



# **NATIONAL DRUG POLICY**

## **ON**

# **MALARIA**

### **(2008)**



**Directorate of National Vector Borne Disease Control  
Programme**

**(Directorate General of Health Services)**

**Ministry of Health and Family Welfare**

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## **NATIONAL DRUG POLICY ON MALARIA (2008)**

### **Preamble**

Malaria is one of the major public health problem of the country. Around 2 million laboratory confirmed cases of malaria are reported in the country annually. Out of the total malaria cases, 40-50% is *P.falciparum*. The *P.falciparum* species is spreading wider due to migration of population from endemic to non endemic areas and vice versa has increased tremendously. One of the reasons attributed to rise in *P.falciparum* is resistance to drug chloroquine, which is being used as a first line of treatment for malaria cases. During recent years it has been observed that chloroquine resistance is widely spread as per the results of the drug sensitivity studies conducted in the country. This is a serious concern to the programme as this species is responsible for mortality. It is observed that *P.falciparum* infection may lead to complications in 0.5% to 2% of cases. Mortality may result in about 30% of such cases if timely treatment is not given. Use of an appropriate anti malaria drug is very important not only to save the life of patients suffering from *P.falciparum* cases but also to contain the spread of this species.

At present the main thrust in the programme is on early diagnosis and prompt treatment which are the key components of malaria control. Malaria diagnosis is carried out by microscopic examination of blood films collected by active and passive surveillance. In the new drug policy it has been stressed that all fever cases clinically suspected of malaria should preferably be investigated for confirmation of malaria by Microscopy or Rapid Diagnostic Kit (RDK) so as to ensure full therapeutic dose with appropriate drug to all confirmed cases. Presumptive treatment with incomplete dose of chloroquine has been stopped and it has been stressed to treat patients on the basis of clinically suspected cases rather than only fever. If a patient is suspected of having malaria i.e showing signs and symptoms of malaria without any other obvious causes (listed in drug policy) which cannot be immediately confirmed, full treatment with chloroquine should be given. Health agencies and volunteers running Fever Treatment Depots like ASHAs in inaccessible areas are being provided with rapid diagnostic kits for diagnosis of *P.falciparum* cases and to ensure full radical treatment to all confirmed malaria cases. Further, the National Malaria Treatment Guidelines also recommend that change of drug should be considered when treatment failure proportion exceeds 10%.

***According to WHO: An antimalarial treatment policy is a set of recommendations and regulations concerning the availability and rational use of antimalarial drugs in a country. It should be the part of the national essential drug policy and the national malaria control policy and in line with the overall national health policy.***

The main purpose of the national anti-malaria drug policy is to provide a framework for the safe and effective treatment of uncomplicated and severe malaria as well as prevention of malaria in travellers and vulnerable groups, such as pregnant women and young children. All health care providers in both the public and private sectors must be aware of, understand the rationale for, and implement the national anti-malaria drug policy.

An effective treatment policy should aim to:

- Reduce morbidity
- Prevent the progression of uncomplicated disease into severe and potentially fatal disease and thereby reduce malaria mortality
- Reduce the impact of placental malaria infection and maternal malaria-associated anemia through personal protection methods by use of impregnated bed nets.
- Prevent or delay the development of antimalarial drug resistance by correct diagnosis and rational treatment of all malaria positive cases.

The National Drug Policy on Malaria was first devised in 1982. Thereafter the policy is being reviewed periodically by the expert committee on chemotherapy of malaria constituted by Director General of Health Services. The recommendations of this committee are being ratified by the Technical Advisory Committee constituted by the MOH&FW under the Chairmanship of Director General of Health Services. The present National Drug Policy for Malaria has been framed keeping in view of proper deployment of effective anti malarial drugs and its judicious use for the treatment of clinically suspected and confirmed malaria cases.

