Author’s response to reviews

Title: Can billing codes accurately identify rapidly progressing chronic kidney disease patients: A diagnostic test study

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To the Editors;

I am writing today regarding requested revisions to the manuscript submission entitled “Can billing codes accurately identify rapidly progressing stage 3 and stage 4 chronic kidney disease patients: A diagnostic test study” with submission ID # BNEP-D-18-00700R1. I and my fellow co-authors thank you for this opportunity to submit our work to your prestigious journal. We have made several changes to address editor and reviewer concerns. These have largely centered on clarifying points about the original analyses, and adding supporting information. Please find
specific details below regarding changes to the original submission in response to the editor and reviewer comments. Changes to the text are also highlighted in the resubmitted manuscript.

Editor Comments

- An additional sentence confirming IRB approval has been added to the Ethics approval and consent to participate subsection of the Declaration section of the manuscript on page 16, lines 11 - 12.

Reviewer 1 Comments

- The title of the manuscript now specifies that stage 3 and stage 4 patients are the focus of the study.

- References for using a loss of 4 ml/min/1.73m² per year as the threshold for rapid progression in the Methods section is given on page 6, line 15.

- Demographic information for the various study cohorts have been moved from supplemental material to the main manuscript in the Results section on page 9.

- Lead time to identify incident CKD patients has been added to the manuscript in the Results section on page 8, line 21 – 22.

- To clarify the disparate analyses in the paper, underlined headings have been added to the descriptions found in the Methods section on pages 7, lines 16 and 19, and page 8, lines 1 and 5. In addition, the sample inclusion diagram in Figure 1 has been modified to reflect the stage 3, 4, and 5 patients. Finally, the Methods section now includes details on linking of clinical data and ICD-diagnostic data on page 5, line 14 – 15.

- This description has been moved from the Results section (page 8, lines 11 – 13 in the original manuscript) to the Methods section on page 5, lines 19 – 21 and has been clarified to indicate that it refers to the eGFR calculation.

- Percentages have been added to Table 1.

- The model used to generate the ROC curves is now specified to be a multivariate logistic regression model on page 8, line 7 of the Methods section.
• The analysis results of the 2016/2017 ICD-10 coding data has been moved from its place in the Discussion section (page 13, lines 10 – 14 in the original manuscript). It is now formally introduced in the Methods section on page 7, lines 21 – 22 and presented in the Results section on page 1, lines 1 – 7. It has also been included in Figure 1 and added to the supplemental tables.

Reviewer 2 Comments
• On page 4, the first and second paragraphs (lines 7 – 9), as well as the second and third paragraphs (lines 10 – 16) of the Background section have been shortened and combined to decrease the length of the Background section.

• As noted above, the demographics table previously found in supplemental material can now be found in the Results section of the manuscript.

In addition to the changes above, minor edits have been made throughout the manuscript to improve accuracy and clarity. Specifically, in the Background section on page 4, lines 11 – 13 we have indicated that while ICD codes are poor for detecting CKD, they are sufficient for many other diseases. We also clarify that limited lab values precluded albuminuria-based diagnoses in the Methods section on page 6, lines 2 – 3. Further, throughout the manuscript, figures, and tables, the label ‘KDOQI-CKD’ has been changed to ‘eGFR-CKD’ to better reflect the strictly eGFR-based diagnosis. Inclusion of prevalent as well as incident CKD cases has also been noted in the Methods section on page 6, line 2. Finally, the Results section includes patient counts in each stage at baseline and study endpoints on page 8, lines 15 – 16 and 19 – 21.

I would like to thank the editorial board and the reviewers for their insightful comments. There is little doubt that the resulting revisions have made this a stronger manuscript. I and my co-authors appreciate the opportunity to revise and resubmit our work, and we eagerly await your final decision.

Sincerely,

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