Malaria Training Module

for

ASHA

ASHAs- Winner of WHO Director-General's Global Health Leaders Award-2022

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Government of India
Ministry of Health & Family Welfare
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Message

India has made a significant progress in its malaria elimination journey, driven by sustained political commitment, robust program intervention, and decentralized implementation across all levels of health systems. Between 2015 and 2024, country has recorded 78.1% reduction in malaria morbidity and a 77.6% decline in malaria mortality, highlighting the effectiveness of evidence-based strategies, enhanced surveillance, and community-led action.

This transition from malaria control to elimination has been facilitated by systematic deployment of key interventions such as Artemisinin-based Combination Therapy (ACT) for *Plasmodium falciparum*, Long-lasting Insecticidal Nets (LLINs) for vector control in endemic areas, bi-valent Rapid Diagnostic Tests (RDTs) for disease confirmation, and newer larvicides and insecticides. These tools have been effectively integrated with existing health system through timely diagnosis, complete treatment, and continuity of care for all febrile illnesses including malaria.

The cornerstone of India's malaria response is its strong community-based surveillance framework, with Accredited Social Health Activists (ASHAs) playing a critical role. As frontline service providers, ASHAs are responsible for early detection of fever cases, prompt use of RDTs, treatment adherence monitoring, and facilitating referrals as required. Their reach into remote and underserved areas ensures equitable access to malaria services and strengthens last-mile delivery.

This revised training module has been developed to further strengthen their technical knowledge and field-based competencies. The module is structured to be practical, user-friendly, and aligned with latest national programmatic guidelines, and is intended both as a training resource and a daily operational reference.

Empowering ASHAs with right tools, knowledge, and support is central to sustaining the gains made so far and accelerating our progress toward malaria elimination. As we collectively work toward the goal of a malaria-free India, let us continue to invest in the capacity and commitment of our frontline health workforce.

(Atul Goel)

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MESSAGE

The National Health Mission (NHM) stands as a testament to our nation's commitment to ensuring health and well-being for all. At the very heart of this ambitious mission lies the Accredited Social Health Activist – the ASHA. This dedicated cadre of health care workers is the vital link connecting communities to the health care system, serving as front line warriors in our collective pursuit of health equity. Their tireless efforts, particularly at the grassroots level, are instrumental in achieving the goals of the NHM, and their contribution to public health is immeasurable.

These collaborative efforts have contributed to significant progress, with 78.1% decline in malaria cases and a 77.6% reduction in deaths by 2024 compared to 2015. Among the critical health challenges that the NHM addresses, malaria remains a significant public health concern. The fight towards malaria elimination demands a concerted and multi-pronged approach, and ASHAs are unequivocally central to this endeavour. As trusted health advocates within their communities, they play a pivotal role in creating awareness, promoting preventive measures, facilitating early diagnosis through testing, and ensuring adherence to treatment protocols.

These essential activities are effectively integrated into the broader health system through initiatives such as Ayushman Bharat, which, via the Ayushman Aarogya Mandirs (AAMs), ensuring timely diagnosis, complete treatment, and continuity of care for febrile illnesses, including malaria.

Recognizing the paramount importance of empowering ASHAs with the latest information and practical guidance, this updated ASHA Training Manual on Malaria has been meticulously developed. By strengthening their knowledge and field-based skills, we aim to further enhance their effectiveness in the fight against malaria, bringing us closer to our national goal of elimination.

Dated: 22nd April, 2025

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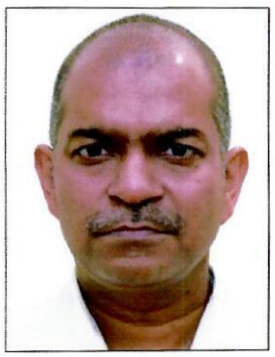

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Message

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India has made substantial progress in reducing the malaria burden. There is significant reduction in Annual Parasite Index (API) from 0.92 in 2015 to 0.18 in 2024. This period marked a significant epidemiological shift, with several States/UTs transitioning to lower categories. The adoption of newer strategies—such as early detection, prompt and complete treatment, integrated vector management and targeted interventions—has been central to this success.

This progress is a result of sustained efforts across all levels of the health system. At the core of these efforts are the Accredited Social Health Activists (ASHAs), who continue to serve as the backbone of primary health care delivery in rural and remote area. Often the first point of contact in their communities, ASHAs are deeply trusted and play a pivotal role in malaria prevention and control.

Beyond providing care, ASHAs actively educate families and communities on malaria prevention. They raise awareness on the correct use of Long Lasting Insecticidal Nets (LLINs), promote acceptance of Indoor Residual Spray (IRS), and encourage environmental practices to eliminate mosquito breeding grounds.

This revised ASHA training module on Malaria has been developed to strengthen the knowledge and skills of ASHAs in malaria prevention, diagnosis, and ensuring complete treatment. It includes updated and comprehensive content developed for both self-learning and implementation in field. Key topics include malaria transmission, prevention strategies, RDT usage, and adherence to treatment protocols.

We are confident that this module will empower ASHAs in their vital role and further accelerate India's progress towards achieving the goal of malaria elimination by 2030.

(Pushpendra Rajput)

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Message

The National Center for Vector Borne Diseases Control (NCVBDC) envisions a healthy, self-reliant India free from VBDs, with equitable access to quality health services. Guided by national development priorities, the programme emphasizes sustainable system strengthening, community-level implementation, and inclusive service delivery. India achieved a significant reduction in the Annual Parasite Incidence (API), decreasing from 0.92 in 2015 to 0.18 in 2024. The number of districts with an API >1 also dropped dramatically, from 155 in 2015 to just 37 in 2024. This remarkable progress is the result of strategic public health interventions and the unwavering dedication of frontline health workers, particularly the ASHAs.

In alignment with the National Framework for Malaria Elimination (NFME) 2016–2030, guided by the Global Technical Strategy for Malaria (GTS) of the WHO, and the National Strategic Plan (NSP) 2023–2027, the programme has intensified district-based planning, implementation, and monitoring. Core strategies such as strengthened surveillance, prompt diagnosis and complete treatment, integrated vector management, capacity building, adequate human resources, research, and innovation have been prioritized to achieve elimination and prevent the re-establishment of malaria transmission.

ASHAs are central to these efforts, serving as the first point of contact for malaria services at the community level. Their responsibilities—including identifying suspected cases, conducting Rapid Diagnostic Tests (RDTs), ensuring timely initiation and completion of treatment, and providing follow-up—are critical for early case detection and community-level containment.

In this context, the updated ASHA Training Manual on Malaria has been developed. Aligned with the latest national guidelines, the manual provides simplified, easy-to-understand content for both structured training sessions and practical field reference. It aims to strengthen the knowledge, skills, and confidence of ASHAs, empowering them to deliver quality malaria services in their communities.

I am confident that this resource will serve as a vital tool in strengthening grassroots malaria efforts and accelerating India's journey toward malaria elimination by 2030.

(Tanu Jain)

Foreword

Malaria is a major public health concern in India, with approximately 80% of reported cases occurring in tribal, hilly, remote, and inaccessible areas. The North-Eastern states, due to their geographical setting, provide a suitable environment for malaria vectors, making them significant contributors to the disease burden.

To strengthen the national response to malaria, the Intensified Malaria Elimination Project-2 (IMEP-2) has been initiated by the National Center for Vector Borne Diseases Control (NCVBDC) in India. Between 2021 and 2024, the primary focus has been on Category 3 states, which have also received support from the Global Fund Grant for AIDS, Tuberculosis, and Malaria (GFATM).

