NPHCDA

MODULE 5: MALARIA CASE MANAGEMENT IN PRIMARY HEALTH CARE

February 2024

OVERVIEW OF TUBERCULOSIS

Sessions	Components
2.1	Introduction to Malaria Case Mgt in PHC
2.2	Ethics in Primary health Care
2.3	Health Communication in Primary health Care

Overview of malaria



Introduction to Malaria Case Mgt in PHC



Uncomplicated Malaria



Severe Malaria



Malaria in Pregnancy



Malaria Prevention

Session overview

A

Cause and transmission of malaria

B

Malaria transmission cycle

C

Groups of people at higher risk of malaria illness

D

Classification of malaria

E

Risk based management (RBM) strategies

Learning objectives

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

1. Explain the cause and transmission of malaria
2. Identify groups of people most at risk of having malaria
3. Know the classification of malaria illness
4. Know the classification of malaria
5. Understand the RBM strategies

Introduction

- Malaria is a major public health concern in Nigeria, with an estimated 68 million cases and 194 000 deaths due to the disease in 2021. (WMR 2021)
- Nigeria has the highest burden of malaria globally, accounting for nearly 27% of the global malaria burden
- Prevalence of malaria in Nigeria declined from 27% (MIS 2015) to 22% (MIS 2021)
- The risk of transmission exists throughout the country, all year round with seasonal variation. However, the prevalence of malaria is highest in the north-western region of the country.

Brainstorm

What causes malaria and who are the people at higher risk of malaria illness and why?



Causes and transmission of malaria

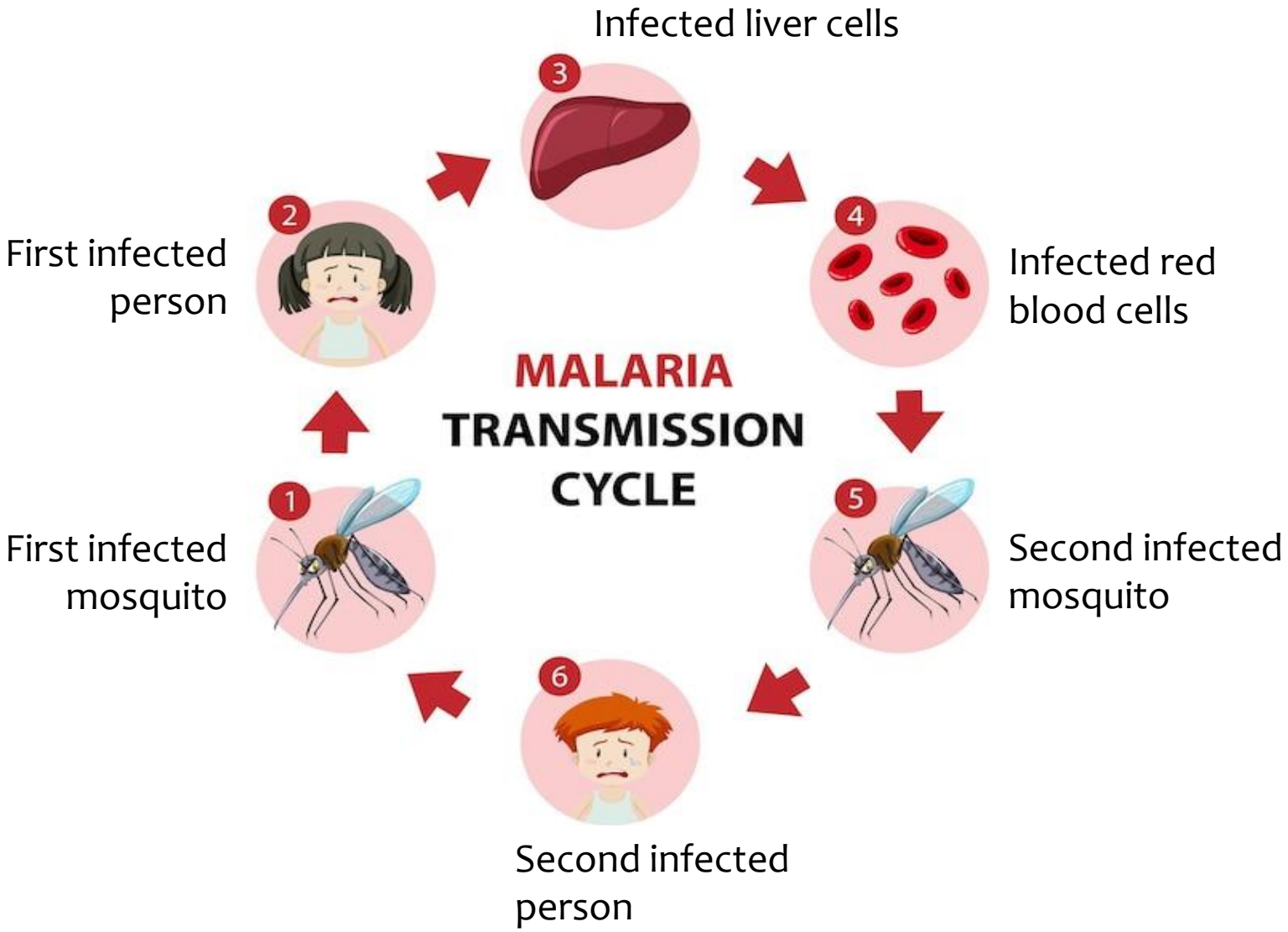
1. Malaria is an infectious disease caused by the Plasmodium parasite, transmitted mostly by the bite of an infected female Anopheles mosquito

2. There are five species of the parasites that cause human malaria, namely, Plasmodium falciparum, P. vivax, P. ovale, P. malariae and P. knowlesi

3. Malaria in Nigeria is principally due to Plasmodium falciparum

4. Malaria parasites multiply in human blood cells and destroy them

Malaria transmission cycle



Groups of people at higher risk of malaria illness

- Under-five year-old children
- Sickle cell anaemia patient
- Pregnant women
- Non-immune visitors from nonendemic areas are particularly more susceptible than the general population



Classification of malaria

Uncomplicated Malaria



Malaria that has no life threatening manifestations and presents with such symptoms as fever, headache, body aches, joint pains, vomiting etc

Severe Malaria



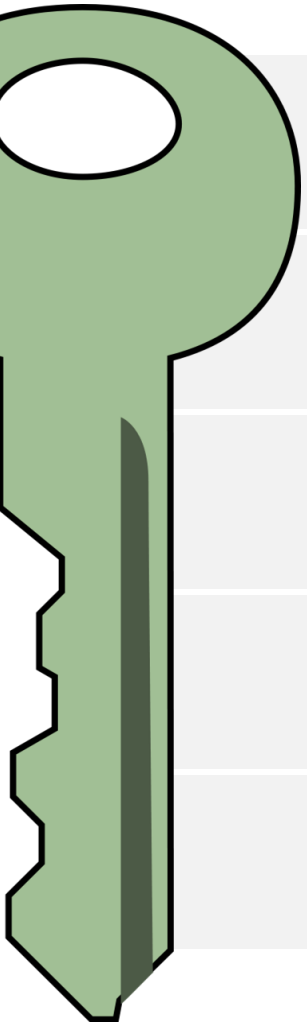
Malaria with life threatening complications such as confusion, coma, prostration, severe anemia, jaundice, convulsions, inability to pass urine, pulmonary oedema, bleeding

Note: All fever cases MUST be tested and if positive treated with appropriate ACTs

Result-bases management (RBM) strategies

Types	Strategies
Preventive Strategies	▪ Chemoprevention - Intermittent Preventive Treatment for Pregnant women (IPTp) - Seasonal Malaria Chemoprevention in areas with 60% of rainfall occurring in 4 – 5 months. - Malaria Vaccine (Planned for phased deployment) ▪ Integrated Vector Management - Use of Insecticide Treated Nets (ITNs) - Environmental management of malaria - Indoor Residual Spray
Effective Case Management	▪ Prompt diagnosis and treatment of positive cases ▪ Community Case Management of Malaria (CCM) ▪ Integrated Community Case Management/Community Health Influencers and Promoters Services (CHIPS)

Key messages



- Malaria is a major public health concern in Nigeria
- The risk of transmission exists throughout the country, all year round
- Malaria is an infectious disease caused by the bite of an infected female Anopheles mosquito
- Pregnant women and children under five are at higher risk of Malaria due to low immunity
- Strategies for preventing malaria are Preventive (Integrated Vector Mgt and Chemoprevention), Effective case Mgt., ACSM & SMEOR

