

## **Report on Training of Health Workers on Malaria Case Management and Treatment Policy Rollout in Coast Province**

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## ACRONYMS AND ABBREVIATIONS

ACT	artemisinin-based combination therapy
AL	artemether-lumefantrine
CO	Clinical Officer
DHMT	District Health Management Team
DOMC	Division of Malaria Control
FBO	faith-based organization
GOK	Government of Kenya
IM	intramuscular
IV	intravenous
MO	Medical Officer
MSH	Management Sciences for Health
NGO	nongovernmental organization
PHMT	Provincial Health Management Team
PMI	President's Malaria Initiative
SPS	Strengthening Pharmaceutical Systems
TOT	training of trainers
USAID	U.S. Agency for International Development



## EXECUTIVE SUMMARY

In 2008, the Division of Malaria Control (DOMC), with partner support, reviewed and updated the malaria treatment guidelines. Valuable time was invested in assessing facility-level diagnostic capacity and in reviewing and finalizing the policy for malaria diagnosis. These reviews have resulted in the development of a case management curriculum and implementation guide as well as manuals for facilitators and participants manuals.

In line with activity 4 of the Malaria Work Plan for financial year 2008/09, the Strengthening Pharmaceutical Systems (SPS) Program provided technical support to the DOMC on training of health workers in treatment and policy rollout in the public, mission/nongovernmental organization (NGO), and private sectors. This activity was implemented as a vertical catch-up activity for facilities not yet trained on use of the current malaria treatment guidelines.

Because supervision of public and mission health workers in malaria case management is the responsibility of the District Health Management Team (DHMT), SPS supported the selection by each district trainer of crucial DHMT members who were included as trainers of trainers in the district trainings. A team of core trainers from the DOMC underwent a one-day sensitization workshop to agree on the training modules, training agenda, and training plan. These core trainers then conducted a training-of-trainers (TOT) three-day workshop for the 13 districts of Coast Province in Mombasa.

To support training of health workers in the districts, the trainers of trainers went through a session where they prepared their cascade-training work plans. Thereafter, each of the 13 districts trained all health workers in their districts—those from the government of Kenya (GOK), faith-based organizations (FBOs), NGOs, and the private sector.

The general objective of the training was to train health workers in treatment and policy rollout within the public, mission/NGO, and private sectors.

A total of 30 trainings were conducted in the province July 6–30, 2009. The trainings were conducted concurrently in the 13 districts; 1,106 health workers were trained.

Lessons learned in this activity were that the training of DHMT members for case management training in the Coast Province through a cascade-training approach using them as trainers of trainers created great participation, involvement, and ownership by the districts.



## BACKGROUND

Since the adoption of Kenya's new malaria treatment policy in 2006, the DOMC, with partner support, has rolled out training on the new malaria treatment guidelines to public sector, NGOs, and selected private sector health workers at facility level. The three-day training was carried out through a cascade training approach using TOTs. By 2007, the DOMC, with support from Management Sciences for Health (MSH) and other partners, had trained 9,000 health workers countrywide. However, these trainings did not reach all health workers in the public and mission/NGO sectors. Furthermore, the curriculum used for case management trainings focused largely on treatment and did not cover pharmacovigilance and drug management aspects.

In 2008, the DOMC, with partner support, reviewed and updated the malaria treatment guidelines. Valuable time was invested in assessing facility-level diagnostic capacity and reviewing and finalizing the policy for malaria diagnosis. These reviews have resulted in the development of a case management curriculum and implementation guide as well as manuals for facilitators and participants. It is anticipated that the use of a standard case management training approach and standard tools in training health workers will ensure that key messages are communicated as uniformly as possible.

In line with activity 4 of the Malaria Work Plan for financial year 2008/09, the SPS Program provided technical support to the DOMC on training of health workers in treatment and policy rollout within public, mission/NGO, and private sectors. This activity was implemented as a vertical catch-up activity for facilities not yet trained on use of the current malaria treatment guidelines. These trainings emphasized rational use, pharmacovigilance, and effective management of malaria of medicines. Because supervision of public and mission health workers in malaria case management is the responsibility of the DHMTs, SPS supported the selection by each district trainer of crucial DHMT members who were included as trainers of trainers in the district trainings.

