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SOA 2012 Health Meeting Highlights

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The Health Section of the Society of Actuaries (SOA) conducted its annual meeting June 13–15 at the New Orleans Marriott in the Big Easy. Topics on everyone's minds were far from "easy," however, as the gathering of actuaries awaited news from the Supreme Court on the constitutionality of the Affordable Care Act (ACA). In addition to good food and ample networking opportunities, attendees enjoyed 94 insightful and thought-provoking breakout sessions and some top-of-the-line keynote presenters. Although not covering all the sessions, this article gives a high-level perspective on the meeting events from the eyes of a sample attendee.

SOA President Brad Smith opened the meeting on Wednesday by discussing the SOA's decision to add a general insurance track. Smith discussed the emergence of an urban middle class in international markets and highlighted the growing number of international actuaries in the SOA's talent pool (70 percent of the SOA membership is from the United States, compared with only 53 percent of pre-ASA exam takers). He reminded us that the single most valuable personal asset we have is our SOA credential.

Following Smith's remarks, SOA Health Meeting Chair Dan Bailey conducted an informal survey of the audience on the expected results of the Supreme Court's decision on ACA's constitutionality and future trends in the individual, group and uninsured marketplaces. Bailey then introduced keynote speaker Thomas Davenport, distinguished professor at Babson College, and thought leader in the field of business analytics.

Davenport's remarks focused on business analytics as applied to the health care industry. Quoting Charles Dickens, Davenport conveyed that it is the best of times (checklists, automation and behavioral economics), and it is the worst of times (high costs, too many errors and little accountability) for health care. He reminded actuaries that "[we] are in the profession of helping to make better decisions about health care costs." He suggested the following as areas where actuaries could implement analytics to improve results in health care businesses: disease management, disease identification, evidence-based medicine, pay-for-performance programs and retention.

Davenport pointed out that as actuaries we are good analytical thinkers, and we need a broader set of methods in our tool bags. He highlighted the DELTA method as a way to improve business analytics:

- **D**ata
- **E**nterprise
- **L**eadership
- **T**argets
- **A**nalysts

In the same way that casinos count smiles, actuaries should be "shooting data," and tying all our decisions to the types of data available to us and analytics that we can perform.

Session 10, "Public Sector Disability Plans," featured Barry Petruzzi and Dan Skwire describing the unique aspects of the public sector disability market, which includes public administration and education. Petruzzi focused on insured programs, while Skwire discussed self-insured plans.

Petruzzi opened by emphasizing the need for dedicated cross-functional resources to manage and monitor this business. He commented that marketing often begins at public plan conferences, and it can take years to build the relationships needed to be successful. Companies in this market need to be prepared to deal with situations such as sealed bids, complex RFPs for larger groups and consortiums.

Petruzzi continued to outline special considerations for pricing and underwriting public sector plans, including the need for a thorough understanding of the various state teacher and public employee retirement plans, incorporating sick pay and salary continuance into pricing and experience analysis, evaluating older/unusual plan design provisions, evaluating the risks associated with line-of-duty employees, and understanding the impact of collective bargaining on claim decisions.

Petruzzi commented on how the current economic environment is putting pressure on these plans, especially with respect to accumulated sick time.

Also, there is a trend toward supplemental voluntary plans.

Skwire provided commentary on the unique characteristics of the self-insured market. He emphasized that there are more stakeholders and external influences than private sector plans. With respect to plan design, he commented that unlimited mental and nervous benefits are more common; long-term disability (LTD) benefits are often linked to other benefits (e.g., medical and dental premiums waived while on disability); and complex short-term disability (STD) plans with benefits tied to years of service. He also noted that inertia has limited the movement from self-insured to fully insured plans.

The lunch speaker on Wednesday was Mary Milla of What's Your Point? Training and Presentations. Milla's presentation on how to give an effective presentation was straightforward, yet entertaining. She pointed out that the risk of failure and the risk of rejection are most often not realistic when giving a speech, and that the most realistic risk a speaker faces is usually the risk of an apathetic audience. To connect with audiences, Milla stressed the three P's of presenting: making sure you have a **point** and that you communicate it up front, showing your **personality**, and devoting enough time to **practice**. She asked the audience "What's your point?" and stressed that we communicate our key messages up front, in a true, short, memorable and persuasive fashion.