Overview of malaria



Introduction to Malaria Case Mgt in PHC



Uncomplicated Malaria



Severe Malaria



Malaria in Pregnancy



Malaria Prevention

Session overview

A

Groups of People at higher risk of Malaria illness

B

Signs and Symptoms of Uncomplicated Malaria

C

Treatment of Uncomplicated Malaria

D

How to Diagnose Uncomplicated Malaria

E

Identification of indications for pre-referral treatment of severe malaria

Learning objectives

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

1. *Identify the signs and symptoms of malaria*
2. *Differentiate between uncomplicated and severe malaria*
3. *Diagnose Malaria using Rapid Diagnostic Tests*
4. *Treat uncomplicated malaria*
5. *Identify indications for pre-referral treatment of malaria*
6. *Treatment where referral is not possible*



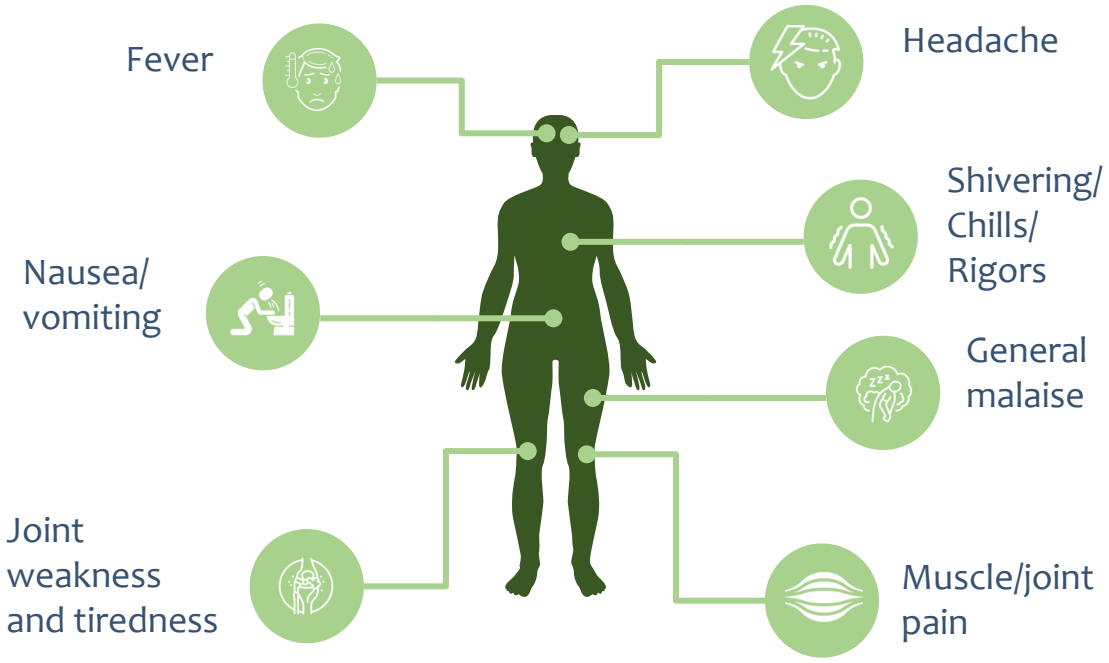
Exercise 1

What are the signs and symptoms of malaria starting from head to toes?

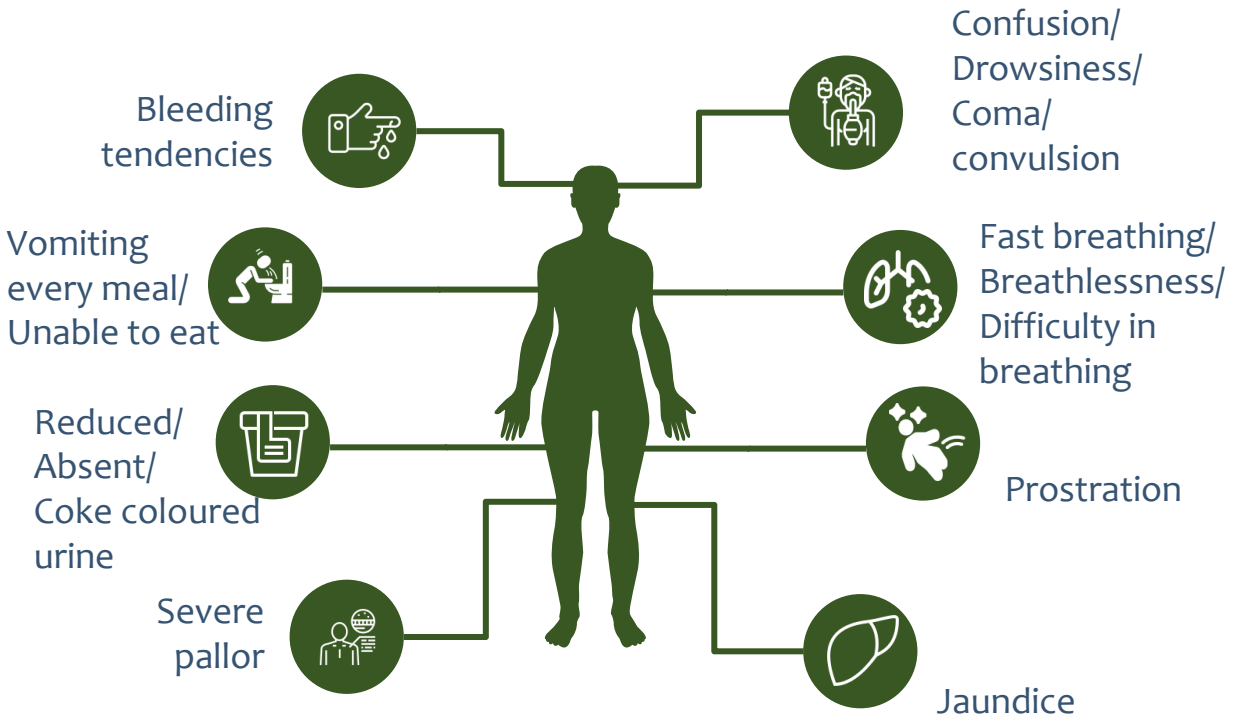


Signs and symptoms of malaria

Uncomplicated Malaria



Severe Malaria



Severe malaria encompasses all the symptoms of both uncomplicated and severe malaria.

Diagnosis of malaria



Fever and other symptoms of malaria may occur as a result of many other diseases. The new national guidelines for diagnosis and treatment of malaria promotes parasite based diagnosis



All individuals presenting with the clinical symptoms of malaria must be diagnosed using microscopy or rapid diagnostic test.



Confirmation of ring forms of malaria parasite through microscopy or positive result with Rapid Diagnostic Test (RDT) is a precondition for making malaria diagnosis in all individuals.

Malaria rapid diagnostic tests

- mRDT are tests based on colour change to detect Plasmodium-specific antigens in a finger-prick blood sample. The tests can be performed in approximately 15 minutes using recommended test kits
- The use of this method does not require electricity or any special equipment
- The result of RDT is comparable to those of microscopy
- The type of MRDT kits approved for use in Nigeria is the Histidine Rich Protein 2 (HRP2)



Conducting RDTS

The entry point to use RDT is when patient complains of fever or any other symptom of malaria	A. Be ready to use the results to inform treatment	
	B. Check that the RDT has not expired	
	C. Read the instructions in order to do it well	
A new RDT kit / packet contains	A. Alcohol swab	D. Buffer
	B. Sterile lancet	E. Dessicant
	C. Blood transfer device i.e. plastic pipette or loop	
Other items required for the test include:	A. Pair of disposable latex gloves	
	B. Timer	
	C. Marker	

Caution when carrying out tests

- Avoid blood spill on desk
- Protect your self from blood contamination
- Wear gloves on both hands
- Read RDT results within 15-20 minutes.
- Do not re-use lancet
- Record all results immediately after the test
- Dispose all sharps and blood transfer device into sharp containers immediately after use

Carrying out RDT (1/7)

1





2



3

1. Check dessicant record -- record code, date and time in hours and minutes
2. Clean middle or ring finger -- clean one of those fingers with the alcohol pad
3. Wipe off alcohol with gauze/dry cotton wool

Carrying out RDT (2/7)







