



SOCIETY OF ACTUARIES

Article from:

Health Watch Newsletter

September 2006 – Issue 53

Insights from the Third SOA/DMAA Predictive Modeling Conference

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The SOA and the Disease Management Association of America (DMAA) co-sponsored their third annual predictive modeling conference in Chicago in April. It was a great success with more than 100 attendees, both actuaries and non-actuaries. The conference catered to the diverse audience with separate “tracks” featuring care management and underwriting (and other actuarial) topics. The attendance, range of speakers and topics, and high level of participation made this the conference for practitioners interested in new developments and uses of predictive modeling as well as an opportunity to network with peers.

As a lighthearted (but still thought-provoking) end to the conference, I assembled several of the speakers who had not yet left to catch flights for a brief panel discussion. I posed two questions: first, what was the one new or interesting insight that the participant gained from the conference? And second, if you were a young actuary interested in making a name for yourself in the profession, and specifically in predictive modeling, what topic would you tackle?

The speakers that afternoon were Dave Knutson, PhD of the Parke-Nicollette Institute (and co-author of the 2002 SOA review of Risk Adjusters); Francois Millard, FIA, vice president Risk Management at Destiny Health in Chicago; Keith Passwater, FSA, actuary responsible for

eAnalytics at WellPoint; Julie Meek, DNS, founder and CEO of The Haelan Group, a company that uses self-reported health perception data for predicting future risk; and Rob Bachler, FSA, FCAS of American Re HealthCare. Here’s what the panel said about the take-aways from the conference:

Knutson: I am impressed with further evidence that these tools are providing “information synergy” by providing common metrics that link the medical management side of managed care with the finance side, helping realize the original promise of managed care. I also am interested in the notable advances in research on differentiating future utilization/costs for high need individuals that are avoidable through interventions. Finally, the recent evaluations of tools under “real world” conditions are an encouraging trend.

Millard: The broadening scope and practical application of predictive models is encouraging and the focus on results will help business managers and decision makers to get better understanding of the relevance and value of such models. The migration of decision models from other insurance and financial fields based on lifestyle data is certainly gaining momentum and will likely become more prominent going forward.

Passwater: I intend to further investigate the new approaches to prospecting discussed at the conference. Automating condition scoring (Millard’s technique) and automating with Rx databases (a concept described during the conference by Jim Minnich of Reden & Anders) both seem to have significant potential for reducing administrative cost, reducing turn-around time and ensuring consistent underwriting results.

Bachler: I plan on taking back the information regarding the added predictive power in prior claims for group underwriting when breaking the claims out into IP, OP and Rx.

Meek: Having been in the industry for a long time, I’m impressed with the degree of real-world experience sharing about what works and what doesn’t

work, as well in terms of the various predictive models used to identify people for DM programs. I'm also encouraged by the groundswell of interest now in using survey-based data in predictive modeling and the emphasis on impactibility.

Turning to the second question, here is what the panel thought about interesting topics for our keen young actuaries:

Millard: The ability to create sophisticated models and understand the output is core to the actuarial profession. I see healthcare predictive modeling, in general, being more interesting than stochastic modeling in other insurance and financial fields, and should be at the center of a young healthcare actuary's fascination. At the very least, a healthcare actuary should be able to understand the pros and cons of using models and communicate results sensibly. I am not familiar with the FSA curriculum, but see predictive modeling as an essential part of a young healthcare actuary's training for them to be familiar with the techniques by the time they start to practice.

Bachler: Currently, most predictive models that are interested in future costs predict expected cost. If a young actuary could enhance these models (especially diagnosis-based models) to identify the variance of future costs, I believe that would have applicability in several areas. It could be used in pricing by defining individualized claim distributions. It also seems reasonable that individuals whose expected costs have a large variance would be good targets for medical management. Combining this information with current impactibility research could greatly improve our resource allocation.

Knutson: Focus on integrating risk prediction and care improvement. This convergence seems to be transforming at least parts of the health actuary field. This means learning how to predict risk in the traditional insurance arena and also how to evaluate the efficiency of components of the healthcare system. This focus aligns with the concerns of health economics and the goals for larger health system.

This focus on efficiency applies to both the technical efficiency of care at the clinical process and outcome level and also allocative efficiency at the population and healthcare budget level.

Passwater: I would suggest that young actuaries invest energy in two aspects.

- a) Individual member level variance against condition-level morbidity values opens up interesting new areas of research. A young actuary would have lots of opportunities to make an impact by applying these variances to pricing (as Rob Bachler suggested), block level forecasting and capital allocation studies.
- b) It would be very useful for a young actuary to develop expertise in advanced data mining techniques.

Millard: The migration of decision models from other insurance and financial fields based on lifestyle data is certainly gaining momentum and will likely become more prominent going forward.

Meek: I continue to think that the most exciting frontier is to focus more energy and research on more accurately finding the 10 percent of a population about ready to become 70 to 80 percent of current year cost. Care and disease management programs really suffer in terms of engagement percentages due to error in models used to predict this group.

It was a stimulating end to a good conference. Intrigued? If you didn't catch some of the same presentations and speakers on the Health Section Predictive Modeling Webcasts, which were broadcast between July 19 and August 23, you may wish to purchase a CD-ROM of programs through the SOA Web site. 📀



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