

Malaria

**Public Health Division, Directorate of Health Services
Thiruvananthapuram
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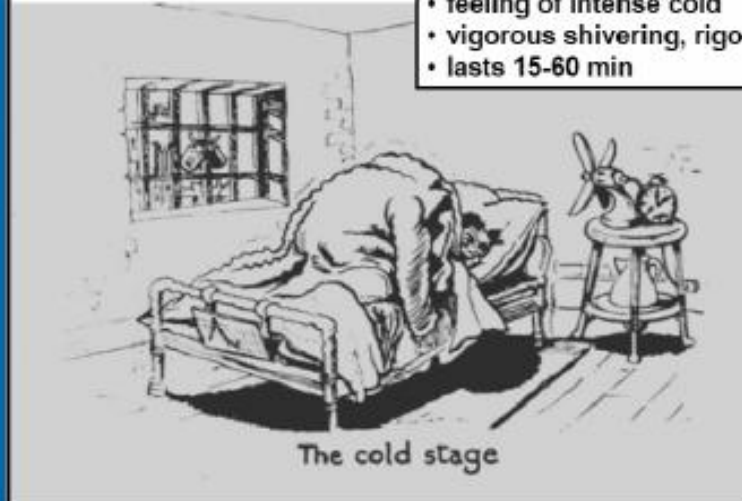
MALARIA

Symptoms

- Fever
- Chills
- Sweats
- Headaches
- Nausea and vomiting
- Body aches
- General malaise

cold stage

- feeling of intense cold
- vigorous shivering, rigor
- lasts 15-60 min



The cold stage

hot stage

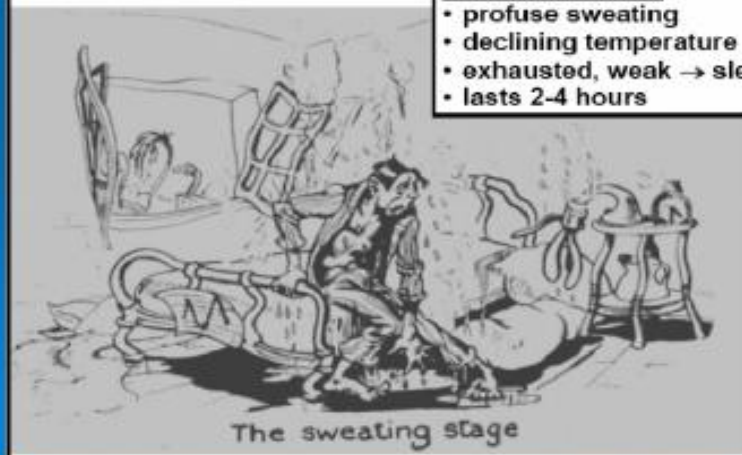
- intense heat
- dry burning skin
- throbbing headache
- lasts 2-6 hours



The hot stage

sweating stage

- profuse sweating
- declining temperature
- exhausted, weak → sleep
- lasts 2-4 hours



The sweating stage

Classical malaria is rarely observed

Last 6-10 hours

Cold Stage

Hot stage

Sweating Stage

Diagnosis

Microscopy

- gold standard
- The sensitivity is high.
- quantify the parasite load.
- distinguish the various species

Bivalent RDT

- Detection of circulating parasite antigens.
- Detection of both *Plasmodium vivax* and *P. falciparum* at locations where microscopy results are not obtainable within 24 hours of sample collection.



Malaria- Treatment

(National drug Policy -2013)

- No Presumptive Treatment is recommended
 - All fever cases suspected to be malaria should be investigated by microscopy or RDT.
 - Provide full course treatment as SDA (Supervised Drug Administration) for all patients.
 - Use appropriate regimen for the type of parasite
 - **Vivax Malaria**
 - CQ for 3 days {600mg (4 tablets) on 1st day, 600 mg (4 tablets) on 2nd day and 300mg (2 tablets) on 3rd day} + Primaquine 15mg daily for 14 days

- **Falciparum Malaria**
- – ACT for 3 days + Primaquine 45mg on second day
- • **Mixed Malaria**
- – ACT for 3 days + PQ- 15mg/day for 14 days from 2nd day onwards.
- Note: (1) Primaquine should not be used in Pregnancy, Infancy and G6PD deficiency
- (2) ACT is Artemisinin Combination Therapy (Artesunate for 3 days + Sulphadoxine-Pyrimethamine for 1 day)
- (3) Primaquine and Sulphadoxine-Pyrimethamine should not be given on the same day.
- Hence avoid PQ on the first day of ACT regimen
- (4) ACT not given during the 1st TM of pregnancy but given during 2nd and 3rd TMs.
- Use Quinine during the 1st TM.