There has been a gradual reduction in malaria cases. In 2023, 227,564 cases and 83 deaths were reported. However, to achieve the goal of malaria elimination by 2030. The revised training manual for Accredited Social Health Activist (ASHA) has been designed using the latest technology for self-paced e-learning, enabling MPHWs to access the content at their convenience.

I hope that ASHA will find this module a valuable reference for enhancing their knowledge of malaria transmission, prevention methods—such as vector control, the use of long-lasting insecticidal nets, acceptance of indoor residual spraying—as well as diagnostic methods and treatment protocols. The content is supplemented with easy-to-understand images for better comprehension.

I wish all ASHAs a successful training experience, empowering them with upgraded knowledge to contribute effectively to India's goal of malaria elimination.

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Abbreviations

Abbreviations	Full Forms
ASHA	Accredited Social Health Activist
ACT-AL	Artemisinin based Combination Therapy-Artemether- Lumefantrine
ACT-SP	Artemisinin based combination Therapy - Sulfadoxine Pyrimethamine
BCC	Behaviour Change Communication
BMO	Block Medical Officer
DVBDCO	District Vector Borne Disease Control Officer
CQ	Chloroquine
IEC	Information, Education and Communication
IDSP	Integrated Disease Surveillance Programme
IMA	Indian Medical Association
IRS	Indoor Residual Spray
ITN	Insecticide Treated Net
MO	Medical Officer
MoHFW	Ministry of Health & Family Welfare
MPHW	Multipurpose Health Worker
NHM	National Health Mission
NCVBDC	National Center for Vector Borne Disease Control
PQ	Primaquine
Pf	*Plasmodium falciparum*
PHC	Primary Health Center
Pv	*Plasmodium vivax*
RDK	Rapid Diagnostic Kit
RDT	Rapid Diagnostic Test
SBCC	Social Behaviour Change Communication
SDG	Sustainable Development Goals
SC	Sub-Center
SOP	Standard Operating Procedure
SPO	State Program Officer
TOR	Terms of Reference
VBD	Vector Borne Diseases

Learning Outcome

This module is aimed at strengthening the core competencies of the ASHAs working in Primary Health care levels across the country. The units included in this module are designed in line with the scope of work of the ASHAs in their role and responsibilities under National Center for Vector Borne Diseases Control (NCVBDC). The module would also be useful to MPHW, ANM and Anganwadi Workers.

The participant will be able to:

- Understand malaria and its transmission
- Learn how to diagnose and treat malaria cases in the community
- Understand how to prevent malaria
- Strengthen surveillance at the community level
- Timely recording and reporting of malaria cases
- IEC/BCC for enhancing awareness in the community

Unit 1: Introduction

Malaria is an acute febrile infectious disease caused by a Plasmodium parasite and transmitted by female anopheles mosquito vector. There are five species of malaria parasite of which Plasmodium falciparum and *P. vivax* are most common in India.

Malaria is a global public health problem. It affects all population groups, regardless of gender or age, although children and pregnant women are at higher risk. Around 80% of malaria is reported from the eastern and central part of the country having forest, hilly and tribal areas. These states include Odisha, Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra and some north-eastern states like Tripura, Meghalaya and Mizoram and the International Cross Border districts.

In 1947, there were estimated 7.5 crore cases of malaria and 8 lakh deaths. In 1953, National Malaria Control Programme was launched with focus on three key activities i.e., Insecticidal residual spray (IRS) with DDT; monitoring and surveillance of cases; and treatment of patients. By 1965, the malaria cases sharply declined to only one lakh with zero deaths. In 1976, there was a resurgence of malaria with 64.6 lakh cases. Thereafter several modifications were made in operational plan of malaria control, resulting into reduction in cases to 20 lakhs by 1984. From 2005 onwards, with the introduction of several new tools of intervention, the cases have come down gradually.

In 2015, there were 11.3 lakh cases and 384 deaths due to malaria in the country.

Encouraged by the success of malaria control, the focus was shifted from control to sustained malaria elimination. In 2016, a National Framework for Malaria Elimination (NFME), (2016-2030) was launched in the country.

In 2023, there were 227564 cases and 82 deaths due to malaria reported in the country. Support by ASHA has greatly contributed to success of malaria programme in India and their continued momentum will go a long way to achieve malaria elimination goal.

The National Vector Borne Disease Control Programme (NVBDCP) targets to achieve zero indigenous malaria cases in the country by year 2027 and targets certification of malaria elimination by year 2030.

With the strengthened intervention measures, malaria burden has reduced significantly even in hard core malarious areas. However, ASHA are expected to maintain surveillance and control measures for malaria till such time the malaria is eliminated from the country.

MPHW/ASHA working in even low malarious areas will have to continue effective surveillance and control measures till the malaria incidence reaches to zero in their areas. Similarly, ASHA working in areas with zero malaria cases will have to maintain effective surveillance and regularly report even “ZERO” malaria cases till such time malaria is certified to be eliminated from the country.

1.1 General information about malaria transmission

- When a female *anopheles* mosquito bites a person suffering from malaria, the parasite enters the body of the mosquito where it multiplies. This mosquito becomes capable of further spread of disease to healthy persons after 10-14 days.

- When this infected female mosquito bites a healthy person, the parasites enter the blood, and the healthy person may develop malaria in 9-30 days.
- In patients who have suffered from *P.vivax* infection, sometimes relapse (repeated disease episodes), without even mosquito bite, as the parasites may remain hidden in the liver of the infected person.
- Rarely, malaria can also be transmitted by blood transfusion or from infected mother to infant before or during delivery.

1.2 Life Cycle of Mosquito

- *There are many kinds of mosquitoes. Only female anopheles' mosquito transmits malaria.*
- *There are 4 stages i.e., egg, larva, pupa, and adult in the life cycle of mosquito.*
- Only Female mosquito needs blood to produce eggs while male mosquitos feed only on plant sap and flower nectar.
- After blood feeding, mosquito usually rests on a nearby surface. It becomes gravid after 3-4 days and lays eggs in stagnant or slow flowing water.

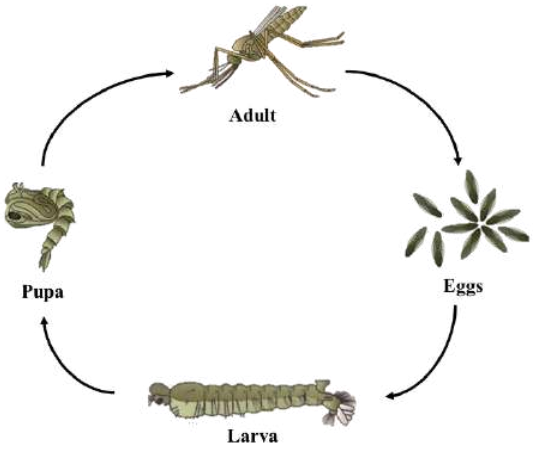


Figure 1: Life cycle of mosquito

- The **eggs** are very small, and you can hardly see them with naked eye.
- In 1-2 days, larva come out of egg and the larva further grows to become a pupa.
- In 1-2 days, adult mosquito come out of the pupa.
- *In tropical countries it takes 7-14 days for a mosquito to grow from an egg to an adult mosquito.*

Unit 2: Roles & Responsibilities of ASHAs

The following are the roles and responsibilities assigned to ASHA:

Diagnosis and Treatment

- Perform RDT / prepare blood smear on slides in fever cases.
- Arrange for transportation of slides to the laboratory and to get back results.
- Provide treatment to patients based on results of RDT or microscopic examination.
- Identify any increase in the number of fever cases in the community and provide prompt information of fever outbreak to the MPHW, MO-PHC.
- Identify the warning signs of severe malaria and ensure timely referral of such cases with adequate pre-referral care, to the nearest First referral Unit (FRU) such as nearby PHC with inpatient facility or district hospital after making blood smear/RDT.
- Whenever ASHA participates in Village Health Nutrition Day (VHND), screening for malaria and treatment should also be undertaken

Indoor Residual Spray

- Mobilization of the community for acceptance of IRS.
- Provide prior information on IRS to the community and village opinion leaders, at least 3 days in advance and then again one day before the spray.
- Assist the MPHW and MTS in selection of sites for dumping of insecticides.