4 **Prick finger with sterile lancet -- prick the side of the finger**

5 **Discard blood lancet**

6 **Squeeze out a drop of blood**

Carrying out RDT – pipette utilisation (3/7)

7







a

Collect blood (≈ 5 µl) with pipette -- Hold pipette by the middle. The upper end is free. Touch the surface of the blood drop

i

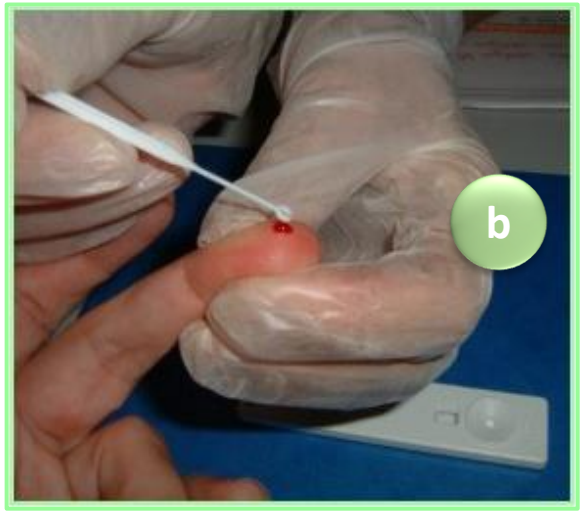
The appropriate quantity of blood is essential. The pipette section is completely filled. Less than 1 mm in height

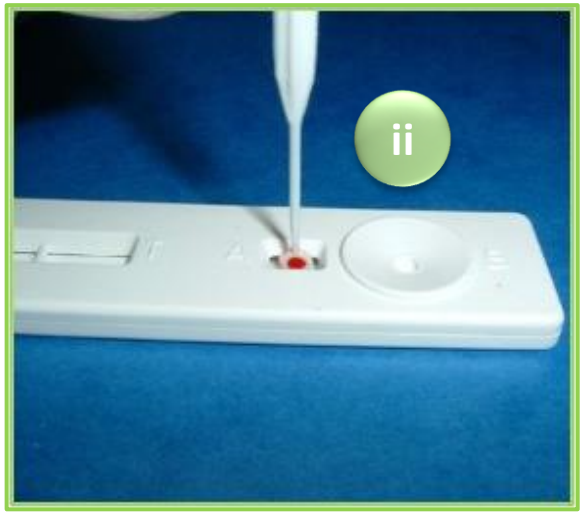
ii

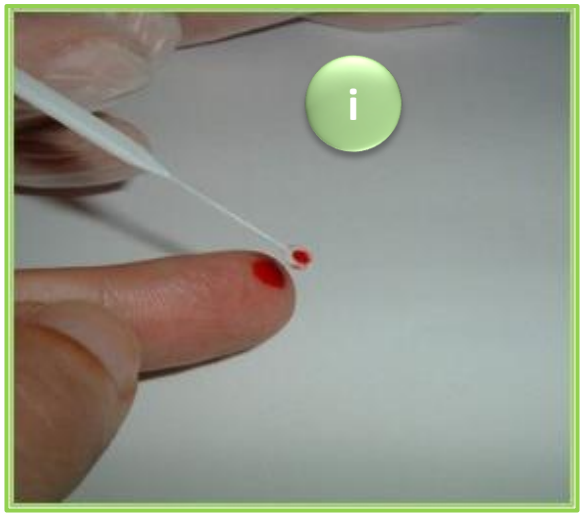
Apply blood in sample well

Carrying out RDT – loop utilisation (4/7)

7







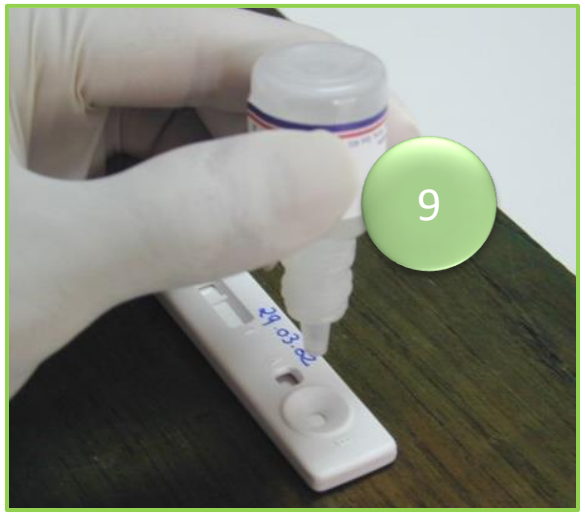
b **Touch the loop to the blood on the finger prick.**

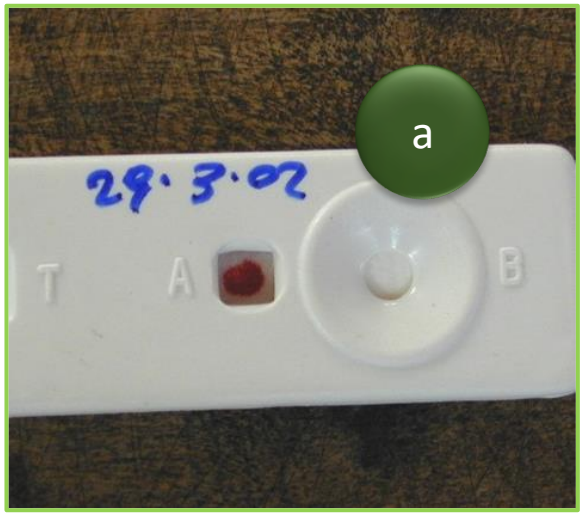
i **Check if the loop has picked up one full drop of blood; 5 µl of blood are collected**

ii **Apply blood in sample well**

Carrying out RDT (5/7)







8 **Discard pipette**

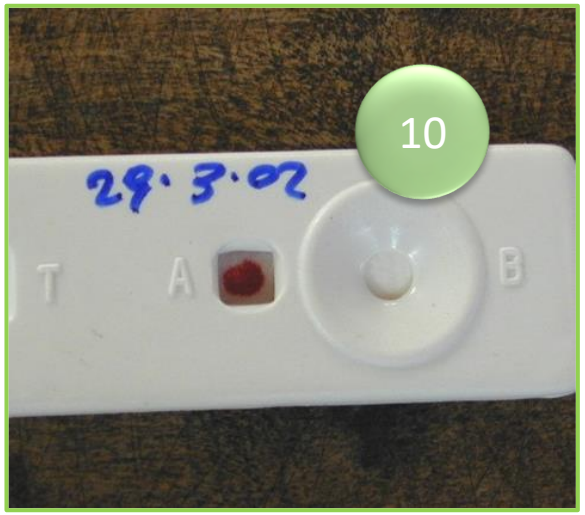
a **Discard blood lancet**

9 **Apply drops of buffer into buffer well -- at least 2 cm above the well drops must fall freely. Bottle should be held vertically**

Carrying out RDT (6/7)





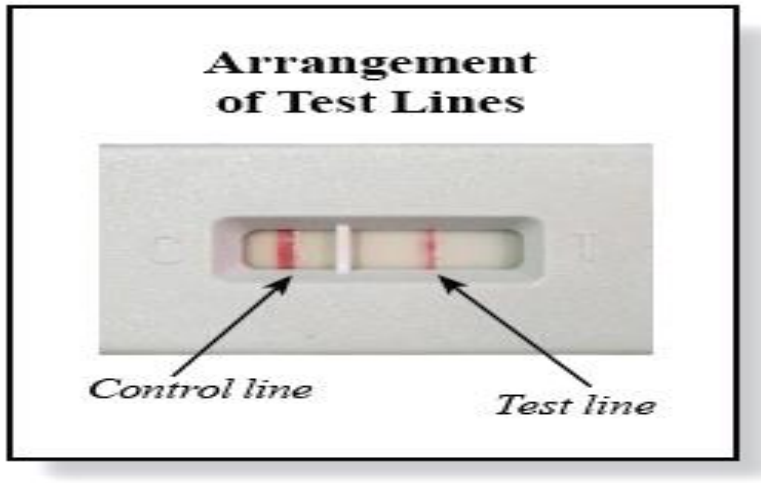


10 Let the blood flow

a Wrong application of buffer – bottle not vertical

b Wrong application of buffer – drops do not fall freely

Carrying out RDT – result (7/7)



NEGATIVE RESULT



POSITIVE RESULTS



Plasmodium *falciparum*

Note: Test is positive even if the test line is faint.

