

**Republic of Sudan
Federal Ministry of Health
Directorate of Communicable and non-
Communicable Disease**

**MALARIA CASE MANAGEMENT
Training Manual**

**Part I
Learner's Guide**

**Prepared by:
Dr. Elmuntasir Taha
Associate Profesor, Elrebat Teaching Hospital**

**Dr. Abdalla Hamadelsyed Ahmed
Malaria Project Manager, UNDP**

**Dr. Sahkar Badwi Omer
Malaria PMU, UNDP**

**Dr. Nahid Hassan Bashir
Federal Ministry of Health**

**Dr. Asma Hashim Eltohami
Federal Ministry of Health**

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Introduction

General objective of the course:

The general objective behind these training materials is to equip all health providers with the essential knowledge and skills necessary for the diagnosis and management of uncomplicated and severe malaria in the health practice, in addition to raise the awareness among the community.

Specific objectives:

At the end of the training programme you should have acquired the skills and competence that will enable you to:

- Define basic concepts regarding malaria and the malaria situation in areas of practice.
- Describe the national Anti-Malarial Treatment Policy.
- Identify the importance of adherence to the national protocol.
- Take a history, conduct an appropriate physical examination,
- Ask for the relevant investigations necessary for diagnosis and
- proper management of uncomplicated malaria in children, adults and pregnant ladies,
- Recognize risk group for severe malaria.
- Provide emergency care,
- Transfer knowledge to other members of the health team for the appropriate management of malaria.
- Determine malaria chemoprophylaxis for people at risk.
- Advocate for the national strategy for control of malaria according to the catchment area.
- Describe the national system for malaria case report including drug supply.

This training course provides basic factual information on the management of both uncomplicated and severe malaria at all levels of health care delivery systems, as we shift from "monotherapy" to "Combination Therapy" using Artemisinin-based Combination Therapy (ACT). The training package consists of 2 items:

(1) The Learner's Guide

(2) The *National Malaria Treatment Protocol* booklet which constitutes the main reference to and provides the teaching material in this training module.

It aims to improve the level of practice and management of malaria at all levels of health services based on the malaria new treatment protocol launched in February 2017.

The module is designed for the training of Doctors, Pharmacists, Medical assistants, Nurses and Community Health Workers (CHWs) who are involved in the diagnosis and management of malaria. It also covers essential information on the malaria drug policy, epidemiology, diagnosis (clinical and laboratory) and management of uncomplicated and severe malaria. Other topics addressed include health education and prevention.

How this course will be taught?

The Guides

There are two guides for this course.

I: The Learner's Guide

II: The Tutor's Guide

The Learner's Guide consists of instructional materials designed to enable you to achieve the objectives. The Learner's guide is made up of problems and a picture quiz covering most of the activities involved in diagnosing and managing malaria at different levels of health care service provision.

This guide is based upon the problem solving approach to education, and working through the study cases presented, you will develop the competence to manage correctly cases of both uncomplicated and severe malaria. The guide is divided into chapters called Learning Units. It is a progressive step ladder learning process. The skills and knowledge gained in earlier units will provide the basis for progressive units.

The tutor

The tutor has extensive experience in the management of malaria and is able to help you to solve a wide range of problems.

Tutors will collaborate with you to achieve the objectives outlined above. They will lead discussions and provide general help to individuals and to small groups of learners.

Presentations

Formal presentations (e.g. lectures) will usually be kept to a minimum and each session will be as short as possible. Most information that will be given in such sessions is already contained in the national protocol booklet, so there will be very little need for you to take notes. A lecture presentation will usually be combined with a demonstration.

Demonstrations

Demonstrations will either be used to illustrate some aspects of diagnosis and management of disease that you will later carry out yourself, or consist of looking at specimens and equipment that you need to know about and be able to use.

Practical sessions

There will be as many practical sessions as possible. They are intended to help you to gain as much practical experience as you can in all aspects of the diagnosis and management of malaria. In some, each tutor will work with a small group of learners. Because there are only a few learners in each group, the tutor will be able to give a great deal of attention to each individual: this increases your opportunities to practice and to learn.

Small group discussions

In these exercises, a tutor will lead discussions on particular subjects. These sessions provide good opportunities for you and the other learners to give your opinion, to develop your ideas and to learn from one another.

Clinical work and visits to the wards

Whenever possible, sessions will take place at the patient's bedside. This will give practical experience of real-life situations and allow you to learn about the problems you may meet in the course of your daily work.

Evaluation**Evaluation of the learner**

Your progress and achievement will be evaluated through pre and post course questionnaires, consisting of multiple choice and open-ended questions.

Each multiple-choice question is provided with a list of possible answers from which you must select the one you think is correct. At the end of these sessions you will not be given the correct answer to each question, but the tutor will analyze the results to identify topics that were not clearly understood. The tutor may also tell you where you made mistakes and point out areas where you need to improve.

This part of the evaluation is designed to help you and the tutor to assess how well you understand the non-practical aspects of malaria case management.

Evaluation of the training by the learner

By means of a questionnaire, the tutor will ask you, the learner, how you think the training has helped you and how it might be improved. This evaluation will take place at the end of the training period in order to provide as much feedback from you as possible. You may sign the questionnaire or not, as you wish, but you should feel completely free to make suggestions for improvement on the part of the tutors as well as in the content of the course and the training facilities.

