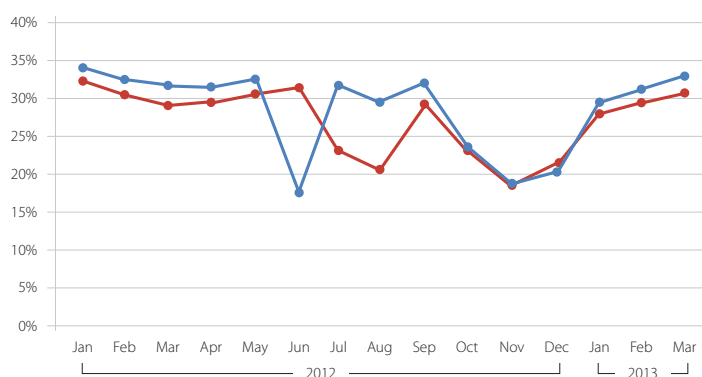
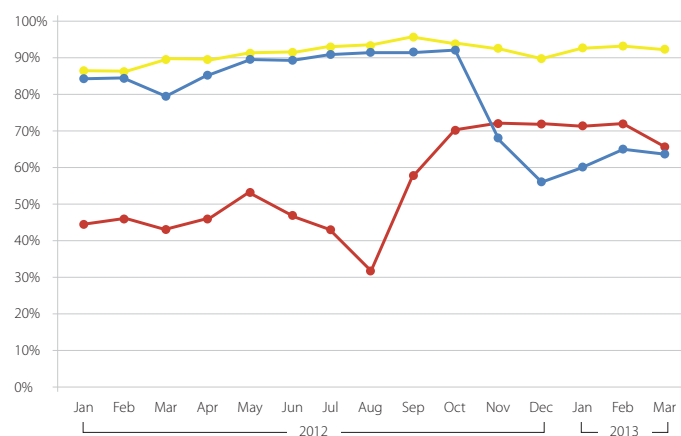
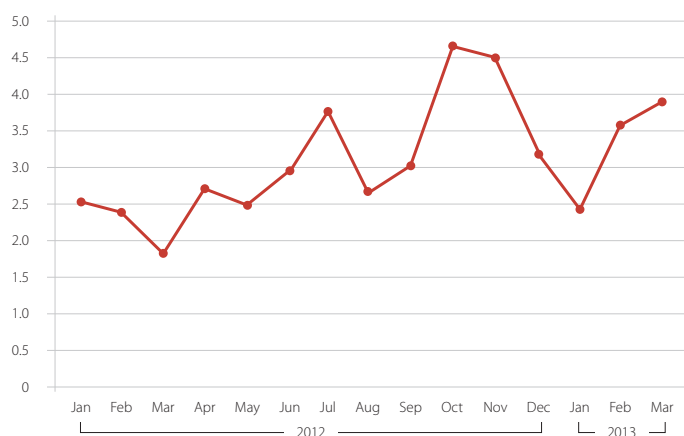




MINISTRY OF HEALTH

MALARIA SURVEILLANCE AND RESPONSE: A COMPREHENSIVE CURRICULUM AND IMPLEMENTATION GUIDE



Curriculum and Implementation Guide

MEASURE Evaluation is funded by the U.S. Agency for International Development (USAID) under terms of Cooperative Agreement GHA-A-00-08-00003-00 which is implemented by the Carolina Population Center, University of North Carolina at Chapel Hill in partnership with Futures Group, ICF International, John Snow, Inc., Management Sciences for Health, and Tulane University. The views expressed in this publication do not necessarily reflect the views of USAID or the United States government. (ms-13-77a)

List of Contributors

Dr. Ahmeddin H. Omar	Division of Malaria Control
Ms. Beatrice Machini	Division of Malaria Control
Ms. Jacinta O. Omariba	Division of Malaria Control
Ms. Jacinta Opondo	Division of Malaria Control
Mr. James Kiare	Division of Malaria Control
Mr. John O. Nyamuni	Division of Malaria Control
Dr. Kiambo Njagi	Division of Malaria Control
Mr. Maurice K'Omollo	Division of Malaria Control
Dr. Rebecca Kiptui	Division of Malaria Control
Mr. Urbanus Kioko	Division of Malaria Control
Ms. Caroline Maina	Division of Disease Surveillance and Response
Dr. Samuel Muiruri	Division of Vector-Borne and Neglected Tropical Diseases
Mr. Patrick Warutere	Division of Health Information System
Dr. Evan Mathenge	Kenya Medical Research Institute
Prof. Simon Kang'ethe	Kenya Methodist University
Dr. Geoffrey Lairumbi	MEASURE Evaluation
Mr. Peter Nasokho	MEASURE Evaluation
Dr. Ann Buff	CDC/PMI
Mr. Paul Malusi	National Public Health Laboratory Services
Mr. Charles Njuguna	World Health Organization

