राजस्थान सरकार
निदेशालय, चिकित्सा, स्वास्थ्य एवं परिवार कल्याण सेवायें,
जयपुर, राजस्थान

क्रमांकः मलेरिया/एनवीबीडीसीपी/2024/184 दिनांक :–12.04.2024

समस्त
मुख्य चिकित्सा एवं स्वास्थ्य अधिकारी
राजस्थान।

विषयः– बुखार के रोगियो की मलेरिया जांच हेतु ब्लड स्लाईड संग्रहण बाबत्।
दिनांक 06.04.2024 को अति. मुख्य सचिव महोदया की अध्यक्षता में आयोजित बैठक में दिये गये निर्देश बाबत्।

उपरोक्त विषयान्तर्गत लेख है कि दिनांक 06.04.2024 को अति. मुख्य सचिव महोदया की अध्यक्षता में आयोजित मौसमी बिमारीयो की समीक्षा बैठक मे दिये गये निर्देशो के अनुसार बुखार के सभी रोगियो की ब्लड स्लाईड/ आरडीटी की भारत सरकार की गाईडलाईन अनुसार जांच की जाये। पॉजीटिव रोगियो की जानकारी एस, या एल फार्म के माध्यम से आईएचआईपी आईडीएसपी पोर्टल पर पूर्ण लाईन लिस्ट अपडेट की जाये। मलेरिया से प्रभावित क्षेत्रो मे मॉस स्लाईड कलेक्शन किया जाये। मलेरिया पॉजीटिव केसो का पूर्ण उपचार (आरटी), फॉलोअप ब्लड स्लाईड समय सुनिश्चित करे।

संलग्नः आरडीटी की गाईडलाईन।
मलेरिया ड्रग पॉलिसी–2013

प्रतिलिपिः–निम्न को सूचनार्थ एवं आवश्यक कार्यकाही हेतु प्रेषित–

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8. कार्यालय प्रति।

निदेशक (जन स्वास्थ्य)
चिकित्सा एवं स्वास्थ्य सेवायें,
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GUIDELINE

FOR

BIVALENT (RDT)

FOR MALARIA DIAGONSIS

(STATE OF RAJASTHAN)

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Guidelines for Bivalent RDT

Introduction

At present about 92 Lakhs fever cases are suspected for malaria and screened for malaria annually under the National Vector Borne Disease Control Programme in Rajasthan. In addition to that, 5% of negative slides (about 5 million) and all positive slides (1.5 million) are to be cross checked for quality control. But due to the shortfall of technicians there is delay in reporting the results.

The bivalent RDTs would supplement and help in immediate diagnosis and prompt treatment in areas from where microscopy facility is not readily accessible; but can never replace microscopy which is still considered the gold standard for diagnosis of malaria.

Recommendations for Bivalent RDT:

- At high malaria endemic areas where *Pf* specific RDT is already being used.
- Remote and hard-to-reach areas where microscopy results cannot be made available within 24 hours. However, RDTs may also be used in PHCs, secondary and tertiary level facilities, for patients arriving in odd hours when the laboratory technician is not immediately available and in emergencies like dealing with severe malaria cases.
- Regarding the criteria for selection of RDTs, the recommendations are as under:
  - I. For Pf: Sensitivity and Specificity should be minimum 95% at parasite density level of 200 asexual parasites/ul of blood
  - II. For Pv:
    - Sensitivity: ≥75% at density of 200 parasites/ul
    - Specificity : ≥ 90%
- Type of RDT- Only Histidine-Rich Protein 2 (HRP2) and Parasite lactate dehydrogenase (pLDH) based RDTs to be used and not aldolase based ones.
- The microscopy centers, with the reduced load, would be strengthened by capacity building of the laboratory technicians and better logistic support so as to provide quality microscopy services.

Guidelines for its use:

A patient with fever and no other obvious cause of fever is considered a case of *suspected malaria*. Diagnostic test by

1. Microscopy of blood for malarial parasites and/or
2. Rapid Diagnostic Test

Under the programme Slide Microscopy for Malaria is the gold standard diagnostic tool & wherever a microscopy result **can** be made available within 24 hours.

Due to problems of non-availibilty of Lab Technicians at certain block PHCs & the huge time lag between the slide collection and reporting of results, especially from remote and inaccessible areas, the microscopy result may not be made available within 24 hours. In such areas also, RDTs will be supplied and used for diagnosis. The criteria for selection of these villages (or sub-center areas, where village data is not available) are:

- Pf % > 30 and SPR > 2%:
- Consistently high API (>2) and deaths due to malaria are reported
- Inaccessible areas – i.e. cut off during transmission season, areas with limited road and public transportation facility.