INVALID RESULTS



No Control Line

Note: Repeat the test using a new RDT if no control line appears.

A test without a control line is INVALID and MUST be repeated

Reporting of RDT Results

- Line on test line (T) = RDT +ve
- No line/band on test line (T)= RDT –ve

Quality control for RDTS

1. It is possible to have several low quality RDTs that are less accurate in the market, hence the Federal Government has established centers to carry out Quality Control and also maintain Quality Assurance for all RDTs imported into the control
2. The only RDTs recommended are those that have been evaluated by WHO/FIND and passed
3. The National Programme is also working to have Positive control wells in facilities across the country to carry out on the spot assessment of RDT products

Group work on malaria rapid diagnostic test

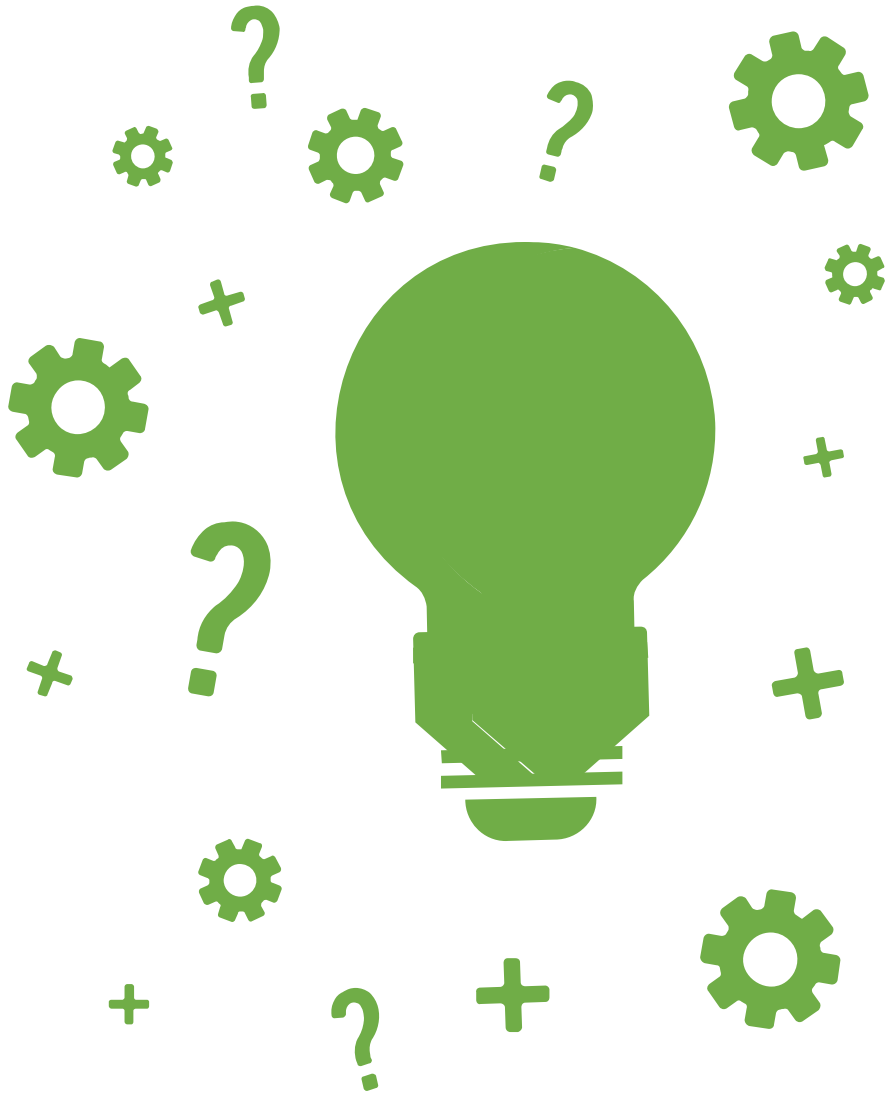
Participants should be divided into groups and each group should be provided with:

1. **RDT kits**
2. **Pair of disposable gloves**
3. **Lancet or Sterile needle**

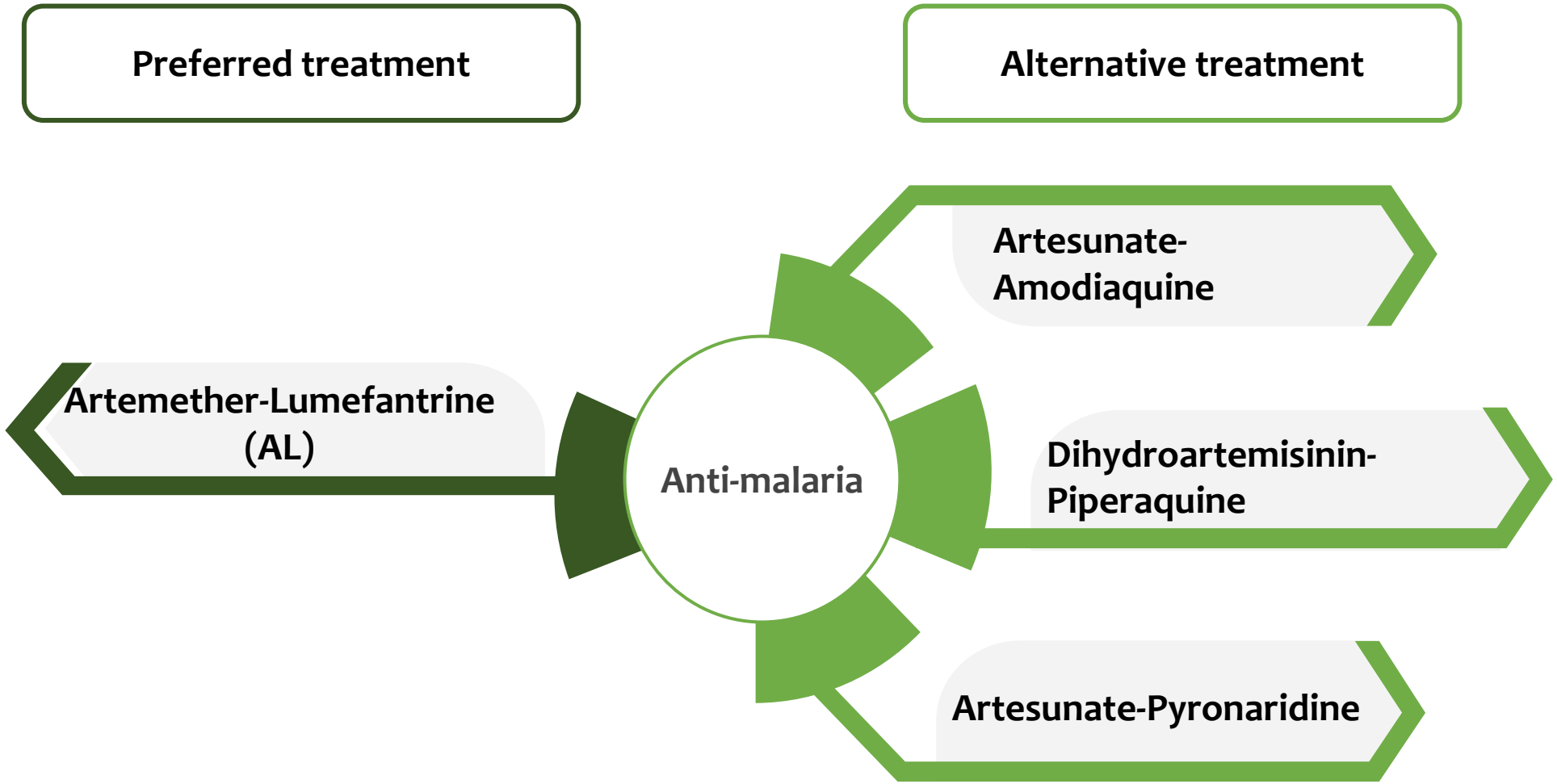
Participants have 30 minutes to test for malaria on a volunteer group member

Exercise 2.

What are the drugs of choice for uncomplicated malaria treatment?



