-county and have the capacity to diagnose malaria, and they should not be referral facilities.

- ◆ Weekly number of confirmed malaria cases reported in the five selected health facilities in the current year
- ◆ Participants should be computer literate and conversant with the Kenya/District health information system (KHIS/DHIS2) and must be able to use Microsoft Excel and Word.
- ◆ Background information about the county, sub-county, or health facility current catchment population, health profile, annual workplan, and county integrated development plan
- ◆ Existing county and sub-county malaria EPR plans
- ◆ A brief report on ongoing malaria control activities implemented in the county and on the stakeholders supporting malaria-related activities

Course Facilitation Methods

The course will use teaching and learning methods that are appropriate for adult learners. These will include the following:

- ◆ Overview lectures
- ◆ Brainstorming sessions
- ◆ Demonstrations
- ◆ Small-group discussions
- ◆ Individual and group assignments
- ◆ Group project

Conducting Training Activities and Exercises

When participants are discussing an issue in small groups or doing a group exercise, facilitators should move around the groups and listen to the discussions before giving their input. If participants are doing a group exercise, the facilitators should watch carefully what the group is doing before asking questions to lead them into identifying errors or gaps and guiding them to find solutions. Additional information and useful tips for facilitators are provided before the slides section of this guide.

Small-Group Exercises

This training includes a group project that is assigned on the first day and submitted on the last day of the guide. The group project involves preparing a plan for malaria EPR. Each group should be assigned a facilitator to guide them through the project. Several other small-group activities are included in this training. These activities enable the participants to practice the skills learnt, such as how to set epidemic monitoring thresholds. Before each small group activity, the facilitator should ensure that participants understand the

instructions by asking if anyone has any questions and clarifying issues, as necessary. When facilitating small-group activities, the facilitator should consider the following:

- ◆ Move around the groups to clarify any questions and keep them on task.
- ◆ Provide constructive feedback as necessary to help participants understand and perform the activities.
- ◆ Make sure that small group activities are implemented as intended.
- ◆ Know when to end an activity, keeping in mind that the time allocations for each of the sections are estimates.
- ◆ Assess how far each group is with the task and make adjustments accordingly.

Performance Assessment and Certification

A pretest and posttest will be administered at the beginning and end of the course. Scores of the pretest and posttest will be compared to determine knowledge and skills gained from the course. Continuous assessment will be done throughout the course in the form of individual and group assignments. A group project will be assigned on the first day of the course. Participants will be expected to apply the knowledge and skills gained to complete sections of the project each day and present the final project on the last day.

A daily evaluation form will be completed at the end of each day to provide feedback to the course facilitators on any topics or concepts that need to be explained or clarified further. Instructional materials and mode of delivery will be adjusted as appropriate to enhance understanding of course content and application of skills learnt. A comprehensive end-of-workshop evaluation will be conducted to assess overall course organisation, logistics, modules covered, and mode of delivery.

Participants will sign in at the beginning and end of each workshop day. A certificate of completion will be awarded to participants who will have taken all the course modules.

Materials Required

Facilitators should liaise with the course organisers to prepare the course materials and have them transported to the training venue. Facilitators should arrive at the training venue early enough to ensure that the materials needed are available and to familiarise themselves with the venue.

Materials required are as follows:

- ◆ LCD projector
- ◆ Laptop
- ◆ Reliable internet connection
- ◆ Training programme
- ◆ Flipcharts and marker pens

- ◆ Basic stationery: notebooks, pens
- ◆ Printed sets of the participants' PowerPoint slides
- ◆ Pretest and posttest assessments
- ◆ EPR guidelines
- ◆ Daily evaluation forms
- ◆ End-of-workshop evaluation forms
- ◆ Folder with module exercises and instructions on group work session
- ◆ Flash disks with additional reference materials

Note: Other relevant learning materials are outlined against the respective units.

