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.

Diagnosis and Treatment of Malaria in India

For malaria control, the main thrust of the National Vector Borne Diseases Control programme (NVBDCP) is on early diagnosis and prompt, complete and effective treatment. Malaria diagnosis is carried out by microscopic examination of blood films collected by active and passive agencies. Health agencies and volunteers treating fever cases in inaccessible areas are being provided with Rapid Diagnostic Test (RDT) kits (Pf specific so far and now Bivalent RDT) for diagnosis of Malaria cases so as to provide full radical treatment to the confirmed cases. 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. Presumptive treatment of malaria with a single dose of chloroquine has been stopped. In all cases of suspected malaria which cannot be immediately confirmed by tests, full treatment with chloroquine for 3 days should be given. 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 2010.

The aims of the Malaria case management are:

- To provide prompt and complete treatment to all suspected/ confirmed cases of malaria
- To prevent progression of mild cases of malaria in to severe or complicated from of malaria
- To prevent deaths from severe and complicated malaria
- To prevent transmission of malaria
- To minimize risk of spread of drug resistant parasites by use of effective drugs in appropriate dosage by everyone.

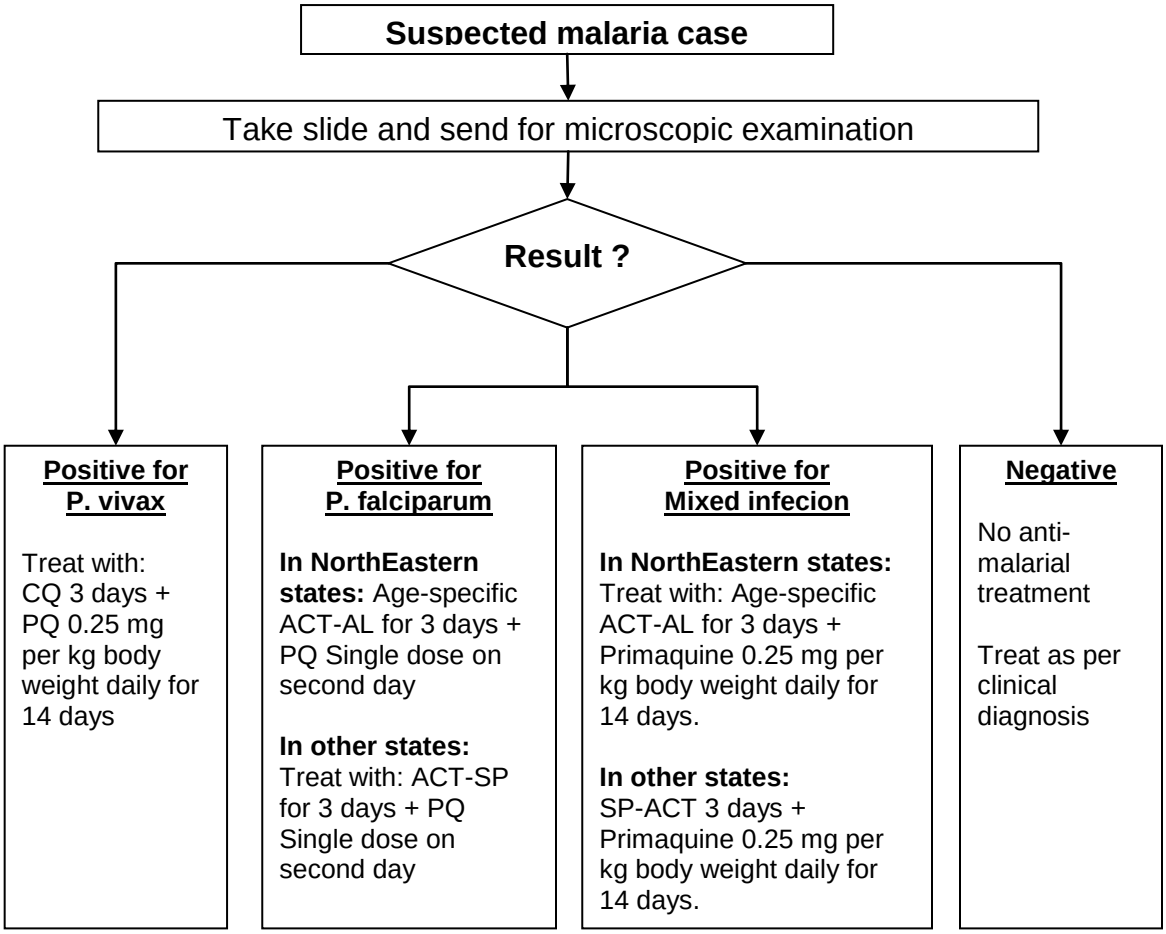
Diagnosis and Treatment for Malaria

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



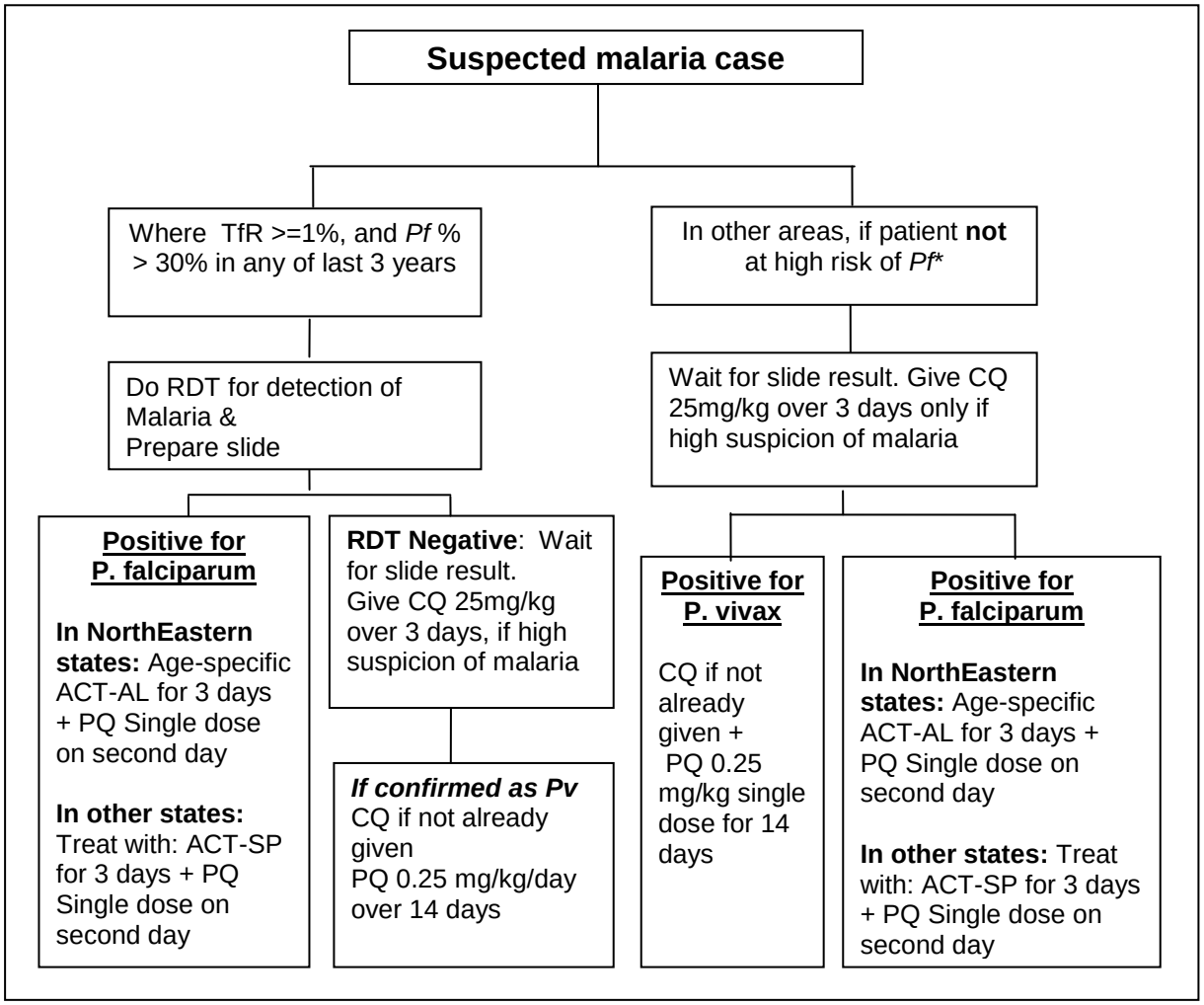
ACT-AL - Artemisinin-based Combination Therapy- Artemether - Lumefantrine