Training Timetable:

Day	Time	Topic	Training methods	Venue
Day 1	08:30-09:15	Opening session and introduction	Official talks	Main Hall
	09:15-10:00	Pre-test	Written test	Main Hall
	10:00-11:00	Unit 1: Malaria in Sudan	Presentation	Main Hall
	11:00-11:30	Breakfast	-	
	11:30-12:30	Unit 2: Current situation of malaria diagnosis and treatment	Presentation & demonstration	Main Hall
	12:30-01:30	Unit 3: Anti-malarial drugs and its use	Group work	Main Hall
	01:30-02:00	Coffee break and praying	-	
	02:00-03:00	Unit 4: Definition and classification of malaria cases	Presentation & demonstration	Main Hall
	03:00-05:00	Unit 5: What to do when you suspect malaria	Demonstration	Outpatient Dept/ HC
	05:00-06:00	Unit 6: Diagnosis and management of uncomplicated malaria	Presentation & group work	Main Hall
Day 2	08:30-11:00	Unit 7: Assessment and management of severe malaria	Presentation & group work	Main Hall
	11:00-11:30	Breakfast	-	
	11:30-12:15	Unit 8: Follow-up of patients and assessing recovery	Presentation & group work	Main Hall
	12:15-01:30	Unit 9: Malaria in pregnancy	Presentation & group work	Main Hall
	01:30-02:00	Coffee break and praying	-	
	02:00-02:30	Unit 10: Malaria in children	Presentation & group work	Main Hall
	02:30-03:15	Unit 11: Managing malaria at home and at PHC units	Open discussion	Main Hall
	03:15-04:00	Unit 12: Malaria prevention and chemoprophylaxis	Presentation	Main Hall
	04:00-05:00	Post-test and course evaluation	Written test	Main Hall
	05:00-05:30	Closing session		Main Hall

LEARNING UNIT 1

Malaria in Sudan

What do you know about malaria in Sudan?

Learning Objectives:

By the end of this unit you should be able to:

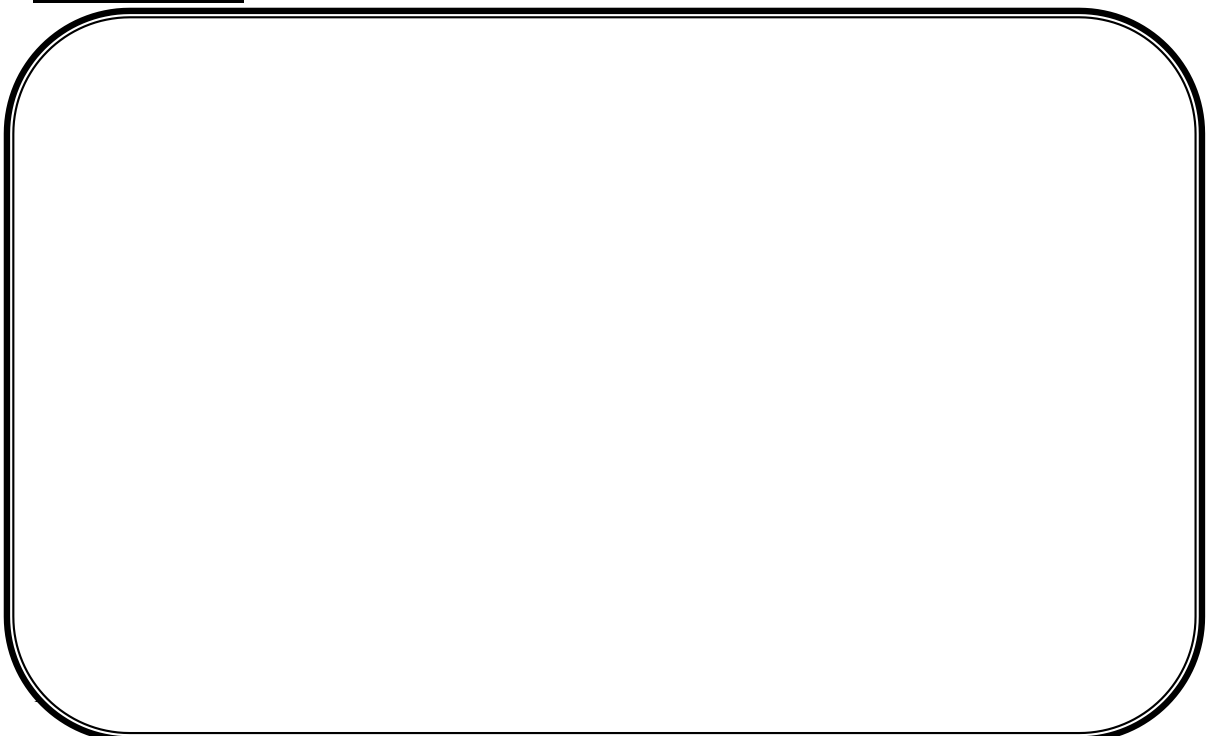
- Mention the different malaria parasites and vectors and their distribution in Sudan.
- Describe the stratification of malaria in Sudan, focus on the target area
- List the objectives and strategies of malaria control at National and State level.
- Provide the reasons for updating the malaria treatment protocol in Sudan

Refer to Sudan Malaria Treatment Protocol:

Introduction unit

A formal presentation will be delivered to you by a representative of the Directorate of communicable and non communicable disease. Please try your best to get answers related to the above mentioned objectives.

