

# The MalariaCare Toolkit

## Tools for maintaining high-quality malaria case management services

# MalariaCare clinical case management training guide

*Note: This guide was developed by the MalariaCare project for use in project countries. The introduction is a description of the overall objectives of the project; it is followed by learning units that can easily be adapted by national programs for use in their specific settings.*

Download all the MalariaCare tools from: [www.malariacare.org/resources/toolkit](http://www.malariacare.org/resources/toolkit).



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## Contents

Abbreviations .....	2
Introduction.....	3
Training methodology.....	4
Learning Unit 1: Epidemiology, national policy and guidelines, and basic concepts of malaria...	5
Learning Unit 2: Assessing and treating patients with fever .....	6
Learning Unit 3: Assessment and management of uncomplicated malaria .....	7
Learning Unit 4: Assessment and management of severe malaria .....	8
Learning Unit 5: Parasitological confirmation of malaria .....	9
Learning Unit 6: Pharmacology and pharmacovigilance of antimalarial drugs .....	10
Practical health facility visit—supervision and mentorship .....	10
Sample agenda for clinical case management training .....	12
Practice scenarios and handouts for clinical case management training .....	14
Practice scenario: “Clinical observation” .....	14
Handout: Basic principles of giving feedback .....	16
Handout: Bedside mentoring .....	17
Reference .....	17

## Abbreviations

mRDT	malaria rapid diagnostic test
OTSS	outreach training and supportive supervision
RDT	rapid diagnostic test
WHO	World Health Organization



Therefore, MalariaCare has developed a training curriculum focusing on this cadre. This document describes the outline of in-service training for clinical providers and clinical supervisors, which is designed to be completed in five days. However, it can be modified to accommodate a shorter training duration as needed. MalariaCare's approach has been to encourage national programs to develop a large part of the curriculum, with support from both our in-country and headquarters staff. From country to country, materials can differ in format, but MalariaCare ensures that content is consistent with international standards. The curriculum also focuses on areas identified as weaknesses during outreach training and supportive supervision (OTSS), such as recognizing symptoms and signs of severe malaria, and the ability to differentially diagnose other causes of fever.

The focus of the training is on diagnosis and clinical management of simple and severe malaria and its complications per national guidelines, including appropriate differential diagnosis of febrile conditions. The training also focuses on pre-referral and appropriate treatment for severe malaria. The participants will be selected based on their role in clinical management of malaria cases, either as frontline providers or as supervisors and mentors of providers.

## **Training methodology**

Each module intends to guide facilitators on different focus areas during training but can be modified country to country based on identified needs and the length of training. The focus areas have been adopted from the World Health Organization (WHO) malaria training modules,<sup>1</sup> as well as from ministry of health training manuals for health care workers in MalariaCare-focus countries. Facilitators use a variety of teaching methodologies to engage participants, including didactic sessions, small group and plenary discussions, exercises, and role-playing and practical sessions. Participants use clinical portions of the MalariaCare OTSS checklist and clinical mentorship tool for severe malaria during practical sessions at the health facilities. Facilitators, in consultation with MalariaCare staff, can choose to include or exclude materials based on the level of health staff being trained. Following is a summary of sessions and the timetable for the course, which is organized into six learning units.

# Learning Unit 1: Epidemiology, national policy and guidelines, and basic concepts of malaria

In this unit, participants will understand the epidemiological context of malaria in their country and become acquainted with the most updated national guidelines for the treatment of malaria. Participants will review WHO recommendations and the rationale for the country adopting these. All participants will be given a copy of the revised guidelines, which they will use to answer the questions at the end of this learning unit.

## Learning objectives

At the end of this unit, participants should be able to:

- Understand the epidemiological profile of malaria in the country.
- Describe the notion of malaria endemicity and how it applies to the country.
- Review the recommendations in the revised national treatment guidelines.
- Review the type of diagnostic tests used in the country.
- Understand the treatment of uncomplicated malaria.
- Describe treatment for severe malaria.
- May include explaining the proper dosing schedule for intermittent preventive treatment in pregnancy and seasonal or other forms of chemo-prophylaxis as applicable in the country.

## Basic concepts about malaria

Understanding the basic concepts about the malaria parasite and its life cycle is essential in understanding the pathology. In this unit, facilitators will explain the life cycle of *Plasmodium* and the various stages. They will also expound on the vector and its behavioral patterns that influence prevention. Participants will learn to distinguish fever patterns in infections with different species of *Plasmodium*.

