Author’s response to reviews

Title: VALUE OF PARENTAL CONCERN AND CLINICIAN’ S GUT FEELING IN RECOGNITION OF SERIOUS BACTERIAL INFECTIONS: A PROSPECTIVE OBSERVATIONAL STUDY

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Editorial board
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Dear Editors,

On behalf of the group of authors, I thank you for your consideration of our original research article entitled “Value of parental concern and clinician’s gut feeling in recognition of serious bacterial infections: a prospective observational study” by Urzula Nora Urbane, Dita Gaidule-Logina, Dace Gardovska, and Jana Pavare, for publication in BMC Pediatrics.

We have carefully read the suggestions and comments made by the editor. We have made some significant changes to the abstract, results, discussion and conclusion section of the manuscript as requested. The following letter provides a detailed description of the changes we have made as a response to editor comments.

We would also like to note that we have used “track changes” to display the corrections we have made
to the manuscript, and the line and page references stated in the responses to reviewers are in accordance to the version where these changes can be viewed.

Thank you again for your consideration!

Sincerely,

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Response to Editor Comments

Editor comment No. 1: Line 173 – do you mean “6451 febrile children were evaluated…”?

Response to EC No.1: Thank you for the question. Yes, that is what we meant, for some reason the word “febrile” had been omitted. The suggested correction has been made, and line 174 on page 8 of the revised manuscript now reads as follows:

“Between October 2017 and July 2018, 6451 febrile children were evaluated in the ED.”

Editor comment No. 2: Positive likelihood ratios of less than 5 and negative likelihood ratios of more than 0.5 are not particularly useful. The most promising findings from your study appear to be the presence of a “sense of reassurance”, while most other findings are of limited value to the clinician. Please modify your discussion and conclusion to reflect this.

Response to EC No.1:
Thank you for the commentary. As suggested, we have modified the abstract, results (interpretation), discussion and conclusion of the manuscript.

1) Abstract:
The results and conclusion (lines 43 to 55 on pages 2 and 3 of the revised manuscript) now read:

“...Results
The study included 162 patients aged 2 months to 17.8 years. Forty-six patients were diagnosed with SBI. “Sense of reassurance” expressed by all clinicians was associated with lower likelihood of SBI (positive likelihood ratio 8.8, 95% confidence interval 2.2-34.8). “Gut feeling” was not significantly predictive of the patient being diagnosed with SBI (positive likelihood ratio 3.1, 95% confidence interval 1.9-5.1), The prognostic rule-in value of parental concern was insignificant (positive likelihood ratio 1.4, 95% confidence interval 1.1-1.7).

Conclusion
Sense of reassurance was useful in ruling out SBI. Parental concern was not significantly predictive of SBI.”

2) Results
“…Diagnostic value of clinician instinct

The presence of clinician’s “gut feeling” was significantly more common in children who developed SBI than in those who did not, as was “sense of reassurance” in the cases with no SBI. However, the prognostic value of “gut feeling” in ruling in or ruling out the possibility of being diagnosed with SBI in the study population was not significant. The likelihood of the patient being diagnosed with SBI was higher when “gut feeling” was expressed by certified paediatricians than when stated by paediatric residents. Sense of reassurance was associated with decreased likelihood of having SBI. The rule-out value of sense of reassurance was not significant…”

3) Discussion

“…Summary of main findings

In this prospective observational study sense of reassurance, an impression that the child has a self-limiting illness, was predictive of the absence of SBI. “Gut feeling” that the child has a serious illness, though more commonly expressed by clinicians evaluating the patients who were later diagnosed with SBI, was of limited prognostic value, especially when expressed by paediatric residents rather than their senior colleagues…”

“…Comparison with existing literature

Several qualitative studies have shown that non-analytical, intuitive reasoning plays a significant role in decision making process of a doctor. These studies explain that intuitive feelings, which emerge quickly and with little effort, aid the diagnostic process in sometimes complex and unclear clinical situations when relying on objective findings and facts alone would make it difficult to decide on the most appropriate immediate actions. Yet the number of studies focusing on the accuracy of clinician instinct is very small, which complicates the introduction of the concept of gut feeling in applied medicine and medical education.

Most studies on the performance of clinician instinct focus on “gut feeling” of something wrong (sense of alarm), the diagnostic accuracy of sense of reassurance is yet to be examined. Qualitative research studies have found that sense of reassurance often lets doctors avoid unnecessary investigations and rather refer the patients for careful observation, although objective findings and rational arguments for taking action are relied upon more than their intuition. In our study we found that sense of reassurance was useful in recognizing cases when serious bacterial infections were unlikely. More studies in assessing its diagnostic value would provide a better insight in its applicability in medical situations when the diagnosis is unclear and objective signs suggesting serious illness are absent.

Currently all studies assessing the diagnostic accuracy of “gut feeling” (sense of alarm) have been conducted in primary care. The positive likelihood ratio and specificity of gut feeling derived from this study population was significantly lower than obtained in one Belgian study published in 2012. In our
study, the positive likelihood ratio of gut feeling expressed by certified clinicians was nearly 5, but overall analysis did not yield a significant result. This can be partially explained by the lack of continuity of care, which is an important factor leading to gut feeling in case of serious illness...”

Lines 317 to 321 on page 15 of the revised manuscript:

“In our study there were significant differences between the positive likelihood ratios of “gut feeling” when expressed by senior and junior clinicians, in contrast to the previously mentioned Belgian study, where its performance was equal…”

Lines 380 – 393 on page 18 of the revised manuscript:

“...Clinical implications of the study results

Our study suggests that sense of reassurance decreases the likelihood of the patient being diagnosed with SBI. However, it should be approached with caution if objective findings or other data suggest that SBI is possible, to avoid any missed cases. “Gut feeling” of a possible serious illness, when felt by a clinician after examining a child with fever at the emergency department, did not prove to an effective tool for predicting serious bacterial infection when analysed alone. Nevertheless, it was more commonly expressed by doctors in cases where SBI were later identified. Therefore, if the doctor feels a sense of alarm, the patient still needs to be approached with care, and necessary investigations for exclusion of SBI should be performed.”

4) Conclusion

Lines 402 to 406 on page18 of the revised version:

“...In the study population, clinician instinct as sense of reassurance was useful in ruling out serious bacterial infection. “Gut feeling” (sense of alarm) alone was not significantly predictive of SBI…”