Use this box to write points that you would like to raise after presentations:



LEARNING UNIT 2

The Current Situation of Malaria Diagnosis and Treatment in the Area

What do you know about the diagnosis and treatment of malaria in your place of work and in the country?

Learning Objectives:

By the end of this unit you should be able to:

- Assess the current situation of your knowledge and skills related to malaria diagnosis and treatment.
- List the commonest anti-malarial drugs used in your area.
- Tell about the access to free of charge anti-malarial drugs.
- Identify the reasons of prohibition of certain antimalarial drugs (Artemether injection) and the restriction for the use of artesunate injection.
- Describe the treatment seeking behavior in your area.
- Visualize the current common mistakes among health workers dealing with malaria patients at various levels.

1. There are a series of questions in the following pages of this learning unit; you should try to answer them as best as you can. This exercise will help you to think about the management of uncomplicated and severe malaria in your place of work or area.
2. Try to reflect your real practice and not the ideal or the required or other practice or knowledge unless you have been asked to do so.

No.	Questions
1	What is malaria?
2	What is the commonest parasite species in the area, and other less common species in Sudan?
3	When does the malaria incidence increase in this area?
4	On average, how many episodes of malaria do you think a child may have in a year, in your area?
5	On average, how many episodes of malaria do you think an adult may have in a year, in your area?
6	How many severe malaria cases you have seen in the last month?
7	How many malaria deaths you have seen in the last month?
8	Who is at risk of malaria in the area?
9	What is the commonest malaria presentation in the area?
10	What are the other diseases that lead to such presentation in the area?
11	Fever...is a common presenting symptom in the area?
12	How do you confirm malaria in the area?
13	Malaria microscopic diagnosis, and RDTs...what do you think about it?
14	What do you use to treat uncomplicated malaria? include (prescription based on clinical base, medication not specific for uncomplicated malaria, reliance on patient preference.
15	What do you use to treat severe malaria?
16	How do you treat uncomplicated malaria in pregnancy?
17	What anti-malarial drugs are available at your facility?
18	Who provide antimalarial drugs in the area?
19	What do you think about the cost of anti-malarial drugs here?
20	Have you ever observed severe side effect from antimalarial drugs? If yes which drugs?
21	Which form of anti-malarial drugs do you usually use?
22	Have you heard about the new treatment protocol?
23	What are the recommended drugs for UM?
24	What are the recommended drugs for SM?
25	What are the recommended drugs for malaria in pregnancy?
26	What are the recommended drugs for prophylaxis?
27	Do patients generally consult you early in the course of malaria?
28	Do people here have any negative ideas about any anti-malarial drugs? Which drugs?
29	Do people here have any preference for any anti-malarial drugs? Which drugs?
30	What do you think about the treatment of malaria cases using AS+SP?

31	What are the reasons of drug resistance or treatment failure?
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LEARNING UNIT 3

Antimalarial Drugs and its Use

What do you know about antimalarial drugs and its use?

Learning objectives:

The learning objectives for this Unit are for the learners to:

- List and classify antimalarial drugs recommended for use in Sudan.
- Prescribe anti-malarial drugs according to the type of malaria (uncomplicated, severe) and relevant to the age and weight.
- Recognize treatment failure and common side effects of antimalarial drugs and how to deal with them.
- Prescribe antimalarial drugs in special situations(G6PD).
- Tell about basic pharmacokinetics of ACT and their stability.
- Identify methods of monitoring antimalarial drugs.
- Avail antimalarial drugs, storage, dispense, and report them correctly at your unit.

NOTE:

In this learning unit you will get information about the National Antimalarial Treatment Policy. Using the new treatment protocol, the participants are expected to share this plenary session to explore the following:

1. Efficacy of various antimalarial drugs in use in the Sudan
2. Criteria used in the selection of antimalarial drug to be used in the treatment of malaria.
3. Antimalarial drugs: ACT, (artesunate injection), quinine.
4. ACT pharmacokinetics and stability.
5. How to avail, store and distribute ACT.
6. How to write a prescription?
7. Principles of efficacy studies.

8. Drugs recommended for malaria: UM, SM, MIP, chemoprophylaxis.

LEARNING UNIT 4

Definition and classification of malaria cases

Learning objectives:

By the end of this section you should be able to:

- Define a malaria case (proper case definition)
- Classify malaria cases as uncomplicated and severe.
- Describe the laboratory methods for malaria diagnosis.
- Read correctly the lab results and take the correct decision accordingly.
- Supervise the laboratory work carried out for malaria diagnosis at your health facility level.

Patient 1.a:

Dr Omer, a medical doctor working in Sudan, has a call to see a 20 years old patient presenting with fever, nausea and vomiting. On examination he couldn't detect any sign apart from axillary temperature of 38.5⁰C.

1. What conditions lead to such presentations?
2. Could it be malaria? Why? What is malaria then?

Patient 1.b:

Dr Omer highly suspect malaria, although he is in doubt about other diseases, he asked the patient for some investigations

1. What investigations should he perform?
2. What are the investigations needed to confirm malaria?
3. What are the basic supplies and equipments needed for malaria diagnosis?