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

- Describe the life cycle and mode of transmission of *Plasmodium*, and explain the various stages of this life cycle that are pathogenic.
- Understand the pyrogenicity in malaria disease, febrile cycles, and potentials for severe disease.
- Cite the various species of *Plasmodium* and their pathogenicity.
- Explain the rationale of the various strategies for prevention and control of malaria.

## Exercises

The exercise for Unit 1 is based on Unit 1 exercises of the WHO participants' guide, but it can also be contextualized with exercises developed by the national program. Develop small group discussions on topics such as malaria transmission and strategies to interrupt chain of transmission.

## Learning Unit 2: Assessing and treating patients with fever

Content for this unit will be based on the Integrated Management of Childhood (and Adult) Illnesses (IMCI/IMCAI) guidelines and the Emergency Triage Assessment and Treatment course developed by WHO, as well as the national algorithms for assessment of children with fever. All patients with fever as a main symptom (history of fever, or feels hot, or has an axillary temperature of 37.5°C or above) should be quickly and systematically checked for general danger signs and features of severe malaria. Immediate care is warranted if any one of these signs or features is present:

- Is not able to drink or breastfeed.
- Vomits everything.
- Has had convulsions.
- Is lethargic or unconscious.

A patient with a general danger sign should be referred immediately to hospital where appropriate treatments are available. At the end of this unit, participants should:

- Be familiar with the concept of emergency triaging, assessment, and rapid and appropriate management of patients with severe febrile disease.
- Understand the national algorithm for assessing a sick child or adult suspected to have malaria.
- Be able to conduct a comprehensive diagnosis and assessment of patients with fever.

## Exercises

Clinical case scenarios, case histories, and clinical exercises derived from the Emergency Triage Assessment and Treatment manual, or national training guidelines will be useful in this unit.

## Learning Unit 3: Assessment and management of uncomplicated malaria

Prompt and accurate diagnosis of malaria is part of effective disease management and will help to ensure appropriate treatment of patients, as well as reduce the inappropriate use of antimalarial drugs. A high level of sensitivity of malaria diagnosis is important in all settings, particularly for the most vulnerable population groups that incur most malaria-related mortality (e.g., children). Using a test-based approach can improve the differential diagnosis of febrile illness and reduce the unnecessary use of medicines and overuse of antimalarial drugs.

This unit contains information for participants on how best to diagnose and treat patients with uncomplicated malaria using a parasitological test to follow WHO's test-and-treat recommendation.

In this unit, facilitators should:

- Review the steps in the national algorithm of the ministry of health training manual that are related to the assessment and treatment of uncomplicated malaria, and those that describe clinical features of uncomplicated malaria.
- Discuss biological confirmation of malaria with a special focus on the use of malaria RDTs at lower-level facilities and community level.

### Learning objectives

At the end of this unit, participants should be able to:

- Demonstrate competence in identifying a suspected case of malaria, recognizing the need for a test, and assessing severity.
- Outline the advantages of parasitological diagnosis.
- Explain the mechanism of malaria RDTs.
- State the advantages and disadvantages of malaria microscopy and RDTs.
- State the recommended guidelines for the treatment of uncomplicated malaria.
- Describe the supportive care for uncomplicated malaria.
- Define the term “drug resistance” in malaria and list the methods for assessment of drug resistance.
- Understand the role of follow-up for case management at all levels of health services.

### Exercises

Case histories and clinical exercises derived from Learning Unit 3 of WHO participants' guide and national guidelines.

## Learning Unit 4: Assessment and management of severe malaria

This unit covers signs and symptoms of severe malaria, the pathophysiology of severe malaria, management, and steps to be followed for referral.

The facilitator should ensure that participants fully understand key information on how to recognize severe malaria, request important tests, and provide prompt and appropriate treatment to facilitate recovery and limit disability.

Principles of management of severe malaria, as well as prompt treatment with an antimalarial medication, are based on adequately identifying and targeting treatable complications such as hypoglycemia, anemia, and acidosis, as well as monitoring response to treatment.

The facilitators must help the participants to understand that symptoms and signs of severe malaria may overlap with those of other conditions such as sepsis, meningitis, and pneumonia, and that co-infection is common.

