Reviewer's report

Title: A decision rule to aid selection of patients with abdominal sepsis requiring a relaparotomy

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Reviewer: Magnus Kaffarnik

Reviewer's report:

Well elaborated statistical work. The question posed by the author is well defined and of clinical interest.

There are three serious issues connected to this manuscript:

1. The result of the trial is a negative relaparotomy rate of 42%, when the described normogram is used to decide a relaparotomy or not. This is a very high rate and even higher than in the RELAP-trial. Therefore the normogram is not helpful for the clinician. The authors came to the conclusion, that the normogram can be used for risk stratification to maximize the chance that a patient will get a relaparotomy, when he needs one. This conclusion is not evaluated in the study, therefore highly theoretical. (major compulsory revision)

2. The introduction of the ct-scan is not evaluated in the study. It is not described wether the ct-scan improves the decision making process in terms of decreasing the "false negative" relaparotomy or not. The impact of the ct-scan should be statistically evaluated. (major compulsory revision)

3. Because the work is based on statistical analysis, it is essential that the manuscript be seen by an expert statistician (major compulsory revision).

I have assessed the statistic, but do not feel adequately qualified to judge the statistical details of the work:


b) A former published randomized trial is the basis of the collected data. This trial was not powered to construct a prediction model.

c) The author mention the missing data rate as low, but do not explain the exact percentage of missing data. This can have an influence of the statistic outcome.

d) The replacement of missing data with the Markov Chain Monte Carlo method should be proved.

Figure 1 is difficult to understand. The last box "patients not requiring relaparotomy" is divided into two subfields. What does "negative relaparotomy" means, when these patients did not recieve a relaparotomy at all (minor essential
Conclusion: In my opinion, if the authors follow the above advises they may stand a chance.

**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.