Treatment of uncomplicated malaria



RDT interpretation: summary of action

Diagnosis	Immediate next steps	Continued case management
Negative	Manage for other cause of fever exclude other causes of illness (IMCI protocol), if signs of severe malaria, give pre-referral treatment and refer to secondary health facility	
Positive (HRP2 Pf-based test)	Treat using national guidelines for diagnosis and treatment of malaria	Manage for falciparum malaria, refer if signs of severe malaria or if not improved
Invalid	Repeat test	If further invalid result on repeat test ▪ Try to obtain a microscopy result ▪ Replace RDT box and have RDT accuracy checked

Artemether-Lumefantrine

Artemether-Lumefantrine is available in fixed dose combination tablets and dispersible tablets for children. Tablet strengths are available as 20mg/120mg; 40mg/240mg; and 80mg/480mg. Dosage regimens of Artemether-Lumefantrine for uncomplicated malaria is as shown below

Weight/Age	No. of tablets/dose (20/120)mg tab	No. of tablets/dose (40/240)mg tab	No. of tablets/dose (80/480)mg tab
(6mts – 3yrs) 5-<15kg	1 tab twice daily x 3 days	NA	NA
(4 – 8yrs) 15-<25kg	2 tabs twice daily x 3 days	1 tab twice daily x 3 days	NA
(9 – 13yrs) 25-<35kg	3 tabs twice daily x 3 days	NA	NA
(14yrs and above) >35kg	4 tabs twice daily x 3 days	2 tabs twice daily x 3 days	1 tab twice/day x 3 days

Note: Tablet splitting is not recommended

Alternative: Artesunate-Amodiaquine (1/3)

Weight/Age	Tablet strength	Dosage regimen
4.5kg - <9kg 2 months – 11 months	25mg/67.5mg	1 tablet once daily for three days
>9kg - <18kg >1 year - 5 years	50mg/135mg	1 tablet once daily for three days
>18kg - <36kg >6 years - 13 years	100mg/270mg	1 tablet once daily for three days
36kg and above 14 years and above	100mg/270mg	2 tablets once daily for three days

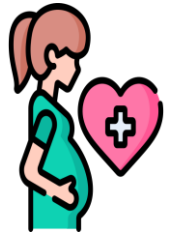
Alternative: Dihydroartemisinin-Piperaquine (2/3)

Weight band	20mg/160mg	40mg/320mg
5 to < 8kg	1 tab once daily for 3 days	
8 to < 11kg	1 ½ tab once daily for 3 days	
11 to <17kg		1 tab once daily for 3 days
17 to <25 kg		1 ½ tab once daily for 3 days
25 to < 36kg		2 tabs once daily for 3 days
36 to < 60kg		3 tabs once daily for 3 days
60 to < 80kg		4 tabs once daily for 3 days
≥80kg		5 tabs once daily for 3 days

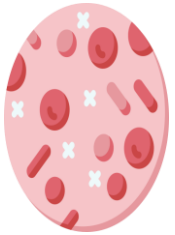
Alternative: Artesunate-Pyronaridine (3/3)

Weight band	Number of sachets or tablets	Regimen
5 to <8kg	1 sachet	Daily for 3 days
8 to <15kg	2 sachets	Daily for 3 days
15 to <20kg	3 sachets	Daily for 3 days
20 to <24kg	1 tablet	Daily for 3 days
24 to <45kg	2 tablets	Daily for 3 days
45 to <65kg	3 tablets	Daily for 3 days
≥65kg	4 tablets	Daily for 3 days

Other treatments and chemoprophylaxis



- AL: Now recommended in 1st trimester
- ACTs: 2nd and 3rd trimester



- At present, no medicine is recommended as chemoprophylaxis for Sickle cell anaemia patients
- All sickle cell anaemia individuals should be advised to sleep under ITNs and diagnose promptly and treat appropriately when malaria is confirmed.



ACTs can be given under the supervision of a Health care Provider



- Atovaquone-Proguanil (Malarone)
- Mefloquine (Lariam)

Overview of malaria



Introduction to Malaria Case Mgt in PHC



Uncomplicated Malaria



Severe Malaria



Malaria in Pregnancy



Malaria Prevention

Session overview



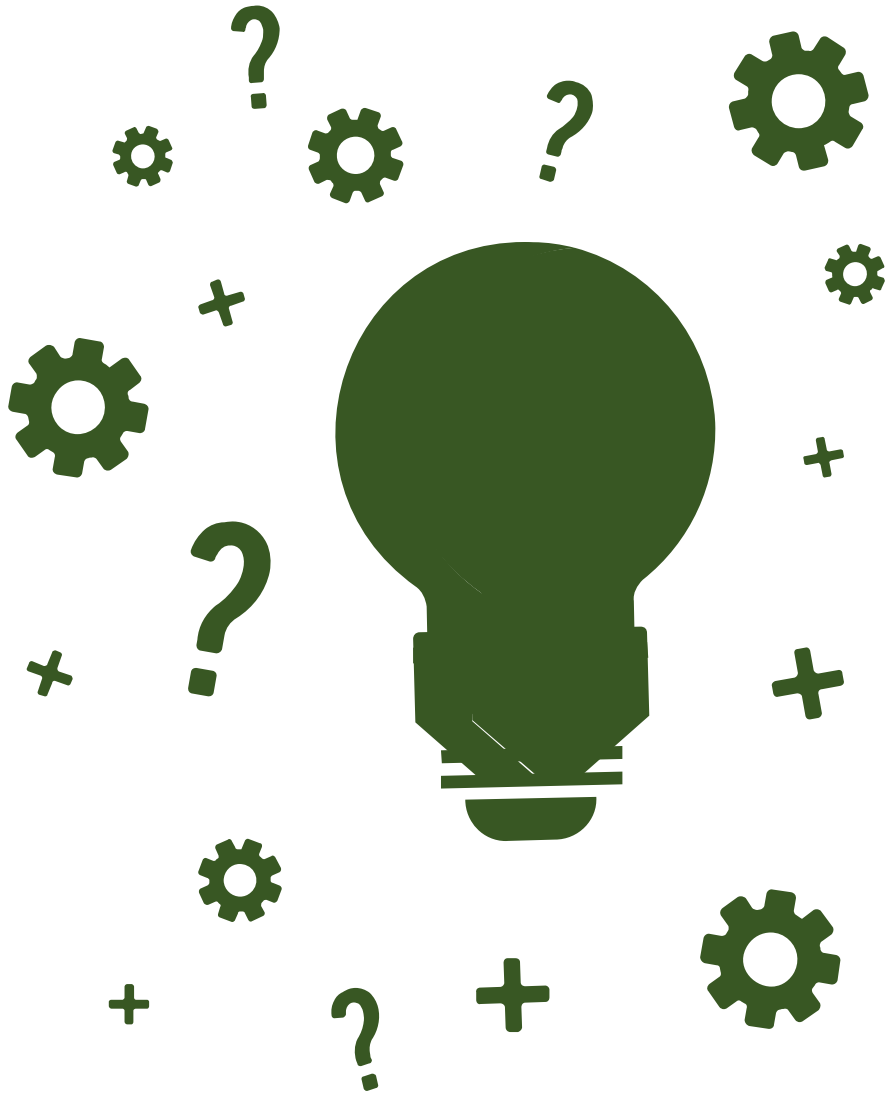
Learning objectives

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

1. *Know the danger signs of severe malaria*
2. *Know what to do when there is presence or absence of danger signs*
3. *Offer Pre-Referral Treatment to patient with danger signs*
4. *When to refer patient with severe malaria*

Exercise 3

What are the danger signs of severe malaria



Severe Malaria

Signs of Severe Malaria The presence of any of these signs is life threatening and may lead to the death of the patient, hence are also referred to as GENERAL DANGER SIGNS

01	Severe pallor	Difficulty in breathing	02
03	Passing dark or little urine	Jaundice	04
05	Bleeding from injection	Stiff neck	06
07	Prostration	Seizures	08

Presence of danger sign(s)

01 If there is any general danger sign, give PRE-REFERRAL treatments and REFER immediately

02 If no general danger sign, then:

03 Do rapid diagnostic test for malaria

04 If the patient has only fever and is RDT positive classify as Malaria.

05 If the patient has fever, plus any of running nose, measles or other causes of fever and also RDT negative then classify as “fever- malaria unlikely”

06 Patient with “fever- malaria unlikely” may need to be investigated further to know the actual cause of the fever

Pre-referral treatments of patient with danger signs (1/2)