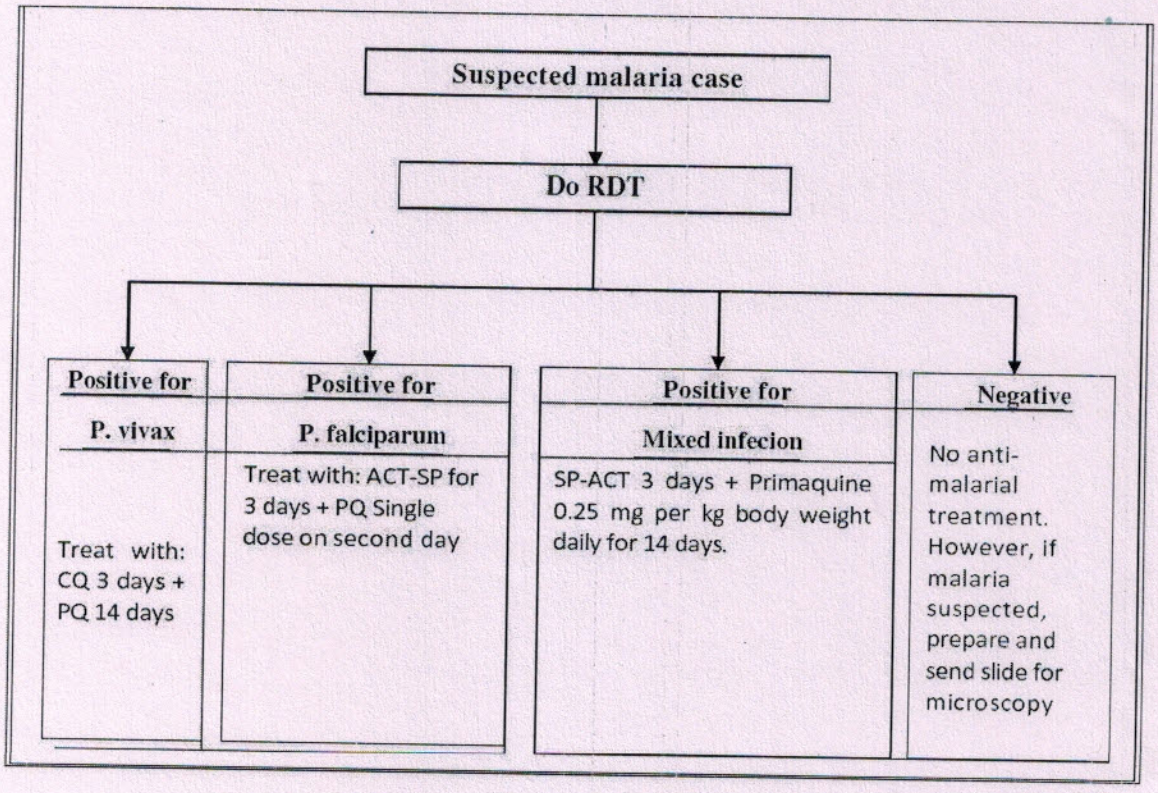
*RDTs will be used in PHC and other health facilities only in emergencies for treatment of severe and complicated malaria requiring immediate medical attention in the absence of the laboratory technician (LT).

In areas, where the risk of malaria is very low, it is not cost-effective to test every patient with fever. However, in such areas, a small number of RDTs should be available at health facilities to test fever patients reporting during the emergency with a very high suspicion of malaria such as those, who have recently stayed overnight in an endemic area.

Steps for the use of bivalent RDT

A patient with fever and no other obvious cause of fever is considered a case of *suspected malaria*. Any Community health volunteer, health worker or health professional observing a case of suspected malaria must immediately initiate a diagnostic test as per the guidelines.

Where microscopy result is not available within 24 hours and Bivalent RDT is used



Note: if a patient has severe symptoms at any stage, then immediately refer to a nearest PHC or other health

facility with indoor patient management or a registered medical doctor.

Note: PQ is contra-indicated in pregnancy and in children under 1 year (Infant).

ACT-SP- Artemisinin-based Combination Therapy (Artesunate+Sulfadoxine-Pyrimethamine)

CQ - Chloroquine

PQ - Primaquine

- An RDT is done in front of the patient and a slide is taken. The bivalent RDT detects *Pv, Pf* as well as mixed infection. If it is positive, the patient is treated for falciparum or vivax malaria based on the diagnosis and the slide is discarded in order to reduce the load on the microscopy services.
- In the bivalent RDT if line for *Pf* is found present then it is a case of *Pf* and accordingly the full course of ACT for three days and Primaquine on day 2 (second day) is to be given.
- If the line for *Pv* is present, then it is a case of *P vivax* and a full course of Chloroquine for three days and Primaquine for 14 days is to be ensured.
- If both the lines for *Pf* and *Pv* are present, then it is a case of mixed infection and the treatment of mixed infection i. e. ACT for three days and primaquine for 14 days is to be given.
- If the RDT is negative, (i.e. only control line is present) then the slide is discarded.
- If no other cause can be found and the clinical suspicion is high (e.g. intermittent fever with rigors and sweats), the test should be repeated after about 24 hours and special efforts should be made to obtain the microscopy result rapidly.
- Some slides may also need to be preserved for cross checking the results as per the Quality Assurance Guidelines.

Rapid Diagnostic Tests

It should be noted that these tests have a short shelf-life and that they may deteriorate at high temperatures. Some manufacturers are now indicating that their product has a longer shelf-life. Although this is encouraging, malaria control staff and medical officers should manage rapid diagnostic test kits (RDKs) under the assumption that the shelf-life is 24 months.

Interpretation of rapid diagnostic tests

HRP2-based tests for *P.falciparum* detect a circulating antigen excreted by asexual plasmodia.The tests have a sensitivity of about 95%, when the asexual parasite density is above 200/µℓ. Malaria patients are rarely symptomatic at lower densities.

If a suspected malaria patient has a negative RDT, it can therefore be assumed that the patient does not have malaria and another cause of the fever should be sought. If no other cause can be found and the clinical suspicion is high (e.g. intermittent fever with rigors and sweats), the test should be repeated after about 24 hours and special efforts should be made to obtain the microscopy result rapidly.

HRP2 antigen can persist for up to 4 weeks after clearance of asexual parasitaemia through treatment. False positive tests are therefore common, especially in patients with a recent history of treatment. RDTs should therefore **not** be used for following up patients after treatment. If a patient, who has been treated, is febrile within one month after the treatment and the RDT is positive, the patient **may** have malaria. If possible, the diagnosis should then be confirmed by microscopy.