LLINs

- Conduct household surveys to assess the need.
- Distributes advance information slip.
- Demonstrate the use of LLIN during distribution.
- To ensure that each inhabitant of household who has received LLINs, slept under net, the previous night.
- Maintains LLIN register.
- Mass campaigns for distribution of LLIN should be conducted at repeated interval.
- Night-time monitoring for correct use of LLIN.

IEC/BCC

- Educate the community about signs and symptoms of malaria, its treatment, prevention and vector control.
- Undertake advocacy for vector control, e.g., spreading awareness on source reduction activities and improving utilization of ITNs.

- Participate in camps organized for insecticide treatment of bed nets.
- Participate in all village-level activities planned for the antimalaria month.
- Promote behavior change in the community through interpersonal communication and group discussion leading to informed decisions and modified behavior)

Recording and Reporting

- Maintain record of fever cases in M-1 and provide fortnightly report of the same to the MPHW.
- As some areas in India have very low or zero malaria cases, ASHA should continue to report the number of tests conducted and number found positive. Even NIL case reporting is also significant till certification of elimination is achieved.
- ASHAs should enter the record of patients on Integrated Health Information Platform (IHIP) portal, wherever IHIP has been launched. (Annexure 2)

Figure 2: IEC activities for scaling the use of LLINs etc.

Unit 3: Symptoms of Malaria

- The signs and symptoms of malaria are non-specific; however, malaria is suspected primarily based on fever with shivering. It can be daily or on alternate days. The fever is often accompanied by headache, body pain, loss of appetite, nausea, and vomiting, especially among children.

- In areas with high burden of malaria, any patient presenting with the history of fever or temperature ≥37.5 °C and no other obvious cause should be suspected as a case of malaria. Malaria should also be suspected in those patients who have recently visited the malaria endemic area.

How to identify severe malaria

- Patients with any of the following danger signs can be a case of severe malaria. In such cases, arrangements to take patients to nearest health facility should be done.
- Continuous vomiting and inability to take medication orally
- Inability to sit or stand
- Not able to drink or breastfeed
- Breathing difficulty
- Dehydration - Dry skin and sunken eyes
- Confusion, drowsiness, or convulsions
- Bleeding
- Jaundice (yellowness of eyes, dark coloured urine)
- Hypothermia (decrease in body temperature)
- No relief of symptoms within 48 - 72 hours of initial treatment

3.1 How to diagnose malaria

The two most common methods of diagnosis of malaria are:

- Rapid Diagnostic Test
- Blood smear examination through microscopy

3.1.1 Rapid Diagnostic Test

The components of Rapid Diagnostic Test Kit are: Fig.3

- Pricking needles
- Sprit Swab
- Capillary tubes
- Buffer solution

- RDT Cassette

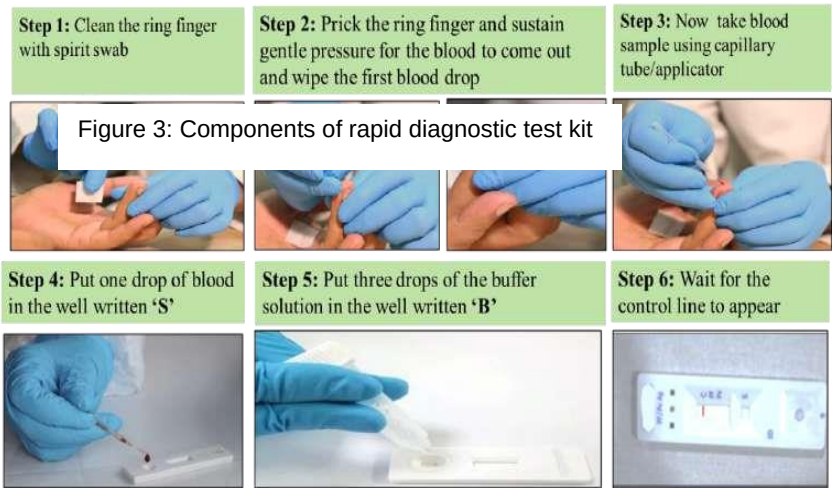


Figure 3: Components of rapid diagnostic test kit

The steps for use of bivalent RDT (can detect both P. falciparum and P. vivax) are shown in Fig.4

Figure 4: Steps for use of bivalent RDT

Interpretation of results of RDT

If only control line appears it means the result is negative as shown in figure 5.

If control line does not appear, it means the RDT is invalid.

Figure 5: RDT showing negative result for malaria

If Pv line appears with control line it means the result is positive for *P.vivax* malaria as shown in figure 6.

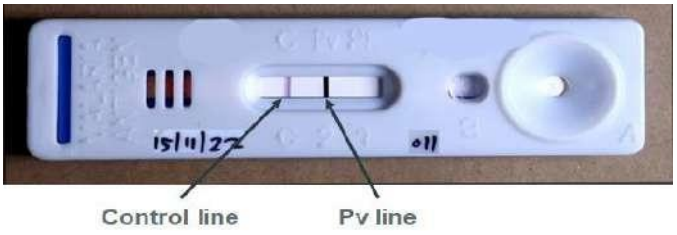


Figure 6: RDT showing positive result for *P. vivax*

If Pf line appears with control line, it means the result is positive for *P.falciparum* malaria as shown in figure 7.

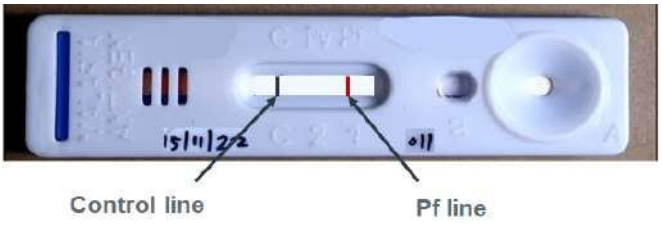


Figure 7: RDT showing positive result for P.falciparum

If Pf and Pv both line appears with control line, it means the result is positive for both *P.vivax* and *P.falciparum* malaria as shown in figure 8.

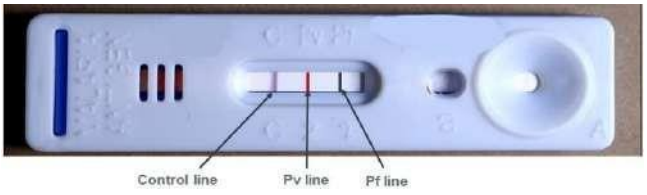


Figure 8: RDT showing positive result for both

Instructions for reading the results of RDT

- If control line does not appear on the cassette, discard it, and repeat the test carefully with a new cassette.
- The matter of defective cassette should be reported to ANM or health facility.
- Read the results of RDT within the time limit as prescribed in the instructions (time can vary from 10 to 30 minutes in different kits).
- If you read the results beyond 30 mins or so, test can be false positive.
- If the result is negative and fever persists, the patient should be referred to PHC.