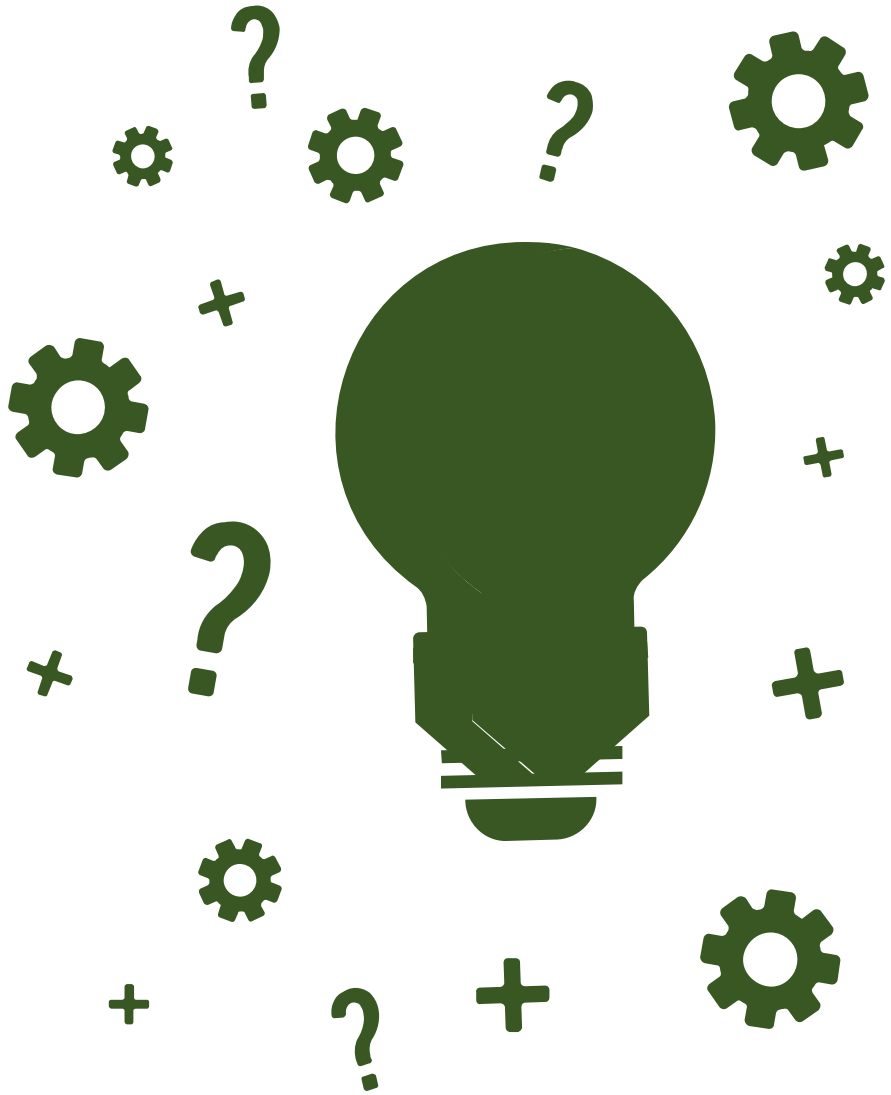
- There is need to initiate treatment with minimal delay and arrange referral as quickly and safely as possible
- A patient with Danger sign may have severe malaria, meningitis or septicemia
- Time should not be wasted performing RDTs as this patient may also need other tests to distinguish between these diseases
- The patient therefore needs urgent treatment and referral. Before referring urgently you will give several treatments for possible severe diseases:
  - Severe malaria
  - Low blood sugar
  - Meningitis
  - Septicaemia
  - Convulsions

Pre-referral treatments of patient with danger signs (2/2)

- Treat to prevent low blood sugar, e.g. give glucose drink (hypoglycaemia), if patient can drink orally
- Give oral or NGT fluids to correct fluid volume depletion
- Give supportive therapy as indicated
- Diazepam or paraldehyde for convulsions
- One dose of paracetamol for fever > 38.50C
- Give pre-referral treatment specific for the classification
- Give IM artesunate or IM quinine or rectal artesunate for severe malaria
- Give first dose of appropriate antibiotics i.e. chloramphenicol or penicillin for possible bacterial infection

Brainstorm

When, how and why should you offer a pre-referral treatment to severe malaria patient?



Treatment dosages for severe malaria pre-referral treatment

The recommended medicine for the treatment of severe malaria in Nigeria is **Injectable (IM) Artesunate.** Intramuscular artemether or IM Quinine can be used as alternatives. **(DOCTORS AND NURSES ONLY)**



Rectal Artesunate are recommended as Pre-referral Treatment especially at PHC and Community level

Administration of Intramuscular (IM) Artesunate (Doctors and Nurses only) (1/3)

1. Weigh the patient and record the exact weight.
2. Determine the number of 60mg vials needed.
3. Calculate the dose and milliliters of artesunate needed for administration
4. Gather materials and check expiry dates.
5. Reconstitute artesunate powder with 1 ml of 5% sodium bicarbonate and shake until clear; 2-4 minutes.

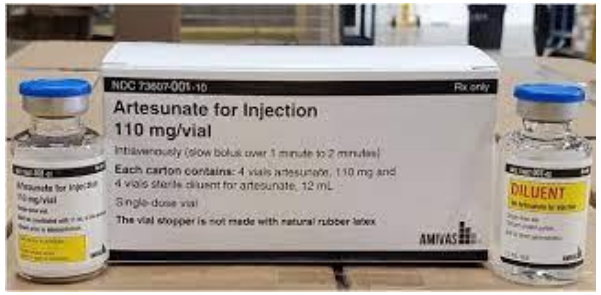
Administration of intramuscular (IM) artesunate (doctors and nurses only) (2/3)

1. Dilute the reconstituted artesunate with normal saline based on route of administration; 2 ml for IM
2. Re-check the dose calculation and withdraw the required dose for the route of administration.
3. Administer injectable artesunate
4. Plan the dosing schedule

Administration of intramuscular (IM) artesunate (doctors and nurses only) (3/3)

1. Calculate the dose and millilitres of artesunate needed for administration.
2. Determine the route of injectable artesunate: intramuscular (IM).
3. Use the following calculations:

20kg and less	Above 20kg
3.0 mg × body weight (kg) 20 mg/ml	2.4 mg × body weight (kg) 20 mg/ml



4. Round up to the next 0.5 ml (e.g. 1.2=1.5 ml 1.6=2 ml)
5. Give 3 parenteral doses of injection artesunate in the first 24 hours; first dose on admission (time zero), second dose 12 hours after the first dose and third dose at 24 hours after the first dose.
6. There is no upper limit to the total dose of artesunate

Dosage regimen for rectal artesunate

The appropriate single dose of Rectal Artesunate should be administered rectally as soon as the presumptive diagnosis of malaria is made. In the event that an Artesunate suppository is expelled from the rectum within 30 minutes of insertion, a second suppository should be inserted.

Weight (kg)	Age	Dose
6 to ≤ 14	2 months to ≤ 3years	100mg (1 suppository)
>14 to 20	>3 years to 6 years	200mg (2 suppositories)

When artesunate is not available

1. Artemether
2. The initial dose of Artemether is 3.2/kg bw by intramuscular injection (anterior thigh).
3. Quinine
4. It is administered by IM route. *Intramuscular Quinine:* 20 mg/kg as loading dose, diluted to 60mg/ml.
5. Thereafter give full dose of recommended ACT.
6. NOTE: Intramuscular injections should be given with sterile precautions into the anterior or lateral thigh, NOT THE GLUTEAL REGION

Referral preparation and note

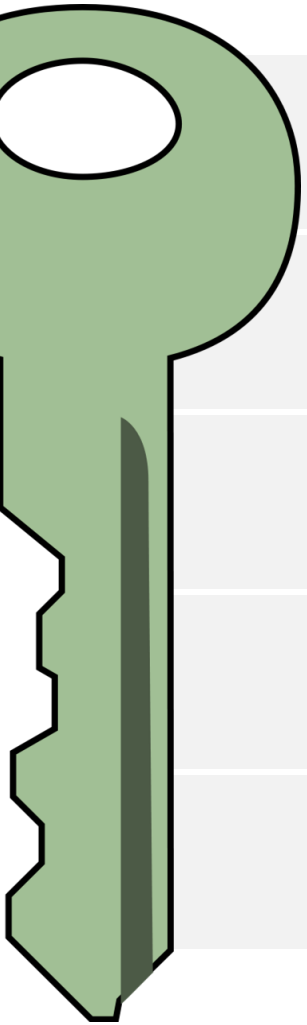
Preparation

- Explain situation to the client and her family
- Give pre-referral treatment if possible
- Help arrange transport to other facility, if possible
- Accompany the woman during transport, if possible, and be sure to have sufficient medication available
- Record clients information