List of Reviewers

Dr. David Soti	DOMC
Dr. Nabie Bayoh	KEMRI/CDC—Kisumu
Dr. Abdisalan Noor	KEMRI Wellcome Trust—Nairobi
Dr. Charles Mbogo	KEMRI Wellcome Trust—Kilifi
Dr. Abdinasir Amin	MEASURE Evaluation
Dr. Daniel Wacira	USAID/PMI
Dr. Dunstan Mukoko	DVBNTD
Dr. Ayub Many	HMIS
Dr. Elizabeth Juma	KEMRI
Dr. Akpaka Kalu	WHO
Dr. Gausi Khoti	WHO
Dr. Daniel Langat	DDSR
Steve Yoon	CDC/PMI
Christine Hershy	CDC/PMI
Dr. Villegas Leopoldo	ICF International
Dr. Yazoume Ye	ICF International
Raphael Pudo	Abt Associates

List of Editors

MEASURE Evaluation
Division of Malaria Control

Foreword

Strengthening of malaria surveillance, monitoring and evaluation systems with the aim of routinely monitoring and evaluating key malaria indicators at all levels of health service delivery is a key objective of the National Malaria Strategy (NMS) 2009–2017, which aims to achieve our ultimate vision of a malaria-free Kenya.

Data from a variety of surveys and operational research show declines in malaria parasite prevalence, malaria trends, vector densities and other entomological indices over the last ten years and the Division of Malaria Control (DOMC) plans to ensure that further reductions are achieved by strengthening surveillance and response. It is anticipated that the generation of focused, timely, scientifically sound information through robust surveillance systems will provide evidence to counties/sub counties and the DOMC to make decisions on interventions for sustaining control of and eventually eliminating malaria.

This curriculum on *Malaria Surveillance and Response—A Comprehensive Curriculum and Implementation Guide* will facilitate attainment of a key malaria control objective of reducing malaria incidence and mortality by equipping health care workers with the knowledge, skills and attitude to effectively undertake and implement a robust malaria surveillance system. This curriculum will be used in the roll out of national malaria surveillance systems to the whole country.

This curriculum will be reviewed periodically in response to expressed need to improve the surveillance systems in the country. I am confident that this curriculum and implementation guide will be found extremely useful.



Dr. S. K. Sharif MBS MBChB, MMED, DLSHTM, MSc
Director Public Health

Acknowledgments


The development of the *Malaria Surveillance and Response—A Comprehensive Curriculum and Implementation Guide* involved an elaborate consultative process involving several key stakeholders in malaria control. The Department of Disease Prevention and Control would like to thank the Director Public Health Dr. S. K. Sharif for providing policy guidance and technical directions to the development of this curriculum.

The commitment, technical support and overall stewardship from the members of the Malaria Inter-agency Coordinating Committee and the United States President's Malaria Initiative (USAID/CDC) through MEASURE Evaluation is highly appreciated. I acknowledge the contribution and technical support from the World Health Organization (WHO–Kenya country office), Division of Disease Surveillance and Response (DDSR), Division of Health Information System (DHIS), the National Public Health Laboratory Services (NPHLS) and Division of Vector Borne & Neglected Tropical Diseases (DVBNTD) to the finalization of this malaria surveillance curriculum.

My sincere gratitude to the United States President's Malaria Initiative (USAID/CDC) through MEASURE Evaluation for financing the development of the malaria surveillance curriculum.

I also like to acknowledge and appreciate both the internal and external reviewers for their valuable contributions and critical review without which this curriculum would not have been realized.

I would like to thank the staff of the Division of Malaria Control for coordinating the development of the malaria surveillance curriculum.



Dr. Willis S. Akhwale MBS

Head of Department of Disease Prevention and Control

Acronyms

ACSM	Advocacy, Communication and Social Mobilization
ACT	Artemisinin-based Combination Therapy
AL	Artemether-Lumefantrine
ANC	Ante-Natal Clinic
CDC	Centers for Disease Control and Prevention
CFR	Case Fatality Rate
CHW	Community Health Worker
CM	Case Management
DDSC	District Disease Surveillance Coordinator
DDSR	Division of Disease Surveillance and Response
DHIS	Division of Health Information Systems
DMCC	District Malaria Control Coordinator
DOMC	Division of Malaria Control
DOMT	Disease Outbreak Management Teams
DVBNTD	Division of Vector-Borne and Neglected Tropical Diseases
DPH	Dihydro-artemesinin Piperaquine
eIDSR	Electronic Integrated Disease Surveillance and Response
ELISA	Enzyme Linked Immunosorbent Assay
EPR	Epidemic Preparedness and Response
EWS	Early Warning Systems
GIS	Geographic Information System
GoK	Government of Kenya
HMIS	Health Management and Information Systems
IDSR	Integrated Disease Surveillance and Response
IEC	Information, Education and Communication
IP	In-Patient
IPTp	Intermittent Preventive Treatment in Pregnancy
IRS	Indoor Residual Spraying
ITN	Insecticide Treated Nets
IV	Intravenous
LLIN	Long Lasting Insecticidal Nets
M&E	Monitoring and Evaluation
MIS	Malaria Indicator Survey
MoH	Ministry of Health
NMS	National Malaria Strategy
OJT	On-Job Training
OP	Out-Patient
OPD	Out-Patient Department
PC	Personal Computer
PCR	Polymerase Chain Reaction
PSI	Population Services International
PSCM	Procurement and Supply Chain Management
QA	Quality Assurance
QBC	Qualitative Buffy Coat
QC	Quality Control