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).

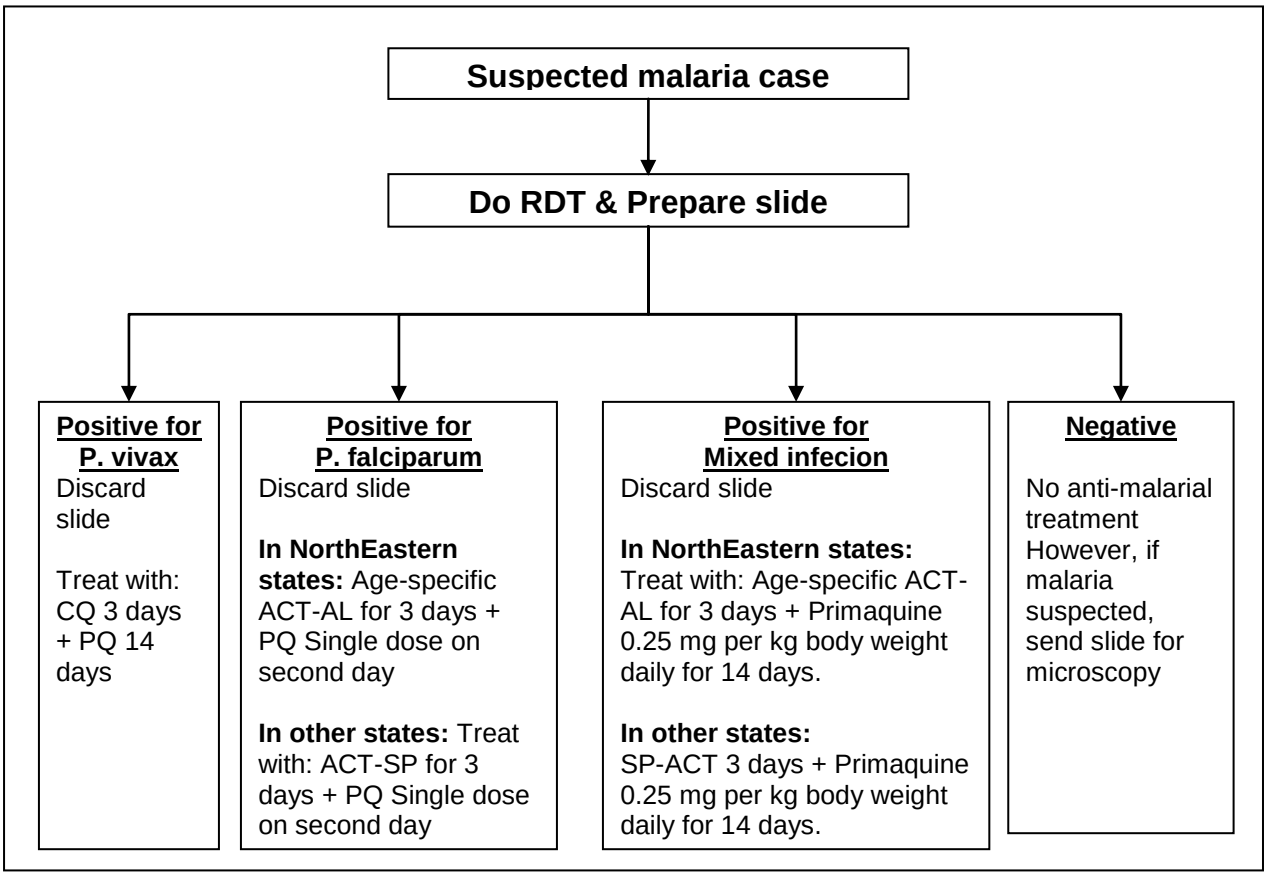
ACT-AL - Artemisinin-based Combination Therapy- Artemether - Lumefantrine