To illustrate her point, Milla presented two key metaphorical concepts: a triangle and a box of brownies. First, the triangle: presenters should start with their points (the tip of the triangle), and then support their point with reasoning and proof (the base of the triangle). Then, they should stop talking. Second, the brownie box: on its front panel, a brownie box contains its key point ("Moist and Fudgy" and the picture of a brownie). The sides and back of the box have key supporting information (recipe, ingredients, baking temperature, etc.). Presentations should strive to use short and easy-to-follow messages that are more representative of front-of-the-box communication. Presenters should begin with their key points and make sure these messages come out first and most.

Milla used some examples from the world of business to demonstrate the power of a well-rehearsed, well-delivered introduction. She compared Steve Jobs' presentation to a city council's zoning board *(http://www.youtube.com/watch?v=gtuz5OmOh_M*—start at 0:45 for three minutes) to Steve Ballmer's introduction at a Microsoft meeting *(http://www.youtube.com/watch?v=xR-P6HPZgMs)*; she emphasized how Jobs was able to gain his audience's attention through the use of a story, a method which can often be put to good use to communicate your key point. Milla stressed that audiences will remember the story, not the data behind it, stating "[audiences] will connect with you, not the pie chart."

Regarding the oft-used tools for development of presentations, Milla advised the audience to ask themselves, "Do I need a deck?" before diving into the creation of PowerPoint slides.

Milla then gave her fun-filled view of presentation errors and PowerPoint gone awry, by showing the following videos:

- Cliché Bingo: *http://www.youtube.com/watch?v=asZEojIh-gg*
- How not to use PowerPoint: *http://www.youtube.com/watch?v=lpvgfmEU2Ck*

After lunch, in Session 18 on voluntary employee benefits, attendees learned about accident, disability, critical illness and dental products. The focus of the session was on voluntary benefits as a whole, rather than specific products. Attendees learned that the market for voluntary products is growing at a rate of about 4.5 percent per year. The rate of growth varies by product, with some products, such as critical illness, growing at a faster rate than others. About 42 percent of "new business" is actually takeover business, but this percentage will also vary by product line.

Voluntary benefits may be offered as group or individual products; market and pricing issues are similar for group and individual products in these product lines. Consistent with the meeting's focus

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on analytics, attendees and presenters at this session discussed analytics that are helpful when pricing and evaluating voluntary employee benefit products. In these lines of business, employee participation is a key concern: Is actual participation consistent with what was assumed in pricing? Broker analytics can also be useful when evaluating a product's performance.

Attendees at Session 31 were treated to a rousing game of "Actuarial Ethical Idol," hosted by Curtis Huntington and Sara Teppema. Huntington reviewed the 14 precepts of the Code of Professional Conduct and summarized the role of the Actuarial Board for Counseling and Discipline. Following Huntington's presentation, attendees reviewed case studies involving hypothetical actuaries (Scott, Lauren, Haley and James) to determine who was (or was not) their idol. Audience participation led to some interesting discussions on the appropriateness of the actions of the (fictional) actuaries in question.

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After a rousing networking session and a good night's rest (for those who didn't move the party to Bourbon Street), attendees were treated to Session 46, a rousing session on Medicare Advantage, Parts C and D, presented by Corey Berger and Thomas F. Wildsmith. Berger started the session with "Risk Scores—Accruals and Projections," discussing how actuaries can help their clients and employers in the Medicare Parts C and D arena. Berger asserted that the Centers for Medicare & Medicaid Services (CMS) payments are not keeping pace with general medical trends, and that CMS' "coding pattern adjustment" factor is further reducing payments to Part C plans. To remain viable, plans need to improve their risk scores, control claims and improve their star ratings. A cottage industry has sprung up to help these plans increase their risk scores by finding missing diagnoses and accurately accruing the expected payments from CMS for increased risk scores. Berger then went through the methodology that CMS uses to calculate enrollees' risk scores and areas that plans should pay attention to, including dual-eligibles' risk scoring increases, completion factors for accurate accruals and the headaches of deleted diagnoses. Berger finished with "Projecting Risk Scores for Future Years," which is critical for the annual bid process. Misestimates in this area can cause lower revenue or an uncompetitive product, and while home assessments (assessing a member's risk score through a face-to-face home visit) can improve accuracy, they are expensive. Berger effectively summarized the ongoing risk scoring needs and pitfalls for Medicare Advantage plans.

Thomas Wildsmith followed Berger and presented on "Medicare, Health Care Reform and the Future," discussing the financial challenges to the health care industry amid broader federal budget issues and health care reform. Wildsmith simply and directly laid out the broader issues facing the current health care delivery and payment system, including the unsustainability of the current Medicare system which faces financial and demographic pressures. He made a call-to-action to actuaries to help address the problems in the Medicare program and to begin to deal with these pressures.