The above rules for use of diagnostics should be applied at all levels of care and in passive as well as active case detection.

Calculation of the annual requirement of RDT

S.No.	District	No. PHCs where RDTs are to be used in emergency hours	No. of subcentre areas with SPR >2% and API>2 & Pf > 30% & no microscopy result within 24hr.	No. of blood examinations in those subcentre/ PHC areas last year (A)	Expected RDT requirement in remote high risk areas and PHCs [Ax 0.4 x 1.25] (B)	RDTs for buffer stock and distribution to other areas: [B x 0.25] (C)	Total annual RDT supply [B+C]
1							
2							
3							

- Villages planned to be equipped with RDTs should have trained ASHA/ CHVs (including Angan Wadi Worker)
- The number of (blood) test examinations is estimated by adding 25% to the 40 % of number of blood examinations during the last completed calendar year, because RDTs may attract additional patients.
- If possible, a buffer stock of approximately 25%, depending on the availability of supplies is added, to cover needs in other areas and health facilities, where impending outbreaks may be suspected or where individual patients may be considered as highly suspect of malaria on account of symptoms or travel history, or where microscopy may be temporarily unavailable and to provide a reserve for supplies to the eligible areas.
- Procurement of RDT is done centrally (mostly for the project states under EAC). However, the state may be required to procure buffer stock of 25 % if the central procurement is delayed due to any reason.

Guidelines for Proper Storage of Drugs and Commodities

The main purpose of storage is to protect the quality of products and its packaging throughout the supply chain and make products available for distribution. The brief guidelines for storage of drugs/commodities are mentioned below:

1. Clean and disinfect the store room regularly and monitor the storage conditions
2. Clean receiving, storage, packing areas and remove the garbage and also keep the stores away from rodents, insects and termites
3. Safely handle the health commodities while loading and unloading from the transport vehicle
4. Clean bins, shelves and cupboards, if needed and
5. Store supplies in a dry, well-lit and well ventilated store room and out of the direct sunlight
6. Ensure adequate ventilation and temperature control (not more than 40_0 C).
7. Provide the rack storage system in such a way so that gang ways may be created for easy movement of materials and personnel handling the store

8. Stack cartons in steel racks/slotted angles and at least 10 cm(4 inch) off the floor, 30 cm (1ft) away from the walls and other stacks and no more than 2.5 m (8ft) high
9. Store supplies in a manner that is accessible for FEFO, counting, and general management. Use First Expiry First out (FEFO) principle. Please issue the drugs which are going to expire first.
10. Store medical supplies separately, away from insecticides, chemicals, old files, office supplies, and other materials.
11. Arrange cartons so that arrows point up, and ensure that identification labels, expiry dates, and manufacturing dates are visible.
12. Monitor store security and safety to avoid theft/pilferage
13. Secure store room from water penetration and from any seepage in the walls, roof, doors & windows, especially during rainy season
14. Monitor product quality (visually inspect commodities and check expiry dates) and physical verification of quantities
15. Ensure that fire safety equipment (fire extinguisher) is available and accessible and that personnel are trained to use it.
16. Ensure fire proof electrical fittings and appliances for any fire due to short circuit and keep the stocks away from the electrical sockets
17. Separate damaged and expired stocks from the usable stock and move the expired stock to secure area and dispose of these products without delay as per the established procedure
18. Monitor stock levels, stock quantities and safety stocks and update stock ledger/records regularly and maintain the files safe custody.

NATIONAL DRUG POLICY ON MALARIA

2013

Directorate of National Vector Borne Disease Control Programme

(Directorate General of Health Services)

Ministry of Health and Family Welfare

22-Shamnath Marg, Delhi-110054.

NATIONAL DRUG POLICY ON MALARIA (2013)

Preamble

Malaria is one of the major public health problems of the country. Around 1.5 million laboratory confirmed cases of malaria are annually reported in India. Around 50% of the total malaria cases reported is due to *P.falciparum.* One of the reasons attributed to rise in proportion of *P.falciparum* cases is resistance to chloroquine, which was used for a long time as the first line of treatment of malaria cases. *P.falciparum* infections are known to lead to severe malaria, if timely treatment with effective drugs is not administered.

The National Drug Policy on Malaria was first formulated in 1982 and has subsequently been reviewed and revised periodically. The present National Drug Policy for Malaria (2013) has been drafted keeping in view the availability of more effective antimalarial drugs and drug resistance status in the country.

Early diagnosis and complete treatment is one of the key strategies of the National Malaria Control Programme. All fever cases clinically suspected of malaria should be investigated for confirmation of malaria by either microscopy or Rapid Diagnostic Test (RDT)[1].

In high Pf predominant areas where it is not possible to get microscopy results within 24 hours, ASHAs/other community health volunteers/MPWs should be provided with rapid diagnostic kits and anti-malarials (including ACT) for early diagnosis and treatment of *P.falciparum* cases.

Effective treatment of malaria under the National Drug Policy aims at:

- Providing complete cure (clinical and parasitological) of malaria cases
- Prevention of progression of uncomplicated malaria into severe malaria and thereby reduce malaria mortality
- Prevention of relapses by administration of radical treatment
- Interruption of transmission of malaria by use of gametocytocidal drugs
- Preventing development of drug resistance by rational treatment of malaria cases.

Treatment of uncomplicated malaria

1. It is stressed that all fever cases should be suspected of malaria after ruling out other common causes and should be investigated for confirmation of malaria by Microscopy or Rapid Diagnostic Kit (RDK) so as to ensure treatment with full therapeutic dose with appropriate drug to all confirmed cases.