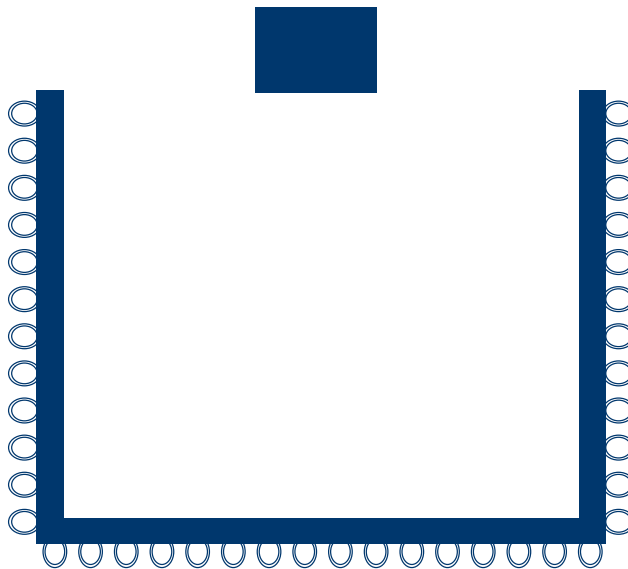
Room Requirements

This course requires one large general session room that will accommodate up to 40 people with enough space to allow both participants and facilitators to spread out and work in groups. The room should be well lit and free from outside noise that could disturb and interfere with participants' concentration.

Room Setup

The classroom should be configured to seat the participants at tables—with three to five participants per table. This will foster collaboration on activities and promote group discussion. The tables should be organised so that all participants can easily view the module presentation.

Sample Classroom Layout



DESCRIPTION OF GUIDE MODULES

This section describes objectives, content, mode of delivery, and materials required for each module. References and recommended reading for each module are also given.

Module 1: Introduction to Malaria Epidemic Preparedness and Response

Objectives

By the end of this module, participants should be able to:

- ♦ Outline malaria epidemiology in Kenya
- ♦ Describe four types of malaria epidemics
- ♦ Identify human and natural factors that can contribute to or trigger malaria epidemics
- ♦ Explain three basic concepts of malaria EPR

Lesson Plan Guide: Module 1 (2 Hours)

Unit	Content	Mode of delivery	Materials required	Time
Unit 1	Introduction to malaria epidemiology in Kenya: prevalence, epidemiological zones, endemicity map	Lecture and discussion	Pretest EPR training slides	30 min
Unit 2	Malaria epidemics: definition, types of epidemics	Lecture and discussion	EPR training slides	30 min
Unit 3	Factors contributing to malaria epidemics: natural and human factors	Lecture and discussion	EPR training slides	30 min
Unit 4	Basic concepts of malaria epidemic preparedness and response	Lecture and discussion	EPR training slides	30 min

References and recommended reading

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Guintran, J.-O., Delacollette, C., & Peter Trigg, P. (2006). *Systems for early detection of malaria epidemics in Africa. Analysis of current practices and future priorities*. Geneva, Switzerland: World Health Organization. Retrieved from <https://www.who.int/malaria/publications/atoz/9789241594882/en/>.

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Module 2: Prediction, Detection, and Verification of Malaria Epidemics

Objectives

By the end of this module, participants should be able to:

- ♦ Explain the concept and rationale of malaria early warning and detection systems
- ♦ Describe how to detect a malaria epidemic in a timely manner
- ♦ Describe how to rapidly verify a malaria epidemic

Lesson Plan Guide: Module 2 (2 Hr, 30 Min)

Unit	Content	Mode of delivery	Materials required	Time
Unit 1	<p>Demonstrate the concept and rationale of an early warning and detection system:</p> <ul style="list-style-type: none"> ♦ Aim of early warning ♦ Methods of prediction and detection 	Lecture and discussion	EPR training slides	30 min
Unit 2	<p>Describe how to detect a malaria epidemic in a timely manner:</p> <p>Illustration of early warning system continuum by time and action</p>	Demonstration and discussion	Early warning illustration—in the EPR training slides	60 min
Unit 3	<p>Data verification for confirmation of malaria epidemics:</p> <p>Describe how to rapidly verify a malaria epidemic</p> <p>Data verification and analysis by time, place, and person</p>	Lecture, demonstration, and discussion	EPR training slides	60 min

References and recommended reading

Guintran, J.-O., Delacollette, C., & Trigg, P. (2006). *Systems for early detection of malaria epidemics in Africa, an analysis of current practices and future priorities*. Geneva, Switzerland: World Health Organization. Retrieved from <https://www.who.int/malaria/publications/atoz/9789241594882/en/>.