Note: As per the National Drug Policy-2013, slide for only a strongly suspected case of Malaria with negative RDT is to be prepared and send for microscopy for further investigation.

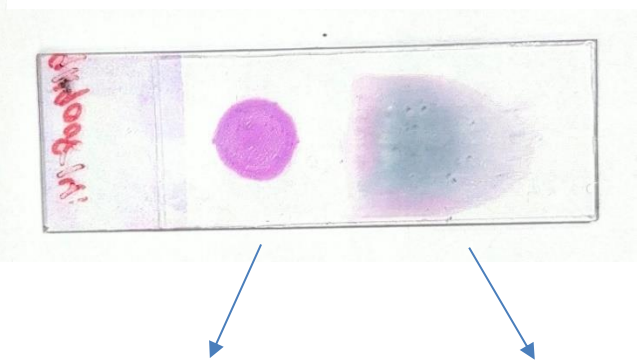
Storage of RDT kit

- Always store RDT kits in a cool, clean, and dry place indoors and should not be exposed to sunlight as it may not give correct results.
- Kits stored at higher temperatures (> 40º C) are likely to lose sensitivity.

3.2.2 Blood smear preparation for microscopy

- For diagnosis of malaria, thick and thin smears are prepared on slides from the finger pricked blood.
- Slides should be clean and dry before taking the sample.
- For thick smear, 3 drops of blood are taken while for thin smear only one drop is taken on the same slide as shown in figure 8.
- Thin smear is made by keeping 45-degree angle b/w the spreader and slide and dragging one drop of blood in opposite direction.
- Thick smear is made by joining 3 drops of blood in a circle.
- The slide is labelled, mentioning the identity of patient and date of preparation of slide.
- After preparation of smears, they should be dried and protected from flies etc. till transportation.

Figure 9: Preparation of blood smear for microscopy



Thick Smear **Thin Smear**

Safety precautions while doing blood tests

- Wash your hands thoroughly with soap under running water or use a skin disinfectant /sanitiser before you draw blood.
- Use gloves.
- Always use a fresh lancet for each patient.
- Do not touch the sharp tip of the lancet before or during the process of drawing blood.
- Do not touch blood with bare fingers at any time.
- Take care to ensure that you do not prick yourself accidentally with a used lancet.
- After the test is over, wash your hands again thoroughly with soap and water or disinfectant.

How to transport slides and reporting results

- As obtaining the results of the blood smear examination are crucial for effective treatment, quick transportation of slides to the PHC must be ensured.
- Slides should be wrapped individually in paper, only after they are completely dry.
- There are various ways to transport slides to the PHC for example using local bus or courier etc.
- The results from the laboratory must be conveyed through telephones (landline/mobile/SMS/WhatsApp) within 24 hours.

ASHA must care to ensure that the slides are protected **from any damage during transport.**

Disposal of sharps/lancets and biological material

Blood from patients can contain organisms that can cause different diseases like HIV/AIDS, hepatitis etc. Therefore, any material which has been contaminated by blood, such as swabs, lancets, used and discarded slides and capillary tubes/applicator should be handled with care. ASHA should follow the Bio-Medical Waste Management (BMW) guidelines for disposal of the waste generated during investigation/diagnosis of malaria. All the waste generated, should be collected, and handed over to the nearest sub-center or PHC for disposal according to the set BMW management guidelines.

Figure 10: Biomedical Wastebin

Unit 4: Treatment for malaria

The treatment for *P.vivax* and *P.falciparum* is different. For *vivax,* chloroquine for 3 days and primaquine for 14 days is given. The details of doses and duration are given in dosage chart as well as shown in strips (Figure 9). Summary of treatment recommended for *P. vivax*, *P.falciparum* or mixed infection in India, is shown in Table-1 below:

Positive for *P.vivax*	**Positive for *P.falciparum***	**Positive for mixed infection**	**Negative**
Treat with: Chloroquine 3 Days + Primaquine 14 Days	In North-eastern states: Treat with age specific ACT-AL for 3 days +Primaquine single dose 2nd day In other states: Treat with: ACT -SP for 3 days +Primaquine single dose on 2nd day	In North-eastern states: Treat with Age specific ACT-AL for 3 days +Primaquine* 0.25mg per kg body weight daily for 14 days In other states: ACT-SP for 3 days +Primaquine* 0.25mg per kg body weight daily for 14 days	No anti-malarial treatment

ACT= Artemisinin based Combination Therapy; AL = Artemether Lumefantrine

Table 1: Summary of treatment for P. vivax, P. falciparum or mixed infection

- *SP is not to be prescribed for children <5 months of age and should be treated with alternate ACT.*
- *ACT is not to be given to pregnant women in first trimester (first 3 months) of pregnancy.*
- ***Dose of Primaquine for P. falciparum is same whether ACT- AL or ACT-SP is used.***
- *Primaquine **NOT TO BE GIVEN** in known G6PD deficient individuals, pregnant women, infants, and lactating women.*

4.1 Treatment of *P. vivax* Malaria

Age Group	Drug		Dosage
<1 year	Chloroquine 150 mg (base)		Day 1 — 1/2 Day 2 — 1/2 Day 3 — 1/4
1 – 4 years	Chloroquine 150 mg (base) Primaquine 2.5 mg	 	Day 1 + Day 2 + Day 3 + Day 4 to Day 14

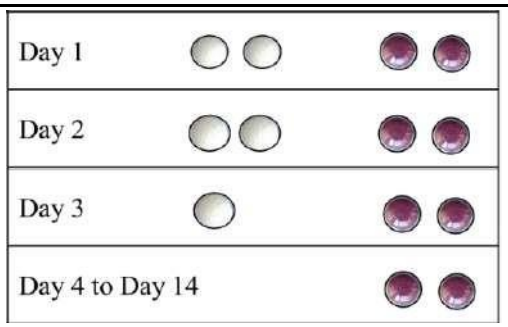
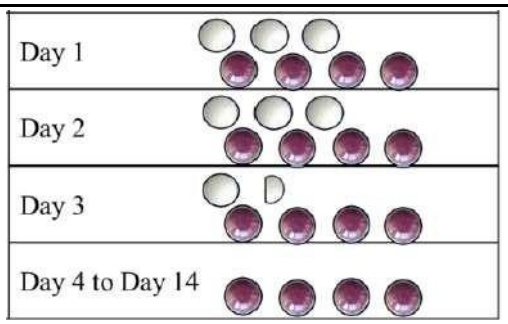
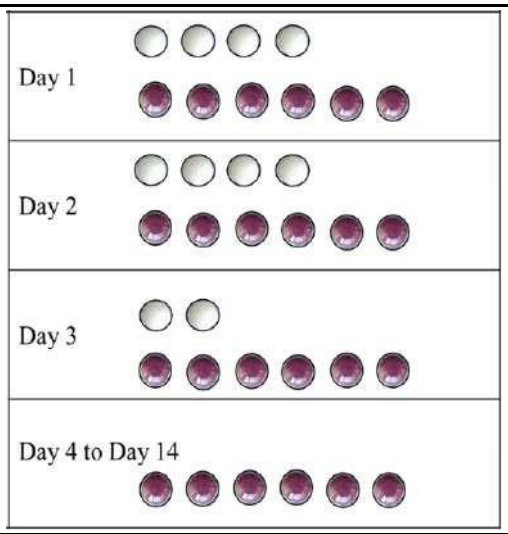
5-8 years	Chloroquine 150 mg (base) Primaquine 2.5 mg		
9-14 years	Chloroquine 150 mg (base) Primaquine 2.5 mg		
15 years & above	Chloroquine 150 mg (base) Primaquine 2.5 mg		

Figure 11: Strips showing tablets of Chloroquine, Primaquine with dosage for treatment of *P.vivax*

4.2 Treatment for *P.falciparum* malaria

The antimalarials for treatment of *P.falciparum* are: Artesunate (AS), Sulfadoxine Pyrimethamine (SP), Primaquine (PQ) and Artemether-Lumefantrine (AL). The age- group wise dosages are given in Figure 10 and 11. The treatment of *P. falciparum* malaria in north-eastern states is different than other states.