This learning unit aims to develop among participants an understanding of the pathophysiology of severe malaria and its complications related to different organ systems. Severe malaria is a medical emergency; rapidly assessing each case for signs of severe disease or complication that need immediate correction is a lifesaving skill that all clinicians must learn. The facilitator should ensure that participants gain an understanding of the importance of malaria microscopy and other laboratory tests to diagnose the complications.

In addition, one of the causes of high malaria case fatality rates is lack of adequate monitoring once a patient is admitted in the ward. This unit will also focus on patient monitoring and nursing as part of management of severe disease.

The videos on assessment of patients with severe malaria and one on the reconstitution and administration of artesunate are essential tools to be used in this unit.

### Learning objectives

At the end of the unit, participants should be able to:

- Define severe malaria according to pathophysiology using the WHO criteria.
- Discuss the host-parasite interaction that contributes to the pathogenesis of severe malaria.
- Identify groups at high risk.
- Make a diagnosis of severe *falciparum* malaria.
- Specify identification, treatment and supportive measures, and monitoring of manifestations of severe malaria.

- Understand steps in the referral of patients with severe malaria.
- Describe the recommended antimalarial chemotherapeutic regimen for severe malaria.

## Exercises

Case histories and clinical exercise from Learning Unit 4 of the WHO participants' guide, as well as published severe malaria clinical cases or specific country cases. Exercises on calculation of doses of artesunate in various patient groups should be an essential part of these group exercises.

## Learning Unit 5: Parasitological confirmation of malaria

Understanding the techniques involved in performing biological confirmation of *Plasmodium* infection is critical in building clinicians' trust in test results and in accepting the test-and-treat strategy. This module is a practical session in which diagnostic experts will walk participants through theoretical and practical steps in performing an mRDT and a microscopy test, and in reading and interpreting results. Diagnostic experts also will discuss the sensitivity, specificity, and the importance of each type of test in different settings. Video presentations on performance of mRDTs and slideshows of different parasite species and densities, as well as a demonstration on calculating parasite density, are useful exercises.

## Learning objectives

By the end of this unit, participants will:

- Understand the difference between microscopy and mRDTs in the biological confirmation of *Plasmodium* infection.
- Identify common errors that can lead to false negative or false positive results.
- Demonstrate a mastery of the techniques in performing accurate rapid diagnostic testing.
- Understand the importance of parasite density in monitoring of infection and treatment failure.

## Exercises

Groups of three participants each, with one participant acting as a provider, one acting as a patient, and a third as supervisor who will use the RDT observation checklist to uncover common errors during performance of an RDT. Restitution and plenary discussion of most common errors will follow. Use actual reading of slides or visualization of projected images.

## Learning Unit 6: Pharmacology and pharmacovigilance of antimalarial drugs

With the increasing threat of resistant strains of *Plasmodium* and the need to ensure that antimalarial drugs remain effective, countries have joined the WHO call for the use of combination therapies in the treatment of malaria cases. Understanding the pharmacokinetics and pharmacodynamics of antimalarial drugs is critical in getting physicians to adhere to treatment guidelines, to use ACTs as a first line of treatment, and to avoid monotherapies. A heightened pharmacovigilance, monitoring of treatment outcomes, and surveillance of adverse drug effects that may be responsible for low compliance to treatment protocols are essential in the role of the first-line provider. MalariaCare has added this unit to the curriculum in order to facilitate providers' understanding of the rationale of combination therapies and their adherence to their use.

### Learning objectives

At the end of this unit, participants will be able to:

- Understand the mechanism of action of different classes of antimalarial drugs and the added advantage of combination therapies.
- Define clinical and biological treatment failures, and evaluate the efficacy of and resistances to antimalarial drugs.
- Describe the principles and processes of notification of adverse drug reactions.

### Exercises

Exercises in this unit will include determination of treatment failure, as well as notification of drug adverse reactions and choice of antimalarial drugs in various scenarios

### Practical health facility visit—supervision and mentorship

This session is for supervisors and will take place at a clinic, outpatient department, and/or inpatient ward where malaria cases are managed. This session will serve to familiarize supervisors with the clinical case management checklist and give them practice in mentoring techniques. Various sections of the clinical checklist of MalariaCare's OTSS tool will be used by small groups to observe case management practices and collect data on gaps observed. These gaps will be presented in plenary and discussed. The management of severe malaria at a health facility will be studied through examination of patients' health facility records, observation of history-taking, and clinical examination. This will give practical experience of real-life situations in management of severe malaria and supervision of health workers in health facilities.

