Malaria Training Module

For

Multi-Purpose Health Worker

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प्रो.(डॉ.) अतुल गोयल
Prof. (Dr.) Atul Goel
MD (Med.)
स्वास्थ्य सेवा महानिदेशक
DIRECTOR GENERAL OF HEALTH SERVICES

सत्यमेव जयते

भारत सरकार
स्वास्थ्य एवं परिवार कल्याण मंत्रालय
स्वास्थ्य सेवा महानिदेशालय
Government of India
Ministry of Health & Family Welfare
Directorate General of Health Services

Message

Malaria has long been a major health issue. The economic burden of treating and caring for malaria patients is significant, especially affecting marginalized and vulnerable segments of society. Recently, India has made remarkable progress in reducing its impact, bringing illness and death rates to historic lows.

Our achievements under the Malaria Elimination program boasts of a reduction of 78.1% in malaria morbidity and 77.6% in malaria mortality between 2015 and 2024. As per World Malaria Report (WMR) 2024, India is no longer a High Burden to High Impact (HBHI) country, as it has recorded tremendous reduction in cases and deaths. Also, 48 districts have reported zero indigenous cases for 3 years consecutively, thus making themselves qualified for being considered for sub-national malaria elimination certification.

Multi-Purpose Health Workers (MPHWs) are group of health service providers who have direct link and interaction with the community at large and beneficiaries in particular. They play a vital role in malaria control by understanding its significance in the community and identifying suspected cases based on symptoms. Their role includes diagnosis and treatment of malaria, maintaining detailed records of cases, treatment schedules, and drug stock levels. Additionally, they are responsible for recognizing severe or complicated malaria cases and referring them promptly to higher medical centers. Community education is a key part of their role, including spreading awareness on malaria transmission, promoting personal protection, and encouraging community participation in preventive measures like complete household coverage during indoor residual spraying rounds.

To maintain quality and effectiveness of their work, regular training and skill updates are crucial. As malaria diagnosis, prevention, and treatment approaches evolve, MPHWs must stay updated with the latest protocols, techniques, and tools to ensure accurate and efficient healthcare delivery.

I hope this e-module will enable the States/UTs to train MPHWs with right tools and knowledge to sustain the gains made so far and accelerating our progress towards malaria elimination.

(Atul Goel)

Room No. 446-A, Nirman Bhawan, New Delhi-110011
Tel. No.: 011-23061063, 23061438, Fax No.: 011-23061924, email:dghs@nic.in

आराधना पटनायक, भा.प्र.से.
अपर सचिव एवं मिशन निदेशक (रा.स्वा.मि.)
Aradhana Patnaik, IAS
Additional Secretary & Mission Director (NHM)

सत्यमेव जयते

आज़ादी का अमृत महोत्सव

भारत सरकार
स्वास्थ्य एवं परिवार कल्याण मंत्रालय
निर्माण भवन, नई दिल्ली-110011
Government of India
Ministry of Health & Family Welfare
Nirman Bhawan, New Delhi-110011

MESSAGE

India has achieved several notable milestones under its National Malaria Elimination Program, especially in significantly reducing illness and deaths used by malaria. Since 2015, India has achieved an extraordinary reduction in malaria cases by 78.1% and malaria-related deaths by 77.6%. As per World Malaria Report (WMR) 2024, India is no longer a High Burden to High Impact (HBHI) country, as it has recorded tremendous reduction in cases and deaths. On the global front, India's malaria control strategies have gained recognition, with the World Health Organization (WHO) including India's experiences in its updated guidelines on vector control.

Malaria has been marked as a priority disease for elimination in India by the year 2030. This goal is in line with the Sustainable Development Goals (SDGs), especially those aimed at improving health services and ensuring equal access to healthcare for all.

Multi Purpose Health Workers (MPHWs) are key ground-level staff in India's public health system. They play a key role in India's Malaria Elimination Program by actively identifying and diagnosing cases, ensuring timely treatment, supporting vector control measures like spraying and bed net distribution, and promoting community awareness through education. Malaria control strategies, treatment protocols, and diagnostic tools are regularly updated, and MPHWs must stay informed to provide accurate care.

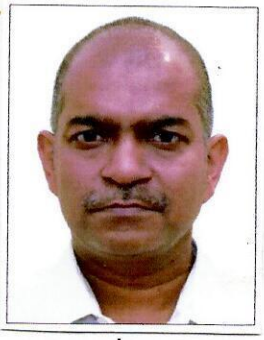
I congratulate NCVBDC for developing this module, which will enable MPHWs in enhancing their knowledge of malaria transmission and prevention methods—such as vector control, the use of Long-Lasting Insecticidal Nets (LLINs), acceptance of Indoor Residual Spraying (IRS)—as well as diagnostic methods and treatment protocols.

Dated: 22nd April, 2025

(Aradhana Patnaik)

Tel.: 011-23063618, 23061097 E-mail: asmd-mohfw@nic.in

पुष्पेन्द्र राजपूत (भा.प्र.से.)
संयुक्त सचिव
Pushpendra Rajput (IAS)
Joint Secretary



सत्यमेव जयते

आज़ादी का अमृत महोत्सव

भारत सरकार
स्वास्थ्य एवं परिवार कल्याण मंत्रालय
निर्माण भवन, नई दिल्ली - 110011
GOVERNMENT OF INDIA
MINISTRY OF HEALTH & FAMILY WELFARE
NIRMAN BHAVAN, NEW DELHI - 110011
Tele: 011-23063156
e-mail: pushpendra.r@nic.in

Message

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India has made remarkable progress in controlling malaria, achieving an 78.1% decrease in cases and a 77.6% decrease in deaths from 2015 to 2024. The number of high-burden districts has fallen sharply from 133 in 2015 to just 37 in 2024. Overall, all key health indicators related to malaria have consistently shown notable improvement.

Multi Purpose Health Workers (MPHWs) have traditionally been playing an important role in the Malaria program with consistently contributing to the implementation of a host of strategic interventions enshrined in the Operational Manual, National Framework for Malaria Elimination and National Strategic Plans.

To keep their work effective, ongoing training is important. Since malaria diagnosis and treatment methods are regularly updated, MPHWs need to stay updated with the latest guidelines, tools, and practices.

This module is designed to be a helpful resource for MPHWs. It covers key topics such as how malaria spreads, ways to prevent it—including vector control, the use of Long Lasting Insecticidal Nets (LLINs), and Indoor Residual Spray (IRS)—as well as the latest diagnostic techniques and treatment protocols. Clear and easy-to-follow images are included to make the content more understandable.

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

(Pushpendra Rajput)

डॉ. तनु जैन
निदेशक
DR. TANU JAIN
Director
MBBS, M.D. (Community Medicine)
Tel.: 011-23921086
E-mail: dir.ncvbdc@gmail.com
tanu.jain69@nic.in

सत्यमेव जयते

राष्ट्रीय वैक्टर जनित रोग नियंत्रण केंद्र
(स्वास्थ्य सेवा महानिदेशालय)
स्वास्थ्य एवं परिवार कल्याण मन्त्रालय, भारत सरकार
NATIONAL CENTER FOR VECTOR BORNE DISEASES CONTROL
(Directorate General of Health Services)
Ministry of Health & Family Welfare, Govt. of India

Message

India has made remarkable strides in its malaria elimination efforts. Between 2015 and 2024, the country achieved an impressive 78.1% reduction in malaria morbidity and a 77.6% reduction in malaria mortality. According to the World Malaria Report (WMR) 2024, India is no longer a High Burden to High Impact (HBHI) country, as it is moving towards elimination.

All key epidemiological indicators have shown consistent and commendable improvement over recent years. Government of India is implementing National Malaria Elimination Programme, and supporting the States for quality assured drugs and diagnostics, national refresher trainings, IHIP expansion for better monitoring and surveillance, entomological training and capacity building, establishment of entomological zones, mobility support, LLINs, ASHA incentives, etc.

At the forefront of these achievements are the Multi Purpose Health Workers (MPHWs), who serve as vital links between the healthcare system and communities, especially at the grassroots level. They play a crucial role in implementing national programs such as those led by the National Center for Vector Borne Diseases Control (NCVBDC), with malaria elimination as a major focus.