At Session 53, professor Marjorie Rosenberg of the University of Wisconsin–Madison provided the theoretical foundation underlying generalized linear models. Her presentation included practical examples. Rosenberg started by providing some of the key assumptions underlying traditional linear regression, including that the error term and the dependent variable are both independent normally distributed random variables. She commented that a common measure of the adequacy of a linear regression model is R^2 (coefficient of determination), which represents the proportion of variability explained by the regression line. She introduced several other measures of model adequacy and goodness of fit, including t-statistics, p-values, F-Statistics, AIC, PRESS and residual analysis. She then demonstrated these evaluation concepts using two linear models designed to predict body mass index (BMI) based on factors such as age, race, co-morbidity count and specific diagnoses.

Rosenberg then proceeded to a problem for which traditional linear regression was not a solution. If you want to predict whether or not an individual has diabetes, the dependent variable is binary and thus not approximately normally distributed. She demonstrated the anomalies that can result by trying to

apply traditional linear regression to this problem. She then introduced the concept of a function (g) of explanatory variables linked to E[y]. This link function, which must be invertible, is a key component of generalized linear models. For the underlying binomial distribution, the appropriate link function is the logistic function log $[\pi_i/ (1-\pi_i)]$ where πi=Probability $(y_i=1| x_i)$. This function can be referred to as logit (π_i). Rosenberg then developed a logistic regression model based on age, race and BMI. She succeeded in providing attendees with a basic understanding of the underlying concepts and potential power of generalized linear models.

The keynote speaker during Thursday's lunch was Dr. Paul Ginsburg, president of the Center for Studying Health System Change. He presented on the upcoming changes in health care financing and delivery. Even with the challenges facing ACA, the Supreme Court decision (since reached) and a potential push for a repeal by Republicans, Ginsburg believes that the nation's health care delivery system will see some large changes. One place where Ginsburg sees major changes in the marketplace is in the area of provider payment reform. Providers are motivated to do this because of payment rate cuts and a desire to "do the right thing." Take-up in pilot programs has been impressive, and a challenge remains in moving from participating in pilot programs to using these payment systems as a new standard of payment.

These changes in provider payment will present a challenge for hospitals, as they stand to lose admissions due to the revised provider incentives. As consumers are also incentivized to take more control over their own health care, hospitals will need to consider their strategies in order to remain competitive in the market. ACOs will have an incentive to choose low-cost hospitals. Hospitals may also look toward consolidation or increased employment of physicians as strategies for success in the new competitive landscape.

In conclusion, Ginsburg discussed another of his concerns in the face of the post-ACA environment, namely a major restraint on resources for health care delivery. His concern is that as coverage expands to many who are currently uninsured, the United States could face a shortage of primary care providers necessary to provide treatment to all of these people. Dr. Ginsburg's insights on the delivery and financing of health care in the future were good food for thought for those in attendance.

After lunch, in Section 62, David Snell presented on the fundamentals of genetic algorithms, which use iterative generations of solution sets to develop optimized solutions. Snell presented a generic example about a robot named Robby whose job is to pick up cans on a random walk. Each robot passed down instructions to the next generation, with more successful robots able to pass down instructions to more robots of the next generation. Snell demonstrated that with each passing generation of robots, the random walks of the robots resulted in increased cans picked up when compared with the initial generation of robots.

Brian Grossmiller then presented on his use of Snell's generic genetic algorithm to iteratively find a narrow panel of health care providers for a health plan. The measurement statistics for choosing a provider to be part of the panel were important to create the fitness function in this exercise. Grossmiller created a relative score for each provider and specialist and then let the computer run through hundreds of generations to identify a relatively strong narrow panel. He then let the algorithm run for a few days more and was able to improve the panel's overall relative score by approximately 20 percent. Snell and Grossmiller challenged the actuaries in attendance to think outside the box in solving problems.

Session 68, presented by Jorge Alvidrez and Mark Shaw, discussed limited benefit plans, also known as mini-med plans. These plans have been under regulatory scrutiny recently because of the very low benefits provided compared to what a typical major medical plan would provide. However, the demand for these products continues to be high in markets with a lot of hourly employees and high turnover. National carriers that offer these plans will typically include access to their PPOs. The discounts provided can help stretch the benefit amounts provided. Low participation is very common in mini-med plans;

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10 percent participation is considered good. Some carriers offer both low- and high-benefit plans in a single group: the low-benefit plan is offered during the first year of employment and then the employee is eligible for the high-benefit plan. This is because once the employee has stayed with the group one year, the likelihood is significantly higher that the employee will stay for as long as five years. The presenters pointed out some issues that carriers need to consider, including the ease of signing up new hires, the high expense levels of the product (due to the lower claims cost) and the challenging regulatory environment. Overall the market for this product is growing, and Alvidrez and Shaw believe this will continue to be the case even in a health care reform environment.