## Learning objectives

At the end of the unit, participants should be able to:

- Use the OTSS checklist to observe practices, especially those related to triaging, history-taking, and clinical examination of patients with uncomplicated and severe malaria; classification of cases; and management, especially of patients who are being treated in the hospital.
- Assess the basis for diagnosis and the details of the management of the patients reviewed in the bullet above.
- Mentor health care workers who are using newly acquired knowledge in the management of malaria, and practice different forms of adult learning covered in the training.
- Describe the profile of malaria patients with severe malaria seen in the hospital in the past year.

At the end of the visit, there will be an opportunity for participants to discuss with each other and with their trainers their observations on using the OTSS checklist and clinical mentorship tool, including severe malaria sections in countries that have included those. Discussion should focus both on opportunities and challenges in mentoring, as well as observed practice and information gained through patient chart review.

## Sample agenda for clinical case management training

Hour	Day 1	Day 2	Day 3	Day 4	Day 5
	<b>Moderator</b>	<b>Moderator</b>	<b>Moderator</b>	<b>Moderator</b>	<b>Moderator</b>
<b>08:30-09:15</b>	Administrative formalities Official opening session <b>Pre-test</b>	Recap of Day 1	Recap of Day 2	Recap of Day 3	Recap of Day 4
<b>09:15-10:45</b>	<b>Learning Unit 1:</b> Epidemiology, national policy and guidelines, and basic concepts of malaria	<b>Learning Unit 4:</b> Assessment and management of severe malaria— <b>pathophysiology</b>	<b>Learning Unit 5:</b> Parasitological confirmation of malaria—mRDT	<b>Learning Unit 6:</b> Pharmacology and pharmacovigilance of antimalarial drugs	<b>Field visit to health facilities in groups</b>
<b>10:45-11:00</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>	<b>Coffee Break</b>
<b>11:00-13:00</b>	<b>Learning Unit 2:</b> Assessing and treating patients with fever  <b>Clinical cases and exercises</b>	<b>Learning Unit 4:</b> Assessment and management of severe malaria  <b>Complications of severe malaria</b>	<b>Learning Unit 5:</b> Parasitological confirmation of malaria—microscopy	<b>Learning Unit 6:</b> Pharmacology and pharmacovigilance of antimalarial drugs  <b>Exercises on assessment of treatment failure and Notification of ADRs</b>	<b>Work in health facilities</b>
<b>13:00-14:00</b>	<b>Lunch Break</b>	<b>Lunch Break</b>	<b>Lunch Break</b>	<b>Lunch Break</b>	<b>Lunch Break</b>
<b>14:00-15:45</b>	<b>Learning Unit 3:</b> Assessment and management of uncomplicated malaria	<b>Learning Unit 4:</b> Assessment and management of severe malaria  <b>Other visceral manifestations of severe malaria</b>	<b>Learning Unit 5:</b> Biological confirmation of malaria—practical sessions on mRDT and microscopy	Blood transfusion and pharmacovigilance of blood transfusion	<b>Plenary restitution of field work by groups</b>  Post-test

15:45-16:00	Coffee Break	Coffee Break	Coffee Break	Coffee Break	Coffee Break
16:00-16:45	Integrated Management of Childhood Illness videos  Exercises	Malaria in pregnancy  <b>Case studies and exercises on severe malaria</b>	<b>Video on reconstitution and administration of injectable artesunate</b>  <b>Exercises in calculation of doses</b>	Biomedical waste management in MalariaCare project	Correction and any last-minute updates  Participants' final workshop evaluation  <b>Official closing ceremony</b>
16:45-18:00	Participants' feedback  Facilitators' recap of the day	Participants' feedback  Facilitators' recap of the day	Participants' feedback  Facilitators' recap of the day	Preparation of field visit  Facilitators' recap of the day	Facilitators' evaluation of workshop

# Practice scenarios and handouts for clinical case management training

## Practice scenario: “Clinical observation”

*MalariaCare staff familiar with the case will role-play as a clinician and two mothers. Participants will act as supervisors filling out forms on their own tablets.*

*Time for first encounter: 60–90 seconds*

Clinical provider: Good morning.

Mother of child: Good morning.

Clinical provider: Do you have the child’s health card (or immunization card or whatever it’s called in that country)?

*Mother hands the card to provider, and they look through it.*

Clinical provider: Why have you brought your child today?

