Reviewer's report

Title: Derivation and validation of a simple clinical bedside score (ATLAS) for Clostridium difficile infection which predicts response to therapy

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Reviewer: Louis Valiquette

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Development and validation of a score able to accurately predict CDI complications and/or recurrence would be very important for clinicians in order to be able to select which patients would benefit from new and expensive treatments (fidaxomicin/monoclonal Ab). Consequently this paper tries to address a very important clinical problem. It is brief, well written and adequately referenced.

However it suffers from an important limitation: the methodological approach does not satisfy published standards (e.g. Clinical Prediction Rules : A Review and Suggested Modifications of Methodological Standards by Laupacis et al. 1997).

a) The cohort used to derive and validate this score has been built with several inclusion/exclusion criteria (since it is a cohort built for other purposes) which limits clearly its generalizability. It will be difficult to conclude anything regarding a future benefit in 'real life' patients since they might differ considerably from the patients in which this cohort has been derived and validated. It will need further validation on another CDI cohort. The reader can appreciate this limitation since the authors acknowledge it. This is a minor comment.

b) As included in their discussion, authors are aware they did not use a standard approach, but their explanations are not sufficient. They should include the data in their paper and let the reader decides if the standard (logistic regression) was appropriate or not to use. If the variables derived from the two large CDI trial databases are not usable to build a score, how predefined variables selected from studies of lesser quality or expert opinion be better? This question is important enough to warrant a clear and complete demonstration to the reader.

c) Finally AUC curves should be used to compare the performance of the different suggested scores.