To sustain this progress, continuous capacity building and updated training are essential. With evolving guidelines, tools, and treatment strategies, MPHWs must remain well informed and well equipped to respond effectively to the disease.

This module serves as a valuable learning tool for MPHWs. It provides comprehensive insights into malaria transmission, prevention strategies—including vector control measures, use of Long Lasting Insecticidal Nets (LLINs), and Indoor Residual Spray (IRS) alongside the most current diagnostic methods and treatment protocols. The content is enhanced with visually engaging and easy-to-understand illustrations, ensuring better comprehension and retention.

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 Multi-Purpose Health Workers (MPHW) has been designed using the latest technology for self-paced e-learning, enabling MPHWs to access the content at their convenience.

I hope that MPHWs 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 MPHWs a successful training experience, empowering them with upgraded knowledge to contribute effectively to India's goal of malaria elimination.

List of contributors

1. Prof. (Dr.) Atul Goel, DGHS, MoHFW, GoI
2. Smt. Aradhana Patnaik, AS & MD (NHM), MoHFW
3. Shri Pushpendra Rajput, Joint Secretary VBD, MoHFW
4. Dr. Tanu Jain, Director, NCVBDC
5. Dr. C.S. Agarwal, Advisor, NCVBDC
6. Dr. P.J Bhuyan, Addl. Director, NCVBDC
7. Dr. Rinku Sharma, Joint Director, NCVBDC
8. Dr. Vinod Choudhary Former Medical Officer, NCVBDC
9. Dr. Sambit Pradhan, Assistant Director, NCVBDC
10. Dr. Manpreet Singh Medical Officer NCVBDC
11. Dr. Munish Chander, Director General TCI Foundation
12. Dr. Neena Valecha, Former Director ICMR-NIMR
13. Dr. R.C Dhiman, National Coordinator & Advisor TCI Foundation
14. Dr. Samiksha Arora, Manager Training & SNV, NCVBDC
15. Dr. Shikhar Chaudhary, Manager M&E, NCVBDC

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Abbreviations

Abbreviations	Full Forms
ASHA	Accredited Social Health Activist
ACT-AL	Artemisinin based combination therapy-Artemisinin 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 MPHW 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 MPHW's in their role and responsibilities under National Centre for Vector Borne Diseases Control (NCVBDC). It can also be useful for Auxiliary Nurse and Midwife (ANM).

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
- Role and responsibilities of MPHW

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 227,564 cases and 83 deaths due to malaria were reported in the country. Support by MPHW/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, MPHW/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, MPHW/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, mosquitoes usually rest on a nearby surface. It becomes gravid after 3-4 days and lays eggs in stagnant or slow flowing water.
- The **eggs** are very small, and you can hardly see them with naked eye.

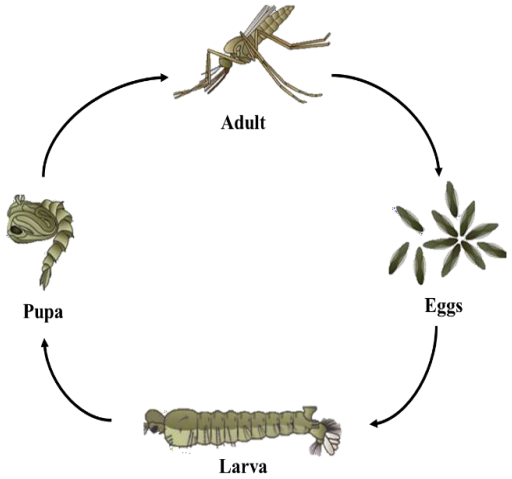


Figure 1: Life cycle of mosquito

- 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: Symptoms and diagnosis of Malaria

- The signs and symptoms of malaria are non-specific; however, malaria is suspected primarily based on fever with chills/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.

2.1 How to diagnose Malaria

The two most common methods of diagnosis of malaria are:

- Rapid Diagnostic Test

- Blood smear examination through microscopy

2.1.1 Rapid Diagnostic Test

The Rapid Diagnostic test (RDT) is undertaken by Rapid Diagnostic Test kit. The components of Rapid diagnostic test kit (Figure 2) are:

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

Figure 2: Components of rapid diagnostic test kit

The steps for use of bivalent RDT kit (can detect both *P.falciparum* and *P.vivax*) are shown in Fig.3

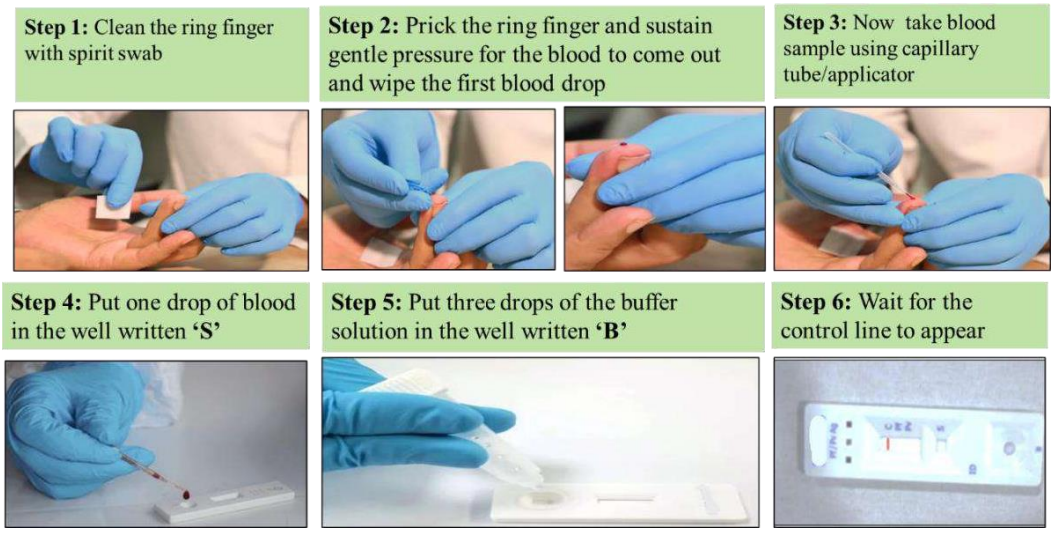


Figure 3: Steps for use of bivalent RDT

2.1.2 Interpretation of results of RDT

If only control line appears it means the result is negative as shown in figure 4.

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

Figure 4: 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 5.

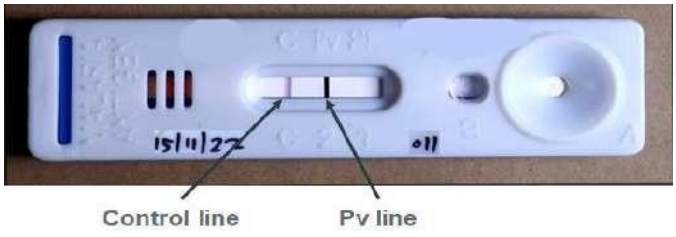


Figure 5: RDT showing positive result for *P. vivax*

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

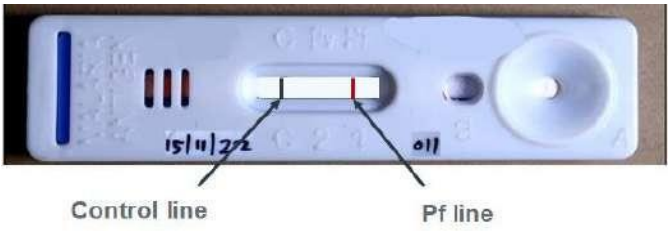


Figure 6: RDT showing positive result for P.falciparum

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 7.

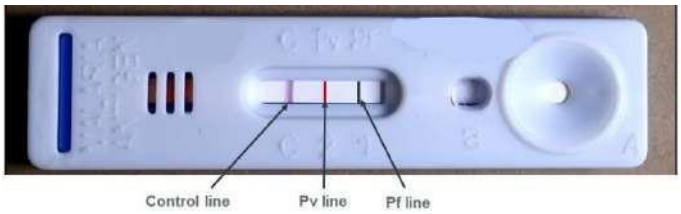


Figure 7: RDT showing positive result for both *P.vivax* and *P.falciparum*

2.1.3 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.