Drug schedule for treatment of malaria under NVBDCP

- Treatment of **P.vivax** cases
- 1. **Chloroquine**: 25 mg/kg body weight divided over three days i.e. 10mg/kg on day 1, 10mg/kg on day 2 and 5mg/kg on day 3.
- 2. **Primaquine**: 0.25 mg/kg body weight daily for 14 days.

Age-wise dosage schedule for treatment of *P. vivax* cases

Age (years)	Tablet Chloroquine (150 mg base)			Tablet Primaquine* (2.5 mg base)
	Day 1	Day 2	Day 3	Day 1 to 14
<1	1/2	1/2	1/4	0
1-4	1	1	1/2	1
5-8	2	2	1	2
9-14	3	3	1 1/2	4
15 and above	4	4	2	6

* Primaquine is contraindicated in infants, pregnant women and individuals with G6PD deficiency. 14 day regimen of Primaquine should be given under supervision.

Treatment of uncomplicated *P.falciparum* cases

- **1. Artemisinin based Combination Therapy (ACT)***
 - 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 plus
 - Single dose of Primaquine 0.75 mg/Kg bw on 2nd day
- * ACT not given in 1st TM of pregnancy.

Age-wise dosage schedule for treatment of *P.falciparum* cases

Age (years)	Day 1		Day 2		Day 3
	Artesunate 50mg	SP*	Artesunate 50mg	Primaquine 7.5 mg	Artesunate 50mg
<1	½	¼	½	0	½
1 - 4	1	1	1	1	1
5 - 8	2	1½	2	2	2
9 - 14	3	2	3	4	3
15 and above	4	3	4	6	4

* Each Sulphadoxine-Pyrimethamine (SP) tablet contains 500 mg sulphadoxine and 25 mg pyrimethamine

Treatment of uncomplicated *P.falciparum* cases in pregnancy

- **1st TM** : Quinine salt 10mg/kg tds x 7 days.
- **Note:** Quinine may induce hypoglycemia; pregnant women should not take quinine on empty stomach and should eat regularly, while on quinine treatment.
- **2nd & 3rd TM:** ACT as per dosage given above.
- **Treatment of mixed infections (*PV* & *PF*)**
- Full course of ACT & PQ 0.25 mg/kg x 14 days.

Treatment of severe malaria cases

- Emergency and treatment based on severity, associated complications & decision of treating physician.
- **Artesunate:** 2.4 mg/kg IV or IM given on admission (time = 0 h); then at 12 h and 24 h & then once a day. (or)
- **Artemether:** 3.2 mg/kg IM given on admission and then 1.6 mg/kg /day. (or)
- **Arteether:** 150 mg IM daily for 3 days in adults (not for children). (or)

- **Quinine:** 20 mg/kg* on admission (IV infusion or divided IM injection) followed by maintenance dose of 10 mg/kg 8 hourly.
- The infusion rate should not exceed 5 mg salt/kg b.w/hour.
- *loading dose of 20mg /kg Quinine on admission not given if the patient has already received quinine or if the clinician feels inappropriate.)
- **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, not given for more than 24 hours.

- After parenteral artemisinin therapy, patients should receive a full course of oral ACT for 3 days.
- Patients who received parenteral Quinine therapy should receive:
- Oral Quinine 10 mg/kg b.w 3 tds*7 days (including the days when parenteral Quinine was administered) plus Doxycycline 3 mg/kg b.w once a day or Clindamycin 10 mg/kg bw 12-hourly for 7 days
- (Doxycycline is contraindicated in pregnancy & children < 8 years of age). (or)
- ACT as described

Contacts and Clarifications



- For all queries about phone numbers, email etc of concerned officials of Health Services like DMO, District Surveillance Officer (DSO) District Programme Manager (DPM), RCH Officer (RCHO) of your district, State Officials, institutions, specialists, etc, please call
- 24 x 7 NHM Health Services helpline **DISHA** on
- **0471-2552056** (Normal call, any line)
- **1056** (toll free from BSNL Lines)