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Module 3: Malaria Surveillance in the Context of Epidemic Preparedness and Response

Objectives

By the end of this module, participants should be to:

- ♦ Set and routinely monitor malaria epidemic thresholds
- ♦ Define key malaria epidemiological indicators
- ♦ Analyse and interpret malaria data

Lesson Plan Guide: Module 3 (4 Hours)

Unit	Content	Mode of delivery	Materials required	Time
Unit 1: Malaria case detection and definitions	<p>Definition of public health surveillance</p> <p>Case definitions:</p> <ul style="list-style-type: none"> ♦ Suspected malaria ♦ Confirmed malaria <p>Classification of malaria:</p> <ul style="list-style-type: none"> ♦ Severe malaria ♦ Case detection methods and recording 	Overview lecture and discussions	<p>Case definition chart for priority diseases</p> <p>Malaria rapid diagnostic test kits</p>	30 min
Unit 2: Malaria surveillance data reporting	<p>Data capture, collation, and reporting</p> <p>Ministry of Health data collection tools</p> <p>Malaria epidemiological indicators</p>	Overview lecture and demo	<p>MOH registers and summary tools</p> <p>MOH 204A/B, MOH 705 A/B, MOH 505</p> <p>Tally sheets</p> <p>Kenya health information system online platform https://hiskkenya.org</p>	60 min

Unit	Content	Mode of delivery	Materials required	Time
Unit 3: Malaria data analysis, epidemic detection methods, and threshold setting	Epidemic detection methods and threshold setting	Overview lecture and practical exercise	Laptops with spreadsheet functionality Automated threshold setting Excel template Retrospective health facility data	90 min
Unit 4: Data analysis, interpretation, and dissemination	Data analysis Data presentation Data interpretation Data sharing and feedback	Overview lecture Small group exercises	Training slides Handout on effective presentation	30 minutes
Unit 5: Data demand and use	Barriers to data demand and use	Class discussion	Training slides	15 minutes

References and recommended reading

Ministry of Health (MOH), National Malaria Control Programme. (2019). *Kenya malaria strategy 2019–2023*. Nairobi, Kenya: MOH. Retrieved from <http://fountainofafrica.org/wp-content/uploads/2020/01/Kenya-Malaria-Strategy-2019-2023.pdf>.

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World Health Organization (WHO). (2019). *World malaria report*. Geneva, Switzerland: WHO.

Module 4: Basic Concepts of Malaria Entomology

Objectives

By the end of this module, participants should be able to:

- ♦ Describe the role of mosquitoes in malaria transmission
- ♦ Describe different types of mosquito surveys and key indicators and their role in malaria prevention

Lesson Plan Guide: Module 4 (2.5 Hours)

Unit	Content	Mode of delivery	Materials required	Time
Unit 1: Introduction to malaria entomology	The role of mosquitoes in malaria transmission	Overview lecture and discussion	Training slides	60 min
Unit 2: Malaria vector surveys and key indicators in entomological surveillance	Types of malaria vector surveys <ul style="list-style-type: none"> ♦ Mosquito sampling techniques ♦ Key malaria entomological indicators 	Overview lecture and demonstration	Mosquito and larvae sampling tools: <ul style="list-style-type: none"> ♦ Light traps ♦ Aspirators for hand collection ♦ Pyrethrum spray catches ♦ Human landing catches ♦ Window (entry/exit) trap 	90 min

Module 5: Malaria Epidemic Preparedness

Objectives

By the end of this module, participants should be able to:

- ♦ Describe malaria epidemic prevention strategies
- ♦ Select, quantify, procure, and distribute essential and emergency malaria commodities
- ♦ Describe the composition, roles, and responsibilities of the sub-county Public Health Emergency Management Team and rapid response teams

Lesson Plan Guide: Module 5 (2.5 Hours)

Unit	Content	Mode of delivery	Materials required	Time
Unit 1: Introduction to malaria epidemic prevention strategies	<ul style="list-style-type: none"> ♦ Malaria prevention ♦ Malaria epidemic notification 	Overview lecture and discussion	Sample of a malaria notification	75 min
Unit 2: Emergency commodities for malaria EPR	Quantification and procurement of commodities for EPR Appropriate placement of essential and emergency commodities	Overview lecture, discussion and demo	Stock status report	30 min
Unit 3: Coordination structures and capacity to prepare and respond	Rapid assessment for malaria epidemic preparedness	Overview lecture and discussion	Rapid assessment checklist	45 min

References and recommended reading

Republic of Kenya, Ministry of Public Health and Sanitation (MOPHS). (2012). *Integrated disease surveillance and response in Kenya. technical guidelines, 2nd edition*. Nairobi, Kenya: MOPHS.

