

Question #3

"Ramu aged 45 years who had a recent travel to Orrisa now presents to your PHC with condition of high fever and chills. On investigation malarial parasite seen in blood. [KU 24]

- a) What are the species of malarial parasites seen in India.**
- b) How will you treat malarial infections in India.**
- c) What is the chemoprophylaxis for malaria as per national policy.**
- d) How will you control malaria in your PHC area.**
- e) Name the national programme associated with malaria"**

Question Breakdown

Unit / Topic Name: Communicable Diseases & National Health Programmes / Epidemiology of Communicable Diseases (Arthropod Borne Infections).

Estimated Probability: High

Expected Marks: 10 Marks (Structured Essay)

Why this question is important: Malaria and vector-borne diseases are a staple in Community Medicine. This specific question is a high-yield structured essay because it tests your integrated knowledge. You must outline clinical identification, exact pharmacological treatment protocols for India, chemoprophylaxis for travelers, and broader community-level vector control measures under the National Vector Borne Disease Control Programme (NVBDCP). Given its recent appearance in the KU 24 exams, it represents the exact style of application-based questioning you will face.

Here is the structured and comprehensive answer based on the guidelines from the provided textbooks.

a) What are the species of malarial parasites seen in India?

- In India, malaria is primarily caused by four species of the *Plasmodium* parasite: *Plasmodium vivax*, *Plasmodium falciparum*, *Plasmodium malariae*, and *Plasmodium ovale*.
- Among these, *Plasmodium vivax* and *Plasmodium falciparum* are the most common and are responsible for the vast majority of malaria cases and associated mortality in the country.

b) How will you treat malarial infections in India?

The treatment of malaria in India is strictly governed by the National Drug Policy on Malaria. The treatment protocol depends on the species identified:

- **Treatment of *Plasmodium vivax*:**
 - The drug of choice is **Chloroquine** given over 3 days (25 mg/kg body weight total dose).
 - This is followed by **Primaquine** (0.25 mg/kg daily for 14 days) to achieve a radical cure and prevent relapses by eradicating hypnozoites in the liver.
 - *Note:* Primaquine is contraindicated in pregnant women, infants under 1 year, and individuals with G6PD deficiency.
- **Treatment of *Plasmodium falciparum*:**
 - First-line treatment is **Artemisinin-based Combination Therapy (ACT)**.
 - In most parts of India, this consists of **Artesunate (AS) + Sulfadoxine-Pyrimethamine (SP)** administered over 3 days.
 - A single dose of **Primaquine** (0.75 mg/kg) is given on day 2 to kill the gametocytes and block transmission of the disease.
 - *Exception:* In the North-Eastern states, where resistance is higher, **Artemether-Lumefantrine (ACT-AL)** is the standard regimen.
- **Mixed Infections:** Treated with the full course of ACT followed by 14 days of Primaquine.

c) What is the chemoprophylaxis for malaria as per national policy?

Chemoprophylaxis is generally not recommended for the general population but is reserved for high-risk individuals, such as travelers entering endemic areas and military or paramilitary personnel.

- **Short-term Chemoprophylaxis (less than 6 weeks):** * **Doxycycline** (100 mg daily) is recommended.
 - It should be started 2 days prior to travel, continued daily during the stay, and maintained for 4 weeks after leaving the endemic area.
- **Long-term Chemoprophylaxis (more than 6 weeks):**
 - **Mefloquine** (250 mg weekly) is recommended.
 - It should be started 2 weeks before travel, taken once a week during the stay, and continued for 4 weeks after leaving.

d) How will you control malaria in your PHC area?

Controlling malaria at the Primary Health Centre (PHC) level requires a multi-pronged approach:

- **Early Diagnosis and Prompt Treatment (EDPT):** * Establishing active and passive surveillance through health workers (ASHAs/ANMs) to quickly identify fever cases using Rapid Diagnostic Tests (RDTs) or blood smears.
 - Ensuring immediate administration of anti-malarial drugs as per the national policy to break the transmission cycle.
- **Vector Control Measures:**
 - **Indoor Residual Spraying (IRS):** Spraying of approved insecticides (like DDT or Malathion) on the inner walls of houses in high-risk areas to kill resting mosquitoes.
 - **Personal Protection:** Promoting the use of Long-Lasting Insecticidal Nets (LLINs) and Insecticide-Treated Nets (ITNs) among the community, especially for pregnant women and children.
 - **Anti-larval Measures:** Source reduction by eliminating stagnant water collections (e.g., empty tires, coconut shells) and introducing larvivorous fish (like *Gambusia* or *Guppy*) in permanent water bodies.

- **Information, Education, and Communication (IEC):** * Conducting community awareness campaigns to educate people about mosquito breeding sites, early care-seeking behavior for fever, and proper utilization of bed nets.

e) Name the national programme associated with malaria.

- The primary programme is the **National Vector Borne Disease Control Programme (NVBDCP)**, which is an umbrella programme for the prevention and control of vector-borne diseases.
- Furthermore, India has launched the **National Framework for Malaria Elimination (NFME) 2016-2030**, which aims to eliminate malaria from the country entirely by the year 2030.