

# What is Dengue?

## DENGUE FEVER

Compiled by: Pathologist Lancet Kenya

- Dengue is a mosquito-borne viral infection causing a severe flu-like illness, sometimes with a rash.
- Globally the incidence of dengue has grown dramatically in recent decades, about 50 million dengue infections occur worldwide.

### What Differential Diagnosis of Dengue?

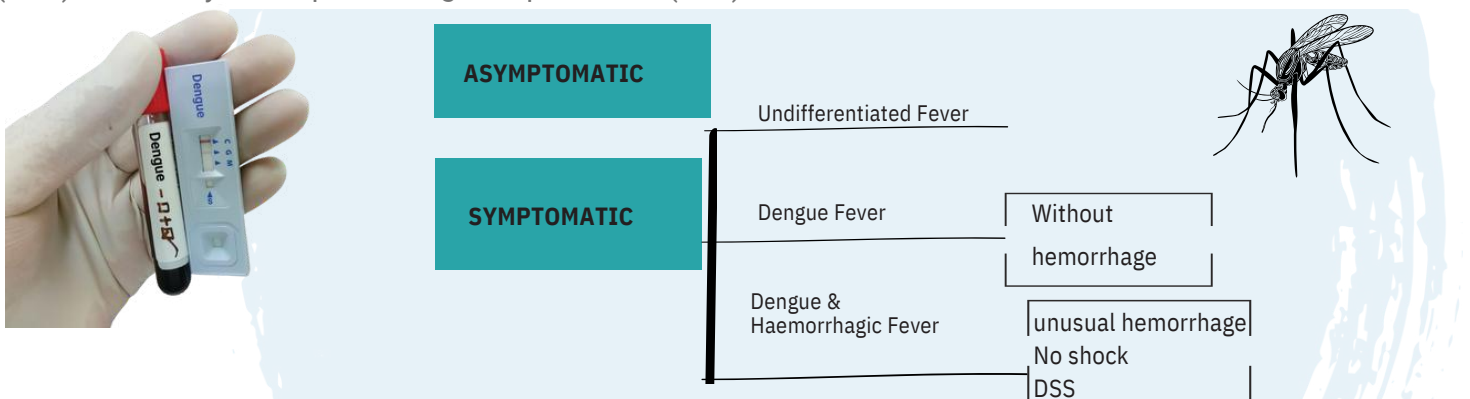
Viral	Bacterial/Spirochetes/Parasites
Arenavirus	Bacterial sepsis
Ebola/Marburg	Leptospirosis
Chikungunya	Malaria
Influenza	Meningococcal infection
SARS	Tick bite fever
Viral hepatitis	

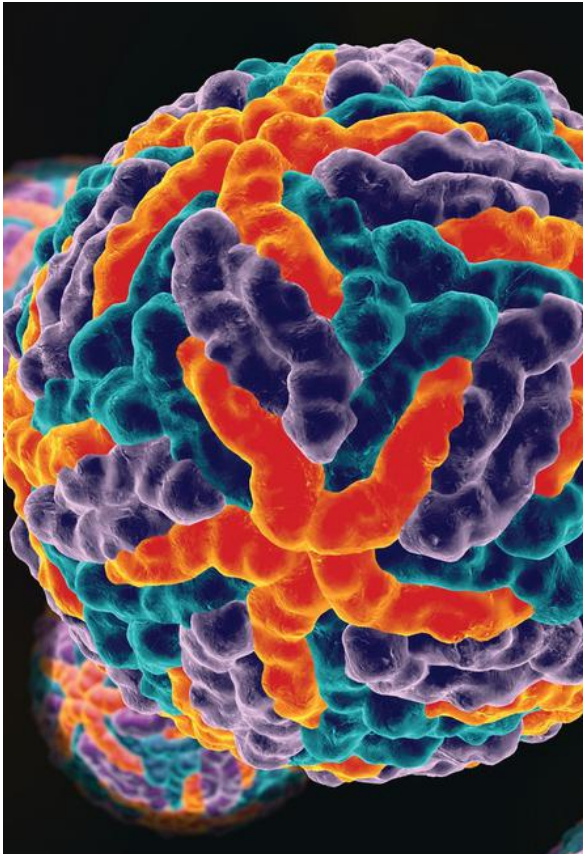
### What Causes Dengue?

Four immunologically related, single positive-stranded RNA viruses known as dengue viruses (DENV-1 through DENV-4) of the genus *Flavivirus*, family *Flaviviridae*, are responsible for causing dengue fever (DF) and dengue hemorrhagic fever (DHF). Dengue viruses are transmitted by the bite of *Aedes* sp mosquitoes, mainly *Aedes aegypti* but also *Aedes albopictus*.

### What are the Clinical Features of Dengue Infection?

- Primary dengue infection may be asymptomatic in about 50- 90% of individuals
- In symptomatic dengue infection, there are 3 possible presentations; fever alone, dengue fever (DF) with or without hemorrhagic complications and a separate potentially lethal entity called dengue hemorrhagic fever (DHF) which may develop into dengue septic shock (DSS).





## What Causes Dengue?

Nonspecific testing for patient management includes FBC and differential to monitor platelets, liver function tests, prothrombin time, partial thromboplastin time, fibrogen degradation products/fibrinogen, dengue IgG and IgM, dengue PCR.

Dengue viraemia occurs early during infection so PCR may be negative by the time the patient presents with fever. Serology remains the mainstay of testing for dengue infection and new ELISA tests are quick and cheap. Caution should be exercised when using anti-dengue IgM or IgG antibody positivity from a single sample for diagnosis because there is cross-reactivity between anti-dengue IgM and IgG antibodies with antibodies from other Flaviviridae such as the West Nile, Yellow Fever, and Japanese Encephalitis viruses. Previous infection or vaccination with another flavivirus may also result in false-positive anti-dengue antibody results.

Please contact the Clinical Virology pathologists to discuss Dengue testing if required in patients with a suggestive travel history and clinical presentation.

## Treatment and Prevention

- There is no specific treatment for any form of dengue, but appropriate medical care frequently saves the lives of patients with the more serious DHF.
- The only way at this time to prevent dengue virus transmission is to combat the disease-carrying mosquitoes through vector control programmes that use insecticides and remove the natural habitat of the Aedes sp mosquitoes.
- Personal protection against mosquito bites while in area where dengue is found is recommended.
- Infection with one DENV produces lifelong immunity against re-infection with that particular virus and short-term (+/- 9 months), partial cross-protection against the other three dengue viruses. So an individual may be infected up to four times during their lifetime.

## Reference

1. Dengue Guidelines for Diagnosis, Treatment and Control. 2009. World Health Organisation. <http://apps.who.int/training-publications/dengue-diagnosis-treatment/pdf/dengue-diagnosis.pdf>
2. CDC Travelers' Health Yellow Book. Chap 5. Other Infectious Diseases Related to Travel. <http://wwwnc.cdc.gov/travel/>
3. Dengue Fever. WebMD. Moore-Shepard S, Hinfey PB, Sho WH. October 2009. <http://emedicine.medscape.com/article/215840-overview>

*\*Tourniquet test or capillary fragility test is a non specific bedside test that may be used to assist with the diagnosis of DF with haemorrhagic symptoms and DHF. A blood pressure cuff is applied and blown up to between the systolic and diastolic pressures and left for 5 minutes. A positive test if there are more than 20 petechiae per 2.5 cm on the flexor aspect of the forearm distal to the antecubital fossa. A negative tourniquet test does not exclude the diagnosis of dengue.*