Ministry of Health (MOH). (2020). *Guidelines for malaria epidemic preparedness and response*. Nairobi, Kenya: MOH.

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Module 6: Malaria Epidemic Response

Objectives

By the end of this module, participants should be able to:

- ♦ Conduct a malaria epidemic investigation
- ♦ Respond to malaria epidemics in an effective and timely manner
- ♦ Coordinate malaria epidemic-response activities

Lesson Plan Guide: Module 6 (3 Hours)

Unit	Content	Mode of delivery	Materials required	Time
Unit 1	Malaria Epidemic/outbreak Investigation	Lecture and discussion	♦ EPR training slides	45 min
Unit 2	Epidemic Response interventions <ul style="list-style-type: none"> ♦ Response interventions ♦ Monitoring of epidemic response ♦ Coordination and communication during response 	Lecture, discussion, demonstration	♦ Line listing template ♦ SITREP template	75 min

References and recommended reading

Ministry of Health (MOH). (2020). *Guidelines for malaria epidemic preparedness and response*. Nairobi, Kenya: MOH.

National Malaria Control Programme (NMCP)/Kenya, Kenya National Bureau of Statistics (KNBS), & ICF International. (2016). *Kenya malaria indicator survey 2015*. Nairobi, Kenya: NMCP, KNBS, & ICF International. Retrieved from <https://dhsprogram.com/pubs/pdf/MIS22/MIS22.pdf>.

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Module 7: Post-Epidemic Evaluation

Objectives

By the end of this module, the participants should be able to:

- ♦ Demonstrate understanding of malaria post-epidemic evaluation.
- ♦ Demonstrate understanding of the components of a post-epidemic evaluation report
- ♦ Describe the steps and channels of disseminating a post-epidemic evaluation report

Lesson Plan Guide: Module 7 (1 Hour, 15 Minutes)

Unit	Content	Mode of delivery	Materials required	Time
Unit 1	Declaration of end of epidemic	Lecture and discussions, brainstorming session	Sample of an end of epidemic declaration	15 minutes
Unit 2	Post-epidemic evaluation	Lecture and discussions, brainstorming session	Sample post-epidemic evaluation report	35 minutes
Unit 3	Documenting, report writing, and disseminating malaria post-epidemic report	Lecture and discussions	Post-epidemic report template	25 minutes

References and recommended reading

Ministry of Health (MOH). (2020). *Guidelines for malaria epidemic preparedness and response*. Nairobi, Kenya: MOH.

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Module 8: Malaria EPR Planning

Objectives

By the end of the module, participants should be able to:

- ♦ Describe the components of an EPR plan
- ♦ Develop a malaria EPR plan
- ♦ Demonstrate understanding of the adoption processes and implementation of EPR plans

Lesson Plan Guide: Module 8 (6.5 Hours)

Unit	Content	Mode of Delivery	Materials required	Time
Unit 1	Introduction to the EPR planning process	Overview lecture and discussion	EPR training slides manual	30 minutes
Unit 2	Develop a malaria EPR plan	Practicum	EPR planning template	7 hours
Unit 3	Adoption and implementation of a malaria EPR plan	Lecture and discussions	Sample of previously completed plan	30 minutes

References and recommended reading

Ministry of Health (MOH). (2020). *Guidelines for malaria epidemic preparedness and response*. Nairobi, Kenya: MOH.

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PRETEST AND POSTTEST

EPR Training Manual Pretest And Posttest

The pretest will be administered before beginning the training. The scores of the pretest are recorded for each participant. The posttest is administered in the morning of the last day of the training and scores for each participant are recorded against the pretest scores. The percentage change between the pretest and posttest is obtained. The change in scores is used to determine whether the training had an impact on the participants' knowledge on malaria EPR.