Acronyms

RBC	Red Blood Cell
RDT	Rapid Diagnostic Test
SD	Standard Deviation
SOP	Standard Operation Procedure
SP	Sulfadoxine Pyrimethamine
TPR	Test Positivity Rate
WBC	White Blood Cells
WHO	World Health Organization

Part A: How to Use This Curriculum and Implementation Guide

This Curriculum is designed in a simple, easy to use format. It is divided into two parts: A and B.

PART A Presents the foundation of The Curriculum and Implementation Guide showing detailed front matter, the module titles, objectives, and content.

PART B Presents the sample pretest and post test questions for the course.

The facilitators will need to use teaching methods that are appropriate for adult learners, including brainstorming, group discussions, overview lectures and participant presentations.

Malaria Surveillance Course Objectives

The main broad objectives or outcomes of the Malaria Surveillance and Response course are that, at the end of the training, the health care workers will be able to effectively:

1. Explain and articulate the importance of DISEASE SURVEILLANCE
2. Participate in MALARIA IDENTIFICATION, CONFIRMATION AND REPORTING
3. Carry out tasks specified under MALARIA SURVEILLANCE DATA MANAGEMENT
4. Generate and explain CORE MALARIA SURVEILLANCE GRAPHS
5. Illustrate the significance of MALARIA ENTOMOLOGICAL SURVEILLANCE
6. Undertake MALARIA EPIDEMIC PREPAREDNESS AND RESPONSE activities.
7. Participate in and undertake activities pertaining to malaria surveillance SUPERVISION AND FEEDBACK.

Content

1. Introduction
2. Purpose of Course
3. Target Group
4. Course Duration
5. Certification
6. Course Organization

Module 1 Introduction and Overview of Disease Surveillance

Unit 1: Introduction and Overview to Disease Surveillance
Unit 2: Basic malaria epidemiology
Unit 3: Overview of the National Malaria strategy
Unit 4: Malaria control interventions

Module 2 Malaria Identification, Confirmation, and Reporting

Unit 1: Identification of malaria cases
Unit 2: Case confirmation
Unit 3: Reporting

Module 3 Malaria Surveillance Data Management

Unit 1: Data collection, processing and flow
Unit 2: Data quality
Unit 3: Data analysis, presentation and interpretation
Unit 4: Data demand and use for policy and program management

Module 4 Core Malaria Surveillance Graphs

Unit 1: Malaria surveillance indicators, targets and data sources
Unit 2: Introduction to WHO core malaria surveillance graphs
Unit 3: Malaria surveillance graphs and interpretations
Unit 4: Malaria surveillance summary tool

Module 5 Malaria Entomological Surveillance

Unit 1: Introduction to malaria entomology
Unit 2: Surveillance of malaria vectors
Unit 3: Mapping of malaria vectors
Unit 4: Insecticide susceptibility and cone bioassay tests

Module 6 Malaria Epidemic Preparedness and Response

Unit 1: Introduction to malaria epidemics
Unit 2: Malaria epidemics thresholds setting in Kenya
Unit 3: Methods of malaria epidemic prevention
Unit 4: EPR Planning, and response to malaria epidemics
Unit 5: Post epidemic assessment

Module 7 Supervision and Feedback

Unit 1: Introduction to malaria supervision

Unit 2: Planning for malaria supervision

Unit 3: Conducting the malaria support supervision

Unit 4: Report writing and feedback

7. Training and Facilitation

8. Performance Assessment

9. Curriculum Implementation

10. Curriculum Review and Change

11. References and Recommended Readings

1. Introduction

Division of Malaria Control in Kenya has been in the process of operationalizing the WHO Manual for Surveillance in endemic settings. The Division of Malaria Control has so far realized the adoption of common indicators and dashboards for malaria program monitoring. With the aim of determining whether the data required for malaria surveillance indicators exists at the national, sub-national (district and health facility) level a series of international and national consultative workshops were held, a gap analysis of the existing systems carried out and a pilot of malaria surveillance data collection tool conducted in selected districts.