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: 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

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CQ - Chloroquine

PQ - Primaquine

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 (250 mg)	PQ (2.5 mg)	CQ (250 mg)	PQ (2.5 mg)	CQ (250 mg)	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

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 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**

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

In other 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)

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

Teatment 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

Use of paracetamol

Paracetamol tablets are available as part of the ASHA kit also in the health facilities. Paracetamol usually brings down fever from any cause within half an hour. However, paracetamol does not cure the disease that is causing the fever. So, its effect does not last long. The fever remains low for about 4-6 hours, and then the fever can rise again. Paracetamol can be safely given at any age and even during pregnancy, in the dose shown in the dosage chart. In this dose, it can be given 3-4 times a day if needed. If the fever is not very high, and the patient is able to tolerate the fever, there is no need to give paracetamol.

Dosage chart for use of Paracetamol

Age	**No. of Tablets of Paracetamol (500 mg tablets)**
Less than 1 yr	¼
1-4 years	½
5-8 years	¾
9-14 years	1
15 yrs or more	1 or 2

Initiation of treatment and advice to the patient/caretaker

Once a suspected case is diagnosed positive by RDT or microscopy, treatment is started. The first dose is always taken in the presence of the health volunteer/worker. The blister pack with remaining tablets is given to the patient/caretaker to take home with clear instructions.

Caution: If the patient is a child under 5 years or pregnant, ask the patient to wait for 15 minutes after taking the first dose. If it is vomited within this period, let the patient rest for 15 minutes, then give the first dose again i.e. open a new blister-pack and discard what remains of the old. If the patient vomits the first dose again, it is considered a case of severe malaria, refer the patient immediate to the nearest Block PHC/ CHC/ Hospital.

Explain to the patient/caretaker

- That if the treatment is not completed as prescribed, the disease may manifest again with more serious features and more difficult to treat.
- To come back immediately, if there is no improvement after 24 hours, if the situation gets worse or the fever comes back.
- That regular use of a mosquito net (preferably insecticide treated net) is the best way to prevent malaria.

Resistance to anti-malarial drugs.

Resistance can be defined as either the ability of a parasite strain to survive and/or multiply despite the administration and absorption of a drug given in doses equal to or higher than those usually recommended, but within the limits of tolerance of the patient.

In the last two decades, an increasing proportion of *Plasmodium falciparum* infections is proving to be resistant to chloroquine in India. Drug resistance is declared in a study area, when the proportion of treatment failures exceeds 10% of all falciparum infections. In these areas the decision has been taken to treat all Pf cases with the drug ACT instead of chloroquine,

Why does malaria parasite become resistant to anti-malarials?

Drug resistance is a complex phenomenon, where by genetic mutation, a parasite acquires the ability to resist, partly or fully, the effects of one or more anti-malarial drugs. When the resistant parasites are exposed to the drug, they multiply selectively If parasites are resistant to the drug being used, the patient may not respond to treatment.

One of the commonest reasons for the development of drug resistance is that the parasites are exposed to insufficient amount of the drug due to

- Low prescription dosage
- Lesser amount of drug dispensed
- Incomplete treatment taken by the patient
- Drug vomited out

- Low absorption due to any reason, for example, diarrhoea.

In such cases, most of the sensitive parasites are killed by even these small doses, but resistant parasites survive, multiply and spread to other people by mosquitoes. The new patient then gets infection from the resistant malaria parasites and does not respond to the drug at all, or responds only partly. Meanwhile, the earlier patient may appear cured because most of the parasites were killed by the drug, and the symptoms abated.

Why is it difficult for parasites to develop resistance to ACT?