The trainings focused on health workers in endemic and epidemic-prone areas. The target was to train 2,500 health workers countrywide in Coast, Rift Valley, Nyanza, and Western Provinces. This activity took place from June to September 2009. MSH, in collaboration with the DOMC, has conducted and coordinated the trainings for Coast Province health workers.

A team of core trainers from the DOMC underwent a one-day sensitization workshop to agree on the training modules, training agenda, and training plan. These core trainers then conducted a three-day TOT workshop in Mombasa for the Coast Province.



## **TRAINING PLAN FOR COAST PROVINCE**

The training of the Coast Province TOTs was done in one workshop. The workshop consisted of all 13 Coast Province district DHMT and Provincial Health Management Team (PHMT) members. Each DHMT team consisted of four members from the clinical-oriented departments: a medical officer (MO) or clinical officer (CO), a laboratory technologist, a pharmacist or pharmaceutical technologist, and a nursing officer. The PHMT also consisted of four members from the same cadres of medical staff. The training focused on the following key areas: uncomplicated malaria, severe malaria, laboratory diagnosis, malaria in pregnancy, pharmacovigilance, and drug management.

After training of the district trainers of trainers, each district team, with the supervision of the PHMT, trained health workers from all the health facilities in their respective districts, comprising facilities of the GOK, FBOs, NGOs, and the private sector. The DOMC and MSH provided support to backstop and articulate policy issues.

Each of the 13 districts trained health workers (GOK, FBOs, NGOs, and private) in their districts. To support this activity, the TOTs included a session where trainers prepared their cascade-training work plans.



### **Malaria Case Management Training Requirements**

Name of Training: Training on the rollout of new treatment guidelines for malaria case management in Coast Province

<b>Dates of Training</b>	<b>Check-in Date</b>	<b>Check-out Date</b>	<b>Venue (Town)</b>	<b>Number of Trainings</b>	<b>Venues</b>	<b>Training Coordinator</b>	<b>Number to Be Trained</b>	<b>MSH Staff</b>
July 6–8 July 13–15 July 20–22	July 5 July 12 July 19	July 9 July 16 July 23	Malindi (Malindi District)	3	Coral Key Hotel	Phyles Musembi	120	Administrative support (A. Chiguzo)
July 6–8 July 13-15	July 5 July 12	July 9 July 16	Voi (Taita District)	2	Voi Safari Lodge	Damaris Mulei	62	Administrative support (A. Chiguzo)
July 8–10 July 13–15	July 7 July 12	July 11 July 16	Lamu (Lamu District)	2	Lamu Palace Hotel	Rukia Dzombo	45	Administrative support (A. Chiguzo)
July 13–15 July 20–22 July 23–25 July 27–29	July 12 July 19 July 22 July 26	July 16 July 22 evening July 26 morning July 30	Mombasa (Kilindini District)	4	Mombasa Beach	Caroline Olwande	176	Administrative support (A. Chiguzo)
July 13–15 July 20–22	July 12 July 19	July 16 July 23	South Coast (Kwale District)	2	Jacaranda Hotels	Ruth Njenga	65	Administrative support (A. Chiguzo)
July 8–10 July 13–15	July 7 July 12	July 11 July 16	South Coast (Kinango District)	2	Jacaranda Hotels	Ruth Njenga	49	Administrative support (A. Chiguzo)
July 20–22 July 27–29	July 19 July 26	July 23 July 30	Mombasa (Mombasa District)	2	Royal Court Hotel	Caroline Olwande	90	Administrative support (A. Chiguzo)
July 6–8 July 13–15	July 5 July 12	July 9 July 16	Malindi (Tana Delta District)	2	Edenroc Hotel	Phyles Musembi	71	Administrative support (A. Chiguzo)

*Training of Health Workers on Malaria Case Management and Treatment Policy Rollout in Coast Province*

