



Dengue fever outbreaks in Kerala . What is new in Dengue fever ?

As of late 2025 and 2026, the clinical landscape for dengue fever has shifted significantly due to the stabilization of long-term vaccine data, the release of integrated international management guidelines, and the advancement of monoclonal antibodies into late-stage clinical trials.

Actionable Summary for the Physician

- **Vaccination:** The **TAK-003 (Qdenga)** vaccine is now backed by 7-year efficacy data, showing sustained protection (61.2% overall efficacy) and an 84.1% reduction in hospitalizations regardless of prior serostatus. It is increasingly integrated into national immunization programs (e.g., Brazil).
- **Guidelines:** Follow the **WHO 2025 Guidelines for Clinical Management of Arboviral Diseases**, which provide a unified framework for managing dengue, chikungunya, Zika, and yellow fever.
- **Diagnostics:** Prioritize early detection with **NS1 rapid diagnostic tests (RDTs)**, as current WHO interim guidance (April 2025) emphasizes their role in reducing antimicrobial misuse during the first 5 days of fever.
- **Emerging Therapeutics:** While management remains primarily supportive (isotonic crystalloids for plasma leakage), **monoclonal antibodies (e.g., SII Dengue mAb)** have entered Phase III trials, and the **antiviral mosnodenvir** has shown promise in prophylaxis within controlled human infection models (NEJM 2025).

Detailed Clinical Answer and Guidelines

1. Vaccination: The "TAK-003" Long-Term Data

The most significant recent update is the completion of the 7-year **Tetravalent Immunization against Dengue Efficacy Study (TIDES)** for the TAK-003 vaccine (Qdenga). Unlike its predecessor (Dengvaxia), TAK-003 does not require pre-vaccination screening for previous infection.

- **Sustained Efficacy:** Data through 4.5 years demonstrated 61.2% efficacy against virologically confirmed dengue and **84.1% efficacy against hospitalization**.
- **Booster Dose:** Exploratory analysis published in late 2025 indicates that a booster dose administered at 4.5 years can increase efficacy against hospitalization to **90.6%**.
- **Public Health Impact:** Large-scale implementation in Brazil (2024–2025) among adolescents (ages 10–14) has already shown a measurable reduction in symptomatic cases and hospital pressure during historic outbreaks.

2. New Global Clinical Guidelines (2025–2026)

The **WHO Guidelines for Clinical Management of Arboviral Diseases (July 2025)** have superseded older, disease-specific documents.

- **Integrated Management:** Because dengue, Zika, and chikungunya often co-circulate and present with identical early symptoms, the guidelines recommend a unified triage and fluid management strategy.
- **Pediatric Optimization (PADO):** In June 2026, the WHO released the first **Paediatric Drug Optimization Process** specifically for dengue, prioritizing the development of child-appropriate therapeutic formulations to prevent severe disease.
- **Fluid Selection:** There is a reaffirmed preference for **isotonic crystalloids** (e.g., Lactated Ringer's) over colloids for initial resuscitation in dengue shock syndrome, with colloids reserved for refractory shock.

3. Advanced Therapeutics: Beyond Supportive Care

After decades of reliance on hydration alone, specific therapies are nearing clinical utility:

- **Monoclonal Antibodies (mAbs):** The **SII Dengue mAb** (Serum Institute of India) and **AV-1** (AbViro) are currently in Phase III and Phase II trials, respectively. These antibodies target highly conserved epitopes on the viral envelope protein to neutralize all four serotypes and potentially mitigate **Antibody-Dependent Enhancement (ADE)**.
- **Antivirals: Mosnodenvir**, a novel antiviral, was reported in *The New England Journal of Medicine* (November 2025) to be effective as a prophylaxis, significantly reducing viral load in human challenge models.
- **Repurposed Drugs:** The **Adaptive Dengue Antiviral Platform Trial (ADAPT)** is actively screening drugs like molnupiravir and remdesivir to determine if early administration can prevent progression to severe dengue.

4. Diagnostic Innovations

WHO's **Interim Guidance on Laboratory Testing (April 2025)** highlights several technological advancements:

- **Next-Generation POC:** Development of **CRISPR-based lateral flow assays** and AI-enhanced electrochemical biosensors is aimed at providing "lab-accurate" results at the bedside in low-resource settings.

- **Prognostic Biomarkers:** New research focuses on identifying host biomarkers (e.g., sNS1, syndecan-1) that can predict **capillary leak syndrome** 24–48 hours before clinical deterioration, allowing for more targeted hospitalization.

5. Epidemiology: The 2024–2025 "Global Surge"

Physicians should be aware that 2024 marked the highest number of dengue cases ever recorded (>14 million globally), driven by climate shifts and expanded vector ranges (*Aedes aegypti* and *A. albopictus*). This has led to an increase in "atypical" presentations, including **dengue-associated neurological disorders** (e.g., encephalitis, Guillain-Barré syndrome), which are now more explicitly addressed in the 2025 clinical management updates.