Patient 1.c:

Dr Omer received the following result: (Malaria parasite seen with ++) and accordingly he treated the patient.

4. Is this information enough?
5. What alternative test/s can help Dr Omer to confirm malaria?
6. How to improve the malaria lab diagnosis in your facility?
7. Is it uncomplicated or severe malaria? Justify your answer?
8. Could you list some criteria for severe malaria?
9. Define a case of malaria? (Suspected case? confirmed case?)
10. What is clinical malaria what is IMCI malaria?

LEARNING UNIT 5

What to do when You Suspect Malaria?

Learning Objectives:

By the end of this unit you should get the knowledge and skills that enable you to:

- Take appropriate and complete history.
- Perform a thorough clinical examination.
- Identify the danger signs and criteria for severe malaria.
- Ask for appropriate investigations and interpret them so as to manage the patient accordingly.

1. History taking:

- One of the participants will take a thorough history from a febrile patient trying to exclude common causes of fever. The other participants will observe him. The tutor leads the discussion guided by the following questions:

- Is he taking the history in the proper way?
 - What did he miss?
 - What is the proper way of history taking from such patient?
- What are the possible causes of fever in the area? Is it possible to exclude some causes by history?
- What is your provisional diagnosis?

2. Clinical examination:

- One of the participants examines the patient trying to exclude or prove common causes of fever. The other participants observe him. The tutor leads the discussion guided by the following questions:

- Is he examining the patient in the proper way?
 - What did he miss?
 - What is the proper way of clinical examination?
- What is your provisional diagnosis?
- Are there any clinical manifestations of severe malaria?

3. Laboratory investigations:

- What are the relevant investigations? Ask the patient to wait for the result and then:
 - Do you need to go back to the patient for detailed history or examination? Why?
 - How do you interpret the results?
 - What is your diagnosis?
 - What is the suitable treatment?

LEARNING UNIT 6

Diagnosis and Management of Uncomplicated Malaria

What do you know about uncomplicated malaria (UM), its diagnosis and treatment?

Learning Objectives:

By the end of this unit you should acquire knowledge and skills that enable you to:

- Diagnose cases of uncomplicated malaria.
- Differentiate clinically and laboratory between malaria and other common causes of fever in the area.
- Describe antimalarial drugs used as first, second and third line treatment for UM and describe when to give and how.
- Identify and deal with causes of treatment failure after using 1st line drug.
- Recognize the importance of early diagnosis and treatment of UM.
- Detect cases that can progress to severe malaria
- Use the diagnosis and treatment chart for UM.

Refer to Sudan Malaria Treatment Protocol

NOTE :

- The main feature of uncomplicated malaria is **FEVER**.
- The primary goal of assessment of a case of uncomplicated malaria is to be able to: Promptly and effectively treat to avoid progression to severe disease, limit the duration of disease, minimize the risk of spread of drug resistant parasites, and to exclude other common causes of febrile illnesses.

Patient 2.a:

Dr Omer is a medical officer at a hospital outpatient department (OPD). Fatima, a 4-year-old girl, was brought by her mother to the OPD with fever for the last 6 hours. Fatima is from a village 80 Km from Dr Omer clinic. There were no health facilities in her residential area. She reached the clinic with difficulty.

If you were Dr. Omer,

- List the possible causes of Fatima's fever Dr Omer might think about?
- What are the main questions you would like to ask the mother that might assist you in differentiation between the causes that mentioned above?
- If the answer to your questions does not support any obvious cause...what other things can be excluded? What is the strongest cause/s left?

Patient 2.b:

Apart from axillary temperature of 38.5°C, the rest of the clinical examination conducted by Dr Omer is normal.

- What are the main signs (you look for while you are conducting clinical examination of Fatima) that might assist you to differentiate between the causes you have mentioned above?
- As seen, apart from fever, no detectable sign, what causes could be excluded at this stage?
- What investigations would you ask for to reach a final diagnosis?

Patient 2.c:

Blood film for malaria was found to be positive for *P. falciparum* ring stage with +++. The other investigations were normal.

- What is your final diagnosis? Why?
- Is there any finding that may alert you about Fatima's condition?
- If BFFM was found to be negative...does this exclude malaria?

Patient 2.d:

Dr Omer gave the mother the prescription. The mother went to the pharmacy and she got the drug and left.

- What did he write for her? Which anti-malarial? How prescribed?
- Are you happy about treating her as an outpatient? Tell why?
- What might be expected?
- What are the laboratory results required to alter the diagnosis to severe malaria?

Patient 3:

Tarig is a worker in a sugar cane company. A week ago he got tired by the end of the day. At home he developed fever with sweating and he vomited twice. He diagnosed himself as having malaria and he asked his son to bring him anti-malarial treatment from a nearby pharmacy. He took the drug for 2 days. Five days later he again developed fever, headache and nausea. This time he decided to go to the company clinic.

1. Is it common to see such cases or have you heard about such practices?
2. Why did his condition deteriorate? What are the other possible causes?
3. How do you exclude each cause in your process towards diagnosis?
4. What is the treatment if it is malaria?
5. What is/are the most important message/s you need to convey to such patients?

Diagnosis and treatment chart:

Charts are very helpful in organizing your thinking to reach the diagnosis. They are also extremely useful in directing you towards the main line of patient management.

