Author’s response to reviews

Title: Dengue Score as a diagnostic predictor for pleural effusion and/or ascites: External validation and clinical application

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Author’s response to reviews:

Reviewer #1

Just would like to add the following in the abstract (methods) for complete information for the readers. ‘The Dengue Score was calculated using four parameters: Hct increase≥15.1%, serum albumin≤3.49 mg/dL, platelet count≤49,500/μL and AST ratio≥2.51. Each parameter was scored as 1 if present and 0 if absent’
Response:

We have added this information to the abstract (methods) (lines 29-31).

Reviewer #2

Katie Anderson (Reviewer 2): The authors seek to externally validate the Dengue Score, a metric they developed using data from two different hospitals in Indonesia, now applied retrospectively to data from a third. The utility of the Dengue Score is intended to lay in its potential to predict plasma leakage based only upon laboratory values, as ultrasound is not universally available in resource-limited settings.

The authors should make clear that they themselves developed the Dengue Score. This is further important in discussing generalizability, that the score was developed and now validated in Indonesia.

Response:

We have clarified the statement that we ourselves developed the Dengue Score (lines 69-73).

Particularly as this is a retrospective analysis, the time course of measurements and events is critical and, currently, is not discussed. Given that multiple days of lab values are available, what was used for calculation of the Dengue Score (for AST, HCT, platelets, albumin?) Max/min? Values at presentation? Is one Score a reflection of multiple different days? It would also be valuable for validation to know that the ultrasound findings of ascites or effusion came after (or at minimum, on the same day) the relevant lab values. This is essential for making this tool clinically useful - a clear presentation of the time-course and a discussion of how this tool would reasonably be applied. Obviously, the most valuable tool would be one which could predict plasma leakage at the time of presentation - or, failing that, predict it in advance. The least
valuable tool would be one in which the laboratory values of interest reach their peak or nadir after the development of plasma leakage. At present, we don't know which tool we have.

Response:

We have added information regarding the time course of measurements and events to the discussion, as follows: In this study, the Dengue Score was validated using an external data set. The laboratory parameters, i.e., levels of AST, serum albumin and USG, were assessed in the critical phase. The degree of hemoconcentration and the lowest platelet count were determined based on daily complete blood count measurement. A previous study reported that an elevated AST level, a lower albumin concentration, the hematocrit peak, the lowest platelet count, and increased detectable of pleural effusion/ascites by USG were found in the critical phase or 1-2 days after defervescence [4, 11,12]. In addition, the degree of hemoconcentration can be calculated by using the minimum hematocrit during admission or the hematocrit at convalescence as a reference [12]. (lines 153-161).

How should a tool such as this, with laboratory cut-points that may vary from lab to lab, be applied beyond Indonesia? Would discuss this.

Response:

We have added information that laboratory cut-off points that may vary from lab to lab to the discussion, as follows: In addition, a cut-off point for platelet count<50,000/μL and serum albumin<3.5 g/dL are widely used as indicators of plasma leakage [13, 14]. Furthermore, using the degree of hemoconcentration and AST ratio will resolve the problem of differences in reference limits among laboratories. Therefore, these laboratory parameter cut-off points can be used universally in various laboratories [4, 12]. (lines 161-165).