

## COARTEM BABY – SCIENCE & TECHNOLOGY

NEWS: Swiss authorities have approved **Coartem Baby**, the **first-ever malaria** treatment specifically designed for babies and very young children.

- In some countries, the product is called **Riamet Baby**.

### WHAT'S IN THE NEWS?

#### What is Malaria?

- **Nature of the Disease:**
  - Malaria is a **life-threatening infectious disease** caused by **Plasmodium parasites**, transmitted to humans via the **bite of infected female *Anopheles* mosquitoes**.
  - It is **not contagious** and does not spread from person to person through casual contact.
- **Modes of Transmission:**
  - Apart from mosquito bites, malaria can also be transmitted through **infected blood transfusions, contaminated needles, or from mother to child during birth** (congenital malaria).
- **Geographical Occurrence:**
  - Malaria is **endemic to tropical and subtropical regions**, with the **highest burden in sub-Saharan Africa**, but it is also prevalent in parts of Asia and Latin America.

#### 2. Species of Plasmodium That Infect Humans

- **There are five Plasmodium species known to infect humans:**
  - *Plasmodium falciparum*: Most deadly; causes severe and cerebral malaria.
  - *Plasmodium vivax*: Causes relapses; prevalent in South Asia and South America.
  - *Plasmodium malariae*: Less common but can cause long-term infections.
  - *Plasmodium ovale*: Found in West Africa; can remain dormant in the liver.
  - *Plasmodium knowlesi*: Zoonotic malaria found in Southeast Asia; can be severe.
- **Critical Risk:**
  - *P. falciparum* and severe *P. vivax* infections can cause **organ failure or death within 24 hours** if left untreated.

#### Symptoms of Malaria

- Common signs include:
  - **Fever, chills, headache, muscle pain, vomiting, and fatigue**
  - In severe cases: **convulsions, confusion, anemia, or coma**
  - Symptoms typically appear **10–15 days after the mosquito bite**.

### Global Burden of Malaria (2023 Data)

- **Total Deaths:** Around **597,000 globally** as per BBC-cited figures.
- **Children at Risk:** Nearly **75% of deaths** occurred in children under five, primarily in Africa.
- **Treatment Gap:** Until recently, **infants under 4.5 kg** had no approved, safe antimalarial formulations.

### Coartem Baby – A Child-Specific Malaria Drug

- **Developed By:** Novartis in partnership with **Medicines for Malaria Venture (MMV)**.
- **Target Group:** Specially designed for **newborns and infants weighing 2–5 kg**.



**FIRST MALARIA TREATMENT FOR BABIES TO BE DISTRIBUTED**



### Key Features:

- **Child-friendly formulation:** Easily dissolves in liquids, including breast milk.
- **Taste:** Sweet **cherry flavor** enhances acceptability for infants.
- **Components:** Contains **artemether-lumefantrine (ACT)** – the **WHO-recommended** antimalarial standard since 1999.
- **Adjusted dosage:** Modified for **immature liver function in newborns**, ensuring safety and efficacy.
- **Ease of use:** Eliminates need for **crushed adult pills** or makeshift dosing methods.
- **Why It Matters:**
  - Infants were previously treated using **adult or older child formulations**, risking **overdose or suboptimal treatment**.
  - This drug **fills a critical therapeutic gap**, improving malaria care equity for newborns.

- **Backed by Clinical Trials:**
  - Validated in **Phase II/III trials** conducted across **six African countries**: Burkina Faso, Kenya, Nigeria, Mali, Zambia, and the DRC.
  - Demonstrated safety and efficacy in infants under 5 kg by considering **unique pharmacokinetic profiles**.

## **Prevention and Diagnosis of Malaria**

### **Prevention Strategies:**

- **Personal Protection:**
  - Use of **insecticide-treated bed nets (LLINs)**.
  - **Mosquito repellents**: DEET, IR3535, Icaridin.
  - Wearing **long-sleeved clothing**.
  - **Window screens, coils, and vaporizers** in homes.
- **Chemoprophylaxis:**
  - Recommended for **travellers to endemic areas** using preventive medications.

### **Diagnosis:**

- **Microscopy**: Gold standard involving blood smear examination.
- **Rapid Diagnostic Tests (RDTs)**: Quick, point-of-care tests used widely in low-resource settings.

### **Treatment Protocols**

- ***P. falciparum* infections:**
  - Treated with **Artemisinin-based Combination Therapies (ACTs)**.
- ***P. vivax* infections:**
  - **Chloroquine**, where resistance is not present.
  - **Primaquine** is used to prevent **relapses** by targeting liver-stage parasites (also used for *P. ovale*).
- **Severe Malaria:**
  - Requires **hospitalization and injectable antimalarials**, such as **artesunate**.
- **Vaccination:**
  - WHO has approved two vaccines:
    - **RTS,S (Mosquirix)** – First approved malaria vaccine.
    - **R21/Matrix-M** – Newer, high-efficacy vaccine developed with Oxford University.

## **India's Initiatives for Malaria Control and Elimination**

**a) National Framework for Malaria Elimination (2016–2030):**

- Aims for **zero indigenous malaria cases** in India by **2030**.
- Sets an **internal goal of elimination by 2027**.
- Aligned with **WHO's Global Technical Strategy** for malaria control.

**b) National Strategic Plan (NSP) for Malaria Elimination (2017–2022):**

- Shifted approach from **malaria control to malaria elimination**.
- Targeted **571 out of 678 districts** for elimination by 2022 using intensified interventions.

**c) Malaria Elimination Research Alliance-India (MERA-India):**

- **Led by ICMR**, this initiative promotes **research-driven, coordinated efforts** to eliminate malaria.
- Brings together researchers, policymakers, and implementers for collaboration.

**d) High Burden to High Impact (HBHI) Initiative (2019):**

- Implemented in **four high-burden Indian states**.
- Includes **distribution of LLINs, indoor spraying, and enhanced surveillance**.
- Has led to **notable reduction in malaria incidence**.

**e) National Vector-Borne Disease Control Programme (NVBDCP):**

- India's **flagship programme** for managing vector-borne diseases like **malaria, dengue, JE, kala-azar, chikungunya**.
- Focuses on **integrated prevention, treatment, and community awareness**.

Source: <https://www.newindianexpress.com/lifestyle/health/2025/Jul/10/switzerland-approves-first-malaria-drug-for-infants>