## Management of malaria cases

- Clinically diagnosis of malaria on the basis of sign and symptoms
- Confirmation of malaria by blood smear examination/RDT;
- Referral to secondary/tertiary level of care, if necessary;
- Dispensing the correct drugs of assured quality,( first dose be given preferably by dispenser);
- Education of patient or family on :
  - i. administration of the drugs
  - ii. when to report to health facility
  - iii. danger symptoms
  - iv. prevention of malaria
- Patient compliance as per instructions;

## Signs and symptoms

**Typical:** Sudden onset of high fever with rigors and sensation of extreme cold followed by feeling of burning, leading to profuse sweating and remission of fever by crisis thereafter. The febrile paroxysms may occur every alternate day. Headache, body ache, nausea, etc. may be the associated features.

**Atypical:** In atypical cases, classical presentation as mentioned above may not manifest. Hence, any fever case without any other obvious cause in the endemic areas during transmission season may be considered as malaria. For ruling out other obvious causes of fever, the following should be looked for:

1. Cough and other signs of respiratory infection
2. Running nose and other signs of cold
3. Diarrhoea
4. Pelvic inflammation indicated by severe low back ache, with or without vaginal discharge and urinary symptoms
5. Skin rash suggestive of eruptive illness
6. Burning micturition
7. Skin infections e.g. boils, abscesses, infected wounds
8. Painful swelling of joints
9. Ear discharge

However, none of these symptoms exclude malaria with certainty therefore a trained clinician has to judge and ensure whether they constitute an “other obvious cause”.

### **Anti malaria drugs**

#### 1) Schizonticidal drugs for clinical and parasitological cure

- Chloroquine, Amodiaquine, Quinine, Quinidine, Pyrimethamine, Trimethoprim, Proguanil, sulfonamides in combination with Pyrimethamine, Mefloquine, Halofantrine, Artemisinin and its derivatives like Artesunate, Artemether, Arteether.

#### 2) Gametocytocidal and anti-relapse drugs.

- Primaquine (8-Aminoquinolines groups)

The main features of the National Drug Policy on malaria are enclosed along with the flow chart and treatment schedule followed for different drugs under the programme is given in Annexure1.

## NATIONAL DRUG POLICY ON MALARIA (2008)

1. All clinical suspected cases should preferably be investigated for malaria by Microscopy or Rapid Diagnostic Kit (RDK).
2. The first line of treatment is chloroquine and the ACT (Artesunate+Sulpha Pyrimethamine) combination is recommended for the treatment of Pf cases in qualified areas like chloroquine resistant areas, cluster of Blocks and identified districts on the basis of epidemiological situation.
3. Pf cases should be treated with chloroquine in therapeutic dose of 25 mg/kg body weight divided over three days. This practice is to be followed at all levels including VHWs like FTDs/ASHA as well in chloroquine sensitive areas. In high risk area in addition to chloroquine, single dose of Primaquine 0.75 mg/kg bw should be given on first day.
4. Microscopically positive Pv cases should be treated with chloroquine in full therapeutic dose of 25 mg/kg body weight divided over three days. This practice is to be followed at all levels including VHWs like FTDs/ASHA etc. Primaquine should be given in dose of 0.25mg/kg bw daily for 14 days as per prescribed guidelines only to prevent relapse except in contraindicated patients which include G6PD patients, infants and pregnant women.
5. Wherever microscopy results are not available within 24 hours or the patient is at high risk of Pf both RDT and slide should be taken. Cases positive for Pf by RDK should be treated with full therapeutic dose of chloroquine or ACT combination as per prescribed drug in that area. However negative cases showing sign and symptom of malaria without any other obvious causes should be considered as 'clinical malaria' and treated with chloroquine in full therapeutic dose of 25 mg/kg body weight over three days. Such cases if later found positive may be treated accordingly
6. ACT is the first line of antimalarials drug for treatment of *P.falciparum* in chloroquine resistant areas, identified cluster of Blocks surrounding resistant foci, all seven NE states and 50 high Pf endemic districts in the state of Andhra Pradesh, Chhattisgarh, Jharkhand, Madhya Pradesh and Orissa. The dose is 4mg/kg bw of artesunate daily for 3 days + 25mg/ kg bw of sulphadoxine/sulphalene + 1.25 mg per kg bw of pyrimethamine on the first day. **ACT should be given only to confirmed *P. falciparum* cases found positive by microscopy or Rapid Diagnostic kits.** Compliance and full intake is to be ensured. Single dose of Primaquine i.e 0.75 mg/kg body weight, may be given with ACT combination as it will be beneficial for gametocyte clearance in *P.falciparum* and will facilitate effective interruption of transmission.