In this regard, the DOMC has developed the curriculum to train health workers on how to carry out an effective malaria surveillance at all service levels in the awareness that surveillance systems consists of tools procedures, people and structures which are required to generate information for planning, monitoring and evaluating malaria programs.

2. Purpose of the Course

The purpose of this course is to equip health care workers across the health care delivery system with the necessary knowledge, skills and attitudes that will enable them to effectively carry out malaria surveillance activities.

3. Target Group

The course is designed for all health care workers at all service levels who in the course of their duty participate in carrying out the malaria surveillance activities. The target group includes, but not limited to the following; disease surveillance teams, malaria control coordinators, medical practitioners, clinical officers, nurses, laboratory technologists, public health officers, health records information officers and pharmaceutical technologists.

4. Course Duration

The course is designed in a modular format which allows for very flexible implementation. It can be implemented in a period of 5 days as an intensive course.

However for busy working health professionals several modules can be covered at a time with subsequent coverage of the remaining modules as planned by organizers.

5. Certification

Upon successfully attending all the modules of the course as outlined in this curriculum, participants will be awarded a certificate.

6. Course Organization

Course organization is the comprehensive description of all the modules of the course, and is as indicated below (See EXAMPLE MODULE 1)

- Module 1 Introduction and Overview of Disease Surveillance**
Unit 1: Introduction and Overview to Disease Surveillance
Unit 2: Basic malaria epidemiology
Unit 3: Overview of the National Malaria strategy
Unit 4: Malaria control interventions
- Module 2 Malaria Identification, Confirmation, and Reporting**
Unit 1: Identification of malaria cases
Unit 2: Case confirmation
Unit 3: Reporting
- Module 3 Malaria Surveillance Data Management**
Unit 1: Data collection, processing and flow
Unit 2: Data quality
Unit 3: Data analysis, presentation and interpretation
Unit 4: Data demand and use for policy and program management
- Module 4 Core Malaria Surveillance Graphs**
Unit 1: Malaria surveillance indicators, targets and data sources
Unit 2: Introduction to WHO core malaria surveillance graphs
Unit 3: Malaria surveillance graphs and interpretations
Unit 4: Malaria surveillance summary tool
- Module 5 Malaria Entomological Surveillance**
Unit 1: Introduction to malaria entomology
Unit 2: Surveillance of malaria vectors
Unit 3: Mapping of malaria vectors
Unit 4: Insecticide susceptibility and cone bioassay tests
- Module 6 Malaria Epidemic Preparedness and Response**
Unit 1: Introduction to malaria epidemics
Unit 2: Malaria epidemics thresholds setting in Kenya
Unit 3: Methods of malaria epidemic prevention
Unit 4: EPR Planning, and response to malaria epidemics
Unit 5: Post epidemic assessment
- Module 7 Supervision and Feedback**
Unit 1: Introduction to malaria supervision
Unit 2: Planning for malaria supervision
Unit 3: Conducting the malaria support supervision
Unit 4: Report writing and feedback

7. Training and Facilitation

Trainers and facilitators for the course will be drawn from among various experts in the areas of malaria case management, laboratory, entomology, epidemiology and monitoring and evaluation.

8. Performance Assessment

The learners will be assessed through pre-tests and post-tests. Continuous assessments will also be used through question and answer sessions, practicum and attendance for all the modules will be mandatory. Assignments and group activities will also be assessed and feedback given.

9. Implementation

This is a 5 day course for health care workers. Ideally, the course ought to begin at 8.00 am on a Monday and stretch through to 5.00 pm every day. This implies that participants travelling from far-out districts will have to arrive at the workshop venue by Sunday preceding the week of training to be in time for the starting of the course on Monday morning.

Various teaching/learning methods, appropriate for adult learners will be applied including, overview lectures, brainstorming, demonstrations, small group discussions, case studies, role plays, assignments, practicum, and attendance at all sessions. This course will emphasize innovative methods, appropriate for adult learners.

10. Curriculum Review and Change

Each course will be evaluated by the participants and the facilitators, and the observations recorded. A workshop to review the curriculum will be held after the first five trainings are implemented to incorporate changes and recommendations made, and there after every 2 years.

11. Reference and Recommended Readings

These are appended at the back of each module.