2.1.4 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.

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 denting 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.

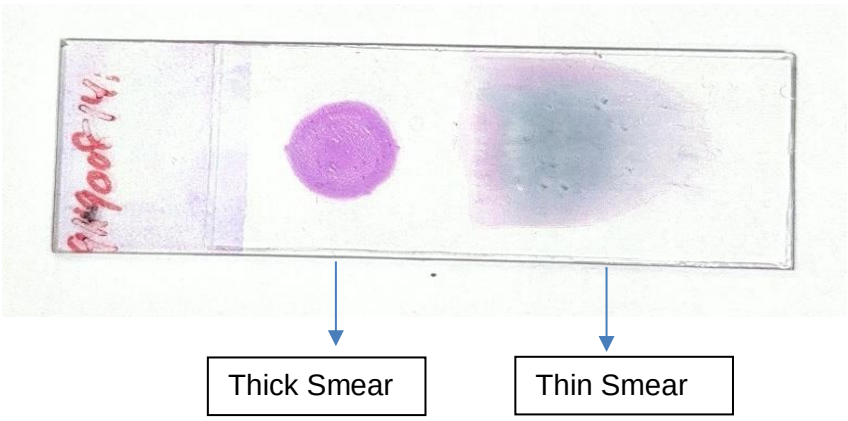


Figure 8*:* Preparation of blood smear for microscopy

2.2.1 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.

2.2.2 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.
- There are various ways to do so 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.

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

2.2.3 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, test strips and test tubes should be handled with care. MPHW 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.

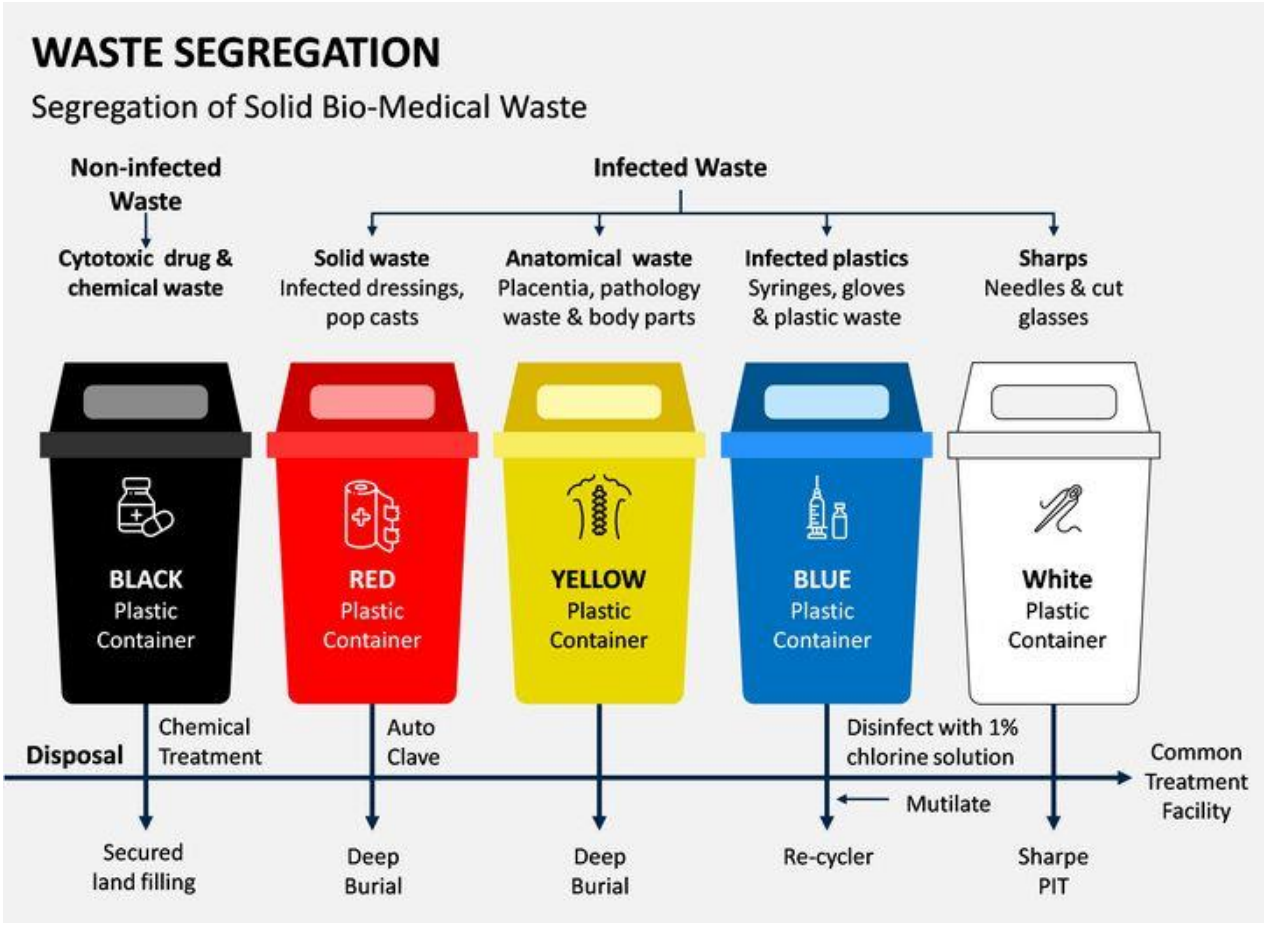


Figure 9: Biomedical Wastebin

Unit 3: 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:

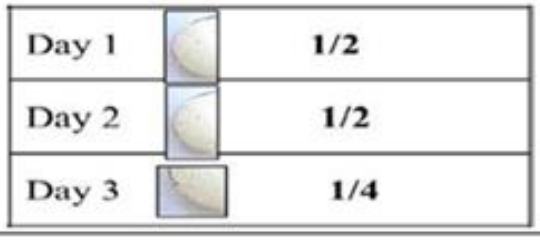
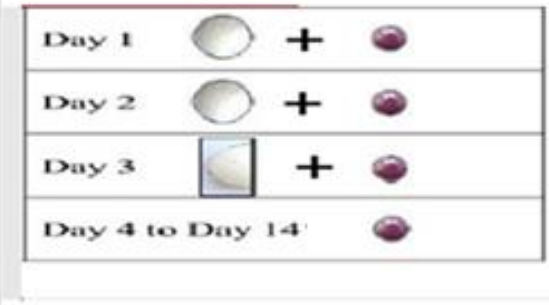
Positive for *P.vivax*	**Positive for *P.falciparum***	**Positive for mixed infection**	**Negative**
Treat with: Chloroquine 3 Days + Primaquine 14 Days	In North-eastern states: Treat with age specific ACT-AL for 3 days +Primaquine single dose 2nd day In other states: Treat with: ACT -SP for 3 days +Primaquine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

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.*

3.1 Treatment of *P. vivax* malaria

Age-group wise treatment of vivax malaria, with daily dosages are shown in figure 9.