7. **ACT tablets are not to be used in pregnant women.**
8. Artesunate tablets should not be administered as mono therapy. It should invariably be combined with sulphapyrimethamine tablets in prescribed dosages.
9. The area/PHC showing a treatment failure more than 10% (both Early and Late Treatment Failures ) to the chloroquine drug in the minimum sample of 30 cases, should be switched over to the alternate antimalarial drug e.g. Artesunate-Sulpha-Pyrimethamine (ACT) combination.
10. Change of drug to second line of treatment may also be implemented in a cluster of Blocks around the resistant foci after taking into consideration the epidemiological trend of *P.falciparum* and approval of Directorate of NVBDCP.
11. Resistance should also be suspected if in spite of full treatment with no history of vomiting, diarrhea, patient does not respond within 72 hours parasitologically. Such individual patients should be reported to concerned District Malaria /State Malaria Officer/ROHFW Pf monitoring teams for monitoring of drug sensitivity status.
12. In cases resistant to chloroquine and SP-ACT, oral quinine with tetracycline or doxycycline can be prescribed.
13. Mefloquine should only be given to chloroquine/multi resistant uncomplicated *P.falciparum* cases only in standard doses as prescribed by WHO against the prescription of medical practitioners supported by laboratory report showing asexual stage of *P.falciparum* parasite and not gametocyte alone and other species.
14. **Primaquine is contra indicated in pregnant woman and infants.**
15. Chemoprophylaxis should be administered only in selective groups in high *P.falciparum* endemic areas. Use of personal protection measures including insecticide treated bed nets should be encouraged for pregnant women and other vulnerable population including travellers for longer stay. However for longer stay in high Pf endemic districts by the Military & Para-military forces, the practice of chemoprophylaxis should be followed wherever appropriate e.g. troops on night patrol duty etc and decisions of their Medical Administrative Authority should be followed. For short term chemoprophylaxis (less than 6 weeks), daily doxycycline is the drug of choice (if not contraindicated). However, it is not recommended for pregnant women and children less than 8 years. Mefloquine is the drug of choice for chemoprophylaxis involving longer stay. It is contraindicated in cases with history of convulsions, neuropsychiatric problems and cardiac

diseases. Hence, necessary precautions should be taken and all individuals should undergo screening before prescription of the drug.

16. In severe and complicated *P.falciparum* malaria cases intra-venous Quinine/ parenteral Artemisinin derivatives are to be given irrespective of chloroquine resistance status. This treatment may continue till such time oral Quinine/Artemisinin derivatives become available.
17. Migratory labour/project population: Since these groups belong to high risk category they need to be screened on weekly basis and treated accordingly.
18. All the medical, paramedical and village level health volunteers should be adequately trained before their involvement in the programme.

**DRUG SCHEDULE FOR TREATMENT OF MALARIA UNDER NVBDCP.****1. Chloroquine**

Chloroquine base	Day 1	10mg/kg	(600 mg adult)
Chloroquine base	Day 2	10mg/kg	(600 mg adult)
Chloroquine base	Day 3	5mg/kg	(300 mg adult)

**Dosage as per age groups**

Age in years	Day 1	Day 2	Day -3
	Tab. chloroquine	Tab. Chloroquine	Tab. Chloroquine
<1	½	½	¼
1-4	1	1	½
5-8	2	2	1
9-14	3	3	1½
15 & above	4	4	2

**2. Primaquine**

<b><i>PRIMAQUINE IS CONTRAINDICATED IN INFANTS AND PREGNANT WOMEN</i></b>
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**Dosage as per age groups****(a) *P. falciparum***

Age in years	Primaquine On Day 1		
	mg base	No. of Tablets (2.5 mg base)	No. of Tablets (7.5 mg base)
<1	Nil		0
1-4	7.5	3	1
5-8	15	6	2
9-14	30	12	4
15 & above	45	18	6