Dosage chart for treatment of *P. falciparum* malaria with ACT-SP in India (Excluding North-Eastern States) is given in Figure 10.

Age Group	Blister Pack with Drug Base	Dosage
0–1 Year (Pink	Artesunate (25 mg) Sulfadoxine + Pyrimethamine (250+12.5 mg)	Day 1  

Blister)		Day 2  Day 3 
1 – 4 years (Yellow Blister)	Artesunate (50 mg) Sulfadoxine + Pyrimethamine (500+25 mg)  Primaquine (7.5 mg) 	Day 1  Day 2  Day 3 
5 – 8 Years (Green Blister)	Artesunate (100 mg) Sulfadoxine + Pyrimethamine (750+37.5 mg)  Primaquine (7.5 mg) 	Day 1  Day 2  Day 3 
9 – 14 Years (Red Blister)	Artesunate (150 mg) Sulfadoxine + Pyrimethamine (500+25 mg)	Day 1 

	  Primaquine (7.5 mg) 	Day 2   Day 3 
15 years & above (White Blister)	Artesunate (200 mg) Sulfadoxine + Pyrimethamine (750+37.5 mg)   Primaquine (7.5 mg) 	Day 1   Day 2   Day 3 

Figure 12: Age group -wise treatment of P. falciparum malaria with ACT-SP in India (Excluding North-Eastern States)

Dosage chart for treatment of *P. falciparum* malaria with ACT-AL in various age groups in North-Eastern States of India is given in Figure 11.

Age Group	Blister Pack with Drug Base	Dosage	
		Morning	Evening
5 months to < 3 years* **(5-14 kg)** **(Yellow Pack)**	ACT-AL (Artemether-Lumefantrine) 20 mg+120 mg   Primaquine (7.5 mg) 	Day 1 	
		Day 2  	
		Day 3 	
≥ 3 to 8 years **(15-24 kg)** **(Green Pack)**	ACT-AL (Artemether-Lumefantrine) 40 mg+240 mg   Primaquine (7.5 mg) 	Day 1 	
		Day 2  	
		Day 3 	
≥ 9 to 14 years **(25-34 kg)** **(Red**	ACT-AL (Artemether-Lumefantrine) 60 mg+360 mg	Day 1 	

<table>
<tr><td>Pack)</td><td> 


Primaquine (7.5 mg)
 </td><td>Day 2
  </td><td>  </td></tr>
<tr><td></td><td></td><td>Day 3
  </td><td>  </td></tr>
<tr><td>> 14 years)

(>34 kg)

(White</td><td>ACT-AL (Artemether-Lumefantrine) 80 mg+480 mg</td><td>Day 1
  </td><td>  </td></tr>
<tr><td>Pack)</td><td> 


Primaquine (7.5 mg)
 </td><td>Day 2
  </td><td>  </td></tr>
<tr><td></td><td></td><td>Day 3
  </td><td>  </td></tr>
<tr><td colspan="4">*Primaquine is not given to infants (<1 year), pregnant and lactating women</td></tr>
</table>

Figure 13: Age group -wise treatment of P. falciparum malaria with ACT-AL in North-Eastern States, India

How to care for special groups

- In children, if the temperature is high due to any cause, convulsions, repeated vomiting and dehydration are common. If RDT is positive for malaria and child can take the medicine orally, give first dose of antimalarial drug and refer to higher facility for further management.
- In pregnancy, malaria due to any species can cause serious disease, such patients should be referred to nearest health facility.

These high-risk groups should be referred to higher facility, after performing RDT and taking blood smear.

4.3 Pre-Referral Supportive Care for Severe Malaria

All attempts should be made to transfer patient immediately by quickest means of transport. However, immediate supportive care while awaiting transfer can be lifesaving.

- Treat fever with paracetamol as per dosage chart given below.
- In case of diarrhea or dehydration, give ORS and ask caretaker of the patient to increase intake of clean water/ fluids by patient.
- Give instructions for tap water sponging and fanning in case of high fever.

Dosage Chart for Paracetamol tablets (500mg)	
Less than 1 year	¼
1-4 years	½
5-8 years	¾
9-14 years	1
15 years or more	1 or 2

Follow up of *P. vivax malaria* patients for adverse effects (if any)

- In case of P. vivax malaria, treatment with Primaquine is given for 14 days.
- ASHA should visit the patient each day to ensure that patient takes the medicine by pill count and monitor safety.
- Completeness of treatment should be monitored ASHA should collect empty strips of medicine.
- In case patient reports passing dark colored urine or blue coloration of lips, the primaquine treatment should be stopped and patient should be referred.

4.4 Instructions to be given by ASHA to patients

- Once a suspected case is diagnosed positive by RDT or microscopy, the first dose of medicines should be given under observation by the health worker.
- Give medicines preferably after food.
- Hand over the remaining strip to the patient/caretaker with instructions.
- Observe the patient for 30 min. If a patient vomits within this period, repeat the first dose.
- If the patient vomits again, refer the patient immediately to the nearest health facility.
- Complete the full treatment. Incomplete treatment will lead to the recurrence of malaria or complications.
- Contact the health worker or the nearest sub-center/health facility, in case of no improvement after 48-72 hours of treatment or in case of danger signs/condition worsens at any time.

Unit 5: Control of mosquito vectors

To prevent the spread of malaria, control of mosquito vectors is undertaken to stop breeding of mosquitoes and prevent transmission of malaria. The vector control tools are summarised in Figure 12 below:

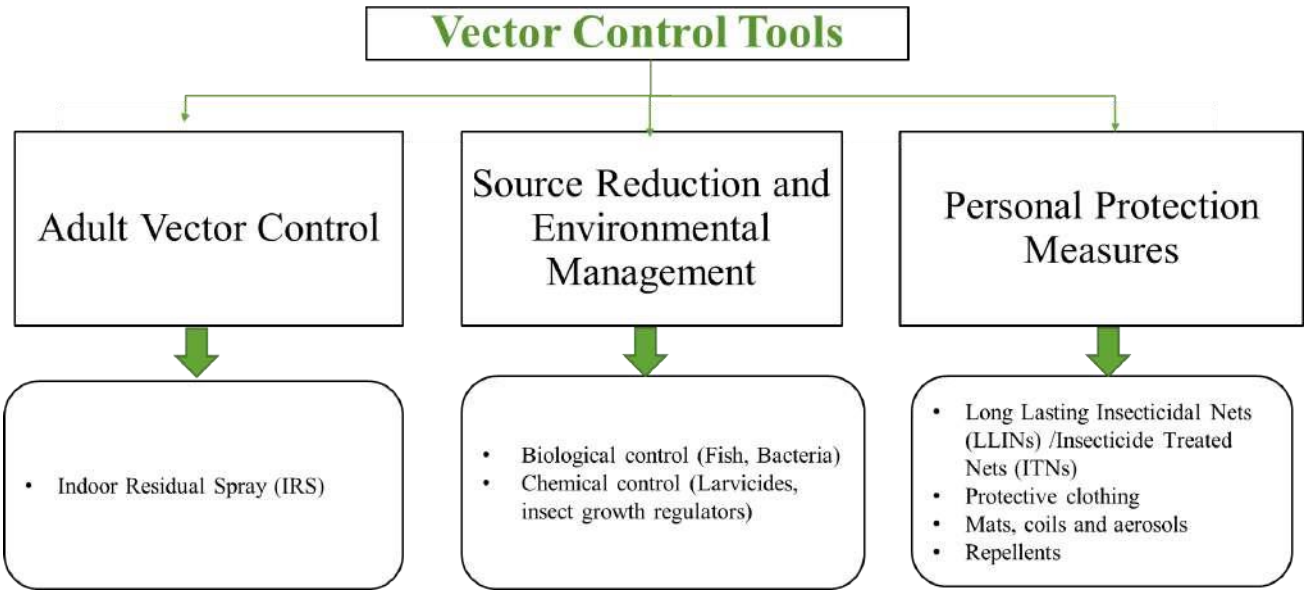


Figure 14: Vector control tools

5.1 Indoor Residual Spray (IRS)

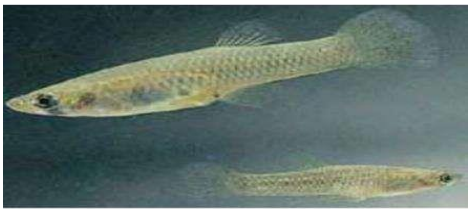
- IRS is undertaken in high-risk rural areas as per operational guidelines. If not covered with LLIN, two/ three rounds of supervised IRS should be conducted, in a year based on the type of insecticide.
- After biting a person, mosquitoes rest indoors on the walls or roof of houses Therefore, IRS is undertaken indoors against adult mosquitoes (Figure13), so that insecticide's residual effect remains on walls/roofs of houses for 6-12 weeks.
- IRS kills/reduces longevity of the mosquitoes which sit on indoor walls/roofs of houses.
- IRS should aim at a coverage of a minimum of 85 % of targeted households.
- ASHA must intimate the community at least 3 days before the commencement of the spray activities.

Figure 15: Indoor Residual Spray activities by Spray Squad

5.2 Larval Source Management (LSM)

- Targets mosquito breeding sites.
- Does not allow mosquitoes to breed and multiply.

Gambusia affinis



Poecilia reticulata

Figure 16: Two common larvivorous fish used for biological control of mosquito larvae

There are 3 types of Larval Source Management:

1. Source reduction & environmental management
   - Closing/drying up small breeding pits by filling with soil.
   - Do not allow water to stagnate near hand pump, around houses and in flowerpots.
   - Remove the grass and vegetation from banks of ponds.
   - Regular cleaning of cooler/cement tanks in summer.
   - Cover the water storage utensils.
2. Biological Control (Fish, Bacteria).
3. Chemical Control (larvicides, insect growth regulators).

Figure 17: Activities showing larval source management

5.3 Personal Protection Measures

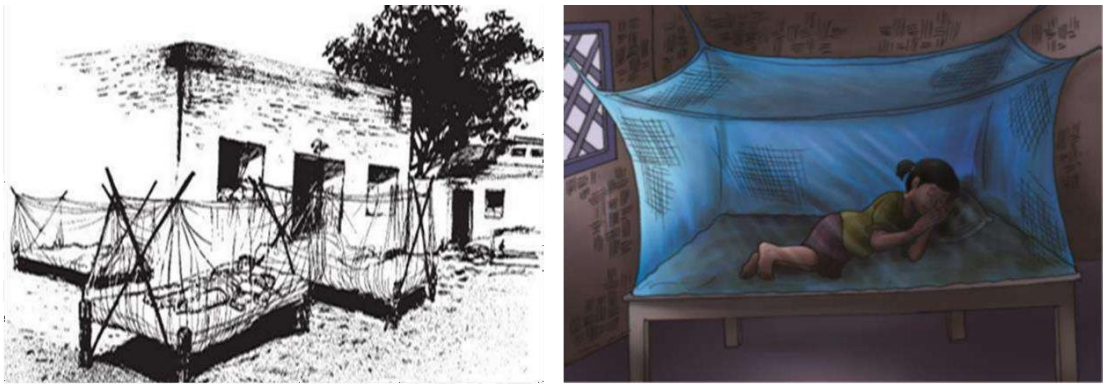
The following measures are used by the communities for personal protection (Figure 17) from the bites of mosquitoes.

- Long Lasting Insecticidal Net (LLIN)
- Insecticide Impregnated Net (ITN) or plain bed nets
- Protective clothing: Wear full-sleeved clothes.
- Mats, coils, and aerosols.
- Repellents (natural repellents or chemical repellents etc).

Figure 18: Personal Protective Measures

Long Lasting Insecticidal Net (LLIN)

- LLINs are a cost-effective intervention against malaria and highly effective against mosquitoes. They provide physical barrier against the mosquitoes; kill them/shorten their life span.
- LLINs are designed for use for minimum of three (3) years and can be washed for 20 times in 3 years.
- Proper use of LLINs is shown in Figure 18.



Placement of nets in four sticks while sleeping outdoors | Placement of nets in four sticks while sleeping indoors

Figure 19: Use of Long-Lasting Insecticidal Nets

Distribution of LLINs

- ASHA will help the Malaria Technical Supervisor in transportation/ distribution of nets as per NCVBDC Guidelines.
- ASHA will also ensure that each inhabitant of household who has received LLINs, slept under net, the previous night.
- Pregnant women, and children less than 5 yrs are the priority groups