Module 1: Introduction and Overview of Disease Surveillance

OBJECTIVES

By the end of this module participants will be able to:

1. Describe basic disease surveillance concepts
2. Explain basic concepts of malaria epidemiology
3. Explain the objectives and pillars of the National Malaria Strategy (NMS) (2009–2017)
4. Describe main malaria control interventions

CONTENT

- Definition of surveillance, methods/types of surveillance, functions and systems of surveillance (IDSR and HMIS)
- Describe malaria, parasite and vector, prevalence and endemicity in Kenya
- NMS goal, vision, mission, objectives and pillars
- Case management including malaria in pregnancy, vector control, epidemic preparedness and response, surveillance monitoring and evaluation , advocacy communication and social mobilization

LESSON PLAN GUIDE: MODULE 1 (2 ½ hours)

Unit	Content	Activity	Time
Unit 1	Definition of surveillance, methods/types of surveillance, functions and systems of surveillance (IDSR and HMIS)	Lecture and discussion	45 min
Unit 2	Describe malaria, parasite and vector, prevalence and endemicity in Kenya	Lecture and discussion	30 min
Unit 3	NMS goal, vision, mission, objectives and pillars	Lecture and discussion	30 min
Unit 4	Case management including malaria in pregnancy, vector control, epidemic preparedness and response, surveillance monitoring and evaluation , advocacy communication and social mobilization	Lecture and discussion	45 min

REFERENCES AND RECOMMENDED READINGS

1. Ministry of Public Health & Sanitation, Kenya. *Integrated Disease Surveillance and Response in Kenya*. Technical guidelines 2011.
2. WHO 2012. *Disease surveillance for malaria control, operational manual*.
3. WHO 2012. *World Malaria Report*
4. Division of Malaria Control 2009. *National Malaria Strategy 2009–2017*. Ministry of Public Health & Sanitation, Kenya.
5. Division of Malaria Control 2010. *National Malaria Policy*. Ministry of Public Health & Sanitation, Kenya.
6. Division of Malaria Control 2010. *National Malaria Indicator Survey 2010*. Ministry of Public Health & Sanitation, Kenya.
7. Ministry of Public Health & Sanitation, Kenya 2011. *Integrated Vector Management policy guideline*.
8. Noor et al. *The risks of malaria infection in Kenya , BMC Infectious disease 2009*

Module 2: Malaria Identification, Confirmation, and Reporting

OBJECTIVES

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

1. Identify/detect cases of malaria using the standard case definition
2. Describe malaria parasitological diagnostic methods
3. Demonstrate malaria recording and reporting format using appropriate tools

CONTENT

- Clinical presentation of malaria, standard case definition, differential diagnosis
- Test procedures of performing malaria microscopy and rapid diagnostic testing
- Case recording, reporting tools, reporting requirements,

LESSON PLAN GUIDE: MODULE 2 (2 hrs 45 mins)

Unit	Content	Activity	Time
Unit 1	Clinical presentation of malaria, standard case definition, differential diagnosis	Lecture	30 min
Unit 2	Test procedures of performing malaria microscopy and rapid diagnostic testing	Lecture and demonstration	1hr 30 min
Unit 3	Case recording, reporting tools, reporting requirements	Demonstration and group work	45 min

REFERENCES AND RECOMMENDED READINGS

1. Ministry of Public Health & Sanitation, Kenya. *Integrated Disease Surveillance and Response in Kenya*. Technical guidelines 2011.
2. Ministry of Public Health & Sanitation, Kenya. *Quality manual for laboratory diagnosis in Kenya 2013*.
3. Division of Malaria Control 2010. *National Malaria Policy*. Ministry of Public Health & Sanitation, Kenya.
4. Ministry of Public Health & Sanitation, Kenya. *Health information systems manual 2003*.
5. WHO 2012. *Disease surveillance for malaria control, operational manual*.
6. WHO 2011. *Universal access to malaria diagnostic testing, Operational Manual*

Module 3: Malaria Surveillance Data Management

OBJECTIVES

At the end of the module, the participants will be able to:

1. Identify different types of data sources, and describe the process involved in the malaria surveillance data collection, processing and flow using the existing MOH tools
2. Perform data quality checks to review the reports.
3. Perform simple data analysis tasks, present, interpret and share the results
4. Promote data demand and use for policy and program management

CONTENT

- Types of data sources, the process of data collection, processing, storage and data flow.
- Elements of data quality (accuracy, completeness timeliness, precision, validity, reliability and integrity)
- Definition of statistical measures (mean, median, mode, variance, ratio, proportion, percentage, rate).
- Methods of data analysis and presentation.
- The role of data in decision making, challenges faced in data demand and use

LESSON PLAN GUIDE: MODULE 3 (3 hrs)

Unit	Content	Activity	Time
Unit 1	Types of data sources, the process of data collection, processing, storage and data flow	Overview lecture	45 min
Unit 2	Data quality improvement	Overview lecture	30 min
Unit 3	Data analysis and interpretation, routine and non-routine data	Overview lecture and exercise	1hr 15 min
Unit 4	Data demand and use	Overview lecture	30 min

REFERENCES AND RECOMMENDED READINGS

1. Laurie Liskin. "Dissemination and Data Use Tools". MEASURE DHS. PowerPoint Presentation. 17 June 2009.
2. MEASURE DHS. "Module 7: Disseminating and Using Data for Change". PowerPoint Presentation. Kenya, June 2010.
3. Statistical Service Centre. (1998, March). Retrieved February 2013, from www.reading.ac.uk/ssc.
4. MoH 2010. *HIS training manual for health workers*.
5. MoH 2010. *DHIS training manual*.