(b) *P. vivax*

Age in year	Primaquine Daily dose for 14 days*		
	mg base	No. of Tablets (2.5 mg base)	No. of Tablets (7.5 mg base)
< 1	Nil	Nil	Nil
1-4	2.5	1	1/3
5-8	5.0	2	2/3
9-14	10.0	4	1 1/3
15 & Above	15.0	6	2

- *\*Primaquine for 14 days should be given as per prescribed guidelines only*

3. Artesunate + Sulpha-pyrimethamine (ACT) combination

Age wise Dose Schedule for AS+SP

Age		1 <sup>st</sup> Day (number of tabs)*	2 <sup>nd</sup> Day (number of tabs)	3 <sup>rd</sup> Day (numbers of tabs)
<1 Year	AS	1/2	1/2	1/2
	SP	1/4	Nil	Nil
1-4 Yeas	AS	1	1	1
	SP	1	Nil	Nil
5-8 Year	AS	2	2	2
	SP	1 1/2	Nil	Nil
9-14 Year	AS	3	3	3
	SP	2	Nil	Nil
15 and above	AS	4	4	4
	SP	3	Nil	Nil

Strength of each Artesunate tablet: contains 50 mg & each Sulpha Pyrimethamine (SP) tablet contain 500mg sulphadoxine/sulphalene and 25mg pyrimethamine

*\*Artemisinin group of drugs is not recommended in pregnancy*

#### 4. Severe and complicated 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. Parenteral artemisinin derivatives (for non pregnant women) or quinine should be used irrespective of chloroquine resistance status of the area. However, the guidelines for specific antimalarial therapy as per the WHO recommendation are given below:

- **Quinine salt** 20 mg/kg\* body weight (bw) on admission (IV infusion or divided IM injection) followed by maintenance dose of 10 mg/kg bw 8 hourly; infusion rate should not exceed 5 mg salt / kg bw per hour.

(\*loading dose of Quinine salt i.e 20mg /kg bw on admission may not be given if the patient has already received quinine or if the clinician feels inappropriate).

- **Artesunate:** 2.4 mg/kg bw i.v. or i.m. given on admission (time=0), then at 12 h and 24 h, then once a day.
- **Artemether:** 3.2 mg/kg bw i.m. given on admission then 1.6 mg/kg bw per day.
- **Arteether:** 150 mg daily i.m for 3 days in adults only (not recommended for children).

**Note:**

**A.** *The parenteral treatment should be given for minimum of 48 hours and once the patient tolerates oral therapy, quinine 10 mg/kg bw three times a day with doxycycline 100 mg once a day or clindamycin in pregnant women and children under 8 years of age, should be given to complete 7 days of treatment in patients treated with parenteral quinine.*

**B.** *Full course of ACT should be administered to patients treated with artemisinin derivatives.*

**C.** *Use of mefloquine alone or in combination with artesunate should be avoided especially in cerebral malaria due to neuropsychiatric complications associated with it.*

#### 5. Chemoprophylaxis

Chemoprophylaxis should be administered only in selective groups in high *P.falciparum* endemic areas.

- For short term chemoprophylaxis (less than 6 weeks)

**Doxycycline:** daily in the dose of 100 mg in adults and 1.5 mg/kg for children (if not contraindicated). 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.*

