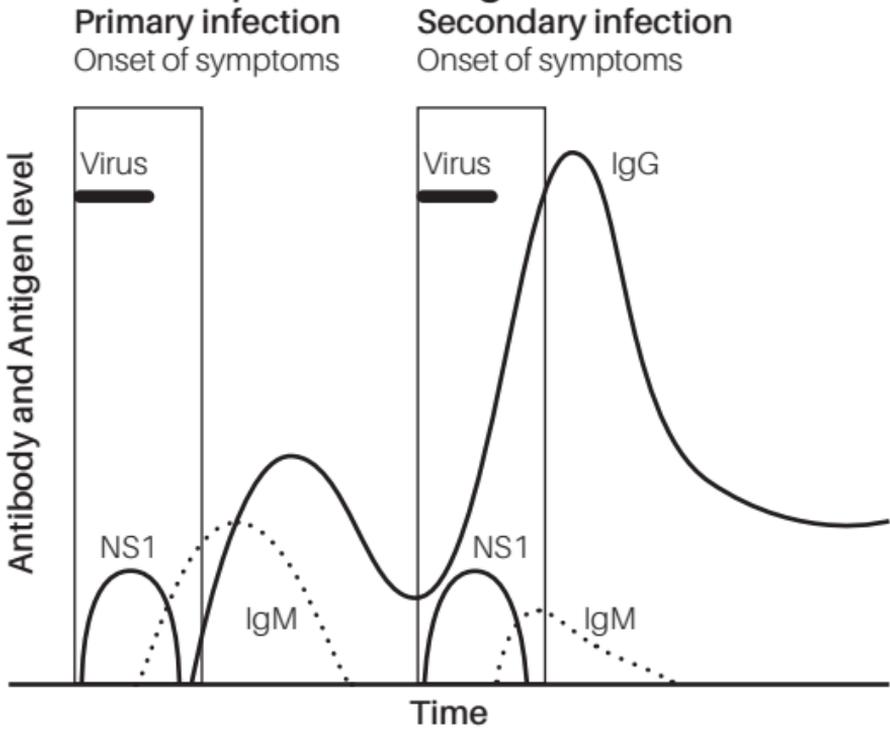


Laboratory diagnosis of dengue infection

There are 4 different serotypes of dengue virus. Infection confers type specific immunity, however reinfections with other serotypes can occur and often result in more severe clinical manifestations. The immune response to dengue virus infection can be considered in the context of **primary** versus **secondary** dengue infections.

Immune response to dengue infection



A **primary** infection describes the first dengue virus infection experienced by an individual.

- NS1 antigen is produced from Day 1 after onset of fever and up to Day 9.
- Detectable levels of IgM antibody will be produced approximately 5 days after symptoms occur (sometimes as early as 3 days). IgM levels peak in 2 weeks, followed by a 2 week rapid decay, but may remain detectable for 6 months and longer.
- IgG antibodies appear approximately 14 days after onset of symptoms.

A **secondary** immune response is generated following a sequential infection with a dengue serotype to which that person has not previously been exposed. Such a response may also be triggered if a person has previously been exposed to a flavivirus (either through infection or vaccination) that is not dengue.

- NS1 antigen is produced from Day 1 after onset of fever and up to Day 9.
- IgM response is more varied:
 - usually preceded by IgG response
 - often be produced at low levels
 - minority of patients will show no detectable levels of IgM.
- High levels of IgG are detectable during the acute phase:
 - reach levels above those found in primary or past infection
 - IgG may be detectable by Day 3 of symptoms, but generally detectable Day 5-6
 - persist for 30-40 days then decline to levels found in primary or past infection.

For secondary dengue infection a four fold rise in IgG is usually the diagnostic gold standard.