Author's response to reviews

Title: The impact of generic-only drug benefits on patients’ use of inhaled corticosteroids in a Medicare population with asthma

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Version: 2 Date: 3 April 2008

Author's response to reviews: see over
April 3, 2008

Re: BMC Health Services Research MS: 5669410241726232 revision

Dear Editors,

Thank you for the thoughtful reviews and suggestions for our manuscript, “The impact of generic-only drug benefits on patients' use of inhaled corticosteroids in a Medicare population with asthma”. We appreciate the opportunity to submit a revised manuscript that addresses concerns raised by the reviewers. Our detailed responses to each of the reviewers’ comments are below.

Please do not hesitate to contact me if you have any further questions.

Sincerely,

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Reviewer 1 – Fisher

1. If the authors can either do a stratified analysis by disease severity, or a subgroup analysis of just the highest-risk patients, they would greatly strengthen the clinical relevance of the paper.

We conducted a stratified analysis by disease severity as suggested by the reviewer and added the results to the manuscript. Patients classified as having lower- and high-risk asthma have comparable changes in ICS use from 2003-2004 associated with restricted coverage (please see Table 5 in the manuscript). We discuss the clinical implications of these findings in the Results and Discussion section.

2. My only other criticism was that it took me a couple of readings to get a clear understanding of the benefit design and definitions for the two groups. A simple figure or box when the restricted and unrestricted schemes are introduced might help orient readers at the outset.

We appreciate the suggestion and have added a table with a summary of the benefit designs in each year for the two comparison groups (please see Table 1 in the manuscript).

Reviewer 2 – Wallace

3. My main beef is with the use (or lack thereof) of the propensity score and the at least tacit suggestion that its application here is doing anything more than simply "re-engineering" your control variables. Entering the propensity score as a covariate, given that it is just a uni-dimensional scaling of the control variables, does not reduce "potential bias due to imbalances..." any more than just entering the control variables directly (as evidenced by the authors own sensitivity test on p.7-8). The appropriate (or at least meaningfully significant) use of propensity scores is in establishing comparability between study groups across the measured control variables.

We removed the sentence about reducing potential bias due to imbalances from the manuscript. We have also removed a similar statement from the Discussion section. We agree with the reviewer that we did not make the issue of balance clear enough. We would have agreed with the “re-engineering” statement above if we had not used quintiles of the propensity score; it was comparability that we sought, in the spirit of Rubin’s original concept of a balancing score. Said another way, quintiles were used to create propensity score strata within which average covariate comparability would be achieved. We have added material to indicate that we assessed the covariate comparability within quintiles of the propensity score that we developed and demonstrate that we did achieve average covariate comparability. Therefore, we believe that we are justified in our statement that we have minimized “potential bias due to imbalances”; however, to address the reviewer’s concern we have removed the sentence.

4. This means looking at the propensity score distributions between study groups to assess "support" or comparability and if lacking using random sampling of subjects (here likely from the larger comparison group ("unrestricted") to create it. I would also note that the variables used in the propensity score should be identified (missing here) and balance across covariates within propensity percentiles assessed (reported generally here but without detail on what "establishes" balance - usually t-tests of covariate means and review of mean differences where N's are small.) The authors should either:
1) dispense with the propensity score and acknowledge lack of comparability or 2) apply the propensity score methods more fully to establish comparability.

We have revised our language in the text regarding the propensity score to address the reviewer’s concerns. Specifically, we added information to the manuscript on the variables included in the propensity score calculation and how we assessed and confirmed balance within the propensity score quintiles. The first paragraph under “Analysis” in the Methods section now reads:

“To adjust for potential confounders, we represented the covariates via a propensity score [14]. For each subject we calculated the probability of having generic-only coverage in 2004 with a logistic model that included all of the covariates described above. Based on these predicted probabilities, we classified patients into propensity score quintiles [15]. We confirmed that covariate distributions were comparable across coverage groups within each quintile and found no statistically significant differences using Pearson chi-square tests for categorical variables and t-tests for continuous variables.”

Reviewer 3 – Klepser

5. A common criticism of any study that finds reduced utilization is how that affects clinical outcomes. The authors make no mention of this. If they are unable to conduct that analyses, they should include a statement to that in their limitations.

We agree with the reviewer that the clinical effect of these drug coverage policies is a critical question. As a first step in assessing this question, this study focused on detailed analysis of changes in inhaled corticosteroid use by drug type and asthma severity level. We now state in the limitations section that we did not directly assess clinical outcomes. The conclusion also states that future work should examine clinical effects.

Editor’s comment:

6. Informed consent must also be documented. Did the participants in your study provide consent and was it oral or written?

The Kaiser Permanente Northern California Institutional Review Board approved this study. Informed consent was waived; the study used de-identified data only and involved no more than a minimal risk to the subjects.