Questions for pretest and posttest

1. Which of the following is not a consequence of a malaria epidemic?
 - A. Flooding
 - B. Disruption of economic activities
 - C. Overburdened health service delivery system
 - D. Increased mortality
 - E. All of the above
2. Which of the following is not a component of epidemic preparedness activities?
 - A. Have an epidemic response plan
 - B. Map areas of hotspots
 - C. Establish a rapid response team
 - D. Conduct lab verification to confirm malaria slides from the outbreak areas
 - E. Ensure that health workers have guidelines and standard operating procedures
 - F. None of the above
3. Which is the correct order for outbreak detection and response?
 - A. First case, detection/reporting, response, lab confirmation
 - B. First case, response, lab confirmation, detection/reporting
 - C. First case, detection/reporting, lab confirmation, response
 - D. First case, lab confirmation, detection, response
 - E. None of the above

4. Which of the following is not part of the malaria epidemic data verification indicators?
 - A. Number of inpatient malaria cases
 - B. Number of confirmed malaria cases
 - C. Average monthly temperature for the outbreak region
 - D. Malaria test positivity rate
 - E. None of the above
5. Which one of the following is not part of entomological monitoring for early warning of malaria epidemics?
 - A. Vector densities
 - B. Presence of Plasmodium falciparum in a blood slide
 - C. Entomological inoculation rates
 - D. Efficacy of insecticides used for vector control
 - E. Increased vector longevity
6. Which of the following elements is not part of public health surveillance?
 - A. Ongoing and systematic collection and collation of data
 - B. Investigators using closed-circuit television to monitor people's movements
 - C. Analysis and interpretation of data
 - D. Use of data for public health action to reduce morbidity and mortality
 - E. Dissemination of health data to relevant stakeholders
7. What are the different types of surveillance?
 - A. Passive
 - B. Active
 - C. Sentinel
 - D. All of the above
8. Which one of these tools contains malaria data?
 - A. MOH 505
 - B. MOH 240

- C.** MOH 705 A&B
 - D.** MOH 711
 - E.** All the above
- 9.** Which of the following is used to calculate malaria epidemic thresholds in Kenya?
- A.** Monthly confirmed malaria cases
 - B.** Weekly confirmed malaria cases
 - C.** Weekly suspected malaria cases
 - D.** Daily malaria data
- 10.** Which mosquito species transmit malaria?
- A.** Culex
 - B.** Anopheles
 - C.** Aedes
 - D.** All the above
- 11.** Why do mosquitoes feed on blood?
- A.** To transmit malaria
 - B.** To get energy to fly
 - C.** To develop the eggs
 - D.** All of the above
- 12.** The following vector surveys are used in malaria epidemics except:
- A.** Preliminary surveys
 - B.** Foci surveys
 - C.** Spot checks
 - D.** Sentinel surveys
- 13.** Which of the following is not an entomological indicator used in EPR?
- A.** Entomological inoculation rate
 - B.** Infectivity/sporozyte rate
 - C.** Test positivity rate
 - D.** Human blood index

14. The following are responsibilities of the public health emergency management committee after an outbreak except:

- A.** Sustain preventive measures
- B.** Prepare epidemic reports
- C.** Produce and distribute relevant guidelines
- D.** Conduct epidemic review
- E.** None of the above

15. Which of the following statements is true?

- A.** An epidemic is confirmed if the defined alert threshold has been reached.
- B.** Early response is critical only to minimise mortality.
- C.** Rapid assessment of the situation is key after response.
- D.** (a) and (c)
- E.** None of the above

16. Why should post-epidemic evaluation be conducted?

- A.** To assess the overall outbreak preparedness and response
- B.** To know who was involved in epidemic control
- C.** To understand the epidemic
- D.** To generate a post-epidemic report

17. Which one of these is not a component of a malaria EPR plan?

- A.** Strategies
- B.** Targets
- C.** Activities and tasks/subactivities
- D.** Surveillance
- E.** Monitoring and evaluation indicators

Answers

- Q1 A
Q2 D
Q3 C
Q4 C
Q5 B
Q6 B
Q7 D
Q8 E
Q9 B
Q10 B
Q11 C
Q12 C
Q13 C
Q14 C
Q15 E
Q16 A
Q17 D

Training Programme

The EPR training is expected to take five days. The programme may be modified to allow more time for the participants to practice and set accurate thresholds to monitor and detect epidemics using their health facility data. EPR planning should be done as a group project involving the sub-county and county teams. The EPR planning module may be introduced in the last session on the evening of the first day, to enable the participants to start gathering the information required to prepare the plan. EPR planning should continue on the fourth day. All groups should present their completed EPR plan on the fifth day of training and receive feedback on it.

