Reviewer’s report

Title: Interpreting Patient-Specific Risk Prediction Using Contextual Decomposition of BiLSTMs: Application to Children with Asthma

Version: 0 Date: 18 Jun 2019

Reviewer: Yanshan Wang

Reviewer's report:

This study applied LSTM and BiLSTM deep learning models on EHR data to predict asthma in children, and used contextual decomposition method to interpret the model and results.

The paper is overall well-written. Experiments are well-designed. The conclusion is supported by the experimental results. This reviewer has only a few minor comments:

1. The title is not specific and too broad. The study essentially deals with asthma prediction. It would be good to tune down the title.


2.2. The number of visits for patients is different. How to deal with the dimension difference in the model?

2.3. Is time stamp considered or only sequence considered?

3. Dataset.

3.1. What is the sensitivity and specificity of using ICD-9 code to define case and control patients?

3.2. What is the demographics and statistics (e.g., average number of diagnosis) for the patients.

4. What is the proportion of case and control in the training, validation, and test sets?

5. Page 6. What d_art is chosen? How to generate p_art?

6. Page 7. How many case and controls in the subset of 5k patients?
Are the methods appropriate and well described?
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English
Please indicate the quality of language in the manuscript:

Acceptable

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