Age Group	Drug		Dosage
<1 year	Chloroquine 150 mg (base)		
1 – 4 years	Chloroquine 150 mg (base) Primaquine 2.5 mg	 	

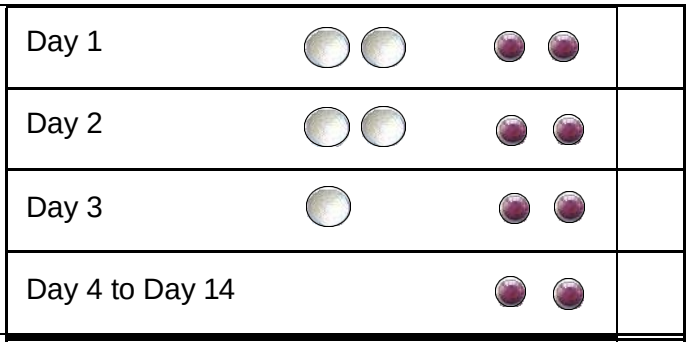
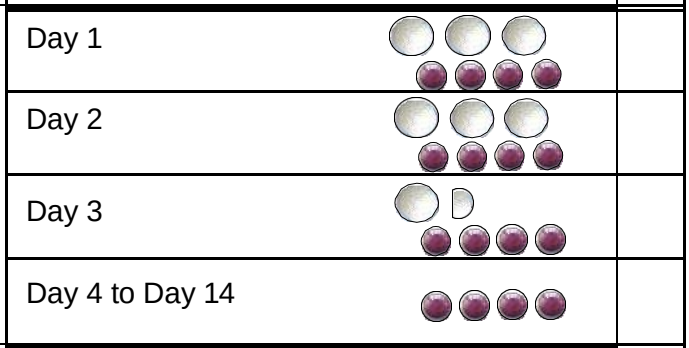
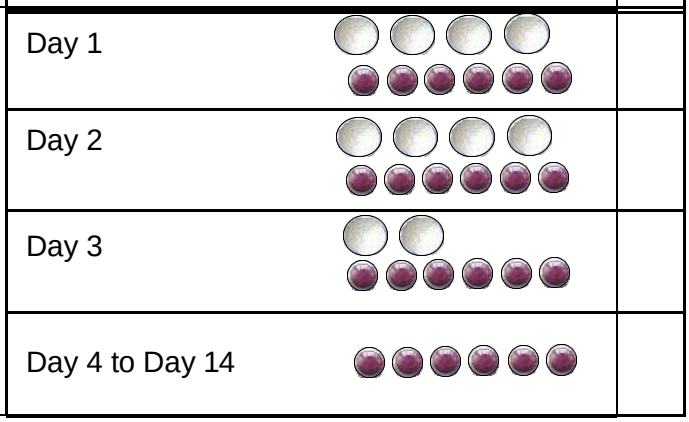
5-8 years	Chloroquine 150 mg (base) Primaquine 2.5 mg		
9-14 years	Chloroquine 150 mg (base) Primaquine 2.5 mg		
15 years and above	Chloroquine 150 mg (base) Primaquine 2.5 mg		

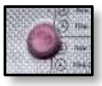
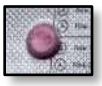
Figure 10: Strips showing tablets of Chloroquine, Primaquine with dosage of treatment for *P.vivax*

3.2 Treatment for *P. falciparum* malaria

The antimalarials for treatment of *P. falciparum* are Artesunate, Sulphadoxine Pyrimethamine, Primaquine and Lumefantrine. The age- group wise dosages are given in Table 2. The treatment of *P.falciparum* malaria in north-eastern states is different than other states (Table 3).

Dosage chart for treatment of *P. falciparum* malaria with ACT-SP in India (Excluding North-Eastern States) is given in Table-2

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

(Pink 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 

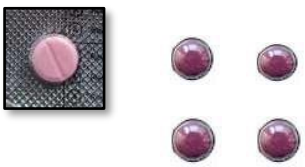
	  Primaquine (7.5 mg) 	Day 2  Day 3 
15 years & above (White Blister)	Artesunate (200 mg) Sulfadoxine + Pyrimethamine (750+37.5 mg)   Primaquine (7.5 mg) 	Day 1  Day 2  Day 3 

Table 2: Age group -wise treatment of *P. falciparum* malaria with ACT-SP in India (Excluding North-Eastern States)

North-Eastern States of India is given in Figure 11.

≥ 9 to 14 years **(25-34 kg)** **(Red Pack)**	ACT-AL (Artemether-Lumefantrine) 60 mg+360 mg   Primaquine (7.5 mg) 	Day 1 	
		Day 2 	
		Day 3 	
> 14 years) **(>34 kg)** **(White Pack)**	ACT-AL (Artemether-Lumefantrine) 80 mg+480 mg   Primaquine (7.5 mg) 	Day 1 	
		Day 2 	
		Day 3 	
***Primaquine is not given to infants (<1 year), pregnant and lactating women**			

Table 3: Age group -wise treatment of *P. falciparum* malaria with ACT-AL in North-Eastern States, India

3.3 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.

3.4 How to identify severe malaria

Patient with any of the following danger signs can be a case of severe malaria. In such cases, arrangement to take patient 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

3.5 Pre-Referral Supportive Care

All attempts should be made to transfer patient immediately. However, immediate supportive care while awaiting transfer can be lifesaving.

- Treat fever with paracetamol **as per dosage chart given below.**
- In case of diarrhoea 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

3.6 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/MPHW should visit the patient each day to ensure that patient takes the medicine by pill count and monitor safety.
- ASHA/MPHW should collect empty strips of medicine.
- In case patient reports passing dark coloured urine or blue coloration of lips, the Primaquine treatment should be stopped and patient should be referred.

3.7 Instructions to patients

- Once a suspected case is diagnosed **positive** by RDT or blood slide, 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 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 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.

3.8 Role of MPHW in diagnosis and treatment

- To conduct a fortnightly domiciliary house-to-house visit as per schedule developed by Medical Officer in-charge of PHC.
- To prepare thick and thin blood smears or perform RDT from fever cases during domiciliary visits to households and keep the records in M-1.
- To provide treatment to positive cases as per the drug policy.
- The MPHW should ensure treatment completion to transport slide collected along with M-1 to Lab for examination. To advise seriously ill cases to visit PHC/referral centre for immediate treatment. The cases will be referred after collection of blood smear/RDT.
- To contact all ASHAs/community volunteers of the area during visit to the village and collect blood smears and M-1 for transmission to laboratory. To cross verify their records by visiting patients diagnosed positive between the previous and current visit.
- To replenish the stock of micro slides, RDKs and drugs to ASHAs/community volunteers wherever necessary.
- To keep the records of blood smears collected and patients given antimalarial in M-1.
- To take all precautions to use properly sterilized needles and clean slides while collecting blood smears. To arrange for transport of such cases from the flexi-pool of NHM.
- In villages where there is no trained provider for early diagnosis and effective treatment, active

case detection (ACD) must be implemented with fortnightly visits by the MPHW, and necessary treatment given.

- To monitor fever and suspected malaria cases to detect outbreaks early and to train ASHA/volunteers to immediately report any unusual increase in fever cases to the nearest subcentre (MPHW) or PHC (by phone) or even by going personally.

Pre-identification of referral centres

Every volunteer / health worker should know from the MO-PHC as to which is the hospital wherein a case of severe malaria should be referred as this is so very important to ensure that the patients do not waste time by going to the wrong places.

S.No.	Problems	Possible solutions
1	Attendant is not convinced about the seriousness of the illness	The harm that can occur if treatment is delayed must be explained. Local examples of patients with similar illness who suffered from Complications or died because of delay in going to the referral centre may be cited.
2	Attendant/patient fears the treatment and tests that are carried out in the hospital.	The attendant/patient should be explained clearly that the injections, IV treatment and some of the tests do cause some pain but are helpful in the recovery of the patient.
3	Attendant/patient does not have faith in the services provided at the referral hospital. They have heard of bad outcomes in other patients with similar illness	Local examples of the patients, who have Recovered fully following a timely referral, may be given.
4	The attendant/family has heard that the staff in the hospital is rude, and they do not care	Someone in the community who knows somebody in the referral facility can also be useful
5	The attendant/family is worried about the expenses in the hospital for diagnostic tests and treatment and those incurred on transport and food	It should be explained that poor patients can get free treatment or may be charged very nominally. If needed, credit may be arranged.
6	The attendant/patient is worried about who will look after the children and other members of the family if the attendant/ patient were to be shifted to a hospital	The possibility of another family member or a Neighbor looking after those who are left at home should be discussed. In the absence of relatives, help from neighbors or the community may be sought
7	There are difficulties in transporting the Patient	Community support can be requested for Rendering help.