<b>Dates of Training</b>	<b>Check-in Date</b>	<b>Check-out Date</b>	<b>Venue (Town)</b>	<b>Number of Trainings</b>	<b>Venues</b>	<b>Training Coordinator</b>	<b>Number to Be Trained</b>	<b>MSH Staff</b>
July 6–8 July 13–15	July 5 July 12	July 9 July 16	Malindi (Tana River District)	2	Edenroc Hotel	Phyles Musembi	90	Administrative support (A. Chiguzo)
July 13–15 July 20–22	July 12 July 19	July 16 July 23	South Coast (Msambweni District)	2	Kaskazi Beach Hotel	Ruth Njenga	75	Administrative support (A. Chiguzo)
July 13–15 July 16–18 July 20–22 July 23–25 July 27–29	July 12 July 15 July 19 July 22 July 26	July 16 July 19 July 23 July 26 July 30	Kilifi (Kilifi District)	5	Milele Beach	Sheila Mwangi	202	Administrative support (A. Chiguzo)
July 13–15	July 12	July 16	Kilifi (Kaloleni)	1	Sapphire Hotel	Caroline Maina	27	Administrative support (A. Chiguzo)
July 13–15	July 12	July 16	Voi (Taveta District)	1	Sapphire Hotel	Caroline Maina	35	Administrative support (A. Chiguzo)
<b>Total</b>				<b>30</b>	<b>10 venues</b>	<b>7</b>	<b>1,107</b>	

*Training Plan for Coast Province*

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**Summary of Trainings**

<b>Venue</b>	<b>Districts</b>	<b>Number of Trainings</b>	<b>Training Coordinator</b>
Malindi	Malindi, Tana River, and Tana Delta Districts	7	Phyles Musembi
Mombasa	Taveta and Kaloleni Districts	2	Carol Maina
Voi	Taita Districts	2	Damaris Mulei
Mombasa	Kilindini and Mombasa Districts	6	Carol Olwande
South Coast (Diani)	Kwale, Msambweni, and Kinango Districts	6	Ruth Njenga
Bamburi (Mombasa)	Kilifi Districts	5	Sheila Mwangi
Lamu	Lamu District	2	Rukia Dzombo
<b>Total</b>	<b>13 Districts</b>	<b>30</b>	<b>7 Coordinators</b>



## OBJECTIVES OF THE TRAININGS

### General Objective

The general objective of the training was to train health workers in treatment and policy rollout within public, mission/NGO, and private sectors.

### Specific Objectives

Specific objectives were to enable participants to—

- Use the revised 2008 national guidelines in the diagnosis, management, and prevention of malaria
- Describe the rationale behind the use of artemisinin-based combination therapy (ACT) as first-line treatment
- Describe the importance of confirmatory diagnosis in patients older than five years of age
- Apply algorithms in case management
- Describe the rationale behind the revised intermittent preventive treatment regimen in pregnancy
- Introduce pharmacovigilance in the treatment guidelines
- Introduce drug management in the treatment guidelines