Referral note (Include the following:)

- Brief history of client's condition
- Details of any treatment provided
- Reason for referral
- Any significant findings from history, physical exam or lab tests
- Contact information in case the referral facility or provider has any questions

Key messages



In the following cases patients MUST ALWAYS BE REFERRED because they will die if you don't send them to appropriate health facility;

If unconscious, give pre referral treatment where available and refer (IM Arthemeter, Rectal Artesunate)

Uncontrollable convulsions

Severe pallor

Not passing urine if pregnant with severe malaria

Overview of malaria



Introduction to Malaria Case Mgt in PHC



Uncomplicated Malaria



Severe Malaria



Malaria in Pregnancy



Malaria Prevention

Session overview

A

Diagnosis of Malaria in Pregnancy

B

Treatment of Malaria in Pregnancy

C

Intermittent Preventive Therapy (IPTp) for Malaria in Pregnancy

D

Contra-indications and side effects of SP

Learning objectives

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

1. *Diagnose Malaria in Pregnancy*
2. *Know how to treat Malaria in Pregnancy*
3. *Offer Intermittent Preventive Therapy (IPTp) for Malaria to Pregnant women*
4. *Know the contra-indications and side effects of SP*

Diagnosis of malaria in pregnancy



All pregnant women in malaria-endemic areas are at risk of malaria and diagnosis can be made with RDT or microscopy.



Malaria is more frequent and serious during pregnancy and can affect the placentae.



Malaria may affect the unborn child when the parasites hide in the placenta and interfere with the transfer of oxygen and nutrients to the baby. This thereby increasing the risk of Spontaneous abortion, Stillbirth, Preterm birth and Low Birth Weight

Intermittent preventive treatment

Although a pregnant woman with malaria may have no symptoms, malaria can still affect her and her unborn child. For this reason:

1. All pregnant women should receive a **minimum** of three doses of Intermittent Preventive Treatment for preganancy (IPTp) from 13 weeks gestational age or after quickening, during routine scheduled ANC visits at monthly interval as **Directly Observed Therapy**. A pregnant woman can receive upto 8 doses on SP in a pregnancy
2. HIV positive pregnant women on Co- trimoxazole chemoprophylaxis should be exempted from IPT
3. Any pregnant woman positive for malaria should be treated with ACT
4. Presently, the most effective drug for IPTp is sulfadoxine-pyrimethamine (SP)
5. Hematinics (Folic acid) should not be taken with SP
6. All pregnant women should ensure they sleep inside an ITN

Dosage and use of IPTp

1. A single dose of IPTp is three tablets with each tablet containing 500mg of Sulfadoxine and 25mg of pyrimethamine.
2. Healthcare providers should dispense the dose and watch the patient swallow it with clean water. *Directly observed therapy.*
3. Ensure woman is at least 13 weeks pregnant (this should be calculated with LMP or checked with USD) or that quickening has occurred.
4. Inquire about use of SP in last 4 weeks
5. Inquire about allergies to SP or other sulfa drugs (especially severe rashes)
6. Record "SP dose given" on ANC card and facility register
7. Advise the woman when to return:
    i. For her next scheduled visit
    ii. If she has signs of malaria
    iii. If she has other danger signs

Exercise 4

What are the contra-indications to using SP?

Contraindications to using SP

01 Do not give during first trimester: Be sure quickening has occurred and/or woman is at least 13 weeks pregnant

02 Do not give to women with reported allergy to SP or other sulfa drugs: Ask about sulfa drug allergies before giving SP. For women who react to Sulpha, encourage to sleep more regularly under LLINs

03 Do not give to women taking co-trimoxazole, or other sulfa-containing drugs: Ask about use of these medicines before giving SP

04 Do not give SP more frequently than monthly: Be sure at least 1 month has passed since the last dose of SP

05 Do not give malaria positive patients (treat instead)

Possible side effects of sulphadoxine/pyrimethamine (1/2)

Sulphadoxine/pyrimethamine (SP) is generally well tolerated when used at recommended doses. However, the following adverse effects have been documented:



Gastrointestinal reactions such as nausea, vomiting, abdominal pain, diarrhoea.



Urticaria, a kind of skin rash consisting of dark, raised, itchy bumps.



Generalised skin rashes

Pruritus



Headaches



Insomnia

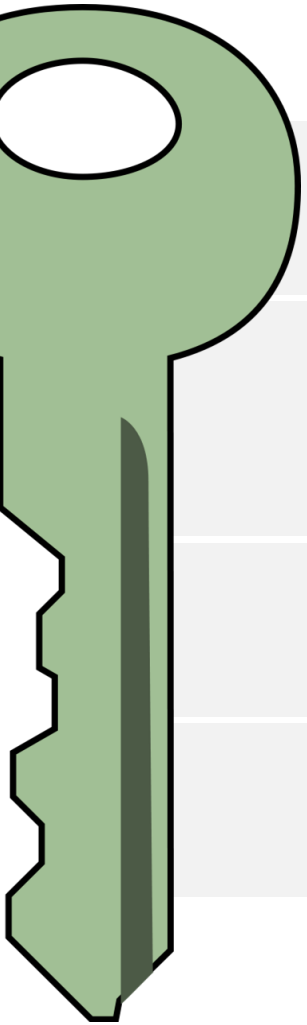


Possible side effects of sulphadoxine/pyrimethamine (2/2)

Stevens Johnson Syndrome. This is a very rare adverse effect that could occur in people that react to sulpha-containing drugs. It begins with flu-like symptoms, followed by a painful rash that spreads and blisters, eventually causing the top layer of your skin to die and shed.

Toxic epidermal necrosis, which is a very rare adverse effect. It is characterized by the detachment of the top layer of skin (the epidermis) from the lower layers of the skin (the dermis) all over the body.

Key messages



- A pregnant woman should be prevented from getting malaria to avoid the adverse consequences of malaria to both mother and foetus.
- All pregnant women should receive a minimum of 3 doses of Sulphadoxine-Pyrimethamine (SP) as Intermittent Preventive Treatment in pregnancy (IPTp) except where contraindicated
- Pregnant women with symptoms of malaria should be promptly diagnosed and treated.
- All pregnant women must sleep inside an ITN even while taking SP

Overview of malaria



Introduction to Malaria Case Mgt in PHC



Uncomplicated Malaria



Severe Malaria



Malaria in Pregnancy



Malaria Prevention

Session overview

A

Environmental factors that encourage breeding of Mosquitoes

B

Environmental methods of malaria prevention

C

The Use of Insecticide Treated Nets (ITNs)

D

Seasonal Malaria Chemoprophylaxis (SMC) and Benefits

Learning objectives

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

1. List the environmental factors that encourage breeding of Mosquitoes
2. To education the community about the use of Insecticide Treated Nets (ITNs) and Seasonal Malaria Chemoprevention (SMC)
3. Know the community interventions on environmental management of malaria
4. List the basic elements of malaria prevention and control

Basic elements of malaria vector

Integrated Vector Management:

- The use of Insecticide Treated Nets (ITNs)
- Indoor Residual Spray (IRS)
- Environmental Management of Malaria

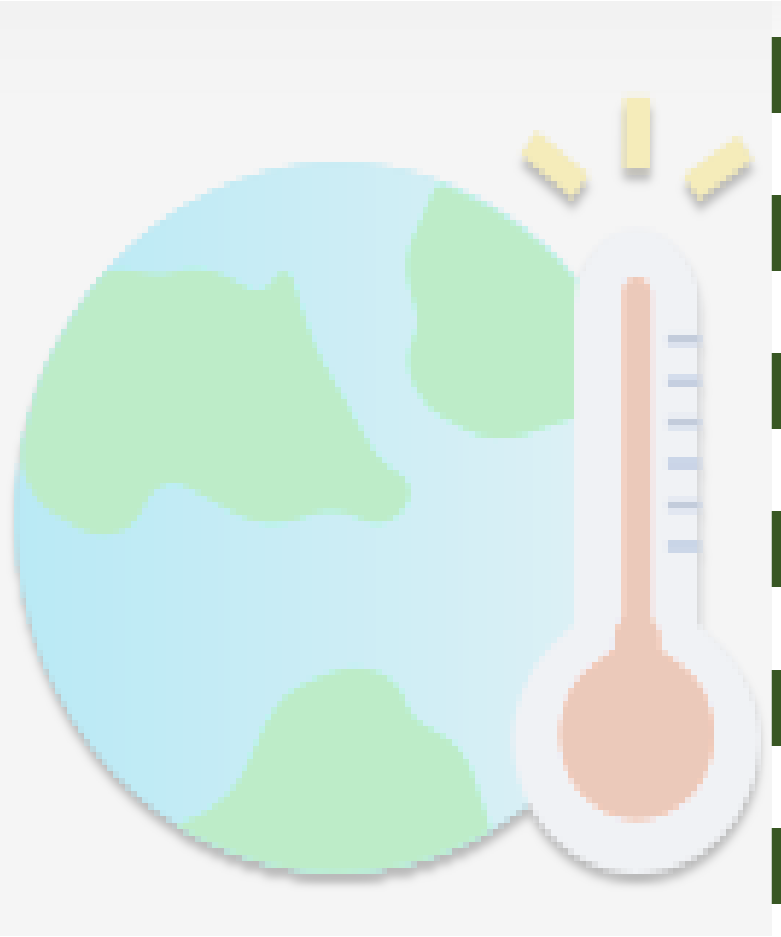
Exercise 5

What are the environmental factors that encourage the breeding of mosquitoes?