Table 4: Common problems of community for reluctance to visit hospitals, and suggested solutions

Unit 4: Control of mosquito vectors

To prevent the spread of malaria, control of mosquito vectors is undertaken in all settings to stop breeding of mosquitoes and prevent transmission of malaria. The vector control tools are summarised in Figure 10 below:

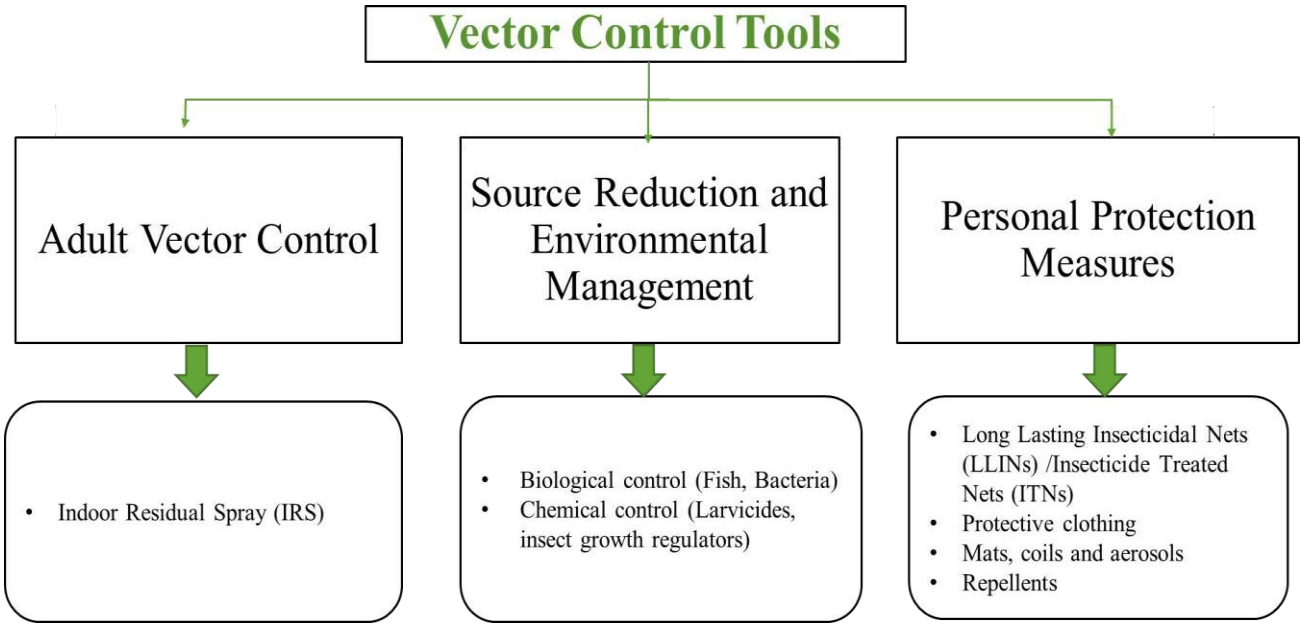


Figure 11: Vector control tools

4.1 Indoor Residual Spray (IRS)

- IRS is undertaken in high-risk areas. 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 an infected person, mosquitoes rest indoor on the walls or roof of houses. Therefore, IRS is undertaken indoors against adult mosquitoes (Figure 11), so that insecticide's residual effect remains on walls/roofs of houses for 4-8 weeks.
- IRS kills/reduces longevity of the mosquitoes which sit on indoor walls/roof of houses.
- IRS should aim at a coverage of minimum 85% of targeted households.

Figure 12: Indoor Residual Spray activities by Spray Squad

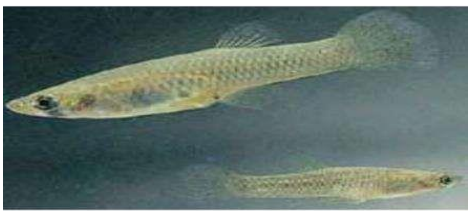
4.2 Larval Source Management (LSM)

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

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 coolers/cement tanks in summer.
   - Cover the water storage utensils.
2. Biological Control (Fish, Bacteria).
3. Chemical Control (larvicides, insect growth regulators).

Gambusia affinis



Poecilia reticulata

Figure 13: Two common larvivorous fish used for biological control of mosquito larvae

Personal Protection Measures

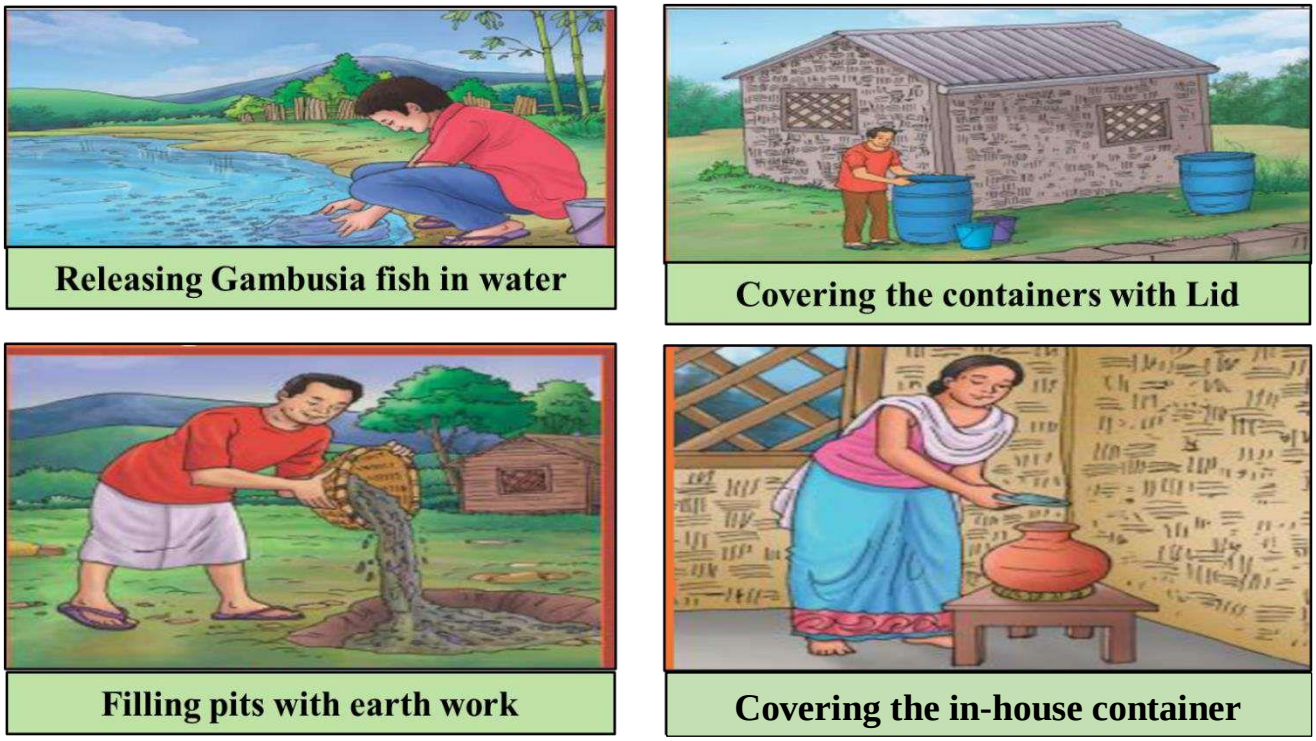


Figure 14: Activities showing larval source management

To prevent mosquito bite, the following measures are recommended as personal protection (Figure 14):

- Long Lasting Insecticidal Net (LLIN) or Insecticide Impregnated Net (ITN).

- Protective Clothing: Wear full sleeve clothes.
- Mats, coils, and aerosols.
- Repellents (natural repellents or chemical repellents etc).