Time	Monday	Tuesday	Wednesday	Thursday	Friday
8:30–9:30 a.m.	Climate setting Introductions Group norms Expectations Pretest	Module 3 Unit 1: Malaria case definitions and classification	Module 4 Unit 1: Basic concepts of malaria entomology	Module 6 Unit 2: Malaria epidemic response interventions	EPR planning practicum
9:30–10:30 a.m.	Module 1: Introduction to malaria epidemic preparedness and response (EPR) Unit 1: Introduction to malaria epidemiology in Kenya Unit 2: Introduction to malaria epidemics	Module 3 Unit 2: Malaria surveillance data reporting	Module 4 Unit 2: Malaria vector surveys and key indicators	Module 6 Unit 3: Monitoring epidemic response (line listing and situational reports)	EPR planning practicum
10:30–11:00 a.m.	Module 1 Unit 3: Factors contributing to malaria epidemics	Module 3 Unit 3: Malaria epidemic threshold setting	Module 5 Unit 1: Introduction to malaria epidemic prevention strategies	Module 7 Unit 1: Declaring the end of epidemic	EPR planning practicum

Time	Monday	Tuesday	Wednesday	Thursday	Friday
11–11:30 a.m. Break					
11:30 a.m.–12 p.m.	Module 1 Unit 4: Basic concepts of malaria EPR	Module 3 Unit 3: Malaria epidemic threshold setting	Module 5 Unit 1: Introduction to malaria epidemic prevention strategies	Module 7 Unit 2: Post-epidemic evaluation	EPR post-training assessment test
12–1 p.m.	Module 2 Prediction, detection, and verification of malaria epidemics Unit 1: Malaria early warning and detection systems	Module 3 Unit 3: Malaria epidemic threshold setting	Module 5 Unit 2: Emergency commodities for malaria EPR	Module 7 Unit 3: Post-epidemic evaluation report and dissemination	EPR planning presentations and feedback
1–2 p.m. Lunch					
2–3 p.m.	Module 2 Unit 2: Timely detection of malaria epidemics	Module 3 Unit 3: Malaria epidemic threshold setting	Module 5 Unit 3: Coordination structures and capacity to prepare and respond	Module 8 Unit 2: EPR planning practicum	EPR plan presentations and feedback
3–4 p.m.	Module 2 Unit 3: Verification of malaria data for epidemic confirmation	Module 3 Unit 4: Malaria data analysis, presentation, interpretation, data sharing, feedback, and dissemination	Module 6 Unit 1: Epidemic/outbreak investigation	EPR planning practicum	EPR plan presentations and feedback

Time	Monday	Tuesday	Wednesday	Thursday	Friday
4–4:30 p.m. Break					
4:30–5 p.m.	Introduction to EPR planning (group project)	Module 3 Unit 5: Data demand and use	Module 6 Unit 2: Malaria epidemic response interventions	EPR planning practicum	Adoption of EPR plans

NB: The time allocated for each unit may be adjusted depending on how participants grasp the content

ADDITIONAL INFORMATION FOR FACILITATORS

Tips on Effective Training Facilitation

This section provides tips on facilitation to help you deliver this training guide effectively. The content of the training is important, but so are your facilitation skills. In addition, your enthusiasm and the way you relate to the training participants will be critical to the participants' success in understanding the concepts taught in this guide and their ability to apply the concepts in their day-to-day work.

Facilitator's Preparation

To prepare to deliver this guide effectively, be sure to do the following tasks prior to the beginning of the guide:

