SOCIETY OF ACTUARIES

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Boston Actuaries Find That Health Care Reform is "More Than a Feeling"

By Doug Norris

The Health Section of the Society of Actuaries (SOA) celebrated its 30th anniversary this past June at the Westin Copley Place hotel in Boston. Created in 1981, the Health Section was the first section formed by the SOA. The "granddaddy" of SOA sections celebrated in style. Throughout the 2011 SOA Health Meeting, one uncovered many remembrances of actuaries present and past, revealing how the growth of the Health Section has paralleled their own growth. The sessions available in this year's edition numbered 89; as actuaries have spent most of their recent time on health care reform, and not on cloning technology, I was not able to attend each and every session. Regardless, I hope that this article gives a flavor of the meeting.

Donald Segal, the 62nd president of the SOA, opened the meeting on Monday, talking about the current research activities of the Health Section. These endeavors include the Health Actuarial Research Initiative, which has an annual $300,000 budget for 2011 and 2012. Segal discussed the SOA's efforts to create a joint disciplinary process with other prominent actuarial organizations, a process that aims to streamline discipline, create more consistent outcomes, and improve transparency and independence. Segal concluded by offering all of the new avenues for actuaries to communicate, including the SOA's Twitter account, the SOA group on LinkedIn, the SOA blog and the mobile application developed for the June meeting.

Health Meeting Program Chair Joan Barrett then introduced keynote speaker Rick Foster, the chief actuary at the Centers for Medicare & Medicaid Services (CMS). Foster presented on "Adding Actuarial Value in the Age of Partisanship," discussing the nature of actuarial work in a politically charged world. Foster's integrity and belief in the actuarial code of conduct nearly led to his firing in 2003 during the passage of the Medicare Modernization Act (MMA). Instructed to not reply directly to Congress on matters of actuarial analysis, Foster was told to report his findings through the CMS administrator. However, the only results being released by the administrator to Congress were those in support of the MMA. Foster had the initial thought to resign as chief actuary in order to raise awareness, but he decided instead to work within the system to effect change. The following February, the full actuarial estimates of the MMA's impact came out (as a part of the presidential budget), and it came to light that key information had been withheld from Congress (a charge that the former administrator denied). The end result of this ordeal is that there is now a reliable stream of actuarial information to Congress.

This has led to a new problem, the disregard (or misuse) of the technical information provided to policymakers. Foster gave several examples of this, including examples during the passage of the Community Living Assistance Services and Supports (CLASS) Act, and misstatements (intentional and otherwise) on both the presidential blog and from presidential candidates. The deep ideological divide in Congress is reflective of the deep divide in our nation, and with partisanship greater today than at any point in recent memory, overzealous advocates will twist facts to support their personal stances and beliefs. What can actuaries do in this situation? Foster suggested that we support leaders who will address problems in an open and nonpartisan fashion, follow the actuarial standards of practice (ASOPs) and Code of Professional Conduct, be vigilant and respond to distortions, provide the best technical information to policymakers, and hold policymakers accountable. Foster received a standing ovation from the more than 900 actuaries in attendance. (Foster was gracious enough to give us an interview after his talk. This can be found separately in this issue.)

Susan Dentzer was the featured speaker at Monday's lunch—as the editor-in-chief of *Health Affairs*, Dentzer spoke on the state of the Patient Protection and Affordable Care Act (PPACA) one year later, including the implications and opportunities available as a result. She outlined current CMS administrator Don Berwick's "Triple Aim" of better health, better health care, and greater value. Dentzer described research showing the sharply disparate rates of chronic disease by race, ethnicity and geography, and noted that many causes of death are preventable. She cited a RAND study, which revealed that patients received recommended care barely half

CONTINUED ON **PAGE 20**

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of the time, and that the quality of care received varied substantially by medical condition. Dentzer talked about the publication by *Health Affairs* of a recent Milliman study on the cost of medical errors, and discussed the quality chasm present in American health care today.