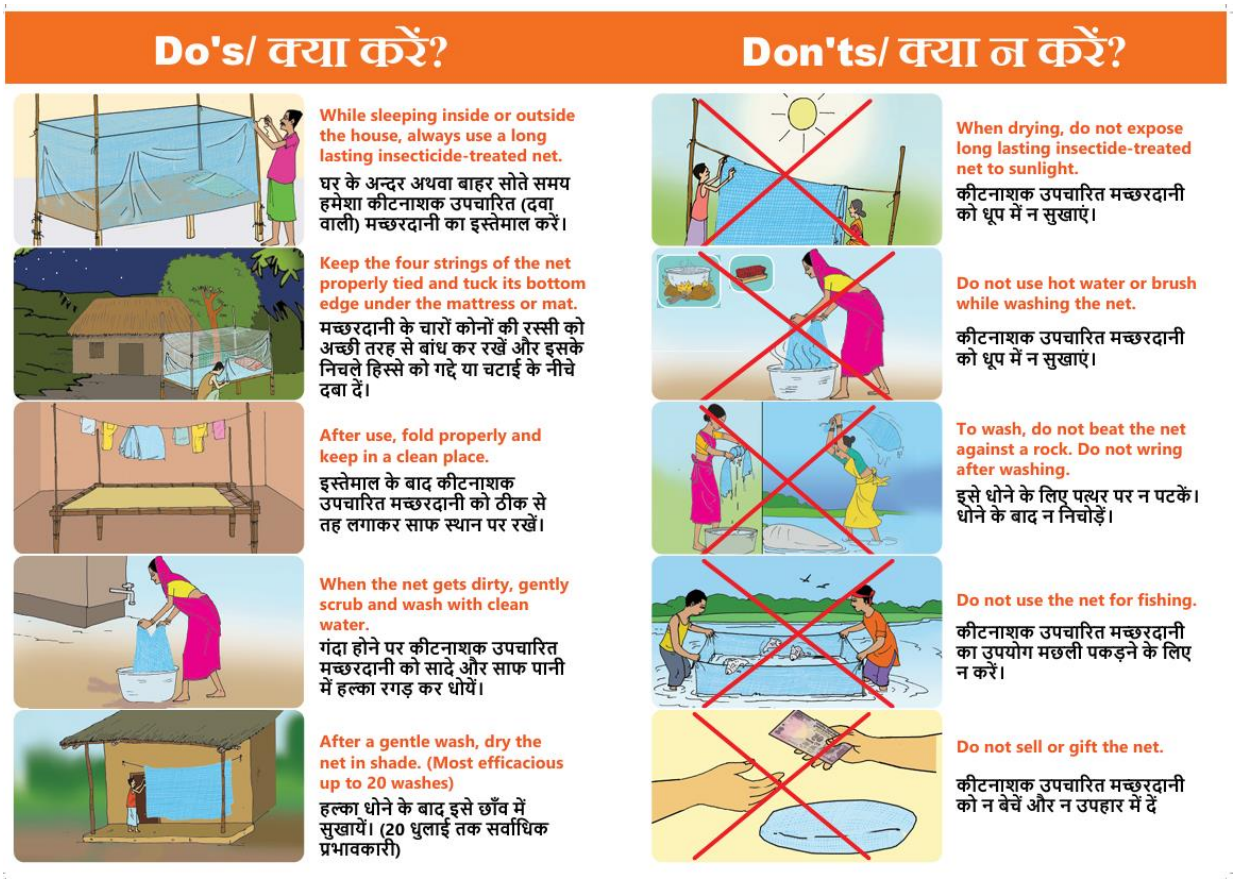


Figure 20: Do’s and Don’ts of use of LLINs

Unit 6: Surveillance of Malaria

- All fever cases suspected of malaria should be tested either by RDT Kits or blood smear by microscopy.
- Treatment cards should be prepared and regularly maintained for each patient, if possible.
- In the villages near the international border, information regarding positive cases (local/migrant) should be shared with higher authorities for necessary action.
- Identify any increase in the number of fever cases in the community and provide prompt information of fever outbreak to the MPHW, MO-PHC.

Unit 7: Recording and Reporting

- All details must be recorded in M1 form (ANNEXURE-1) and should be reported on the same day to MPHW/MO-PHC.
- All cases of suspected malaria should be recorded in this form, irrespective of whether they are treated or not.
- Only Symptomatic cases have to be reported. Surveillance and treatment details for asymptomatic infection should not be included in the form. The record for asymptomatic patients should be made separately.
- ASHAs should enter record of patients on Integrated Health Information Platform (IHIP), wherever IHIP has been launched (ANNEXURE- 2)

Unit 8: Information, Education and Communication (IEC) & Behavior Change Communication (BCC)

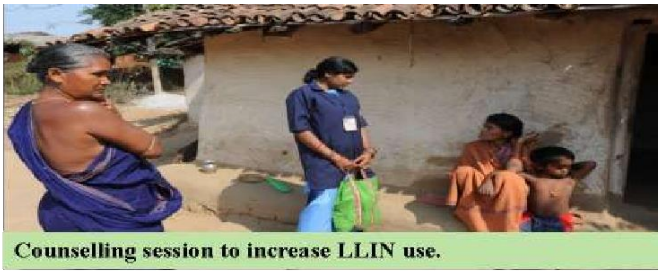
Behavior change is based on information provided through (IEC) tools, the objectives of which are:

- Enhance awareness regarding prevention of transmission, availability of services for diagnosis and treatment.
- Promote behavior changes in the community through interpersonal communication and group discussion leading to informed decisions and modified behavior.

Activities to engage communities

Various IEC activities being undertaken by ASHA are detailed here and shown in Figure 19.

ASHA Organizing meetings for the villagers on LLIN use and distribution.



Counselling session to increase LLIN use.

Folk arts and different IEC & BCC activities.

Night time monitoring for correct use of LLIN.

Figure 21: Glimpses of IEC activities

- Educate the community about signs and symptoms, prevention, and treatment of Malaria.
- Undertake advocacy for vector control, e.g., spreading awareness on source reduction activities and improving utilization of LLINs/ITNs.
- Scaling-up the use of LLIN (Figure 17).
- Distribution of IEC material (Flip book, story cards, stickers, sign boards with logo, calendars, wall charts, leaflets) as per availability in states.
- Promote community participation in camps organized for insecticide treatment of bed nets.
- Engage community in antimalaria month activities.
- Provide advance information on spray dates to the community/villages.

Annexures

Annexure 1

NATIONAL VECTOR BORNE DISEASE CONTROL PROGRAMME

M-1: Report of malaria surveillance by ASHA / health care provider / health facility

Year: ..... **Month** ..... **Fortnight I / II** .....

* *All cases of suspected malaria should be recorded in this form, irrespective of whether they are tested or treated.*

* *Start with patient number "1" each month. Use more than one sheet per fortnight, if needed and mention sheet number. Cases that presented to you during the fortnight should be included in that's form, irrespective of when fever first appeared.*

PHC: ..... **Subcentre:** ..... **Village:** ..... **Provider:** .....

PHC code: ..... **Subcentre code:** ..... **Provider code:** .....

