Reviewer’s report

Title: Preliminary Evaluation of Near Infrared Spectroscopy as a Method to Detect Plasma Leakage in Children with Dengue Hemorrhagic Fever

Version: 1 Date: 27 April 2014

Reviewer: Lucy Lum

Reviewer’s report:

The authors utilized NIRS to measure SmO2 in a group of children with dengue and correlated the readings with radiological evidence of plasma leakage. The authors concluded that NIRS may be a useful guide for real-time and non-invasive and non-invasive identification of plasma leakage.

Overall, the study objectives and processes were clear and with NIRS data presented with respect to defervescence day.

First is the time frame – of assigning day 0, was this done prospectively or retrospectively and if so, was this done independently? If this was done retrospectively, then the authors should not claim that NIRS may be a useful guide for “real-time” since this time could only be assigned retrospectively.

Secondly, since temperatures were measured 6 hourly, and day 0 was when temperature < 38 Celsius, there could be a lag phase of 6 hours in day 0. How would this affect the interpretation of NIRS data? A shift in the time frame may have an impact on the presentation of results as shown in Fig 4.

Thirdly, although NIRS data was collected almost continuously, ultrasound exam of plasma leakage was done at intervals. So does the time of decrease of NIRS simultaneous with maximum plasma leakage by ultrasound?

Fourthly, the interpretation of decrease in SmO2: Was this due to increased interstitial fluid from plasma leakage or due to hypovolemia is a critical question? Whichever way the NIRS data is interpreted, may lead to conflicting treatment strategies.

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.

Declaration of competing interests:

I declare that I have no competing interests