Author’s response to reviews

Title: Chart Validation of an Algorithm for Identifying Hereditary Progressive Muscular Dystrophy in Healthcare Claims

Authors:

Xiaoxue Chen (xchen@healthcore.com)
Abiy Agiro (aagiro@healthcore.com)
Ann Martin (ann@parentprojectmd.org)
Ann Lucas (annmlucas@yahoo.com)
Kevin Haynes (khaynes@healthcore.com)

Version: 2 Date: 18 Jul 2019

Author’s response to reviews:

Dear Editor,

Thank you for the thoughtful review of our manuscript, Chart Validation of an Algorithm for Identifying Hereditary Progressive Muscular Dystrophy in Healthcare Claims. We have revised the manuscript based on the additional comments from the reviewers. Our responses to each of the reviewers’ comments are included in the text as tracked changes as well as in the letter below.

Kan Hor, MD (Reviewer 1): Overall, the authors have addressed the issues this reviewer's concern. The limitations of this manuscript remain but the overall value of the manuscript to the literature though not hugely impactful remains important especially in the rare disease space. The manuscript achieve its purpose in attempting to develop an algorithm to determine the ability to identify patients with MD and though has many limitations can be useful in leading the way to improve patient selection for future outcomes research.

Response: We would like to thank the reviewer for his positive comments on the manuscript. We think our algorithm will help improve patient identification for future outcome research despite the limitations.

Kelvin P. Jordan (Reviewer 2): The description of the selection of patients to study and of the algorithm is now much clearer.

The study results suggest the patients identified by the algorithm do have MD, although the reported
PPV is likely to be inflated by lack of blinding. However we still do not know how many patients it may miss. I still think it is a shame that the authors did not also evaluate with review those with just one code for MD. This would have allowed some blinding to the expected status of a patient, and given an indication of the sensitivity of the algorithm (if we assume all "true" cases will have at least one code).

The derived "sensitivity" now quoted in the text of 48% assumes all those with at least one code have MD, and hence suggests the algorithm is missing half the people with MD. However, the derivation of the algorithm and requirement of at least 2 codes implies there will be false positives amongst this wider group and hence I am not sure this reporting of a "sensitivity" is particularly helpful. It may be better to simply state that the algorithm picked up 48% of patients with at least 1 MD code (if I have interpreted correctly) but the sensitivity of the algorithm is unknown and needs to be the next stage of research. I am not sure what the added phrase "...which helped to retain a fairly large number of patients..." when discussing sensitivity means here - I would delete.

Response: We would like to thank the reviewer for his insightful suggestions to help improve the manuscript. We agree with the reviewer that 48% sensitivity is a rough estimate and doesn’t account for the false positives among those with at least 1 MD code. We have updated the text accordingly in the paper to “Our algorithm picked up 48% of the patients with at least 1 MD diagnosis code. The sensitivity of the algorithm is unknown and needs to be evaluated with further research.” (Discussion Section, line 12, page 12).