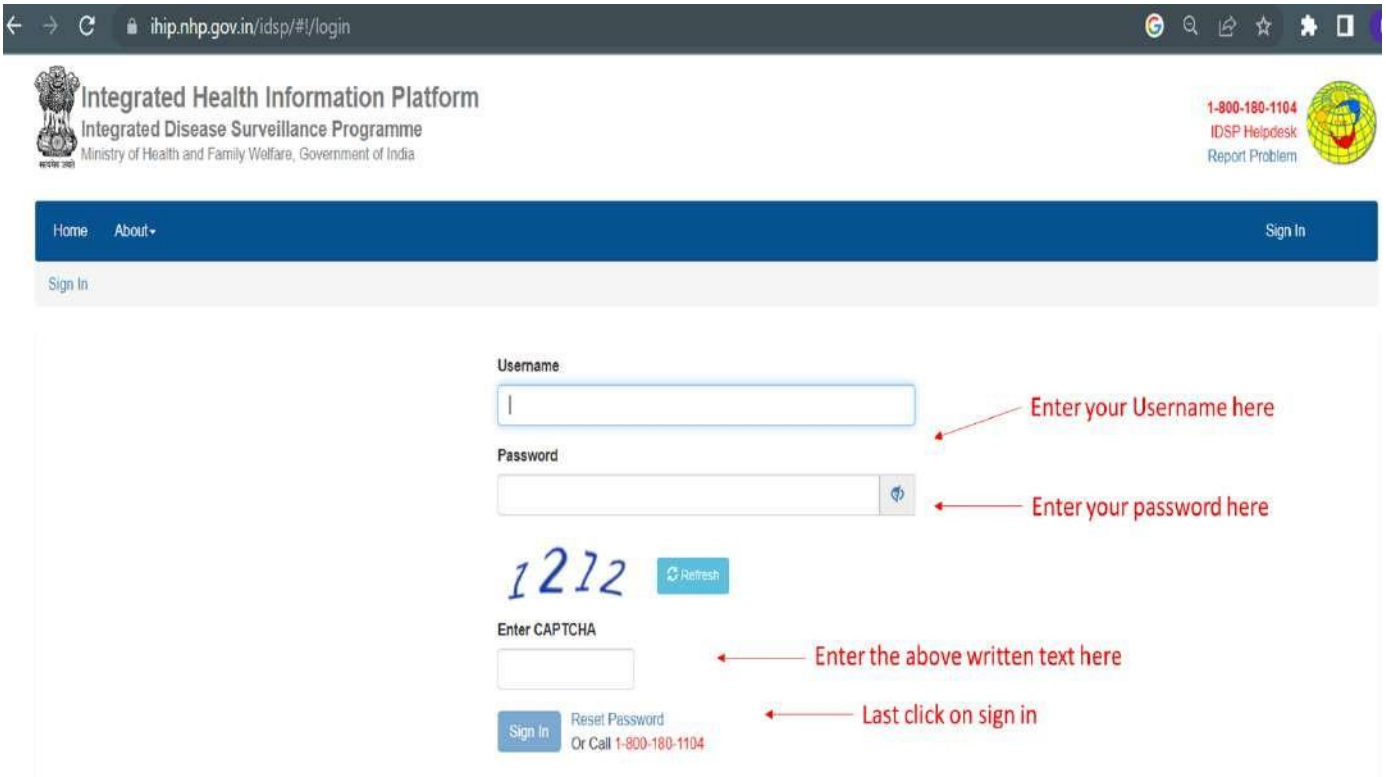
Serial number	Village name	Village/ provider code	Name of patient (suspected malaria case	Head of family	Active (A) / Passive (P) case detection	Age (Years / months)	Sex (M /F)	Duration of fever (days)	Date of RDT / BSC	RDT			Blood slides					Pregnant (if yes, ✓)	Date of starting treatment	Number of tablets/packs given for treatment					Suspected severe malaria (✓)	Date of referral	If died, date of death	Verified by (signature)
										Pf positive (✓)	Pv positive (✓)	Negative (✓)	Slide number (Ser No. / Provider/ Village/SC code)	Date of dispatch to lab	Receipt date of report	Pv +ve (✓) -ve (-)	Pf , ve (✓) -ve (-)			CQ	PQ (2.5 mg)	PQ (7.5 mg)	ACT-SP (✓)	ACT-AL (✓)				
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29
Total																												

A. Positive results to be marked in red. ***B. Mixed infections to be marked as Pf.***

C. Use '991', '992', etc. for village code when patient is not a usual resident of your village.

Stock position	Pf RDT	Bivalent RDT	CQ	PQ (2.5 mg)	PQ (7.5 mg)	ACT-SP (Pink)	ACT-SP (Yellow)	ACT-SP (Green)	ACT-SP (Red)	ACT-SP (White)	ACT-AL (Yellow)	ACT-AL (Green)	ACT-AL (Red)	ACT-AL (White)	Slides	Lancets	Verified by (Signature)
Opening balance																	
Received during fortnight																	
Total of above																	
Utilization during fortnight																	
Closing balance																	

Annexure 2


ihip.nhp.gov.in/idsp/#!/login
Integrated Health Information Platform
Integrated Disease Surveillance Programme
Ministry of Health and Family Welfare, Government of India
1-800-180-1104
IDSP Helpdesk
Report Problem
Home
About
Sign In
Sign In
Username
Enter your Username here
Password
Enter your password here
1212
Refresh
Enter CAPTCHA
Enter the above written text here
Sign In
Reset Password
Or Call 1-800-180-1104
Last click on sign in

Annexure 3

Quiz: 1

1. Malaria is caused by

(a) Infected Female Anopheles mosquito

(b) Male Anopheles mosquito

(c) House Fly

(d) Both a and b

2. Mark the following statement as True (T) or False (F)

(a) Anopheles mosquito rests at 45-degree angle against the surface

(b) *Plasmodium ovale* and *Plasmodium malariae* are the prevalent species of Plasmodium parasite found in India.

(c) *Plasmodium vivax* and *Plasmodium falciparum* are the prevalent species of plasmodium parasites found in India.

(d) Relapse of malaria occurs when the infection persists in the liver in *P. vivax* malaria.

Quiz: 2

1. RDT Kit does not have an expiry date

(a) True (b) False

2. The blood sample to conduct malaria test is drawn from a finger prick

(a) True (b) False

3. Thick and Thin smear for Malaria microscopy are prepared on the same slide.

(a) True (b) False

4. What is the first step that should be taken after the first symptoms of malaria become visible?

(a) Get the blood test done

(b) Isolate the patient

(c) Start malaria treatment

(d) All of the above

Quiz: 3

1. What are the common symptoms of malaria?

(a) Coughing and sneezing

(b) Loss of taste and smell

(c) High fever with shivering and sweating, diarrhoea, vomiting and headache

(d) All of the above

2. Primaquine is a safe medicine for pregnant women

(a) True (b) False

3. Treatment regimen for Plasmodium falciparum malaria is uniform across all the states in India

(a) True (b) False

Quiz: 4

1. Mark the following statements as True (T) or False (F)

(a) Vector control tools are aimed at Adult Vector Control only

(b) Pregnant women and children < 5 yrs. are the priority groups for LLIN

(c) The IRS should aim at a coverage of minimum 80% of targeted households

(d) Sprayed surfaces after IRS should be cleaned properly

2. LLINs are designed for field use for a minimum of three (3) years and can be washed 20 times in 3 years.

(a) True (b)False

3. How can malaria be prevented?

(a) Use insecticide sprayed mosquitos net while sleeping.

(b) Do not allow water to stagnate

(c) Release larva eating fish in water bodies

(d) All of the above

Quiz: 5

1. ASHA has to maintain a record of fever cases diagnosed by blood slides and RDTs in M-2 form

(a) True (b) False

2. A malaria outbreak is defined as an unusual or unexpected increase in the occurrence of malaria cases in a given place and time.

(a) True (b) False

3. India's focus is from Malaria Control to Malaria Elimination and to Eliminate Malaria (zero indigenous cases) throughout the entire country by 2026.

(a) True (b)False

4. Which among the following is NOT the role of ASHA workers in malaria elimination?

(a) Providers of RDT and ACT

(b) Interpreting the results of Malaria Microscopy test

(c) Reinforce behavior through repeated messaging

(d) Adherence to preventive behavior

(e) Linking community to Health providers in high-burden areas

Quiz: 6

1. Anopheles Mosquitoes breed in _____water

(a) Stagnant

(b) Flowing

(c) Dirty

(d) All of the above

2. How is malaria diagnosed?

(a) Stool test

(b) RTPCR

(c) RDT and smear microscopy

(d) All of the above

3. What is ACT?

(a) Anti-climate treatment

(b) Artemisinin-based Combination Therapy

(c) Aspirin based Combination Therapy

(d) None of the above

4. Jaundice and dark colored urine are common symptoms of severe malaria

(a) True (b) False

5. IEC material includes

(a) Leaflets, flipbook, sign board with logo

(b) Calendars and wall charts

(c) WhatsApp messages

(d) both a & b

(e) All the above

Answers:
Quiz 1. 1(a), 2. (a true, b false, c true, d true)
Quiz 2. 1(b), 2(b), 3 (a), 4(a)
Quiz 3. 1 (c), 2(b), 3(b)
Quiz 4. 1(a false, b true, c true, d false), 2. (a), 3(d).
Quiz 5. 1 (b), 2(a), 3(b),4 (b)
Quiz 6. 1(a), 2(c),3(b),4(a), 5(e).