Author's response to reviews

Title: Dental practice satisfaction with preferred provider organizations

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Author's response to reviews: see over
Response to Reviewers

We thank the Reviewers for their helpful comments and suggestions, as the paper has been improved as a result of their efforts. Our responses to specific comments by each Reviewer are presented below.

Editor

Human Subjects: This study is exempt according to U.S. Department of Health and Human Services regulations 45 CFR part 46, which is now noted in Methods.

Competing Interests: We have now included a section that describes our relationship with MetLife, noting that the blinding of plans in this manuscript precludes any financial gain or loss from publication of these results.

Tim Newton

1. Discuss possibility of comparative effects in the ratings: We agree that ratings of a particular PPO are bound to be influenced by their experience with other plans. However, the study did not allow practices to rate multiple plans; rather, each practice was asked to rate a single randomly selected plan from among the three plans to which they submitted the most claims.

Based on this comment and the comments of another reviewer, we have tried to make this clearer in the manuscript.

David Brennan

1. Paper refers to “dentists’” perceptions although office managers are majority of respondents: We have revised the manuscript to clarify this and no longer refer to our data as reflecting dentists’ perceptions. (Note, however, that we have not changed descriptions of prior research that did survey dentists regarding their views on managed care (p. 4-5)). We now provide a rationale for surveying office managers, as they are often in a better position to comment on things such as the timeliness payments and overall claim service than dentists, particularly in larger practices.

We have also clarified the source of data for this study in response to questions from both Dr. Brennan and Dr. Shelton. This article is based on a secondary analysis of data collected by Zeldis Associates, a marketing research firm, on behalf of MetLife. The authors did not participate in the design of this survey or in the collection of data. Some of the information that we report was not available in all years in which these surveys were conducted. For example, the survey firm that conducted the survey did not code the identity or position of the respondent in the 2002 to 2004 surveys, making it impossible to compare responses from dentists with their office staff. However, this information was coded beginning late in 2005, with data from the first 3 months of surveys in which this
information was collected indicating that 80% of respondents were office managers. We now clarify this in the manuscript.

2. *Provide bivariate data and descriptive statistics by plan.* Table 1 has been split into 2 tables to accommodate this additional information, which is now in Table 2.

3. *Move results in Methods to Results section:* We have moved almost all of what the reviewer requested be moved (alpha statistics, missing values numbers), but retained the comment on the distribution of practices among plans and its correspondence to market share data. We kept that in Methods because it was clear from the concerns expressed by Dr. Shelton that this section was not as clear as it needed to be, and we were concerned that this information would be essential to readers’ understanding of the sampling methodology. If on further review all agree that it should be moved to the Results section we would be happy to do so.

4. *Note low $R^2$ in Table 3 Model 1:* This is now commented on in the text discussing both models in this table.

5. *Change “popularity” to “market share” in abstract:* This has been done.

**Brent Shelton**

1. *Provide greater detail on the sampling procedures, the selection of practices, and the number of practices providing ratings, etc.* Greater detail about and clarification of the sampling procedures are now provided. The Methods section now provides detailed information on the number of practices surveyed, the number of different plans practices were affiliated with, the number of practices rating plans with insufficient cases for analysis, etc. We have also rewritten this section to clarify the procedures used to conduct the study and to explicitly note that this was a secondary analysis of an existing data set, which is a point we did not clearly articulate in the original submission.

2. *Use of mean imputation procedures and omission of the practice demographics from the analysis due to high rates of missing data:* We have taken Dr. Shelton’s recommendation and completely redone the analysis using multiple imputation procedures. This allowed us to include several practice demographic measures as control variables in the analysis. Because of the problems associated with including substantially intercorrelated predictors in regression analysis (see the venerable work of Gordon, *American Journal of Sociology* 1968), we included as control variables in the analysis the number of fulltime dentists, number of fulltime hygienists, the number of years in business, and the number of managed care plans affiliated with, eliminating alternative measures of practice size (e.g., # of dental chairs, # of other employees). As the data in Table 3 show, none of these demographic variables – including the length of time in practice -- were significant predictors of overall satisfaction, and results were virtually unchanged by the inclusion of these variables in the analysis and the use of MI procedures
to handle missing data. We do believe, however, that this more sophisticated analysis has resulted in a much stronger manuscript and thank Dr. Shelton for his constructive criticism.

3. Use of a linear model with an ordinally scaled outcome variable: We now present regression diagnostics which suggest that the use of a linear model is justified in this case. Analyses that treat the outcome as a categorical variable are clearly an option; the first author of this manuscript has experience with such models and has previously published an analysis using a multinomial logistic regression analysis (Aseltine, Gore, and Colten, Development and Psychopathology, 1998). The problem with such analyses is that they are very complex and inaccessible for most readers, which we do not feel is a good fit for an applied analysis that should be of broad interest to a diverse group of health care providers and researchers. In addition, most multiple imputation strategies (including the MCMC method used in the revised manuscript) assume multivariate normality, and Graham and Schafer (1999) observed excellent performance by such methods for linear regression when highly nonnormal variables were imputed under normality assumptions with no transformations or rounding. Although other MI procedures that do not require assumptions of multivariate normality could be used, they are in our opinion not warranted given the robustness of this procedure in the face of the violations of these assumptions, coupled with regression diagnostics indicating good fit of the model to the data.

4. Control for length of time in practice: As noted in 2) above, length of time in practice was not significantly associated with overall satisfaction, and controlling for this variable in analysis using MI procedures did not alter the differences among plans in overall satisfaction.

5. Details concerning sampling procedures: As noted in 1) above, the Methods section has been rewritten to provide more details concerning sampling and data collection procedures. Dr. Shelton also raises 3 additional questions:
   a.) How many practices in total from 2002-2004 were called for an interview and
   b.) How many practices refused?
   These statistics were not provided by the data collection firm conducting the surveys. Note that the goal of quota sampling is not to maximize response rate but to achieve the overall sample targets in each category. As a result many practices never reached final refusal due to the limited number of follow up calls to each practice and the suspension of data collection efforts once the quota in each category had been reached. The use of quota sampling is inferior to systematic probability sampling methods and is noted as a limitation.
   c.) How many PPOs are represented (even if it only represents 1 practice) in all of the practices called during 2002-2004? 14, which is now reported in the Methods section.

6. Creation of the 3 summary scales: For these measures the items were summed with the resulting total divided by the number of items in the scale. This is now described in the Methods section.
7. *Are the bivariate correlations Pearson, Spearman, or polyserial?* These are Pearson correlations, which is now noted in Table 2. Given the number of categories resulting from the MI procedure, polychorics are not feasible (our attempts to estimate these went on for several hours without reaching convergence).