[1] Till 2012, Pf RDTs have been supplied under NVBDCP. From 2013, Bivalent RDT have been introduced

2. The malaria case management is very important for preventive serious cases and death due to malaria. So, the private healthcare providers should also follow the common National Guidelines for treatment of malaria as per the Drug Policy 2013

3. *P.vivax* cases should be treated with chloroquine for three days and Primaquine for 14 days. Primaquine is used to prevent relapse but is contraindicated in pregnant women, infants and individuals with G6PD deficiency.

   Note: Patients should be instructed to report back in case of haematuria or high colored urine / cyanosis or blue coloration of lips and Primaquine should be stopped in such cases. Care should be taken in patients with anaemia.

4. *P. falciparum* cases should be treated with ACT (Artesunate 3 days + Sulphadoxine-Pyrimethamine 1 day). This is to be accompanied by single dose primaquine preferably on day 2.

5. However, considering the reports of resistance to partner drug SP In North Eastern States, the Technical Advisory Committee has recommended to use the Co-formulated tablet of ARTEMETHER(20 mg) - LUMEFANTRINE (120 mg (ACT-AL) as per the age-specific dose schedule for the treatment of Pf cases in North Eastern States **(Not recommended during the first trimester of pregnancy and for children weighing < 5 kg)**

6. Production and sale of Artemisinin monotherapy has been banned in India

7. Pregnant women with uncomplicated *P. falciparum* should be treated as follows:

   - 1st Trimester: Quinine
   - 2nd & 3rd Trimester: ACT

   Note: Primaquine is contra indicated in pregnant woman

8. In cases where parasitological diagnosis is not possible due to non-availability of either timely microscopy or RDT, suspected malaria cases will be treated with full course of chloroquine, till the results of microscopy are received. Once the parasitological diagnosis is available, appropriate treatment as per the species, is to be administered.

9. Presumptive treatment with chloroquine is no more recommended.

10. Resistance should be suspected if in spite of full treatment with no history of vomiting, diarrhoea, patient does not respond within 72 hours, clinically and parasitologically. Such cases not responding to ACT, should be treated with oral quinine with Tetracycline / Doxycycline. These instances should be reported to concerned District Malaria /State Malaria Officer/ROHFW for initiation of therapeutic efficacy studies.

Treatment of *Vivax* Malaria

Diagnosis of vivax malaria may be made by the use of RDT (Bivalent) or microscopic examination of the blood smear. On confirmation following treatment is to be given:

Drug schedule for treatment of *P vivax* malaria:

1. **Chloroquine:** 25 mg/kg body weight divided over three days i.e.
   10 mg/kg on day 1,
   10 mg/kg on day 2 and
   5 mg/kg on day 3.

2. **Primaquine*:** 0.25 mg/kg body weight daily for 14 days.

   Primaquine is contraindicated in infants, pregnant women and individuals with G_6PD deficiency.

   14 day regimen of Primaquine should be given under supervision.

Dosage Chart for Treatment of *Vivax* Malaria

Age	Day 1		Day 2		Day 3		Day 4 to 14
	CQ (150 mg base)	PQ (2.5 mg)	CQ (150 mg base)	PQ (2.5 mg)	CQ (150 mg base)	PQ (2.5 mg)	PQ (2.5 mg)
Less than 1 yr	½	0	½	0	¼	0	0
1-4 years	1	1	1	1	½	1	1
5-8 years	2	2	2	2	1	2	2
9-14 years	3	4	3	4	1½	4	4
15 yrs or more*	4	6	4	6	2	6	6
Pregnancy	4	0	4	0	2	0	0

Note: CQ 250mg tablet is having 150 mg base

Treatment of *Falciparum* Malaria

Diagnosis of falciparum malaria may be made by the use of RDT (Monovalent or Bivalent) or microscopic examination of the blood smear. It is imperative to start the treatment for falciparum malaria immediately on diagnosis. The treatment for falciparum malaria is as follows:

In Other States (other than North-Eastern States):

1. Artemisinin based Combination Therapy (ACT-SP)

Artesunate (AS), available as 50 mg tablets are given for three days, and Sulfadoxine-Pyrimethamine (S-P) tablets, containing 500 mg Sulfadoxine and 25 mg pyrimethamine are given for one day, as shown in the dosage chart below.

All tablets for a day should be taken together, swallowed with water.

In addition, Primaquine (PQ Large) tablets should be given on the second day.

Dose schedule for Treatment of uncomplicated *P.falciparum* cases:

1. **Artemisinin based Combination Therapy (ACT-SP)**

   Artesunate 4 mg/kg body weight daily for 3 days Plus
   Sulfadoxine (25 mg/kg body weight) – Pyrimethamine (1.25 mg/kg body weight) on first day.

* ACT is not to be given in 1st trimester of pregnancy.

2. **Primaquine:** 0.75 mg/kg body weight on day 2.