- ◆ Obtain a list of participants and ensure that they meet the training requirements.
- ◆ Read this facilitators guide and make sure that you have the necessary equipment and materials to present the modules.
- ◆ Prepare the participant training materials (folder with handouts and individual and group assignments) and other training aids (e.g., facilitator and participant agendas, copies of PowerPoint slides for participants, handouts, and participant evaluation forms).
- ◆ Thoroughly review all training materials in the facilitators' presentation, work through all of the learning activities, and prepare for potential questions and answers.
- ◆ Meet with co-facilitators to review discussion questions and associated facilitator notes, and to practice transitioning between the assigned topics and activities that will be conducted during the training.
- ◆ Use the training programme to decide on the sessions for each facilitator.
- ◆ Review the timing of each module and unit so that each facilitator is comfortable with the amount of time they have to cover each topic.
- ◆ Customise the curriculum by adding your own stories and "lessons learnt," as appropriate. Facilitators are expected to draw on their own knowledge and expertise in the subject area to enrich the training, including relevant personal experiences. This will help you to explain the concepts in your own words.
- ◆ Make notes in the margins of your printout of the slides while preparing to deliver the guide content. These notes should indicate how you plan to integrate your unique perspectives and expertise in the session topics.
- ◆ Consider how to address issues of culture within the content and context of your presentations. Be prepared to facilitate a discussion with the participants to explore how diverse cultural perspectives may impact content presented during the training session.
- ◆ Decide in advance what should be written on the flip charts for the activities that will be conducted during the training.

Good Practices for Facilitators

Facilitators do a number of things to ensure that the classroom environment supports participant learning. Experienced facilitators typically observe the following best practices:

Acknowledge and respect diverse personalities.

- ♦ Articulate classroom expectations and norms for participants, and establish ground rules to guide participant interactions and maintain a safe environment at the beginning of the guide.
Example: All electronic devices either should be turned off or in silent mode, and computers should be used only for taking notes, not answering email.
- ♦ Build on the existing skills, experiences, and knowledge of training participants rather than assume that they are coming from a position with a lack of knowledge.

Focus on participants' strengths rather than their weaknesses.

- ♦ Do not act as the expert but rather as a guide, and facilitate the learning process in a professional manner.
- ♦ Help the group move along, provide information, and help the participants learn specific skills.
- ♦ Follow module activities as outlined in this guide and help participants stay as focused as possible on the topics and activities described in each session.

Provide a lot of encouragement to the participants.

- ♦ Model the skills being taught (e.g., starting conversations, correcting misinformation).
- ♦ Follow the agenda and time schedule, but adjust as necessary to the specific needs of the class. Example: Watch for nonverbal signs, including glazed eyes or shifting in seats, as indicators that a break is needed. It is important to respect break-time boundaries.

Share your diverse, real-world experiences, expertise, and knowledge throughout the guide.

- ♦ Lead and facilitate class discussions. During discussions, draw connections between the points discussed and key concepts and instructional points.
- ♦ Do not make up answers to questions if you are unsure of the correct or appropriate answer.

When a participant asks you a question to which you do not know the answer, either tell the participant that you do not know the answer or explain that you will find the answer and get back to the participant.

- ♦ Move around as you make points or facilitate discussions. Do not lock yourself behind a podium or table, and ensure that you face the participants when you speak.
By eliminating physical barriers between you and the participants, you create a more dynamic presence in the classroom, and you will elicit more participation from the participants.

Adapt the guide material when needed.

Feel free to modify discussion questions to support the learning objectives and meet the needs of your class. If a discussion question in the training modules does not work well with the flow of the existing discussion in the classroom, modify it to suit the circumstances and enhance participant comprehension of the teaching points.

Qualities of Effective Facilitators

Before the training, you should review the following characteristics of effective facilitators, and refer to them and incorporate them throughout the delivery of the training.

Provide a supportive learning environment

- ◆ Handle sensitive issues and conflicts; be nonjudgmental.
- ◆ Know the influence of your own attitude and practices.

Be a good communicator.

- ◆ Use words that are easily understood by the participants.
- ◆ Encourage discussion, observe, and listen.
- ◆ Be approachable.
- ◆ Speak clearly.
- ◆ Use respectful language.
- ◆ Allow participants the opportunity to self-reflect.

Display warmth.

- ◆ Establish relationships with group members.
- ◆ Like and build trust with training participants rather than fear them.

Be organised

- ◆ Clearly outline objectives and goals.
- ◆ Practice facilitating to be ready to deliver the training.
- ◆ Categorise information efficiently so that you can retrieve it easily.
- ◆ Have a working knowledge of multimedia devices (e.g., overhead projector, liquid crystal display (LCD) projector, laptop computer).

Be enthusiastic

- ◆ Improve your sensitisation practices.
- ◆ Be enthusiastic about the people and the process.
- ◆ Be ready to conduct role-plays.
- ◆ Allow participants to practice using the skills learned in various activities (e.g., role-play exercises).

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