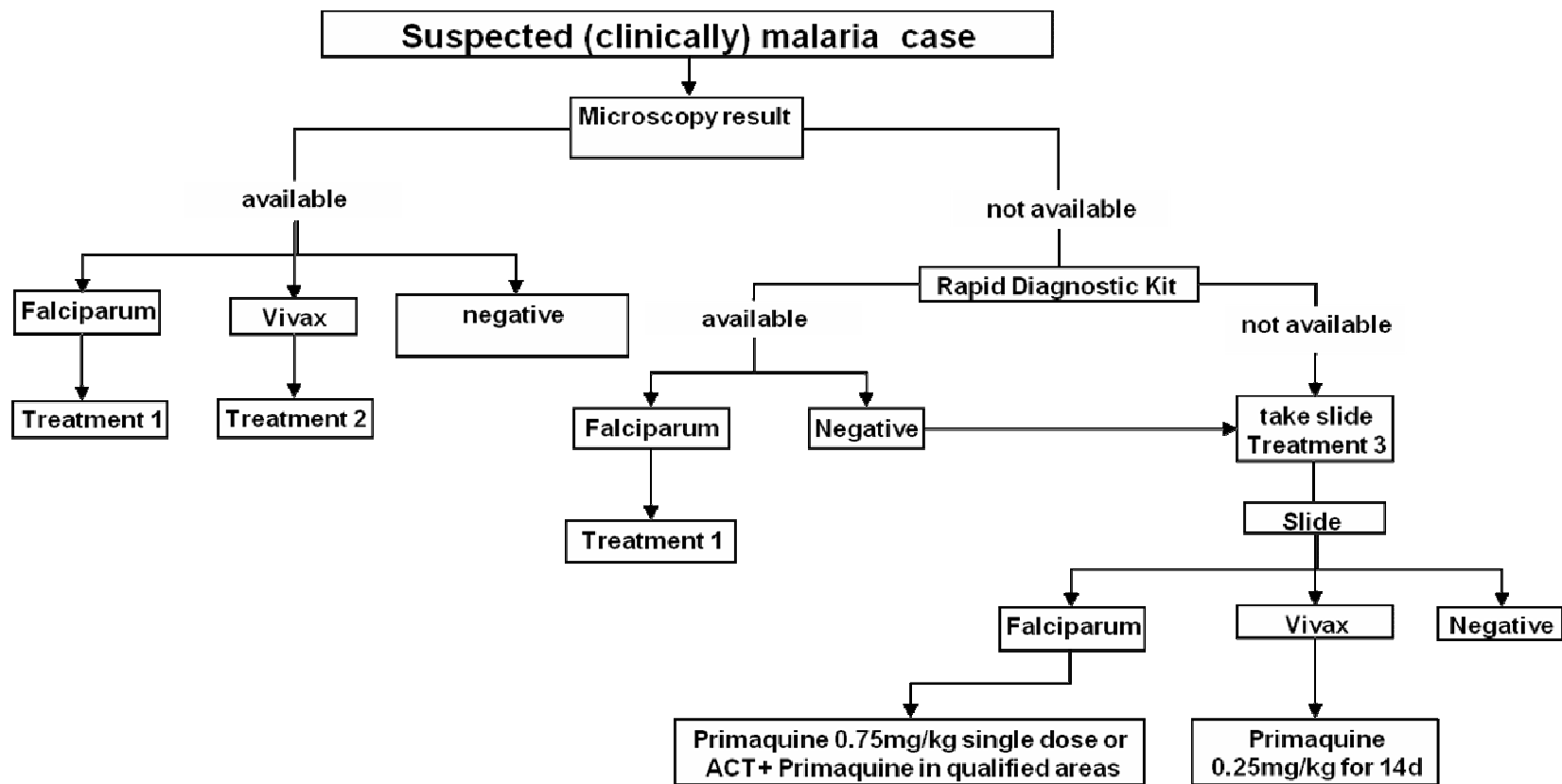
- For longer stay

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

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

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## Flow chart for the treatment of an uncomplicated malaria case (2008)



**Treatment 1**      **Chloroquine + Primaquine** (25mg/kg over 3 days + 0.75mg/kg single dose)  
or

**Artesunate + Sulpha Pyrimethamine + Primaquine (in areas qualified for ACT)**

4 mg/kg for 3 days + 25/1.25mg/kg single dose + 0.75mg/kg single dose

**Treatment 2**      **Chloroquine + Primaquine** (25mg/kg over 3 days + 0.25mg/kg for 14 days)

**Treatment 3**      **Chloroquine** (25mg/kg over 3 days)

*Note: Primaquine is contraindicated in pregnant women, G6PD deficiency, and infants, ACT is contraindicated in pregnant women*

\* For clinically suspected malaria cases, signs and symptoms may be referred