Mother: She has a fever and vomited today.

Clinical provider: How long has she had a fever?

Mother: Two days.

*Clinical provider leans forward to examine child:*

*The provider sees a child sitting in her mother’s lap; she is alert and awake with eyes open, but not very active. The provider checks the child’s conjunctiva, squeezes her cheeks together to somewhat open her mouth and look inside, and presses twice on the child’s abdomen while the child is seated on her mother’s lap.*

Clinical provider to mother: Please take this to the laboratory so they can do a test for malaria; they will send you back when they are finished.

*Mother stands and leaves. As she leaves, another mother brings her child into the room and sits down.*

*Time for second encounter: 2–3 minutes*

Clinical provider: Good morning.

Mother: Good morning.

Clinical provider: Do you have the child's health card (or immunization card or whatever it's called in that country)?

*Mother hands the card to provider, and they look through it.*

Clinical provider: Why have you brought your child today?

Mother: He has diarrhea.

Clinical provider: For how many days?

Mother: Three days.

Clinical provider: Have you seen any blood in the diarrhea?

Mother: No.

Clinical provider: Has the child had a fever?

Mother: Yes.

Clinical provider: How long?

Mother: Also for three days.

Clinical provider: Has the child been vomiting?

Mother: No, but he hasn't been eating or drinking.

Clinical provider: Can you lay him on the table? I want to examine him.

*The provider sees an alert and awake child who begins to cry as the mother lays him on the table; one can see that his lips are somewhat dry. The clinical provider checks the child's conjunctiva and looks in his mouth. The provider lifts the child's shirt up and looks at the skin on his torso and back. The provider palpates the child's abdomen and pinches the skin on his arm. The provider looks at the child's nails. The clinical provider writes an order for oral rehydration salts and zinc for the mother to take to the pharmacy, and an order for the laboratory to perform an mRDT, instructing the mother on both. The mother and child exit the room.*

## Handout: Basic principles of giving feedback

- Ask permission or identify that you are giving feedback. Examples:
  - “Can I give you some feedback on that follow-up patient visit?”
  - “I’d like to provide some feedback on what I observed during my visit today.”
- Give feedback in a “feedback sandwich.”
  - Start with a positive observation (“It was good that you . . .”).
  - Provide a constructive critical observation or suggestion for improvement.
  - Finish with a second positive observation or summary statement.
- Use the first person: “I think,” “I saw,” “I noticed.”
- Describe what you observed and be specific. State facts, not opinions, interpretations, or judgments.
- Feedback should address what a person did, not your interpretation of his or her motivation or reason for it.
  - Action: “You skipped several sections of the counseling script.”
  - Interpretation: “You skipped several sections of the counseling script. I know you want to finish because it’s almost lunch time, but. . . .”
- Don’t exaggerate. Avoid terms such as “you always” or “you never.”
- Don’t be judgmental or use labels. Avoid words like “lazy,” “careless,” or “forgetful.”
- When making suggestions for improvement, use statements like, “You may want to consider . . .” or “Another option is. . . .”
- You can provide feedback any time: during the clinic visit, immediately afterwards, or after you leave the clinic premises.
- Don’t wait too long to give feedback. The closer the feedback is to the actual event, the more likely the health care worker will remember the teaching point.
- Certain feedback requires more immediate timing:
  - Example: If you see that the health care worker is doing something in error or omitting a very important step during the visit.
- If you provide feedback during a patient encounter:
  - Do not alarm the health care worker or patient. Put them both at ease.
  - Be very calm and patient as you explain your recommendation.

## Handout: Bedside mentoring

- Defined as teaching and reinforcing skills at patient's bedside:
  - A common approach in medical education.
  - Reinforces classroom learning.
  - Allows mentor to model important clinical skills, attitudes, and communication in the context of patient care, as well as observe mentee's skills.
- Easily adapted for outpatient setting.
- Five steps:
  - Get a commitment.
  - Probe for supporting evidence.
  - Reinforce what was done well.
  - Give guidance about errors and omissions.
  - Summarize encounter with a general principle.

## Reference

World Health Organization (WHO). *Training Module on Malaria Control: Case Management. Guide for Participants*. Geneva: WHO; 2012. Available at [http://apps.who.int/iris/bitstream/10665/78070/1/9789241503976\\_eng.pdf](http://apps.who.int/iris/bitstream/10665/78070/1/9789241503976_eng.pdf).



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