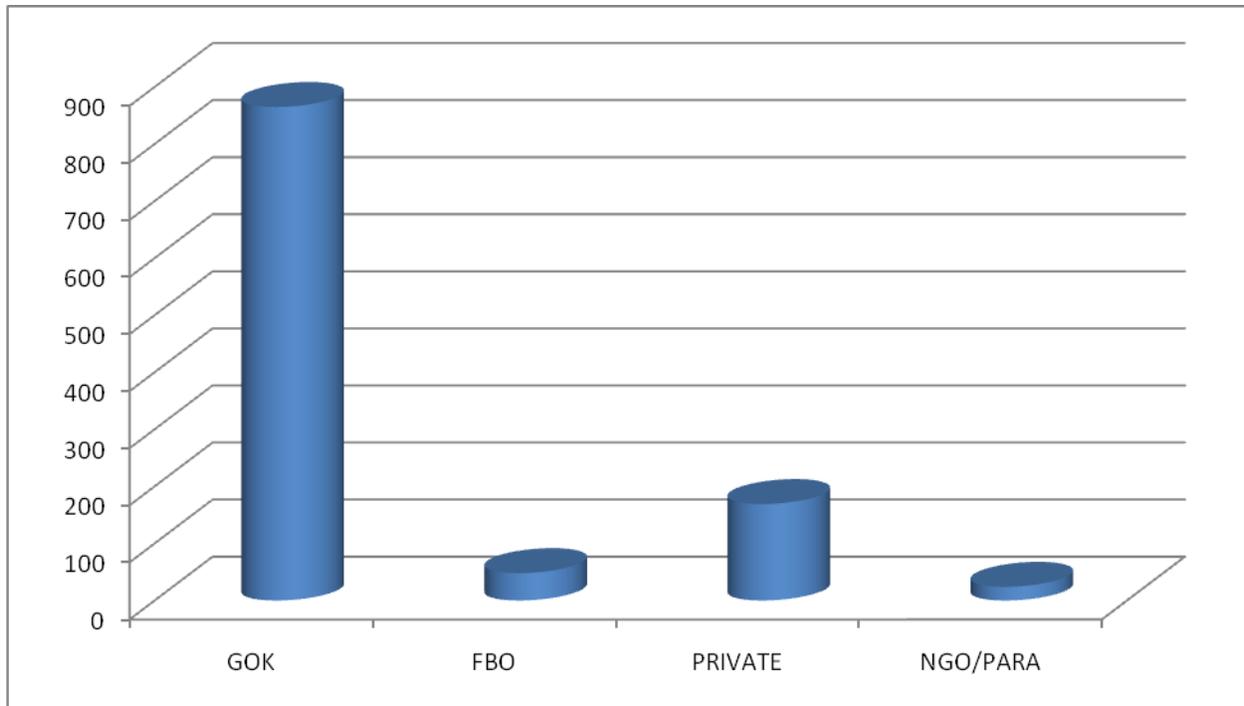


## TRAINING OUTCOMES

Thirty trainings were conducted in the province from July 6 to 30, 2009. The trainings were conducted concurrently in the 13 districts. A total of 1,106 health workers were trained, distributed by services providers and cadres, respectively, as presented in tables 1 and 2 as well as figures 1 and 2.

**Table 1. Malaria Case Management Training in Coast Province, by Service Provider**

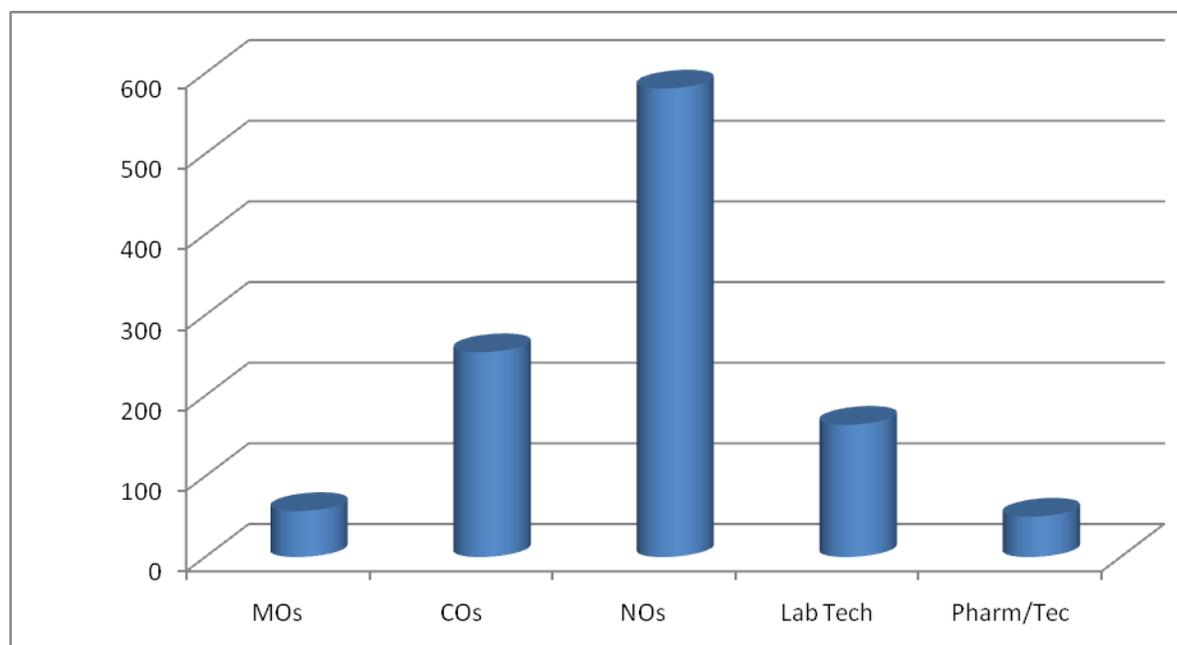
Number	District	GOK	FBO	Private	NGO/ Parastatal	Total
1	Malindi	98	7	29	0	134
2	Taita	46	1	4	5	56
3	Lamu	44	2	13	0	59
4	Kilindini	94	14	49	0	157
5	Kinango	45	1	1	3	50
6	Kwale	65	0	7	1	73
7	Mombasa	67	4	16	0	87
8	Tana Delta	55	2	4	0	61
9	Tana River	71	0	3	0	74
10	Taveta	24	1	4	0	29
11	Msambweni	52	6	8	12	78
12	Kilifi	181	5	27	3	216
13	Kaloleni	23	5	4	0	32
	<b>Total</b>	<b>865</b>	<b>48</b>	<b>169</b>	<b>24</b>	<b>1,106</b>