ACT contains three drugs: artesunate, sulphadoxine and pyrimethamine. Each drug acts on a different part of the parasite, in a different manner. It is very, very rare for three simultaneous genetic mutations to occur by chance to produce resistance to such diverse drugs. Resistance can be produced in multiple steps, one drug at a time, but this is expected to take many more years. At present, we do not expect resistance to develop to ACT. If resistance develops, it is expected to first develop against sulphadoxine or pyrimethamine, since they have been in use for a longer time. If this begins to happen, some other, newer drug will be used as a companion drug for artesunate, to which resistance has so far not been reported in most malarious areas of the world.

How can one suspect drug resistance in the field? What can one do when faced with treatment failure?

As mentioned above, when a patient fails to respond to treatment (symptoms fail to disappear, or they re-appear), one should think of the possibility of drug resistance. However, there may be many other causes of persistent symptoms:

- the diagnosis might be wrong (the patient had a positive test, but the symptoms were due to some other cause)
- the drug might not have been taken as expected (insufficient dosage was prescribed or swallowed), or may have been vomited out
- the drug was not absorbed in the gut (because of diarrhea, or other reasons), the drug may be of poor quality (past its date of expiry, or poorly stored, or of poor quality when supplied)

- the patient's body might handle the drug abnormally (there are genetic differences in the metabolism of some rare individuals, which may cause the drug to be altered or eliminated quickly)
- the patient might have had a fresh reinfection, or in the case of vivax malaria, there might have been a relapse of the malaria.

In the absence of any of these conditions, if a patient has completed full treatment and is still having symptoms after 72 hours, treatment failure may be suspected.

The course of action when a patient has persistent symptoms is:

- Ask the patient and the family a series of questions to help rule out some of the causes listed above (Did the patient get the drug from an authentic, designated provider? Did the patient get the right amount of the drug? Was all of it swallowed as prescribed? Was the drug vomited out? How many days has it been since drug treatment was begun (if it is not yet 72 hours, one can wait)? Can you see the packing to check the expiry date? Are there symptoms of other obvious causes of fever? If the symptoms had disappeared and then reappeared, how long was the interval (if more than 15 days, it could be a fresh infection)?)
- If it appears that the drug was not adequately taken or retained, a fresh course may be given at home unless the patient has symptoms of severe malaria. Take a fresh blood smear (take two, for checking in different laboratories, if need be), and ask the nearest health care provider to keep an eye on the patient.
- Refer any patient who has symptoms despite taking and retaining a full course of treatment, or who has developed symptoms of severe malaria.

Severe and complicated malaria

A case of uncomplicated malaria usually presents with fever, rigors, headache, bodyache, fatigue, anorexia and nausea.

Serious complications can arise in *P.falciparum* infection and rarely in *P vivax*. They may sometimes develop suddenly over a span of time as short as 12 -24 hours and may lead to death, if not treated promptly and adequately. Severe malaria is clinically characterized by confusion or drowsiness with extreme weakness (prostration). In addition, the following may develop:

- cerebral malaria with generalized convulsions
- pulmonary oedema
- severe anaemia
- renal failure
- hypoglycaemia
- metabolic acidosis
- circulatory collapse/shock
- spontaneous bleeding and laboratory evidence of DIC
- macroscopic haemoglobinuria
- hyperthermia
- hyperparasitaemia

In children, febrile convulsions, repeated vomiting and dehydration are common if the temperature is high due to any cause. Therefore, these symptoms are not necessarily indicative of severe malaria. However, children with such symptoms should be managed as severe malaria in routine program situations, and a diagnosis of malaria should be confirmed at the earliest.

In pregnancy, malaria, especially *P.falciparum* is a serious disease because with each bout of malaria, there is a reduction in haemoglobin and profound anaemia may develop rapidly. They are also at high risk of abortions or intrauterine growth retardation because sequestration of parasites in placenta restricts oxygen and nutrients flow to the fetus.