With the introduction of different coloured Blister Packs for different age groups, treatment by the field level staff has been made easy. The colour code for different age groups for Packing of Tablet ACT+SP has been given as follows:

Dosage Chart for Treatment of *falciparum* Malaria with ACT-SP

Age Group (Years)	1st day		2nd day		3rd day
	AS	SP	AS	PQ	AS
0-1* Pink Blister	1 (25 mg)	1 (250 +12.5 mg)	1 (25 mg)	Nil	1 (25 mg)
1-4 Yellow Blister	1 (50 mg)	1 (500+25 mg each)	1 (50 mg)	1 (7.5 mg base)	1 (50 mg)
5-8 Green Blister	1 (100 mg)	1 (750+37.5 mg each)	1 (100 mg)	2 (7.5 mg base each)	1 (100 mg)
9-14 Red Blister	1 (150 mg)	2 (500+25 mg each)	1 (150mg)	4 (7.5 mg base each)	1 (150 mg)
15 & Above White Blister	1 (200 mg)	2 (750+37.5 mg each)	1 (200 mg)	6 (7.5 mg base each)	1 (200 mg)

* SP is not to be prescribed for children <5 months of age and should be treated with alternate ACT

In North-Eastern States (NE States):

1. ACT-AL Co-formulated tablet of ARTEMETHER(20 mg) - LUMEFANTRINE (120 mg)

(Not recommended during the first trimester of pregnancy and for children weighing < 5 kg)

Recommended regimen by weight and age group

The packing size for different age groups based on Kg bodyweight.

Co-formulated tablet ACT-AL	5–14 kg (> 5 months to < 3 years)	15–24 kg (≥ 3 to 8 years)	25–34 kg (≥ 9 to14 years)	> 34 kg (> 14 years)
Total Dose of ACT-AL	20 mg/ 120 mg twice daily for 3 days	40 mg /240 mg twice daily for 3 days	60 mg /360 mg twice daily for 3 days	80 mg /480 mg twice daily for 3 days
	Pack size			
No. of tablets in the Packing	6	12	18	24
Give	1 Tablet twice daily for 3 days	2 Tablets twice daily for 3 days	3 Tablets Twice daily for 3 days	4 Tablets Twice daily for 3 days
Colour of the pack	Yellow	Green	Red	White

* ACT-AL is not to be prescribed for children weighting less than 5 kg.

2. Primaquine: 0.75 mg/kg body weight on day 2

Treatment of uncomplicated *P.falciparum* cases in pregnancy:

1st Trimester : **Quinine** salt 10mg/kg 3 times daily for 7 days.

Quinine may induce hypoglycemia; pregnant women should not start taking quinine on an empty stomach and should eat regularly, while on quinine treatment.

2nd and 3rd trimester: **Area-specific ACT** as per dosage schedule given above.

i.e. **ACT-AL in North Eastern States**

ACT-SP in Other States

Primaquine (PQ) prevents transmission of falciparum malaria to others by its ability to kill gametocytes. PQ tablets should be taken after a meal; not on an empty stomach. Children less than the age of one year and pregnant women should not be given Primaquine. As pregnant women having falciparum malaria require different medicines, they should be directed to go to the nearest PHC or hospital immediately, without delay.

Treatment of mixed infections (*P.vivax + P.falciparum)* cases:

All mixed infections should be treated with full course of ACT and Primaquine 0.25 mg per kg body weight daily for 14 days.

In North-Eastern States: Treat with: Age-specific ACT-AL for 3 days + Primaquine 0.25 mg per kg body weight daily for 14 days.

In Other States: SP-ACT 3 days + Primaquine 0.25 mg per kg body wt. daily for 14 days.

Dosage Chart for Treatment of mixed (*vivax and falciparum*) Malaria with ACT-SP

Age	Day 1			Day 2		Day 3		Days 4-14
	AS tablet (50 mg)	SP tablet	PQ (2.5 mg)	AS tablet (50 mg)	PQ (2.5 mg)	AS tablet (50 mg)	PQ (2.5 mg)	PQ (2.5 mg)
Less than 1 yr	½	½	0	½	0	½	0	0
1-4 years	1	1	1	1	1	1	1	1
5-8 years	2	1 ½	2	2	2	2	2	2
9-14 years	3	2	4	3	4	3	4	4
15 yrs or more	4	3	6	4	6	4	6	6

Treatment of *P. ovale* and *P. malariae:*

In India these species are very rarely found in few places. P. ovale should be treated as P. vivax and P. malariae should be treated as P. falciparum.

Treatment of mixed infections:

All cases of mixed infection are to be treated as Pf as per the drug policy applicable in the area plus primaquine for 14 days

Treatment of severe malaria cases

Severe malaria is an emergency and treatment should be given as per severity and associated complications which can be best decided by the treating physicians. Before admitting or referring patients, the attending doctor or health worker, whoever is able to do it, should do RDT and take blood smear; give a parenteral dose of artemisinin derivative or quinine in suspected cerebral malaria cases and send case sheet, details of treatment history and blood slide with patient. Parenteral artemisinin derivatives or quinine should be used irrespective of chloroquine resistance status of the area with one of the following options:

Chemotherapy of severe and complicated malaria

Initial parenteral treatment for at least 48 hours: **CHOOSE ONE of following four options**	**Follow-up treatment, when patient can take oral medication following parenteral treatment**
Quinine: 20mg quinine salt/kg body weight on admission (IV infusion or divided IM injection) followed by maintenance dose of 10 mg/kg 8 hourly; infusion rate should not exceed 5 mg/kg per hour. Loading dose of 20mg/kg should not be given, if the patient has already received quinine.	**Quinine** 10 mg/kg three times a day with: doxycycline 100 mg once a day **or** clindamycin in pregnant women and children under 8 years of age, - to complete 7 days of treatment.
Artesunate: 2.4 mg/kg i.v. or i.m. given on admission (time=0), then at 12 h and 24 h, then once a day. **or** **Artemether:** 3.2 mg/kg bw i.m. given on admission then 1.6 mg/kg per day. or **Arteether:** 150 mg daily i.m for 3 days in adults only (not recommended for children).	Full oral course of Area-specific ACT: **In NorthEastern states:** Age-specific ACT-AL for 3 days + PQ Single dose on second day **In other states:** Treat with: ACT-SP for 3 days + PQ Single dose on second day

Note: The parenteral treatment in severe malaria cases should be given for minimum of 24 hours once started (irrespective of the patient's ability to tolerate oral medication earlier than 24 hours).