Module 4: Core Malaria Surveillance Graphs

OBJECTIVES

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

1. Define the malaria surveillance indicators, data sources and targets
2. Identify the Core Malaria Surveillance Graphs adapted from WHO
3. Explain malaria surveillance graphs/dashboards
4. Demonstrate how the malaria core surveillance graphs are generated and update the summary tools

CONTENT

- Malaria surveillance indicator data sources and targets
- Introduction to WHO core malaria surveillance graphs
- Malaria surveillance graphs and interpretation
- Use of malaria surveillance summary tool in excel

LESSON PLAN GUIDE: MODULE 4 (3hrs)

Unit	Content	Activity	Time
Unit 1	Malaria surveillance indicators and targets	Overview lecture	30 min
Unit 2	Introduction to WHO core malaria surveillance graphs	Overview lecture	30 min
Unit 3	Malaria surveillance graphs and interpretation	Overview lecture	60 min
Unit 4	Malaria surveillance summary tool	Overview lecture, demonstration, and exercise	60 min

REFERENCES AND RECOMMENDED READINGS

1. Division of Malaria Control. (2009b) *National Malaria Strategy 2009–2017*. Ministry of Public Health & Sanitation, Republic of Kenya, November.
2. Division of Malaria Control. (2009c). *Kenya Monitoring & Evaluation Plan 2009–2017*. Ministry of Public Health & Sanitation, Nairobi, June.
3. MEASURE and EVALUATION (2012). *Operationalizing WHO Malaria Surveillance Guidelines in Kenya*.
4. World Health Organization. (2009). *Programme management: Guidelines for countries with moderate to high transmission of malaria*.
5. WHO 2012. *Disease Surveillance for Malaria control: An Operation manual*.

Module 5: Malaria Entomological Surveillance

OBJECTIVES

At the end of the module, the participants will be able to:

1. Describe the role of mosquitoes in malaria transmission
2. Describe different types of mosquito surveys and their roles in malaria vector surveillance
3. To stratify the distribution, density, behavior of vectors in relation to malaria transmission and control options
4. Describe how to conduct insecticide susceptibility and cone bioassay tests

CONTENT

- Life-cycle of the Anopheles mosquito; main bio-ecological traits of medical importance; vector incrimination and differentiation between other non-vector mosquitoes; interactions between mosquito, parasite and man
- Importance of mosquito sampling; types of mosquito surveys; methods of mosquito sampling;
- Importance of vector maps, key vector parameters in maps, generation of entomological profile maps and their use in selection of vector control options.
- Reasons for determining susceptibility of vectors and residual efficacy of insecticides on sprayed surfaces and insecticide treated materials; WHO tests: susceptibility of adult and larval mosquitoes to insecticides; cone bioassay tests; data interpretation and use

LESSON PLAN GUIDE: MODULE 5 (6hrs 30 min)

Unit	Content	Activity	Time
Unit 1	The role of mosquitoes in malaria transmission	Overview Lecture	1 hr 30 min
Unit 2	Different types of mosquito surveys and their roles in malaria vector surveillance	Lecture, discussions, and demonstrations	1 hr 30 min
Unit 3	Stratifying the distribution, density, behavior of vectors in relation to malaria transmission and control options	Lecture, discussions, and demonstrations	1 hr 30 min
Unit 4	Bioassays for determining the insecticide susceptibility of mosquito populations and residual efficacy of insecticides on sprayed surfaces and insecticide treated materials	Discussions, demonstrations	2hr

REFERENCES AND RECOMMENDED READINGS

1. WHO (2003). *Malaria Entomology and Vector Control: Learners and Facilitators Guide*.
2. RTI International (2012). *Training Manual on Malaria Entomology*.
3. Bruce Chawatt (2000). *Essential Malariology*.
4. Mbogo, C; et al (2012). *Entomological Manual for use by the Technical Teams within the Context of Integrated Disease Surveillance and Integrated Vector Management at the District Level*. Kenya Medical Research Institute, Centre for Geographic Medicine Research Coast, P.O. Box 428, 80108 Kilifi, Kenya.
5. WHO (2005). *Guidelines on Testing Residual Efficacy of Insecticide on Sprayed Surfaces and Insecticide Treated Materials*.
6. WHO 2012. *Global Plan for Insecticide Resistance Management in Malaria Vectors*.