**Figure 1. Malaria case management training in Coast Province, by services provider**

**Table 2. Malaria Case Management Training in Coast Province, by Cadres**

Number	District	MOs	COs	Nurses	Laboratory Technologists	Pharmacists/ Pharmacy Technologists	Total
1	Malindi	17	46	59	9	3	134
2	Taita	4	8	27	8	9	56
3	Lamu	2	11	29	16	1	59
4	Kilindini	4	55	73	16	9	157
5	Kinango	0	5	37	8	0	50
6	Kwale	0	17	42	11	3	73
7	Mombasa	10	27	34	11	5	87
8	Tana Delta	2	5	39	13	2	61
9	Tana River	0	12	47	15	0	74
10	Taveta	1	7	13	7	1	29
11	Msambweni	3	14	35	21	5	78
12	Kilifi	13	52	124	15	12	216
13	Kaloleni	1	5	22	4	0	32
	<b>Total</b>	<b>57</b>	<b>264</b>	<b>581</b>	<b>154</b>	<b>50</b>	<b>1,106</b>



**Figure 2. Malaria case management training in Coast Province, by cadres**



## LESSONS LEARNED

- Training of DHMT members for case management training in Coast Province through a cascade training approach and using them as trainers of trainers created great participation, involvement, and ownership by the districts.
- A cascade training approach using the DHMT members as trainers of trainers allowed many trainings to be conducted at the same time, thus covering the entire province in just four weeks.
- The involvement of the private sector in the case management training was given prominence, encouraging many private practitioners to participate in the trainings. More training is being sought by the private sector.
- To conduct a successful province wide training on case management for malaria, all stakeholders must be involved in participation, management, collaboration, and support.
- Commitment, cooperation, understanding, and dedication of the various individuals involved in the preparation and execution of the training is a prerequisite to success.

**Table 3. Average Pretest and Posttest Scores of Training Participants**

<b>Number</b>	<b>Training</b>	<b>Average Pretest Score (%)</b>	<b>Average Posttest Score (%)</b>
1	Lamu District 1	70.0	85.0
2	Lamu District 2	71.2	90.3
3	Tana Delta District 1	67.0	87.0
4	Tana Delta District 2	65.0	83.0
5	Tana River District 1	69.3	89.6
6	Tana River District 2	66.0	83.0
7	Malindi District 1	71.0	90.0
8	Malindi District 2	69.0	89.0
9	Malindi District 3	70.0	88.0
10	Kilifi District 1	71.0	85.0
11	Kilifi District 2	76.0	87.0
12	Kilifi District 3	73.0	87.0
13	Kilifi District 4	76.5	87.5
14	Kilifi District 5	72.5	93.0
15	Kaloleni District	68.2	82.6
16	Kilindini District 1	69.5	91.5
17	Kilindini District 2	70.2	85.0
18	Kilindini District 3	68.7	90.8
18	Kilindini District 4	73.0	87.3
20	Mombasa District 1	71.1	90.5
21	Mombasa District 1	67.4	82.2
22	Kwale District 1	73.0	86.0
23	Kwale District 2	74.0	86.8
24	Msambweni District 1	69.0	87.0
25	Msambweni District 2	70.8	82.2
26	Kinango District 1	68.0	86.0
27	Kinango District 1	78.0	87.0
28	Taita District 1	72.1	87.6
29	Taita District 2	74.9	88.7
30	Taveta District	77.2	89.8
	<b>Total average score</b>	<b>71.1</b>	<b>87.2</b>

There was a good improvement in performance of participants, as shown in table 3. The average pretest score was 71.1 percent and that of the posttest was 87.2 percent, hence a 16.1 percent improvement in performance was recorded. This improvement is hoped to translate into better malaria case management.

## EVALUATION OF WORKSHOPS

The participants were each given course evaluation forms to respond to at the end of each workshop, and a summary of their comments follows.