6. What is the starting point?
7. Where will you go next?

8. Can you start from any point in the chart? Try to do that.
9. Is it practical to use the chart? If yes/no explain why?

Exercise

1. What is the main symptom of malaria?
2. List some of the clinical features of uncomplicated malaria?
3. Do you need a laboratory to make a diagnosis of uncomplicated malaria? Why?
4. If you had a laboratory when should you do a blood slide for malarial parasites?
5. Who should receive antimalarial treatment?
6. Read the following patient profile and answer the questions below:

Patient 4

A 36-month old female is brought to you with a history of fever for 2 days and ear pain of 1 day. On examination you find that she looks well, weighs 12 kg, temperature is 39.2⁰ C with discharge of pus from the left ear. Other systems are normal. A blood slide reveals plasmodium falciparum ring stage ++

- a. What is your diagnosis?
- b. What is the treatment?
- c. What have you learnt from this patient concerning malaria?
- d. If the malaria slide were negative, would you give antimalarial drugs?

Patient 5:

Sami is 18-year old student, developed fever for last 3 days. He consulted a nearby health centre and the doctor suspect malaria and he asked for blood film for malaria. Results showed P. vivax.

Working in groups read thoroughly Sami's profile above and carefully try to find answers to the following questions:

- e. Is it common to see vivax malaria in this area? To what extent?
- f. When do you suspect vivax malaria?
- g. How do you treat vivax malaria?
- h. Is the 1st and 2nd line going to work?

- i. Who is eligible for primaquine? What is the dose and how?

LEARNING UNIT 7

Assessment and Management of Severe Malaria

What do you know about the diagnosis and management of severe malaria (SM)?

Learning Objective:

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

- Diagnose and define SM.
- Recognize the groups at risk for severe malaria.
- List the immediate actions to be taken for any suspected SM cases.
- Identify and deal with malaria complications.
- Follow-up of the complications and conduct necessary measures.
- Give the suitable drug/s correctly.
- Deal with SM cases outside the hospital and at PHC units.
- Provide pre-referral treatment for SM cases at PHC units.
- Use the diagnosis and treatment chart for SM.

Refer to Sudan Malaria Treatment Protocol

NOTE:

It is important to note that the presence of any life-threatening condition makes malaria **severe**. Thus, any patient with malaria who is unable to swallow tablets, has any evidence of vital organ dysfunction, or a high parasite count is at increased risk of dying. Hence in the assessment of any patient with suspected malaria, you should carefully look for signs of severe malaria.

In areas of high malaria transmission, malaria is the commonest cause of fever and death especially in young children. Patients can deteriorate rapidly within a few hours or days leading to life-threatening situations like coma, repeated convulsions, shock, severe anaemia.

Patient 6:

Mariam, a 4-year-old girl from an area with stable malaria transmission, develops fever and brief convulsion. She lives in a remote community away from the city.

Later, on the evening of the same day, Mariam speech became less comprehensible and shortly afterwards was no longer responding to any call.

The mother took 4 hours to get to the nearest hospital and the child remained unconscious when they got there.

On examination she was found unconscious, severely pale with a temperature of 38.5°C.

Working in groups read thoroughly Mariam profile above and carefully try to find answers to the following questions:

1. What key information are provided in this history?
2. Is it severe malaria?
3. Who are at high risk of severe malaria?
4. What clinical manifestation of severe disease can you identify?
5. Could you mention other clinical manifestation of severe malaria, the patients in her age may present with?
6. What are the important guides you should consider when dealing with such conditions?
7. What immediate actions are needed?
8. What complications should you look for and deal with if present?
9. How do you follow this patient? What should you consider?
10. Mention four important laboratory tests to be done.
11. What is the best place to deal with such cases? Why?
12. What specific treatment is needed?

Patient 7:

Samia, a woman aged 25 years is brought to the hospital outpatient department. She was complaining of chills, sweating and headaches five days ago. She took antibiotics and anti-malaria in form of tabs. The day before, she developed rigors and persistent vomiting. She was deteriorated and brought back to the local health care clinic. A blood film revealed plasmodium falciparum ring stage (++++), and oral quinine (600 mg every 8 hours) was prescribed. She took two doses with no improvement.

Her family started worry as she became confused and contacted the local clinic. The doctor in duty referred her to your hospital.

Examination reveals a semiconscious woman, who is unable to talk. There is no neck stiffness, jaundice, pallor or rash. Axillary temperature is 39⁰ C, pulse 90 beats/min, blood pressure 110/70 mmHg.

Working in groups read thoroughly Samia's profile above and carefully try to find answers to the following questions:

1. What are key information provided here?
2. What criteria of severe disease can you identify?
3. What immediate actions are needed at hospital?
4. If you were at the local clinic, what treatment would you offer her?
5. Is there any possibility of death? How can you avoid that?

Patient 8:

Halima, a four-year-old girl, is brought to the outpatient's department of your hospital by her mother, late in the evening. She was complaining of fever for three days and refusal of food and drinks. This was followed by convulsions as the mother said. but she regained her consciousness immediately. For the past few hours the child has been increasingly drowsy, and for the last hour has been unconscious.

On examination the child is well nourished, unconscious and not dehydrated. The axillary temperature is 40.2⁰C; pulse 120 beats/min, regular; blood

pressure 90/70 mmHg. No neck stiffness. Some yellowish sticky fluid is seen filling the external part of the left ear. There was no rash.