Module 6: Malaria Epidemic Preparedness and Response

OBJECTIVES

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

1. Describe malaria epidemics
2. Demonstrate malaria threshold setting
3. Describe methods of malaria epidemic prevention
4. Develop malaria epidemic preparedness and response plans
5. Describe post malaria epidemic evaluation

CONTENT

- Definition of epidemics, types of epidemics, contributing/predisposing/triggering factors and consequences of epidemics
- Definition of threshold, scientific methods of setting malaria threshold (constant count, third quartile, Cullen method and cumulative sum methods), thresholds proposed for Kenya
- Strategies of malaria epidemics prevention (surveillance—early detection system, vector control—LLINs, IPTp, ACSM), epidemic cycle
- County/district/facility EPR plans (personnel, referral services, diagnostics, commodity supplies, resource mobilization, ACSM, surveillance), rapid assessments
- Assessments (what went wrong, lessons learnt and what can be done better) and preparedness

LESSON PLAN GUIDE: MODULE 6 (5 hrs)

Unit	Content	Activity	Time
Unit 1	Definition of epidemics, types of epidemics, contributing/predisposing/triggering factors and consequences of epidemics	Lecture and discussion	40 min
Unit 2	Definition of threshold, scientific methods of setting malaria threshold (constant count, third quartile, Cullen method and cumulative sum methods), thresholds proposed for Kenya	Lecture and group work	2 hr
Unit 3	Strategies of malaria epidemics prevention (surveillance—early detection system, vector control—LLINs, IPTp, ACSM), epidemic cycle	Lecture and discussion	30 min
Unit 4	County/district/facility EPR plans (personnel, referral services, diagnostics, commodity supplies, resource mobilization, ACSM, surveillance), rapid assessments	Lecture and group work	1 hr 30 min
Unit 5	Assessments (what went wrong, lessons learned and what can be done better) and preparedness	Lecture and group work	20 min

REFERENCES AND RECOMMENDED READINGS

1. Division of Malaria Control 2011. *Epidemic preparedness and response guidelines*. Ministry of Public Health & Sanitation, Kenya.
2. Ministry of Public Health & Sanitation, Kenya. *Integrated Disease Surveillance and Response in Kenya*. Technical guidelines 2011.
3. Division of Malaria Control 2009. *National Malaria Strategy 2009–2017*. Ministry of Public Health & Sanitation, Kenya.
4. WHO 2003. *Prevention and control of malaria epidemics*.
5. WHO 2006. *Systems for early detection of malaria epidemics in Africa*.
6. WHO 2012. *Disease surveillance for malaria control, operational manual*.

Module 7: Supervision and Feedback

OBJECTIVES

At the end of the module the health care workers will be able to:

1. Describe malaria support supervision
2. Develop a plan for Malaria supervision and use the planning tools
3. Perform malaria supervision using the supervisory checklists
4. Write a supervision report and give feedback using the reporting and feedback template

CONTENT

- Define supervision, characteristics of support supervisors, roles of a supervisor, roles of a supervisee, frequency of supervisory visits, supervision approaches.
- Developing a contact list, advance scheduling of the visit, supervisory team, role of the malaria coordinators and disease surveillance coordinators(including introduction to planning tools
- Conducting supervision (including introduction to supervision checklists), Tracking supervision visits
- Analyzing the supervision visits results, report writing, reporting templates, submission of reports, feedback, incentives and other follow up actions (including introduction to reporting and feedback templates)

LESSON PLAN GUIDE MODULE 7 (4 hrs)

Unit	Content	Activity	Time
Unit 1	Introduction to malaria support supervision	Overview lecture	45 min
Unit 2	Planning for malaria supervision	Lecture, practicals on filling the planning tools based on a case study(small group discussion)	45 min
Unit 3	Conducting the malaria support supervision	Lecture, role play ,practicals on filling the supervisory checklist based on a case study(small group discussion)	1hr
Unit 4	Report writing and feedback	Lecture, role play, practical on calculating scores and report writing based on a case study(small group discussion)	1hr 30 min

REFERENCES AND RECOMMENDED READINGS

1. MOPHS (2012) Manual for malaria supervision Nairobi Kenya
2. MOPHS (2012) Integrated disease surveillance technical guidelines

Malaria Surveillance System Training Course Schedule

Venue:

Dates:

Time	Monday	Tuesday	Wednesday	Thursday	Friday
8:30–9:30 am	Climate Setting Introductions Group Norms Expectations	Recap of Day 1 (15 minutes) Module 2: Malaria Identification, Confirmation and Reporting	Recap of Day 2 (15 minutes) Module 4: Malaria Surveillance Graphs	Recap of Day 3 (15 minutes) Module 5: Malaria Entomological Surveillance	Recap of Day 4 (15 minutes) Module 6: Epidemic Preparedness and Response (EPR)
9:30–10:30 am	Malaria Surveillance course objectives by: Opening Remarks Pre-test	Module 2: Malaria Identification, Confirmation and Reporting	Module 4: Malaria Surveillance Graphs	Module 5: Malaria Entomological Surveillance	Module 7: Supervision and Feedback
10:30–11:00 am	Module 1: Introduction and Overview of Disease Surveillance	Module 3: Malaria Surveillance Data Management	Module 5: Malaria Entomological Surveillance	Module 5: Malaria Entomological Surveillance	Module 7: Supervision and Feedback
11:00–11:30 am	TEA & COFFEE BREAK				
11:30–12:00 pm	Module 1: Introduction and Overview of Disease Surveillance	Module 3: Malaria Surveillance Data Management	Module 5: Malaria Entomological Surveillance	Module 6: Epidemic Preparedness and Response (EPR)	Module 7: Supervision and Feedback
12:00–1:00 pm	Module 1: Introduction and Overview of Disease Surveillance	Module 3: Malaria Surveillance Data Management	Module 5: Malaria Entomological Surveillance	Module 6: Epidemic Preparedness and Response (EPR)	Module 7: Supervision and Feedback
1:00–2:00 pm	LUNCH BREAK				
2:00–3:00 pm	Module 1: Introduction and Overview of Disease Surveillance	Module 3: Malaria Surveillance Data Management	Module 5: Malaria Entomological Surveillance	Module 6: Epidemic Preparedness and Response (EPR)	Module 7: Supervision and Feedback
3:00–4:00 pm	Module 2: Malaria Identification, Confirmation and Reporting	Module 4: Malaria Surveillance Graphs	Module 5: Malaria Entomological Surveillance	Module 6: Epidemic Preparedness and Response (EPR)	Post test Course Evaluation Certification Vote of Thanks Final Remarks & Closure
4:00–4:30 pm	TEA & COFFEE BREAK				
4:30–5:00 pm	Module 2: Malaria Identification, Confirmation and Reporting	Module 4: Malaria Surveillance Graphs	Module 5: Malaria Entomological Surveillance	Module 6: Epidemic Preparedness and Response (EPR)	Departure

Part B: Sample Pretest/Post-Test Questions

Module 1: Introduction and Overview of Disease Surveillance

Instructions—Answer True or False in the boxes provided indicating T if true and F if false

1. Disease surveillance is useful only during outbreak investigation.	
2. Case management, including use of diagnostic tests and artemisinin-based combination therapy (ACTs), is an appropriate malaria control strategy for all epidemiological zones in Kenya.	

Module 1: Answers

1. False
2. True

Module 2: Malaria Identification, Confirmation, and Reporting

Instructions—Answer True or False in the boxes provided indicating T if true and F if False

1. Malaria cases and deaths should be reported both weekly and quarterly.	
2. Malaria case confirmation is done using clinical diagnosis.	

Module 2: Answers

1. False
2. False

Module 3: Malaria Surveillance Data Management

Instructions—Answer True or False in the boxes provided indicating T if True and F if False.

1. Data presentation is the process of turning raw data into useful information.	
2. Lack of quality data is one of the barriers to data demand and use.	

Module 3: Answers

1. False
2. True

Module 4: Core Malaria Surveillance Graphs

Instructions—Answer True or False in the boxes provided indicating T if True and F if False.

1. The core surveillance graphs are grouped into two categories.	
2. Completeness of monthly reports is not one of the malaria surveillance indicators.	

Module 4: Answers

1. True
2. False

Module 5: Malaria Entomological Surveillance

Instructions—Answer True or False in the boxes provided indicating T if True and F if False.

1. Anopheles mosquitoes are the most efficient vectors of malaria transmission even though all mosquitoes are potential vectors.	
2. The WHO cone bioassay tests are used to determine mosquito susceptibility to insecticides.	

Module 5: Answers

1. False
2. False

Module 6: Malaria Epidemic preparedness and Response

Instructions—Answer True or False in the boxes provided indicating T if true and F if false

1. Indoor residual spraying is one of the Malaria epidemic preventive intervention(s) in Kenya.	
2. Increase in reported malaria cases is not necessarily an indicator of an impending epidemic.	

Module 6: Answers

1. False
2. True

Module 7: Support Supervision and Feedback

Instructions—Answer True or False in the boxes provided indicating T if true and F if false

1. A good supervisor ensures that those who have not performed well are reprimanded.	
2. In order to get a true picture of what is happening on the ground health workers should not be informed of an intended supervisory visits.	

Module 7 ANSWERS

1. False
2. False

DIVISION OF MALARIA CONTROL
Ministry of Public Health and Sanitation
P.O Box 19982 – 00202 KNH
Nairobi, Kenya
head.domc@domckkenya.or.ke