### Likes

- Lab practicum
- Multidisciplinary team involvement and inclusion of private-public sector collaboration
- Venue for the training
- Pharmacovigilance and adverse drug reactions
- Malaria in pediatrics
- Clinical forms of malaria and treatment
- Group discussion of case studies was very educational
- Learning materials
- Involvement of private sector
- Very educational presentations; facilitators were knowledgeable, patient, and had good public relations when correcting the participants on previous routine practices
- Monitoring and evaluation
- Good teaching methodology
- New guidelines on malaria in pregnancy
- The attitudes of the facilitators and involvement of the participants
- Training was well planned and organized
- Training venue provided conducive environment for learning
- Active participation by members, team work
- Learning material adequate
- Pharmacovigilance, adverse drug reactions
- Dedication of the team
- Management of severe malaria
- All organizations were well presented, that is, FBOs, NGOs, CBOs, and GOK
- Case studies and group presentation

### Dislikes

- Rooms had saltwater for showering.
- Accommodation was inadequate: some participants were booked in a nearby hotel.
- Some classes were overcrowded because some conference halls were small.
- Time for the course was too short.
- Participants complained that the reservations should have been half board.
- Participants complained that the Kenya transport system did not provide receipts for transport.
- Reservations were full board.

- Facilitator took a lot of time explaining some topics.
- Group sessions were too large.
- Time for laboratory work was inadequate.
- Training days were few.

### **Recommendations**

- Have periodic training.
- Include pretransfusion prophylaxis.
- Train more trainers of trainers.
- Organize for Focused Antenatal Care and Integrated Management of Childhood Illness training.
- Hold more similar trainings.
- Make reservations for future training half board.
- Beach hotels gave a good atmosphere which was conducive for learning.
- Do practicum in a real health facility.
- Extend training days.

### **Summary of Workshop Evaluation**

Analysis of the evaluation forms showed the trained health workers had a positive response to the training workshop. The overall assessments of the training activity and training material were 92.3 percent and 91 percent, respectively. Of the participants, 91 percent said the teaching methods were relevant and useful; 96 percent of the health workers trained said the implementation of the course was excellent and the facilitators were friendly and knowledgeable. The overall rating of the training program was 93 percent.

## ANNEX 1: TRAINING AGENDA

### Program for the Training of Health Workers on Malaria Case Management

Date	Time	Activity	Facilitator
<b>Day 1</b>	8.30–9.00 a.m.	Introduction, climate setting, workshops norms	District Contact Person
	9.00–9.30 a.m.	Workshop objectives and pretest	District Contact Person
	9.00–9.30 a.m.	Official opening	PMOs Representative
	9.30–10.00 a.m.	Introduction to guidelines for case management and prevention	MO or CO
	<b>10.00–10.15 a.m.</b>	<b>Tea break</b>	
	10.30–11.30 a.m.	Epidemiology of malaria in Kenya	MO or CO
	11.30 a.m.–1.00 p.m.	Diagnosis and treatment of uncomplicated malaria	MO or CO
	<b>1.00–2.00 p.m.</b>	<b>Lunch</b>	
	2.00–2.30 p.m.	Uncomplicated malaria	MO or CO
	2.30–3.30 p.m.	Case studies	MO or CO
	3.30–4.30 pm	Laboratory theory	District Lab Techs
	<b>4.30–4.45 pm</b>	<b>Tea break</b>	
	4.45–5.30pm	Laboratory practicals	District Lab Techs
	<b>5.30 p.m.</b>	<b>End of day 1</b>	
<b>Day 2</b>	8.00–8.30 a.m.	Recap of Day 1	Participant Rep
	8.30–10.00 a.m.	Diagnosis and Treatment of Severe Malaria	MO or CO
	<b>10.00–10.30 a.m.</b>	<b>Tea break</b>	
	10.30–11.00 a.m.	Group work on case studies	MO or CO
	11.00–11.30 a.m.	Presentation on case studies	MO or CO
	11.30 a.m.–1.00 p.m.	Pharmacovigilance	District Pharmacist
	<b>1.00–2.00 p.m.</b>	<b>Lunch</b>	
	2.00–2.30 p.m.	Pharmacovigilance tools	District Pharmacist
	2.30–4.00 p.m.	Effective management of malaria medicines	District Pharmacist
	<b>4.00–4.30 p.m.</b>	<b>Tea break</b>	
	4.30–5.00 p.m.	Effective management of malaria medicines and tools	District Pharmacist
	<b>5.00 p.m.</b>	<b>End of day 2</b>	
<b>Day 3</b>	8.00–8.30 am	Recap of day 2	Participant Rep
	8.30–10.45 am	Malaria in pregnancy	Nursing Officer
	<b>10.45–11.00 am</b>	<b>Tea break</b>	
	11.00 am–1.00 pm	Monitoring and evaluation	ALL
	<b>1.00–2.00 p.m.</b>	<b>Lunch</b>	
	2.00–4.00 p.m.	Rollout action plan and way forward	ALL
	4.00–4.30 p.m.	Posttest and workshop evaluation	ALL
	4.30–5.00 p.m.	Certification and workshop closure	PMO/DMOH Rep
	<b>5.00–5.30 p.m.</b>	<b>Tea break</b>	
<b>5.30 p.m.</b>	<b>End of day 3</b>		