Working in groups read thoroughly the Halima's profile above and carefully try to find answers to the following questions:

1. What essential laboratory tests will you perform to guide your management of the patient?
2. Why does the blood glucose test have priority in this case?
3. Should you wait for the blood glucose test if it will take more than 2 hours? If not, what should you do?
4. What is the other serious complication threatening Halima's life? and how you should manage?

Severe malaria diagnosis and treatment plan:

It is very important to have a plan when there is any suspicion about severe malaria.

What is the starting point?

Where will you go next?

Can you start from any point in the chart? Try to do that.

Is it practical to use the chart? If yes/no explain why?

Picture quiz



Figure 1

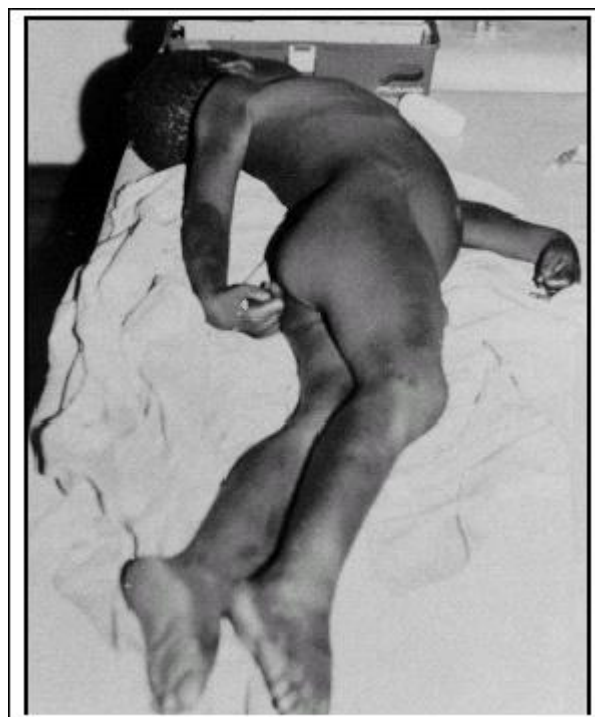


Figure 2

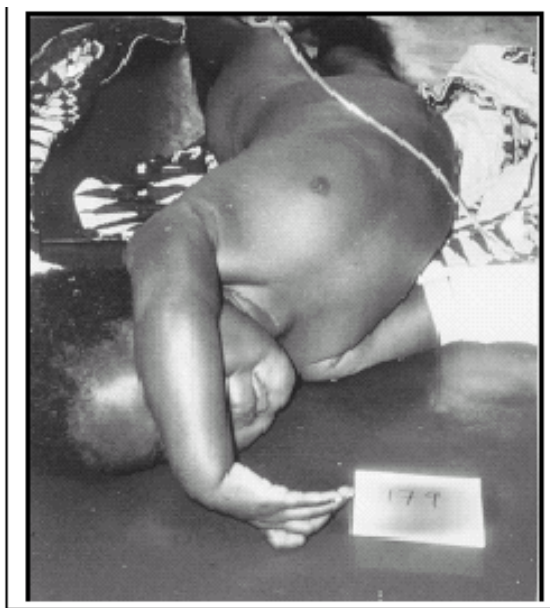


Figure 3

The children seen in Figures 1, 2 and 3 were all brought to a clinic in an area where *P. falciparum* is hyperendemic. Each child is unconscious and has a heavy *P. falciparum* parasitaemia. The children are 3 to 5 years old. They are febrile (38°C-40°C). They have been immunized against measles, diphtheria, tetanus, whooping-cough through the EPI programme.

1. What do pictures 1-3 show?
2. What is the important differential diagnosis?
3. What tests would you undertake?

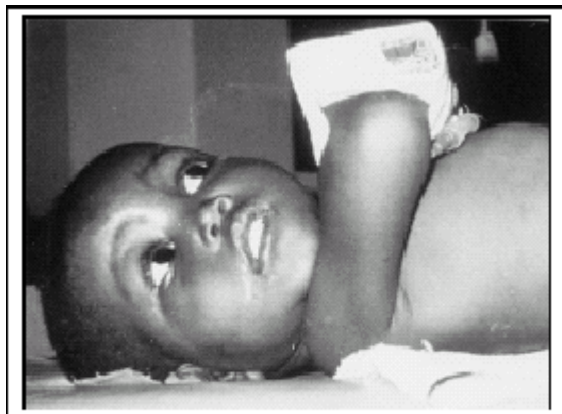


Figure 4

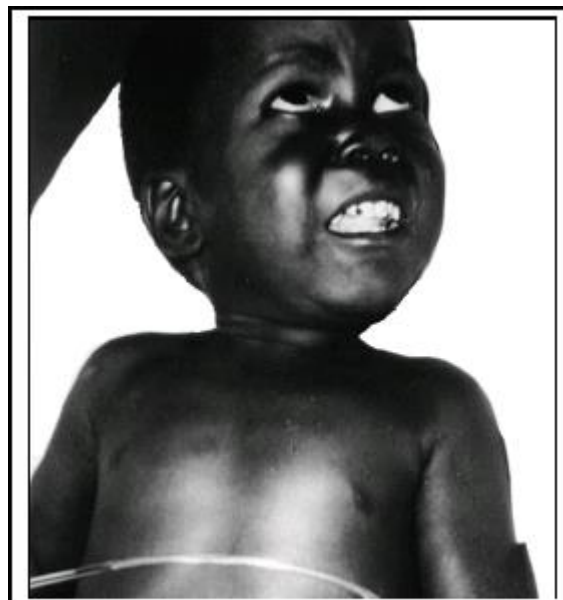


Figure 5

The children seen in Figures 4 and 5 each have a short history of fever followed by progressive loss of consciousness. Both are in deep coma and have a heavy *P. falciparum* parasitaemia. They are 3 and 4 years old. Neither has been immunized against the common childhood diseases.