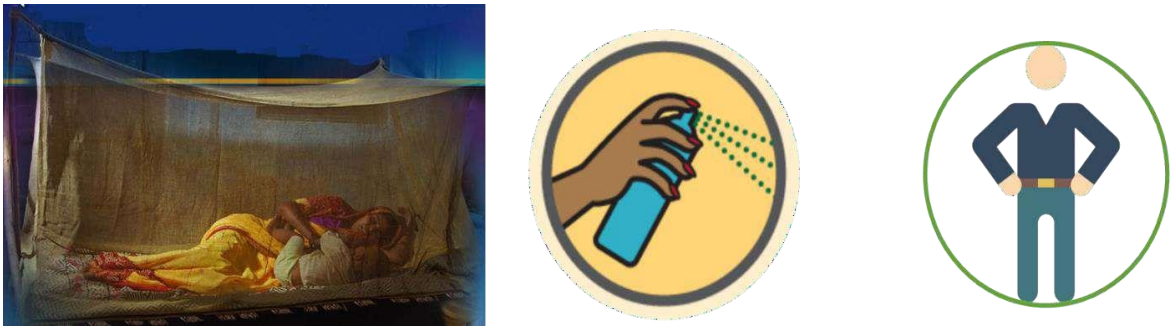
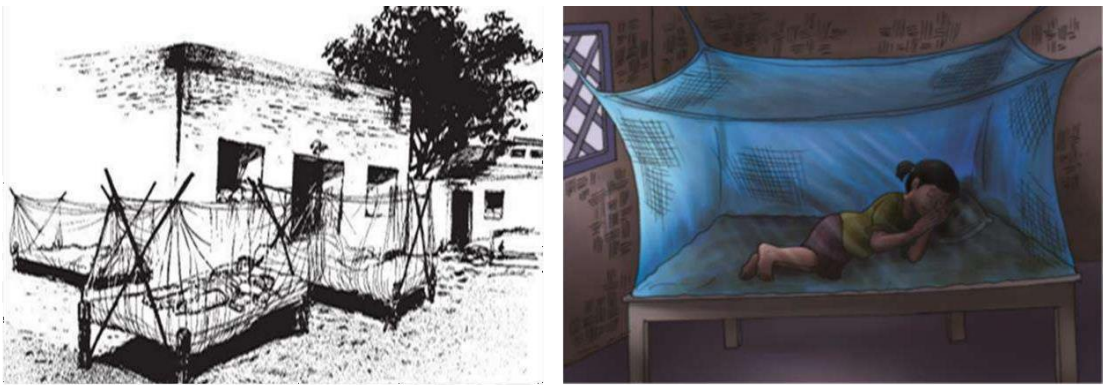


Figure 15: Personal Protection Measures

4.3 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 15.



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

Figure 16: Use of Long-Lasting Insecticidal Nets

4.3 Role of MPHW in integrated vector control

- The dumping places in each village, the address of public building or private houses where dumping is to be done and the quantity of insecticide to be dumped should be known by the MPW (male) to facilitate the process.
- MPW (Male) should give advance intimation to the residents a fortnight before the actual spray date.

- He should move with the spray team showing them all the houses and verify that they are carrying out spray inside all the dwellings as per instructions. He will deploy the squads (two pumps) in such a way that each squad works in a house at a time and all the squads under his supervision work in adjacent houses for convenience of supervision. During spray operations, he will usually be entrusted with a platoon containing 2 squads (4 pumps). Normally it will take 6 to 7 days to cover a sub-centre population of 5,000, considering on an average a pump will spray 35 to 40 houses in a day, i.e., 4 pumps to cover 140 to 160 houses (a population of 700 to 800).

MPHW should ensure the following during the spray:

- The spray should be uniform.
- The deposit should be in small discrete droplets and not splashes.
- All sprayable surfaces like walls, ceilings and eaves should be covered.
- If the ceiling is thatched, it should be sprayed so as to cover both sides of rafters/bamboos, if necessary, the ceiling should have two coats each starting from opposite direction.
- All false ceilings and attics should be sprayed.
- If houses are built on stilts/platforms, the under surface of platform should also be covered.
- To put a stencil on the wall of the house indicating spray status of the human dwelling (All rooms and verandahs are counted).
- To ensure that spray men use protective clothing and wash the spray equipment daily. The washing of the equipment, etc. should not pollute local drinking water source or water used for cattle. The spray men should wash the exposed surface of their body with soap and water.
- MPHW should support team as well as residents so that spray is done properly and all sprayable surfaces like walls, ceilings and eaves are uniformly covered.
- To ensure that spray men use protective clothing and wash the spray equipment daily. The washing of the equipment, etc. should not pollute local drinking water source or water used for cattle. The spray men should wash the exposed surface of their body with soap and water.
- To ensure that all precautions are taken by spray men to avoid contamination of food material or cooked food or drinking water in the house. These can be protected by covering with a plastic sheet. Similarly, fodder for animals should be protected.
- MPHW should see that SFWs maintain their diaries as per instructions and maintain proper account of insecticides.
- MPHW will make a record of spray output showing insecticide consumed, squads utilized, human dwellings sprayed, missed, locked, refused and rooms sprayed/rooms missed in the proforma prescribed.
- In case of refusals or locked houses, he will contact persons concerned / panchayat personnel to get mopping up done to cover these houses.
- MPHW should consolidate the spray data of each village and work out coverage and submit the same to the PHC.
- MPHW will assist in planning re-impregnation and distribution of bed nets, oversee the activity, and provide guidance for correct use.

Unit 5: Surveillance of Malaria

- MPHW may carry out active as well as passive surveillance.
- All fever cases suspected of malaria should be tested either by RDT Kits or blood smear by microscopy.
- Treatment card should be prepared and regularly maintained for each patient, if possible.
- In the villages near 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 6: Recording and Reporting

- To maintain record of fever cases diagnosed by blood slides/ RDTs in M-1 for all cases in the area, including those of ASHAs and submit it to PHC by 5th of the following month.
- Prepare a laboratory request for slide examination in M-2.
- To keep a record of supervisory visits in Tour diary and submit to MO-PHC during monthly meetings for verification.
- To keep records &reports as described in integrated Vector control.

6.1 Monitoring

There are four forms related with Case Detection and Management (M-1, M-2, M-3 and M-4) from field as well as from the laboratory.

- M-1: Report of surveillance by ASHA/ MPHW/ Health facility
- M-2: Laboratory request for slide examination
- M-3: Record of Blood slide Examination in Laboratory
- M-4: Fortnightly report of cases from Subcentre/ PHC/ District/ State

For activities related with vector control, integrated vector control forms – (VC-1, VC-2, VC-3 and VC-4) are also there to which MPHW should be well aware.

- VC-1: Primary record of IRS
- VC-1S: Wall Stencil
- VC-2: District IRS output Form
- VC-3: Primary record of bed nets delivery and impregnation
- VC-4: Bed nets delivery and Impregnation form

An overview of these records and reports is provided below.

6.2 Case Detection and Management

M-1: Fortnightly Report of Fever Cases by ASHA/ MPHW/ Health facility

M-1 Is the primary case record for all suspected malaria cases. It is a list of all fever cases. This form is to be filled by any health worker (MPHW) / trained volunteer (ASHA/AWW) who is directly involved in case detection and treatment.

In M1, each row corresponds with one patient's record. Serial No is filled in column 1 which is started fresh each month. Details of village, village code, name of fever case and Head of Family are entered

in Col 2 to 5. Each village will be assigned a code for entry. In exceptional cases where a fever case is a visitor to the village, 991/ 992 is filled in the respective column.

Type of blood collection is filled as A or P for active case detection (ACD) / passive case detection (PCD) respectively. For all purposes the ASHA/ CHV/ MO PHC will be passive agencies. It is only an MPHW who can be involved in both types of collections. Fever cases coming to the MPHW on their own will be entered as P while fever cases detected by house visits by MPHW will be entered as A. Age is entered in Years/ months. Sex is to be entered as M for Male or F for Female. Duration of fever, date of RDT/ BSC, Slide No, sending and receipt of slides, result of examination of slides 45 and RDTs, date of start of treatment, number of tablets, referral and deaths if any are to be sequentially entered in the form.

Slide number is started fresh at the beginning of each year and continued over the subsequent months. Any positive test result is to be marked in red with a tick (√). Entries up to Col 13 are filled for all patients at the time of first contact. If the RDT is positive, the blood slide need not be sent for examination and therefore Col 14 to 18 are to be skipped and are simply slashed (/). Treatment in such cases is started immediately for Pf. In cases where RDT is negative, blood slide is sent for examination and Col 14 to 18 are filled accordingly on receipt of results.