After parenteral artemisinin therapy, patients will receive a full course of Area-specific oral ACT for 3 days. Those patients who received parenteral Quinine therapy should receive oral Quinine 10 mg/kg body weight three times a day for 7 days (including the days when parenteral Quinine was administered) plus Doxycycline 3 mg/kg body weight once a day or Clindamycin 10 mg/kg body weight 12-hourly for 7 days (Doxycycline is contraindicated in pregnant women and children under 8 years of age) or area-specific ACT as described.

Note:

- Pregnant women with severe malaria in any trimester can be treated with artemisinin derivatives, which, in contrast to quinine, do not risk aggravating hypoglycaemia.
- The parenteral treatment should be given for minimum of 48 hours
- Once the patient can take oral therapy, give:
- Quinine 10 mg/kg three times a day with doxycycline 100 mg once a day or clindamycin in pregnant women and children under 8 years of age, to complete 7 days of treatment, in patients started on parenteral quinine.
- Full course of ACT to patients started on artemisinin derivatives.
- Use of mefloquine should be avoided in cerebral malaria due to neuropsychiatric complications associated with it.

Some don’ts in severe malaria case management

Do not use corticosteroids, give intravenous mannitol, use heparin as anticoagulant, administer adrenaline or overhydrate.

Chemoprophylaxis

Chemoprophylaxis should be administered only in selective groups in high *P.falciparum* endemic areas. Use of personal protection measures including Insecticide Treated bed Nets (ITN) / Long Lasting Insecticidal Nets (LLIN) should be encouraged for pregnant women and other vulnerable population including travellers for longer stay. However, for longer stay of Military and Para-military forces in high *Pf* endemic areas, the practice of chemoprophylaxis should be followed wherever appropriate e.g. troops on night patrol duty and decisions of their Medical Administrative Authority should be followed.

Short term chemoprophylaxis (up to 6 weeks)

Doxycycline: 100 mg once daily for adults and 1.5 mg/kg once daily for children (contraindicated in children below 8 years). The drug should be started 2 days before travel and continued for 4 weeks after leaving the malarious area.

Note: It is not recommended for pregnant women and children less than 8 years.

Chemoprophylaxis for longer stay (more than 6 weeks)

Mefloquine: 250 mg weekly for adults and should be administered two weeks before, during and four weeks after exposure.

Note: Mefloquine is contraindicated in individuals with history of convulsions, neuropsychiatric problems and cardiac conditions. Therefore, necessary precautions should be taken and all should undergo screening before prescription of the drug.

Note: The treatment matrix for different situations like unavailability of Microscopy in 24 hours, Microscopy available, where Bi-valent RDT is available is given in Annexure-1.

References:

1. National Drug Policy for Malaria 2010, NVBDCP, MoH&FW, Govt. of India, 2010.
2. Operation Manual for Malaria Control for District level Officers. NVBDCP, 2008.
3. Record Note of the Meeting of Technical Advisory Committee, NVBDCP, 2013.
4. Website of National Vector Borne Disease Control Programme
   http://www.nvbdcp.gov.in/malaria-new.html
5. World Health Organization (2006). WHO Guidelines for the Treatment of Malaria. Geneva World Health Organization
   http://www.who.int/malaria/docs/TreatmentGuidelines2006.pdf