1. What do the pictures show?
2. What could be the explanation for this?

Figures 6 and 7 refer to the clinical and radiological presentation of a woman soon after labor. She has severe falciparum malaria with hyperparasitaemia and the condition shown in Figures 6 and 7 was preceded by difficulty in breathing with an increased respiratory rate.

1. What is the condition suggested by these pictures?
2. What is the differential diagnosis for this condition?

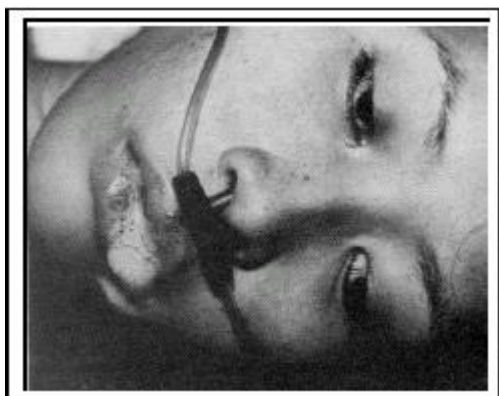


Fig 6

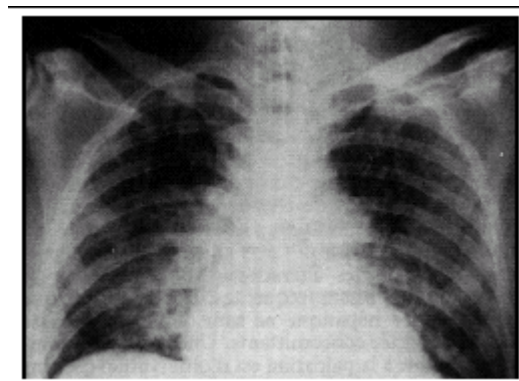


Fig 7

Exercise:

1. What is "severe falciparum malaria"?
2. What forms may malarial illness take? What makes it "severe"?
3. Severe malaria can present with many complications. In your place of work:
 - a. Which complications are most common?
 - b. Which complications are most serious?
 - c. How do you manage these complications?
4. Who gets severe falciparum malaria?
5. Why does severe falciparum malaria need special attention?
6. How is severe malaria suspected?

LEARNING UNIT 8

Follow-up of Patient and Assessing Recovery

What do you know about assessing the recovery of a patient from severe malaria?

Learning Objective:

By the end of this unit, you should be able to:

- Record the important information in registers at outpatient.
 - Fill and use correctly the patient file and follow-up card.
 - List the clinical and laboratory investigations needed for patient follow-up.
 - Monitor the vital signs.
 - Use Glasgow coma scale or Blantyre coma scale.
 - Ask for relevant investigations.
 - Arrange for patient follow-up after discharge
-
- **Workings in groups revise and be familiar with the use of the following tools which are used for malaria patients and other patients:**
 1. Outpatient register
 2. laboratory register
 3. Patient file
 4. follow-up card (referred clinics)
 - **Workings in groups revise the various coma scales:**
 1. Glasgow coma scale
 2. Blantyre coma scale
 - **Workings in groups discuss the following areas that you may need for patient follow-up after discharge:**
 1. Expected residual problems following severe malaria.
 2. How do you identify that?
 3. Lab investigations / frequency.
 4. Frequency of follow-up.
 5. Messages to be conveyed to the patient and his relatives.

LEARNING UNIT 9

Malaria in Pregnancy (MIP)

Learning objectives:

By the end of this unit you should be able to:

- List the technical strategies to control malaria in pregnancy.
- Mention symptoms and signs of malaria in pregnancy.
- Recognize and deal with complications and sequences of MIP and its relations to transmission level.
- Manage MIP.

Refer to Sudan Malaria Treatment Protocol:

Unit pages

Patient 9:

Suad, a 35-year-old woman, is brought to the outpatient department. She is a local resident, and is pregnant (20 week's gestational age).

The patient became ill two days ago, with fever, chills, sweating and headaches. A blood film at the local clinic revealed malaria falciparum ring stage ++

Working in groups read thoroughly Suad's profile above and carefully try to find answers to the following questions:

1. Straight forward this is malaria...you prescribe for her oral anti-malarial drugs and ask her to go home...Discuss
2. What are the common presenting symptoms and signs for malaria in pregnancy?
3. What are the expected consequences of malaria in pregnancy?
4. What is the suitable anti-malarial drug/s for her?

5. If she came for antenatal follow-up with no such presentation...what would you offer to her related to malaria? Why?

Patient 10:

Suzan, a 25-year-old woman, is brought to the outpatient department. She is a local resident, her husband is a business executive, and is in her 28th week's gestation.