The lower part of the form consists of record of supplies. Opening balance at the beginning of the month, stock received, stock used and closing balance should be entered by ASHA or other service providers after physical verification of stocks. The MPHW/ASHA/ CHV will fill M-1 in duplicate and at the end of the fortnight, after allowing for 7 days for completion of patient records of the last few days of the reporting fortnight, will forward the form to the subcentre. In the middle of M-1, the MPHW will enter the summary of cases. The MPHW will compile M4-SC by compiling the M-1 of all ASHAs and adding details from his/ her own M-1.

M-2: Laboratory request form for slide examination

Fever cases are diagnosed using RDT / or Blood Slide. It is the Laboratory request form for slide examination. It is filled in duplicate by CHV/ MPHW whenever blood slides need to be sent to the Lab. In this form Col 1 to 7 are filled from M-1.

It is to be sent to PHC lab whenever required, e.g., if 2 slides collected by an ASHA in a day and are needed to be examined, they are entered into M-2 and sent to the PHC laboratory. The result of microscopy and feedback on smear quality are filled by the laboratory technician (LT). All efforts should be made by LT to examine the slides on the day of receipt, or the following day and results sent back to ASHA/ CHV/ MPHW on the same day. The results obtained are entered into M-1 by ASHA/ CHV/ MPHW.

M-3: Laboratory register for slide examination

This form is to be filled by Lab Technician. Date of receipt of slides in the lab and date of sending the results back to providers are the records of significance.

M-4: Monthly report of cases

It is a village-wise/ provider-wise / subcentre wise monthly consolidation of all M-1 forms belonging to a sub center/ PHC area. The M-1 is received by the MPHW from ASHAs/ CHVs after 7 days of completion of the reporting fortnight. The MPHW then compiles all M1s of his subcentre area into M-4

During compilation the MPHW will fill out aggregates of each health care provider in the subcentre area in one row and in the last row enter the compilation of his own M-1. The report is made in triplicate, and 2 copies are forwarded to PHC on the 25th of the month for the 1st fortnight and 10th of the following month for the 2nd fortnight.

6.3 Vector Control

VC-1: Primary record of IRS

This record is to be maintained by the Spray supervisor/ Superior Field Worker (SFW) and is a house wise record of spray activity undertaken in the village. One such record is maintained for each Village in each round. VC-1 is submitted to MPW within one week of completion of the respective IRS round as per schedule. The details on village name, village code, date of spray, round, spray squad number, spray supervisor, are to be entered in the left upper corner of the format. Similarly, summary of the coverage is given in the right upper corner of the format. The lower part consists of the house wise log of room coverage. As soon as IRS is completed in the village VC-1 format is submitted by the Superior Field Worker (SFW) to the PHC-MO where a village and subcentre wise compilation is done by PHC-MO with assistance from the Health Supervisor.

VC-1S: Wall stencil

Wall stencil (VC 1S) is to be written by SFW on each house after the house has been sprayed. date, round, insecticide, and squad number are mentioned on the stencil as applicable. In SR/ TR the number of rooms sprayed / total number of rooms is entered.

VC-3: Primary record of bed net delivery and impregnation

The Primary record of bed net delivery and impregnation (VC-3) is village level record of bed-nets available in the households and the details of house wise distribution and impregnation of nets. Prior to the onset of the transmission season the MPW (M) with assistance from ASHA/ AWW/ CHVs will undertake a survey in villages of his subcentre area to enumerate the number of nets available at the household level.

The top left corner of the form pertains to information on the dates of survey, impregnation and distribution of bed nets, village name, SC etc. The house wise details of activities are listed in the middle part. The total requirement of bed nets in each household is listed in Col. 4. House wise enumeration of ITNs and LLINs available at the beginning of the current year is done in Col. 5 & 6. This information is filled based on the information available from village survey undertaken by MPHW (M). Columns 7 and 8 pertain to the actual no. of ITNs/ LLINs distributed in the village in the current year. The total number of ITNs (available in columns. 5 and 7) in each house impregnated in the current year is entered in column 9. Based on the number of bed nets available, distributed and impregnated the number of effective bed nets in each household is estimated in column 10. The top right corner is a summary of bed net coverage in which percentage of houses with at least two effective nets is entered. The stock status of synthetic pyrethroids is summarized in the lower part of this form.

VC-4: Bed nets output form

Bed nets output form (VC-4) is a village/ subcentre/ PHC wise compilation of bed nets impregnation and distribution activities. The village level VC-3 is submitted by MPHW (M) to the PHC at the completion of bed net distribution and impregnation activities.

6.4 Role of ANM in Recording and Reporting

- To maintain the record of fever cases diagnosed by blood slides/ RDTs in M-1 form including those of ASHAs and submit it to PHC by the 5th of the following month.

- To keep a record of supervisory visits in the tour diary and submit to MO-PHC during monthly meetings for verification.

- 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.

Unit 7: Information Education Communication (IEC) & Behaviour Change Communication (BCC)

Behaviour 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 behaviour change in the community leading to informed decisions and modified behaviour.

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 17: Glimpses of some IEC Activities

The IEC material includes Flip book, story cards, stickers, sign boards with logo, calendars, wall charts, and leaflets (Figure 16). The following activities are undertaken to engage the communities.

7.1 Activities to engage communities

- 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.
- Promote community participation in camps organized for insecticide treatment of bed nets.
- Engage community in antimalarial month activities.
- Provide advance information on spray dates to the community/villages

7.2 Role of MPHW in IEC & BCC

MPHW will educate the community about signs and symptoms of malaria, its treatment, prevention, and vector control giving importance to the following points:

- Malaria control measures are aimed at preventing the spread of the disease and all mosquitoes and other biting insects may not be killed immediately with the indoor residual spray.
- The insecticide and effort of the spraying involves lot of expenditure, and the community members should give their full cooperation to get the spray done on all sprayable surfaces of their houses.
- The effect of insecticides lasts for about 3 months and therefore the sprayed surface should not be tampered by mud plastering or washing.
- To prevent breeding of mosquitoes, every householder must ensure that there is no water collection around their houses.
- It is necessary to get blood examined whenever anyone suffers from fever to find out whether it is due to malaria. Government agencies provide free diagnostic and treatment services for malaria.
- Malaria is a dangerous disease which can cause death, if not treated promptly. The risk is more in the case of pregnant women and young children.

