

# Dengue Fever: A Mosquito-Borne Viral Infection that can be Prevented

Xiang Gao\*

Department of Microbiology, University of Veterinary Medicine, Sadat, Egypt

## DESCRIPTION

Dengue fever is a mosquito-borne viral infection that poses a significant global health threat, particularly in tropical and subtropical regions. Characterized by high fever, severe headaches, joint and muscle pain, rash and bleeding tendencies, dengue fever can range from a mild illness to a severe, potentially fatal condition known as Dengue Hemorrhagic Fever (DHF) [1]. With increasing urbanization, international travel and climate change, the incidence of dengue has surged, making it a critical public health concern. Other strategies being explored include genetic modification of mosquitoes to reduce their ability to transmit the virus and innovative methods to disrupt the mosquito lifecycle.

### Clinical manifestations of dengue fever

The illness begins abruptly with high fever, often reaching up to 40°C (104°F) and is accompanied by at least two of the following symptoms:

**Severe headache:** Often retro-orbital, affecting the area behind the eyes.

**Joint and muscle pain:** Known as "breakbone fever" due to the intense pain.

**Rash:** A maculopapular rash that can spread across the body.

**Nausea and vomiting:** Common gastrointestinal symptoms.

**Fatigue:** Extreme tiredness and malaise.

**Minor bleeding:** Such as nosebleeds, gum bleeding or easy bruising.

In some cases, the disease can progress to severe dengue, which includes DHF and Dengue Shock Syndrome (DSS). This stage requires immediate medical attention as it can be life-threatening.

### Diagnosis and treatment

There is no specific antiviral treatment for dengue. Management focuses on supportive care to alleviate symptoms and maintain adequate hydration [2]. For mild cases, treatment includes rest, hydration and antipyretics like acetaminophen to manage fever

and pain. Aspirin and Non-Steroidal Anti-Inflammatory Drugs (NSAIDs) should be avoided due to the risk of bleeding [3].

Severe dengue requires hospitalization for close monitoring and management of complications. Intravenous fluids and electrolytes may be administered to prevent shock [4]. In cases of severe bleeding, blood transfusions may be necessary. Early detection and proper medical care significantly reduce the fatality rate of severe dengue.

### Prevention and control measures

Preventing dengue relies heavily on controlling the mosquito population and minimizing human exposure to mosquito bites. Key preventive measures include:

**Eliminating mosquito breeding sites:** Regularly empty and clean containers that hold water, such as flower pots, buckets and discarded tires. Cover water storage containers and ensure proper waste disposal to reduce standing water [5].

**Using mosquito repellents and nets:** Apply insect repellents on exposed skin and use mosquito nets, especially during the day when Aedes mosquitoes are most active [6].

**Installing screens:** Use window and door screens to prevent mosquitoes from entering indoor spaces.

**Chemical control:** Use insecticides to target adult mosquitoes and larvicides to treat standing water [7]. However, this should be done judiciously to prevent environmental damage and resistance development in mosquitoes.

## CONCLUSION

Dengue fever continues to be a major public health challenge, with its incidence rising due to factors like urbanization, climate change and global travel. Understanding the transmission, clinical manifestations and management of dengue is important for controlling its spread and reducing its impact. While there is no specific antiviral treatment, supportive care can significantly improve outcomes, especially in severe cases. Ongoing study aims to develop more effective vaccines that provide broad protection against all four serotypes and are safe for all populations.

**Correspondence to:** Xiang Gao, Department of Microbiology, University of Veterinary Medicine, Sadat, Egypt, Email: xiang.go@xtu.edu.cn

**Received:** 28-May-2024, Manuscript No. VMID-24-32270; **Editor assigned:** 31-May-2024, Pre QC No. VMID-24-32270(PQ); **Reviewed:** 15-Jun-2024, QC No. VMID-24-32270; **Revised:** 21-Jun-2024, Manuscript No. VMID-24-32270(R); **Published:** 28-Jun-2024, DOI: 10.35248/2161-0517.24.13.294

**Citation:** Gao X (2024) Dengue Fever: A Mosquito-Borne Viral Infection that can be Prevented. *Viol Myco*. 13:294

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Prevention remains the fundamental of dengue control, emphasizing mosquito control and personal protective measures. Advances in vaccine development and other innovative strategies show prospects for a future where dengue can be effectively managed and eventually eradicated.

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