

Ingenix is excited to have three of our products, Ingenix Symmetry Episode Risk Groups (ERG), Ingenix Symmetry Pharmacy Risk Groups (PRG) and Ingenix ImpactPro (ImpactPro) participate in the recent research study, “A Comparative Analysis of Claims-Based Tools for Health Risk Assessment”, sponsored by the Society of Actuaries (SOA). We appreciate the significant work performed by the Milliman study team, the SOA and the contribution of the Project Oversight Group and congratulate them on such a comprehensive study.

On a whole, Ingenix supports the approaches and methods utilized for the study. In particular, the measures of accuracy used by the study and the comparisons based on the “offered” models and the models recalibrated without adding prior costs are informative. This is especially true for the offered models which describe the application of each solution as delivered by a vendor, without further recalibration of model weights. Offered models represent the dominant use by organizations that employ these tools. Additional models other than offered models were also tested in the study, including results for a “Service” model where the vendor received a sample of the study population and were allowed to calibrate their model specifically to that sample. We agree with the SOA that such treatment requires a separate categorization when making comparisons with all other tools included in the study which were not offered the same advantage.

We also have reservations around some specific elements of the study which we will discuss further in this formal response. First and foremost, as acknowledged by the authors, the approach used to recalibrate models using prior costs for the study is atypical. It is our experience that such an approach may create significant distortions in prediction for some models. In particular, the “Optimized” models that include both a recalibrated weights component and the addition of prior costs as a predictor are problematic. Models such as Impact Pro incorporate elements of prior use in a careful and complex way, using utilization-driven markers of risk, modeled within a condition. The gross addition of prior costs as a predictor will introduce significant correlation and overlap with the existing markers and provide uncertain results. This is a significant departure from the appropriate approach to incorporating a prior cost predictor, if any, into such a model. The study’s approach is not representative of how Impact Pro, ERG, or PRG would perform if modeled using prior costs, if that was ever an objective of these tools.

A second reservation regarding the study concerns the lack of measures of accuracy at the employer group level – a key objective of any underwriting application. In particular, the study did not test the accuracy of credibility-weighting prior costs and risk predictions at the group level where blend weights can vary by group size – with larger groups giving greater credibility to prior costs. This approach has been shown to improve the accuracy of prediction for underwriting applications and best reflects how underwriters implement predictive modeling in a practical context. Combining risk and prior costs at the group level provides a valid alternative to those models in the study that incorporate prior costs as inputs at the individual member level, including the “optimized” models.

Finally, as topics for further research on risk assessment, we suggest two potential areas for investigation:

- Best practice in the practical application of predictive modeling for underwriting at the employer group level. Such an investigation would include assessing the accuracy of such an approach using representative data from actual groups
- As intended, the focus of current study is on health risk assessment for underwriting and payment applications. An equally important area for investigation is the use of these models in care management, including an assessment of model accuracy within the context of these applications

This concludes our formal response and feedback around the Society of Actuaries’ Sponsored Research Project: A Comparative Analysis of Claims-Based Tools for Health Risk Assessment. We again appreciate the opportunity to be involved in this project and look forward to further opportunities to collaborate with the SOA in the future.