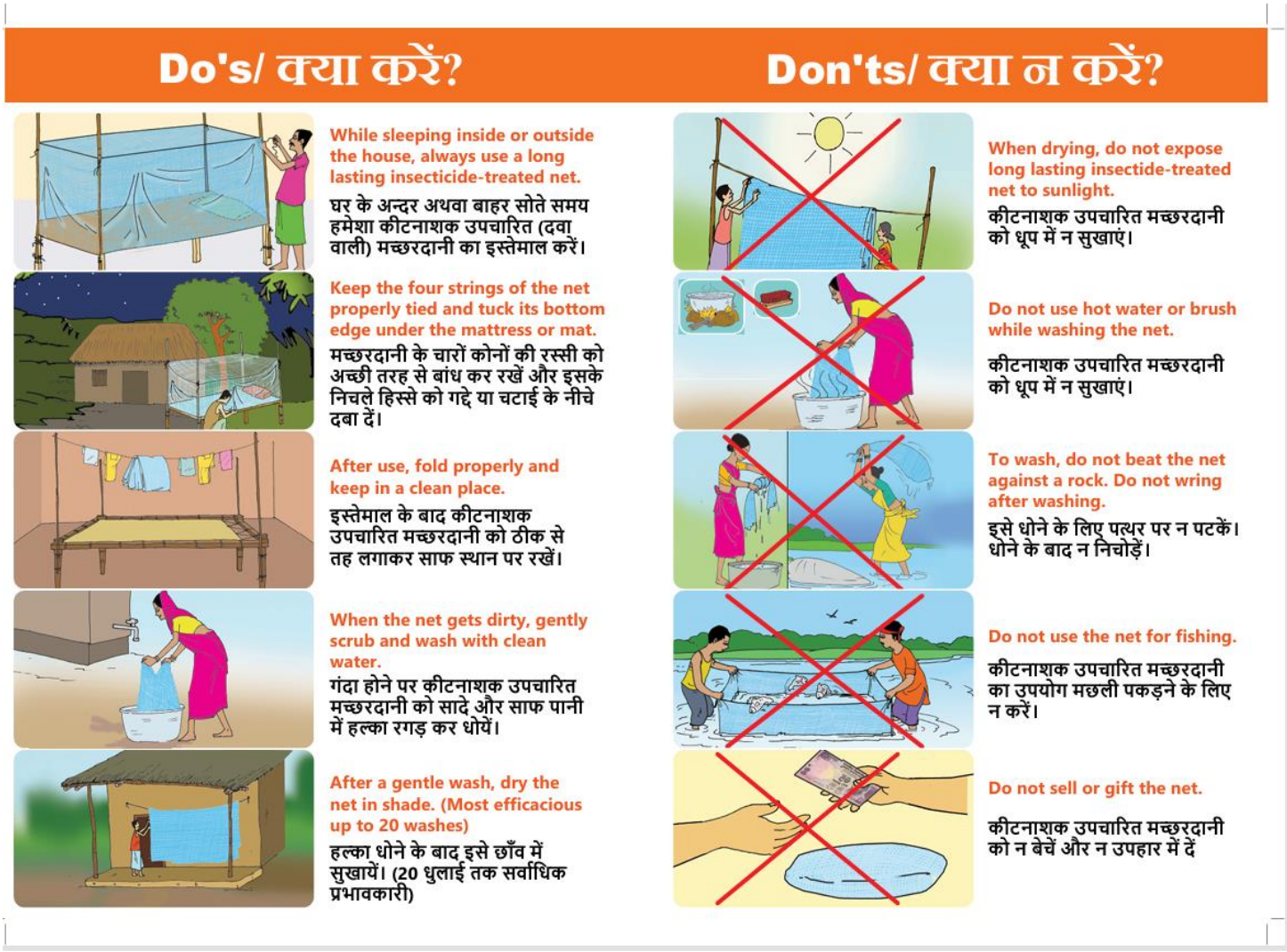


Figure 18: Do's & Don't's of Using LLIN

Note: The role and responsibilities of MPHW female are almost similar to MPHW (male) except:

i) Female MPHW give emphasis on antenatal and postnatal follow-up visits for surveillance, diagnosis and treatment. If the pregnant woman has fever or history of fever, perform RDT/ blood smears and keep records in M-1

ii) Contact all AWW/Community Volunteers/ASHAs of her area during the visit to the village and collect blood smears and M-2 forms for transmission to the laboratory. Female MPHW is not responsible for vector control activities

Annexure(s)

Annexure 1

(Formats of reporting (M1 to M4)

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																	

NATIONAL VECTOR BORNE DISEASE CONTROL PROGRAMME

M-2: Slide examination request to laboratory

(For the use of ASHA/village level volunteer/MPHW)

Village: ..... Village code: ..... Provider code ..... Subcentre .....

* *Fill the form in duplicate.*
* *Fill the columns 1 to 7 and send one copy of the form to the lab along with the slide(s)*
* *Fill the form even if there is only one slide*
* *Columns 8 to 11 to be filled by the LT and the form returned to the provider*
* *Once the form is received back from the laboratory, enter the results in your form and also fill the date the form is received back in column 12.*

Slide No.	Name of patient	Age	Sex	Duration of fever	Active/ passive*	Date of dispatch	Date of receipt in lab	Pv: Positive (✓) Negative (-)	Pf: Positive (✓) Negative (-)	Feedback on quality of smear by LT (Good/Satisfactory/Poor)	Date result received back by provider
1	2	3	4	5	6	7	8	9	10	11	12

NATIONAL VECTOR BORNE DISEASE CONTROL PROGRAMME

M-3: Laboratory register of slide examination in laboratory

District: ..... Subcentre .....

Serial Number	Date of examination	Village code	Provider code	Slide number	Name of patient	Age	Sex (M/F)	Duration of fever	Date of dispatch of slide to lab	Date of receipt of slide in lab	Pv	Pf (R/G/RG)	Date of sending result to provider	Remarks
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

In cases of RDT done at the PHC laboratory, entries will be made, except in columns 5, 10 & 11.

R: Ring stage G: Gametocytes RG: Ring stage and Gametocytes

NATIONAL VECTOR BORNE DISEASE CONTROL PROGRAMME

M-4: Fortnightly report of malaria surveillance from subcentre / PHC / district / State

Subcentre/PHC ..... Subcentre code ..... Year: ..... Month: ..... Fortnight I / II .....

S. No	Village/SC/PHC/District/State name	Village/SC/PHC/District/State code	Population	Total fever cases recorded in fortnight in M-1	No. of RDTs performed	No. of Pf positive by RDT	No. of Pv positive by RDT	No. of mixed infections detected by RDTs	Total positive cases detected by RDT	No. of slides taken	No. of slides examined	No. of slides examined in PCD	No. of slides reported within 24 h	No. of Pf positive by microscopy	No. of Pv positive by microscopy	No. of mixed infections detected by microscopy	Total malaria positives detected by microscopy	Total Pf detected by RDT + microscopy	Total Pv detected by RDT + Microscopy	Total mixed infections detected by RDT + microscopy	Total malaria cases detected by RDT + Microscopy	No. of slides positive in PCD	Malaria Cases 0-4 years (Male)	Malaria Cases 0-4 years (Female)	Malaria cases 5-14 years (Male)	Malaria cases 5-14 years (Female)	Malaria cases ≥ 15 years (Male)	Malaria cases ≥ 15 years (Female)	Malaria cases (Pregnant women)	Severe cases treated	Outbreaks reported (Y/N)	No. of cases referred	No. of deaths due to malaria	Name/Age/Sex of death case
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	30	31	32	33	34	35
MPHW (M)																																		
MPHW (F)																																		
Subcentre (Total)																																		
PHC																																		
Total																																		

Annexure 2

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

Answers 1

1. Malaria is caused by

(a) Infected Female Anopheles mosquito

2. a) Anopheles mosquito rests at 45-degree angle against the surface - TRUE

(b) Plasmodium ovale and Plasmodium malaria are the prevalent species of plasmodium parasite found in India - FALSE

(c) Plasmodium vivax and Plasmodium falciparum are the prevalent species of plasmodium parasite found in India – TRUE

(d) Relapse of malaria occurs when the infection persists in the liver - TRUE

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 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

Answers 2

1. RDT Kit does not have an expiry date

b) False

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

b) True

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

a) True

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

a) Get the blood test done

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

Answers

1. What are the common symptoms of malaria?

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

2. Primaquine is a safe medicine for pregnant women

b. False Primaquine is NOT a safe medicine for pregnant women

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

b. False Treatment regimen for Plasmodium falciparum malaria is NOT uniform across all the states in India.

For NE States, ACT- AL regimen and REST OF India ACT- SP regimen is followed.

Quiz 4

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) 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 for 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

Answers

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

a) F b) T c) T d) F

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

a) True

3. How can malaria be prevented?

d) All of the above

Quiz 5

1. ANM/MPHW must maintain 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 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 ANM/MPHW 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

Answers 5

1. ANM/MPHW must maintain record of fever cases diagnosed by blood slides and RDTs in M-2 form

b) False

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

a) True

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

b) False. The elimination target is 2030

4. Which among the following is NOT the role of ANM/MPHW workers in malaria elimination?

(b) Interpreting the results of Malaria Microscopy test

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) R.D.T 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 is one of the symptoms of severe complicated malaria

(a) True (b) False

5. IEC material include

(a) Leaflets, flipbook, sign board with logo

(b) Calendars and wall charts

(c) WhatsApp messages

(d) both a & b

(e) All the above

Answers

1. Anopheles Mosquitoes breed in _____water

a) Stagnant water

2. How is malaria diagnosed?

c) R.D.T and smear microscopy

3. What is ACT?

b) Artemisinin-based Combination Therapy

4. Jaundice is one of the symptoms of severe complicated malaria

4. a) True

5. IEC material includes

e) All the above