The management of severe malaria is possible in health facilities which are equipped with the following:

- Parenteral Antimalarials , antibiotics, anticonvulsants, antipyretics
- Intravenous infusion equipment and fluids
- Special nursing for patients in coma
- Facilities for blood transfusion
- Well equipped laboratory
- Oxygen respirator

Often these items are not available at the PHC level. Under such circumstances, the Medical Officer, PHC and paramedical staff should be able to administer emergency treatment and refer the case without delay to other institutions where such facilities are available.

A list of all health care facilities in the district where emergency care for severe malaria is available should be kept in PHCs and with Community Workers like ASHA. MO-PHC will maintain liaison with all these institutions. For timely referral of severe cases, transportation arrangements should be made with the use of untied funds available under NRHM.

The role of peripheral workers

The community comes in contact with ASHA and MPW (M&F) as a routine. They depend on these persons for advice and treatment of different diseases, malaria being one of them. Therefore, while training these workers the need to recognize a serious case of malaria should be emphasized. These workers should be conversant with the signs and symptoms of malaria and those which are likely to indicate serious complications.

Severe malaria may be suspected, if the patient does not get relief from symptoms of malaria within 24 hours, and/or headache/fever continues to increase. Such patients should be referred immediately to the nearest PHC/CHC/Hospital.

Criteria for immediate referral to Primary Health Centre:

a) Persistence of fever after 24 hours of initial treatment.
b) Continuous vomiting and inability to retain oral drugs.
c) Headache continues to increase
d) Severe dehydration – dry, parched skin, sunken face
e) Too weak to walk in the absence of any other obvious reason
f) Change in sensorium e.g. confusion, drowsiness, blurring of vision, photophobia, disorientation
g) Convulsions or muscle twitchings
h) Bleeding and clotting disorders
i) Suspicion of severe anaemia
j) Jaundice
k) Hypothermia

Requirements for management of complications:

The management of severe malaria requires immediate administration of life saving drugs. Therefore essential requirements for management of severe malaria are as follows:

- A person trained in nursing serious/ comatose cases
- Antimalarials which can be given parenterally: Artesunate, arte-ether, arte-mether or quinine
- Supportive treatment: Antipyretics, anticonvulsants, diuretics, antibiotics, Saline/dextrose for intravenous transfusion
- Intravenous infusion equipment
- Facilities for blood transfusion
- Well equipped laboratory: Blood smear examination & parasite count with result within one hour, Routine examination of urine, haemoglobin, blood glucose
- Oxygen respirator, Oxygen

If these items are not available, the patient must be referred without delay to a facility, where such facilities are avialable. The DVBDCO/ DMO should list all facilities in the district where emergency care for severe malaria is available and this list should be available in PHCs and with all Community Workers like ASHA. MO-PHC should develop links with these institutions. For timely referral of severe cases, transportation is provided from untied funds available under NRHM from Rogi Kalyan samity (RKS).

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. The guidelines for specific antimalarial therapy is as follows:

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.

In recent years, increased attention has been drawn to severe malaria caused by P.vivax, especially in Indonesia and Papua New Guinea, where this parasite has become chloroquine-resistant. Some cases have been found in India, and there is reason to fear that this problem will become more common in the coming years. Historically, *P.vivax* has been an important cause of death in India and in Europe, and this parasite can no longer be considered as "benign".

Chemoprophylaxis

Chemoprophylaxis should be administered only in selective grips 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 travelers 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)

Mefloqiune: 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 before prescription of the drug.

Use of chemoprophylaxis is limited to following situations:

Short term travelers/tourists (less than 6 weeks) from non-malarious areas to malarious areas. Drug of choice is Doxycycline 100 mg daily in adults and 1.5 mg/kg bwt in children above 8 years; beginning 2 days before travel – 4 weeks after leaving a malarious area. Doxycycline is contraindicated in children under 8 years and pregnant women, in whom personal protection should be used

In long term travelers where appropriate e.g. military & paramilitary troops on night patrol duty etc. in malarious areas, the decision of respective medical administrative authority is to be followed. Drug of choice in such cases is Mefloquine 250 mg weeky for adults and 5 mg/kg for children once a week; beginning 2 weeks before to 4 weeks after exposure.

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