Reviewer’s report

Title: Variability in prescription drug expenditures explained by adjusted clinical groups (ACG) case-mix. A cross-sectional study of patient electronic records in primary care.

Version: 1 Date: 2 November 2007

Reviewer: Albert Okunade

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General
The authors investigated the importance of incorporating ACG measure as a pivotal determinant of drug expenditures (pediatric and adult patients separately) in 5 specific primary care centers (with electronic patient records) near Barcelona, Spain, using 2005 cross-sectional data. Controlling for other effects, they found that ACG is more of a significant determinant of the probability of incurring pharmaceutical expenditures and the level of spending (in adults more than center and physician) and less so for the pediatric group. They concluded that the ACG system has merit when profiling health centers and physicians using non-experimental data.

This research direction is current in using the JHU’s ACG system and non-experimental data, the study methodology including data and modeling techniques appear sound, the findings are insightful and conclusions flow logically from the findings. More specifically, that lower physician prescribing cost is associated with greater quality of prescribing should reassure practitioners and centers that lower expenditures are not necessarily associated with poor care quality. However, there are some rough spots that need ironing out before final publication decision.

First, the authors’ statistical analysis from linear regression included ACG, age, gender, physician and center). There may be non-linearity due to age and one wonders if the authors’ omission of this quadratic aspect constitutes misspecification error. Moreover in the two-part model, were quadratics of continuous covariates and interaction effects included? In obtaining risk and efficiency indexes for physicians, one wonders if physician experience (tenure or years in medical practice) were considered. One would like to see the parameter estimates from the two part model, at least as an Appendix. The authors later lament that “more than half of the variability in prescription drug expenditure still remains to be explained.” This may arise from the omission of the quadratic effects of age and the exclusion of physician experience, etc, in the model.

Finally, the authors should draw out more practical implications of their findings for cost control that do not compromise care quality.

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Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

Please provide an Appendix of the regression model estimates (linear and for the 2-part model), separately for each center and for adults v/s pediatrics, preferably including the quadratic age term, physician practice experience (and its square term), etc in the re-estimation (see above) and indicators of model adequacy or fit.

Tell readers why you used Negelkerke R squared despite "knowing its limitations". Can you expantiate? Moreover, tell readers some limitation sof your findings, including caution not to generalize to other sites with different patient population profiles, non-primary care settings, and structure of care provision. Specifically, your insightful study is illustrative and the findings are site-specific.

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Discretionary Revisions (which the author can choose to ignore)

Direct readers to the JHU document (include in References list), electronic or print, on the ACG system. Can you tell readers in what respects (DESIGN, DATA, AND METHODS) your study differs from those you cited also using data of Spain (Orueta [6], Sicras [7])?

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.