Environmental factors

1. Mosquito – Breeding Habitats (Places)
2. Clogged rain gutters
3. Disused tires
4. Poorly-drained flat roofs
5. Plant hollows and cavities
6. Abandoned wells, storage tanks, disused utensils, tins, etc
7. Flower pot clay liners
8. Rice field
9. Depressions in boat cover-tarps
10. Large body of fresh/salt water
11. Small collection of seepages and stagnant water

Environmental factors that influence the breeding of mosquitoes



1. Water (rainfall)
2. Vegetation
3. Altitude
3. Temperature
4. Humidity
5. Social factors such as lifestyles of people, urbanization etc

Global warming: Temperate regions of the world are now getting warmer thereby allowing mosquitoes to breed

Environmental methods in the prevention of malaria

1. Water control
2. Drainage clearing
3. Filling burrow pits and abandoned ditches, holes
4. Flushing
5. Drying of breeding places
6. Management of irrigation water
7. Addition of pollutant to stagnant water
8. Removal of marginal and other vegetation
9. Removing shade where mosquitoes breed
10. Disposal of empty cans, discarded tyres



The use of Insecticide Treated Net (ITNs)

1. These are nets that have been permanently treated with safe insecticide that can kill mosquitoes that cause malaria

2. It is very effective because mosquitoes that cause malaria usually bite at night when people are asleep

3. It reduces human contact with mosquitoes by:
   - killing them when they perch on the net, or
   - may repel them, thus driving them away from where people are sleeping

4. The nomenclature of Long Lasting Insecticidal Nets (LLINs) has been renamed to Insecticide Treated Nets (ITNs)

Benefits of ITN

1. Prevent mosquito bites
2. Cheap and easily transportable
3. Not harmful
4. It can be rewashed and used (ITNs can be washed up to 20 times and can last for 4 years)
5. In Pregnancy, it complements preventive treatment Intermittent Preventive Treatment
6. Reduce number of sick children and adults (helping children grow to be healthy and helping working adults remain productive)
7. Reduce hospital attendance and attendant burden on health facilities
8. Reduce number of deaths

Information on ITNs

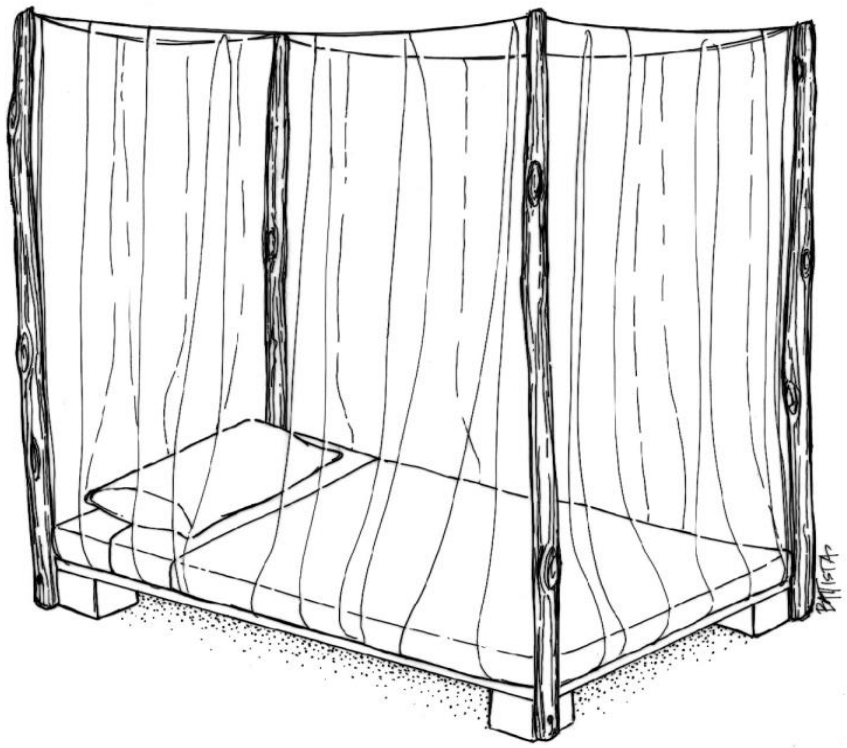
Where to find?

ITNs are distributed free by the Federal Governments through community distribution points, health facilities and some supporting agencies. However, it can also be purchased in shops, drug shops/pharmacies and open markets

How to use?

1. Hang above bed or sleeping mat
2. Tuck under mattress or mat
3. Use every night, all year long
4. Use for everyone, if possible, but give priority to pregnant women, infants and children

Types of net



Rectangular net



Conical net

Seasonal malaria chemoprevention (SMC)

SMC is the intermittent administration of full treatment courses of antimalarial medicines during the high malaria transmission season to prevent malaria

In Nigeria SMC consists of the administration of four - five monthly courses of Sulphadoxine-Pyrimethamine and Amodiaquine (SPAQ), to children between 3 and 59 months during the rainy season

The objective of SMC is to maintain therapeutic antimalarial medicine concentrations in the blood throughout the period of greatest malarial risk

There are two child dose ranges of SPAQ

Infant dose for 3 to 11 months: SP 250 mg/12.5 mg and AQ 75 mg

Child dose for 12 to 59 months: SP 500 mg/25 mg and AQ 150 mg

Benefits of SMC

1. Prevents children malaria in children between 3 – 59 months during the raining season
2. SPAQ is safe and only available for healthy children 3 – 59months
3. SMC is free for all eligible children
4. A full 3-day course of SPAQ must be given each cycle for SMC to work and prevent malaria
5. Reduce number of sick children and adults (helping children grow to be healthy and helping working adults remain productive)
6. Reduce number of deaths associated with malaria

Other strategies for malaria prevention

Advocacy, Communication, and social Mobilization (ACSM)

Partnership: everybody is involved in malaria control.

Operative Research: in conjunction with research groups, line ministries, agencies e.g. NAFDAC, Universities etc

Monitoring and evaluation

Role play

Q1. Participants should assume the roles of a father, pregnant woman, 3 year old daughter and an health worker.

Q2. A family of 3 approach your facility for the first time comprising of the father, 3 year old daughter and a 30 year old mother at 18 weeks of gestation. She complained of fever and headache of 2 days duration. Demonstrate how to manage her.



Role play

Q1a. What other symptoms and signs will you be looking for if you are suspecting malaria in pregnancy?
1b. What test will you do to confirm your diagnosis?

Q2a. How will you treat this patient?

2bi. Counsel her and her family on how to prevent malaria

2bii. Who among the family members are at higher risk of malaria illness and what items/drugs can you offer them and how will they use them, what are their importance?



Key message

Effective management of malaria in PHCs necessitates a comprehensive and integrated approach that addresses both prevention and treatment aspects. By combining strategies such as widespread distribution of insecticide-treated nets, indoor residual spraying, and health education, we can significantly reduce the incidence of malaria in communities.

Early diagnosis plays a pivotal role, with the availability and use of Rapid Diagnostic Tests (RDTs) ensuring accurate identification of cases. Artemisinin-based Combination Therapies (ACTs) should be readily accessible at PHCs, serving as the frontline treatment for uncomplicated malaria cases.

Capacity building within PHCs, infrastructure improvements, and active community involvement enhance the overall effectiveness of malaria management programs.


Thank
you