The patient became ill five days ago, with fever, chills, sweating and headaches. An antibiotic was prescribed and her condition seemed to improve, one day later she developed rigors and persistent vomiting. A blood film at the local clinic revealed malaria plasmodium falciparum ring stage, and oral quinine (600 mg every 8 hours) was prescribed. She took two doses.

On the following day she has been referred to your hospital because of confusion. Examination reveals a semiconscious woman, who is unable to talk. She withdraws her hand from a painful stimulus but cannot localise a stimulus applied to the sternum or forehead. There is no neck stiffness, jaundice, pallor or rash. Axillary temperature is 39°C, pulse 90 beats/min, blood pressure 110/70 mmHg. The uterine fundus is palpable (26 - 28 weeks) and the fetal heart sound can be heard.

Working in groups read thoroughly Suzan's profile above and carefully try to find answers to the following questions:

1. What tests are urgently required?
2. If the random blood glucose is 1.2 mmol/l (21.6mg/dl), what treatment will you give?
3. If the blood film shows P. falciparum ring stage “++++”, and the cerebro-spinal fluid is normal except for low glucose, then:
 - a. What antimalarial drug will you administer and by what route?
 - b. What alternative is there to quinine?
 - c. What nursing procedures are important during this treatment?
4. After 6 hours the patient becomes increasingly restless. The respiratory rate increases to 40/min. The blood glucose level is normal. Under these conditions, what special observations would you make?

LEARNING UNIT 10

Malaria in Children

Learning objectives:

By the end of this unit you should acquired the knowledge and skills that enable you to:

- Diagnose and treat malaria in children
- List the commonest malaria complication in children
- Follow-up the patient and prevent occurrence of complications during and after treatment
- Equip mothers with knowledge and skills that prevent malaria and mitigate its effect

Refer to the Sudan Malaria Treatment *Protocol*:

Unit pages

Patient 11:

Working in a remote health centre, Rashid, a 4 years' boy, was brought for you with fever. No other symptoms are given by the mother and clinical examination did not reveal any sign suggestive of other diseases.

Working in groups read thoroughly Rashid's profile above and carefully try to find answers to the following questions:

1. What is your diagnosis?
2. How do you reach that?
3. Malaria in children is a serious condition...discuss
4. What clinical manifestations you expect if this child presented with severe malaria?
5. How are you going to treat such a child for malaria?

Patient 12:

Hamid, a child aged 20 months, became febrile two days ago and has vomited several times today. One hour ago the child had a convulsion, described by the mother as a repetitive twitching of limbs and mouth, followed by unresponsiveness for a few minutes. The child is now febrile (39⁰ C), conscious, withdraws promptly from any painful stimulus. A thick blood film shows *P. falciparum* ring stage +. The child repeatedly vomits any anti-malarial drug given by mouth.

Working in groups read thoroughly Hamid's profile above and carefully try to find answers to the following questions:

1. Does the child have cerebral malaria? Why?
2. What immediate general measures should you do for the child? What are the important investigations you are going to request?
3. What treatment options do you have? What treatment will you give? How?
4. What should you do about the convulsion?
5. How do you evaluate his condition and how do you will follow the child?

LEARNING UNIT 11

Managing Malaria Cases at Home and PHC Units

Learning Objectives:

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

- Define the principles of malaria home-based management.
- To equip the mother with the required behavioural impact related to malaria case management at home level.
- Establish the pre-referral management for severe cases.

Refer to Sudan Malaria Treatment *Protocol*:

Unit page

Patient 13:

Hadia, a child aged 2 years, lives with her mother and father in a village. Yesterday afternoon after a rainy day, her mother noticed that Hadia feels hot and vomited twice. A nurse told her to cool her with tepid sponging and to take the child to the dispensary 7 Km away. She did not agree with him, she thought the child's problem was related rains and she decided to get for her one tab from a nearby shop and to use "Garad with Sesame oil" at night.

Working in groups read thoroughly Hadia's profile above and carefully try to find answers to the following questions:

1. Is it common to hear about such practices?
2. List the factors that affect treatment seeking?
3. How do you improve the mother practice at home? How?
4. "Home is the first hospital"... so it is better to equip mothers with the necessary **knowledge** and **skills** and with **anti-malarial drugs** to deal with the child at home...Discuss
5. What are the messages/ skills that you think mothers should know to improve the management of malaria at home?

LEARNING UNIT 12

Malaria Prevention and Chemoprophylaxis

Learning Objectives:

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

- List the methods and tools used currently for malaria prevention
- Identify target groups for chemoprophylaxis and prescribe correctly for them

Refer to Sudan Malaria Treatment Protocol:

Unit pages

Patient 14:

Adil, a 38-year old economist, was born in a hyperendemic malaria area in Sudan. He is working for the last 10 years in Saudi Arabia. He returned home last month.

One week ago he developed fever. He took antibiotics. Two days later his condition worsened and they brought him to you.

Working in groups read thoroughly Adil's profile above and carefully try to find answers to the following questions:

1. Have you faced such a situation before?
2. What is your diagnosis?
3. By living in an endemic area, does this offer him any protection from malaria?
4. What advice would you offer him before travelling to Sudan?
5. Who is eligible for chemoprophylaxis? What drugs are you going to give? How?

