

# **NS1 Rapid Test for Detection of Dengue Virus Infection: Should We Use It?**

Sazaly\_Abu Bakar

WHO Collaborating Center for Arbovirus Reference and Research (Dengue/Severe Dengue), Tropical Infectious Diseases Research and Education Centre (TIDREC), Faculty of Medicine, University of Malaya, 50603 Kuala Lumpur, Malaysia

Rapid diagnosis during the early phase of dengue is crucial for proper patient management and prompt institution of public health control measures. Dengue diagnosis, as early as on day 1 of fever is now possible with the use of the DENV non-structural protein 1 (NS1) antigen detection. The rapid strip format of the test especially, has become widely available. It is relatively easy to perform as no special equipment is required and does not require high level of expertise, hence, could become the preferred diagnostic method in resource limiting environment. Recent study involving laboratories in the WHO Western Pacific Region however, suggests that NS1 test is done in less than 50% of the laboratories. Even when available ~89% used the ELISA format. In contrast, all laboratories performed the IgM ELISA. Would introduction of the NS1 test in the diagnostic algorithm improve diagnosis of dengue? We examined the performance of a rapid dengue NS1 strip test using actual samples of suspected dengue patients' and compared to that determined using the commercially available quantitative reverse transcription-polymerase chain reaction (qRT-PCR) and IgM ELISA. Our findings, in a study involving over 260 samples, suggest that the NS1 rapid strip test is sensitive to detect acute dengue especially in primary infection. Consistent with a number of earlier studies, NS1 negative results, however, should be cautiously interpreted especially in hyperendemic regions where secondary DENV infection is high. Our findings also suggest that the IgM ELISA remained highly useful especially when complemented with the NS1 and qRT-PCR tests for primary and secondary dengue, respectively.