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Letter

Reply to Letter to the Editor: Machine learning to deal with missing disability status

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Dear Editor,

We appreciate the comments by Kent and Steyerberg.[1] While the authors acknowledge the value of this approach to enhance real-world data, they bring up important considerations related to our novel approach using machine learning to create an estimate of the expanded disability status scale (eEDSS) scores from unstructured, neurologist-written clinical notes to substantially increase the number of encounters with an endpoint.[2]

First, the authors raise the question of algorithm performance in notes without recorded EDSS. We agree that it is a difficult question to study. As mentioned in the manuscript, notes with and without recorded EDSS were highly similar in other ways. In particular, each note met specific levels of clinical comprehensiveness such as including key components of a neurological evaluation with sufficient clinical detail. These components included the history of the present illness, review of systems, physical exam, and clinical assessment with a plan.

Second, the authors raise the question of potential bias when applying model results for treatment effect estimation. As noted, this was not the focus of this study but we intend to evaluate this through additional studies moving forward. We also appreciate and agree with the overall recommendation that a clear distinction be maintained between data that has been extracted from a verified medical record at the individual patient level and computer-generated estimations of outcomes.

Finally, we too believe the field of machine learning estimation holds great promise.

Sincerely,
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References

1. Kent and Steyerberg. Letter to the Editor, MSJ ETC, 2022.
2. Alves P, Green E, Leavy M, et al. Validation of a machine learning approach to estimate expanded disability status scale scores for multiple sclerosis. *Mult Scler J Exp Transl Clin* 2022; 8: 20552173221108635. Published 2022 Jun 22.