Author’s response to reviews

Title: Use of Natural language processing to improve predictive models for imaging utilization in children presenting to the Emergency Department

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Reviewer reports:

Jiaping Zheng (Reviewer 1): The authors addressed most of my initial concerns with the manuscript. One remaining question is about the baseline comparison. The authors added a discussion of a similar system that was developed for a adult population. It would be helpful to report the performance of this system using the same metrics like AUC as in the current study.

Reply: Thanks for the suggestion. We briefly included the AUC metric numbers obtained from the system for the adult population as a comparison in the discussion (line 263-265).

“We found that the AUC for pediatric patients (Any imaging use: 0.824; CT scan: 0.868) is improved compared to adults (Any imaging use: 0.780; CT scan: 0.790).”

Since the detail performance of the system were reported in the adult paper, we decided not to elaborate it in the current manuscript.

In addition, I think the wording of the sparse term cutoff point is confusing. It's clearer to explicitly say that words occurring less than 0.1% of the time are removed.

Reply: We have added this sentence to make the sparse term cutoff point clearer. See line 121-122.

“The words or word-pairs with frequency less than 277 (1% of the total sample size 27,665) were removed.”

Marie-Helene Metzger (Reviewer 2): The corrections made have satisfactorily improved the manuscript which is ready for publication from my point of view.

Reply: Thanks very much for your suggestions, which helped substantially improve our manuscript.