Friday opened with a breakfast sponsored by the Health Section of the SOA. To kick off the breakfast, Kevin Law, chairman of the Health Section, discussed current successes and long-term plans of the Health Section. Following Law, Mary van der Heijde introduced the featured speakers—Ted Prospect and Dale Yamamoto—who discussed the Health Care Cost Institute (HCCI).

By using advanced business analytics, actuaries can help their companies make decisions that will help to ensure future success.

Prospect began with a high-level overview of the background and goals of the HCCI, a nonprofit, nonpartisan research institute aimed at getting actuaries and economists working together to conduct research using claim data from large national providers. Yamamoto then discussed the 2010 HCCI report, which shows national health care cost and utilization metrics. He also highlighted additional research the HCCI is conducting, including a report on the effects of aging on health care costs and a five-year trend tracker in conjunction with the 2011 HCCI report.

Session 84, "That's (Group) Life," featured discussions on a variety of topics related to group life. Sue Sames provided an update on the SOA Group Life Mortality Study, which covers experience from 2007 to 2009 and is expected to be released later in 2012. Eighteen companies have contributed data so far, compared to 12 in the prior study released in 2006. Subject to data issues, key goals for this updated study include separation of experience for employer-paid vs. employee-paid business, and list bill (individual exposure) vs. self-administered business. Linking waiver of premium and LTD claims, and analysis by geographic area, are additional objectives. Limited data has been received so far with respect to retiree coverage, mortality by salary levels and experience for ported lives.

Kevin Trapp led a discussion of credibility issues for case level pricing, including concerns about possible gaps between theoretical credibility factors and market practices. Theoretical methodologies involve the setting of variance parameters that are related to the perceived variance within the manual rate structure. Audience polling questions indicated a balance between Classic/Limited Fluctuation and Buhlman methodologies, and a range of full credibility standards based on exposure life years rather than claims. Trapp presented a model illustrating the potential impact on the type of business written under varying credibility formulas. Finally, Trapp also discussed other considerations related to credibility, including variance of results by year, weighting exposure by year, experience rates as a minimum percentage of manual and the impact of IBNR.

Rocco Mariano presented data on 2000–2010 U.S. population mortality improvement rates for ages 25 to 84. Although there was significant variation by year, a simple linear regression indicated an increasing rate of improvement with an average in excess of 1.50 percent. The improvement has been greater for males. Mariano also presented information showing the rate has varied by age with somewhat lower levels of improvement in the 45-64 age range. In projecting future mortality improvements, Mariano cautioned that attendees need to consider their own companies' data, possible variances by industry, and the potential impact of the increasing prevalence of obesity.

Section 94, "Actuaries in Advanced Business Analytics," provided a fitting conclusion to the meetings, and continued the meeting's focus on analytics. The speakers included four actuaries who have experience using analytics in their work: Joan

Barrett, Kristi Bohn, Kara Clark and Syed Mehmud. The overall consensus was that actuaries have the skills to perform business analytics, and we should be involved in this work. Actuaries have the skills because we are lifelong learners who believe in peer review and care about data integrity. We also have an understanding of the business that other analytical professionals may not have. Analytics should be used to help make business decisions and can help us understand what is happening in our block of business. However, we have to be smart about how we use them. For example, a health plan may adjust benefits in order to reduce costs. They may see a dramatic reduction in utilization. However, it is possible that the reduction was not fully attributable to the plan change; a portion may be due to "benefit rush." (If members are aware of the coming change, they may "rush out" and utilize their plan while the benefits are higher, just before the change takes place.) Actuaries understand these issues and can help provide a true analysis of what the numbers are showing. Clark talked about how actuaries doing advanced analytics need to work with other disciplines, and that communication between disciplines can be difficult, especially when a lot of acronyms are being used. Finally, Mehmud shared three key components of analytics: design, decisions and documentation. A business analytics problem needs to be well-designed to contribute to business decisions. Documentation should start at the beginning of the project and be continued until project completion. By using advanced business analytics, actuaries can help their companies make decisions that will help to ensure future success.