Annexure-1

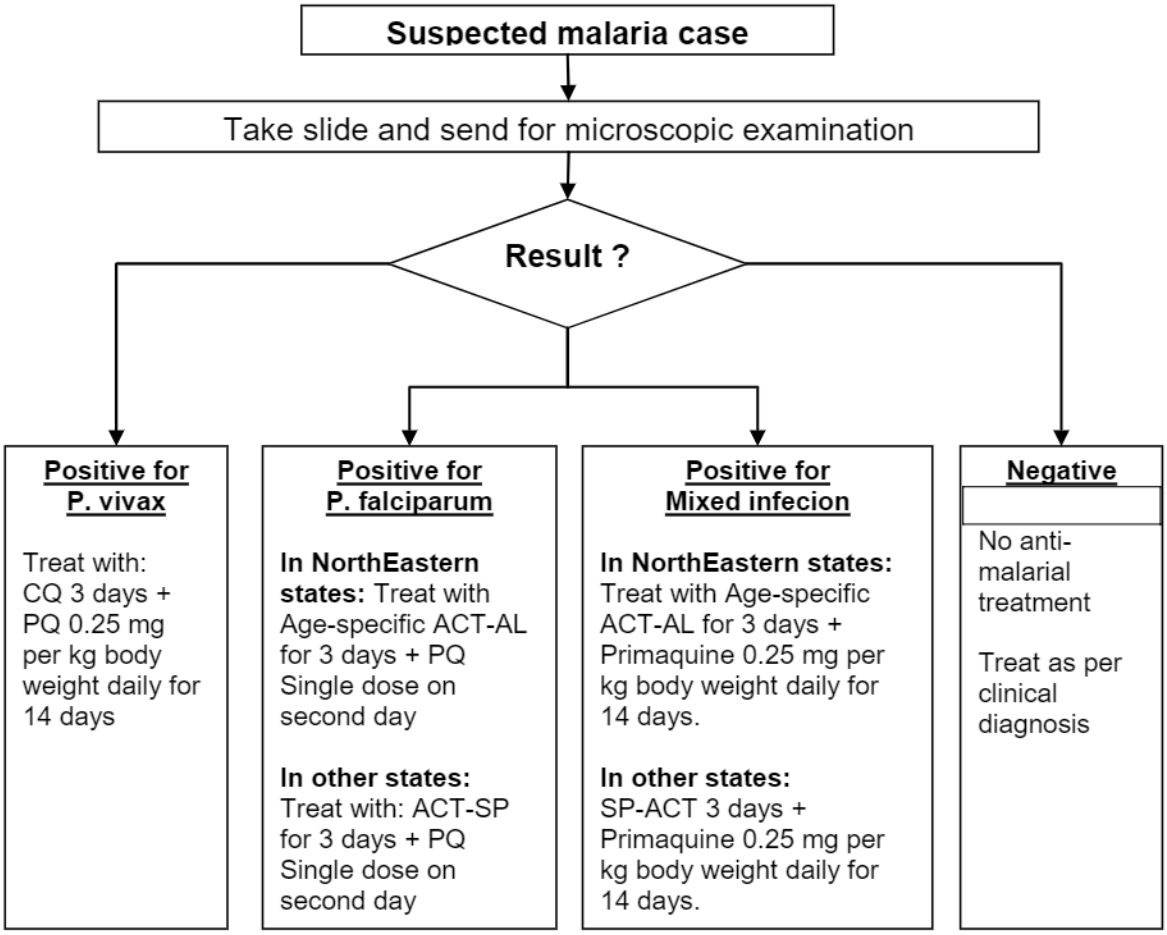
DRUG SCHEDULE FOR TREATMENT OF MALARIA UNDER NVBDCP

Diagnosis and Treatment for Malaria

Diagnosis &Treatment

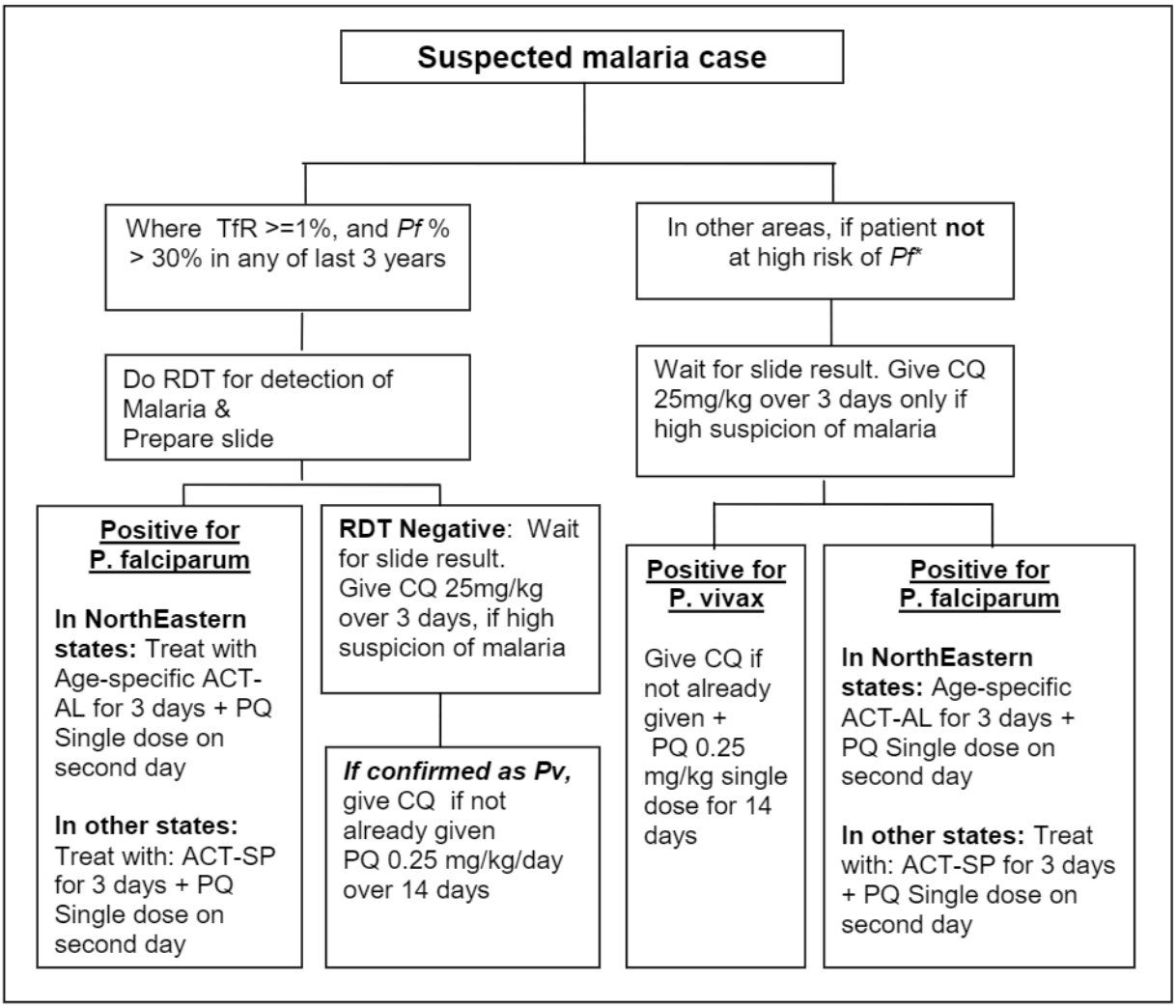
All fever cases diagnosed as malaria by either RDT or microscopy should be promptly given effective treatment. The medicine chosen will depend upon whether the patient has vivax malaria or falciparum malaria as diagnosed by the blood test. The flow charts in different settings for diagnosis and drug selection for the treatment of malaria are as under:

Where microscopy result is available within 24 hours



ACT-AL - Artemisinin-based Combination Therapy- Artemether - Lumefantrine
ACT-SP- Artemisinin-based Combination Therapy (Artesunate+Sulfadoxine-Pyrimethamine)
CQ - Chloroquine
PQ - Primaquine

Where microscopy result is not available within 24 hours and Monovalent RDT is used



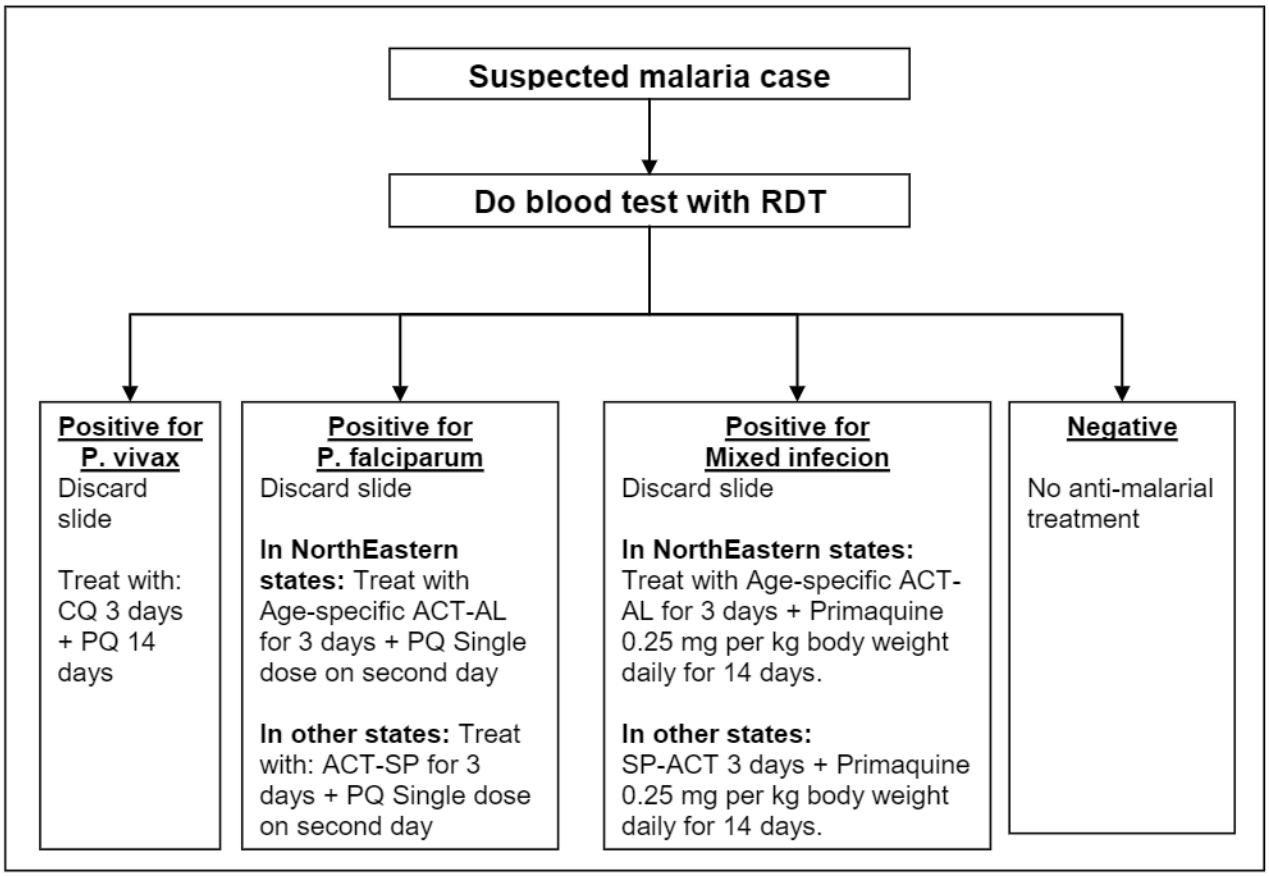
TfR= Test falciparum rate

Note: if a patient has severe symptoms at any stage, then immediately refer to a nearest PHC or other health facility with indoor patient management or a registered medical doctor.

Note: PQ is contra-indicated in pregnancy and in children under 1 year (Infant).

ACT-AL - Artemisinin-based Combination Therapy- Artemether - Lumefantrine
ACT-SP- Artemisinin-based Combination Therapy (Artesunate+Sulfadoxine-Pyrimethamine)
CQ - Chloroquine
PQ - Primaquine

Where microscopy result is not available within 24 hours and Bivalent RDT is used



Note: 1) **However, if malaria is strongly suspected, prepare & send slide for microscopy**
2) **If a patient has severe symptoms at any stage, then immediately refer to a nearest PHC or other health facility with indoor patient management or a registered medical doctor.**
3) **PQ is contra-indicated in pregnancy and in children under 1 year (Infant).**

Note: PQ is contra-indicated in pregnancy and in children under 1 year (Infant).

ACT-AL - Artemisinin-based Combination Therapy- Artemether - Lumefantrine

ACT-SP- Artemisinin-based Combination Therapy (Artesunate+Sulfadoxine-Pyrimethamine)

CQ - Chloroquine

PQ - Primaquine