## ANNEX 2: PRETEST AND POSTTEST

### Malaria Case Management Pretest

**INSTRUCTIONS:** Answer true or false in the boxes provided, indicating T if true and F if false.

1. Currently, sulfadoxine-pyrimethamine is an alternative first-line treatment for uncomplicated malaria in Kenya and should not be used for intermittent preventive treatment during pregnancy.
2. All suspected malaria cases in all age groups in malaria-endemic areas should be treated without laboratory confirmation.
3. There is perennial transmission of malaria throughout Kenya.
4. Indoor residual spraying is a recommended effective malaria control intervention in selected areas in Kenya.
5. Microscopic examination of stained blood smears remains the gold standard for detection of malaria parasitemia.
6. In low malaria risk areas, diagnostic laboratory tests are recommended for children below the age of 5 years with fever.
7. Laboratory diagnostics are mandatory for febrile children (< five years) in high-risk malaria areas during initial visits.
8. Every febrile child under five years of age in high-risk malaria areas should receive presumptive malaria treatment.
9. Whenever possible, intravenous (IV) quinine administration is preferable to intramuscular (IM) quinine administration.
10. A patient with severe anemia and severe malaria can begin treatment with IV quinine before receiving a blood transfusion.
11. A patient who has been on IV quinine should not take artemether-lumefantrine (AL) once she or he is able to take oral medication.
12. A woman in her first trimester of pregnancy should receive AL for the treatment of uncomplicated malaria.
13. A woman who is receiving intermittent preventive treatment in pregnancy according to the correct guidelines may receive four doses.

14. AL consumption forms are to be submitted every two weeks.

15. Health workers are required to report all drug reactions associated with ACTs.

### **Malaria Case Management Posttest**

**INSTRUCTIONS: Answer true or false in the boxes provided, indicating T if true and F if false.**

1. Currently, sulfadoxine-pyrimethamine is an alternative first-line treatment for uncomplicated malaria in Kenya and should not be used for intermittent preventive treatment during pregnancy.
2. All suspected malaria cases in all age groups in malaria endemic areas should be treated without laboratory confirmation.
3. There is perennial transmission of malaria throughout Kenya.
4. Indoor residual spraying is a recommended effective malaria control intervention in selected areas in Kenya.
5. Microscopic examination of stained blood smears remains the gold standard for detection of malaria parasitemia.
6. In low malaria risk areas, diagnostic laboratory tests are recommended for children below the age of five years with fever.
7. Laboratory diagnostics are mandatory for febrile children (< five years) in high-risk malaria areas during initial visits.
8. *Every* febrile child under five years of age in high-risk malaria areas should receive presumptive malaria treatment.
9. Whenever possible, IV quinine administration is preferable to IM quinine administration.
10. A patient with severe anemia and severe malaria can begin treatment with IV quinine before receiving a blood transfusion.
11. A patient who has been on IV quinine should not take AL once she or he is able to take oral medication.
12. A woman in her first trimester of pregnancy should receive AL for the treatment of uncomplicated malaria.

13. A woman who is receiving intermittent preventive treatment in pregnancy according to the correct guidelines may receive four doses.
14. AL consumption forms are to be submitted every two weeks.
15. Health workers are required to report all drug reactions associated with ACTs.

**Marking Scheme**

1. F  
2. F  
3. F  
4. T  
5. T  
6. T  
7. F  
8. T  
9. T  
10. T  
11. F  
12. F  
13. T  
14. F  
15. T