Dentzer discussed the National Quality Strategy, mandated under the PPACA and implemented this past March 21, and went over several innovations of the CMS and the Center for Medicare/Medicaid Innovation. Different flavors of accountable care organizations (ACOs) were outlined, as well as other payment innovations including the Multi-payer Advanced Primary Care Practice Demonstration, state demonstration projects to integrate care for dual eligibles; the Community-Based Care Transition Program, efforts to reduce avoidable readmissions; and bundled payment experiments. Virginia Mason's Marketplace Collaborative Model, Vermont's Blueprint for Health, Geisinger Health System's Proven Health Navigator program and Sutter Health's Advanced Illness Management (AIM) program, among others, were lauded for their role in transforming current health care practice. Dentzer concluded with an outline of recent political changes that may affect the PPACA, including the "known unknowns," and her best guess for what will happen through 2014. (We were also able to interview Dentzer at the conclusion of her speech, which can be found separately in this issue.)

Jennifer Gillespie moderated Session 16, "What Does the Future Hold for Underwriting?" where Tony Nista and Adam Southcott talked about underwriter options both in the next few years and post-2014. Some of the options cited by Nista included acting as a provider consultant (with the sometimes adversarial relationship between insurers and providers, providers like knowing how their opponents operate), working as a division of insurance auditor (underwriting experience is key in "knowing where the bodies are buried"), provider-employer organization plan management, and actuarial and employee benefits consulting. He suggested that underwriters should "hope for the best but prepare for the worst," keeping an open mind to new and exciting opportunities, and taking advantage of opportunities to self-promote. Southcott noted that whenever there is a contract to be entered into, ever after 2014, it must be underwritten in some fashion. Consequently, underwriters will always be needed. He talked about his health plan's experience in the state of New York, which has many of the same rating restrictions that will be implemented under the PPACA. His takeaways for today's underwriters are to look for opportunities to do underwriting activities that previously could not be done because of resource constraints, to take the opportunity to move risk management between underwriting activities and product design and pricing, to look for administrative cost savings, and to search for inter-department and intra-department cross-training opportunities.

Session 28, "Predictive Modeling under ACA," was a lively journey through consumer data, predictive modeling and the ramifications of the recent health care reform legislation. Moderator Ross Winkelman introduced Ksenia Draaghtel, who described what consumer data is (and what it is not), and how these data can enhance traditional predictive health care models. The PPACA may prohibit companies from varying rates based on health status, but consumer data still holds value for many applications. Two of these include improving the ability to find (and assist) members who are more likely to have certain conditions or characteristics, and the ability to increase their understanding of a plan's current membership through segmentation. Moreover, the PPACA's imperfect notion of risk adjustment leads to a company's need to find members (current and prospective) that result in a relative market advantage. Chris Stehno discussed how business analytics, including the use of consumer data, is gaining traction at the C-level, as well as key regulatory considerations and options for today's forward-thinking organizations. There are many uses of analytics beyond traditional business applications, including the use of neural network models to predict box office receipts based upon movie script variables, usage-based insurance, and models that predict the price of wine vintages based upon variables inherent to the growing season. Stehno enumerated the many efforts present in organizations to link analytics to high-impact areas, such as marketing, customer retention, wellness and product development. The biggest barrier to these developments is individuals' inherent resistance to change.

After a long Monday evening of networking, largely involving the support of Boston's finest hockey team, the SOA graciously granted us a later (9 a.m.) start on Tuesday. Randy Finn moderated Session 41, a panel discussion on the "Potential Impact of Health Insurance Exchanges on Product Sales and Distribution." Paul Stordahl led off the talk with an overview of the new health insurance exchanges, including the flexibility afforded to individual states, requirements for products sold inside and outside of exchanges, the impact of navigators, and the changing composition of markets that will likely result. Key issues include the extent to which employers will terminate coverage, how large businesses will use the exchange (with the potential for adverse selection), how exchanges will be self-supporting by 2015, how the risk adjustment process will work, and the role of brokers. Although he could not be live in Boston, Kevin Counihan gave an audio presentation on his experiences with health reform in Massachusetts. Here, 98 percent of individuals are currently insured and trends are reasonable, but the overall cost is quite high (with premiums approximately 33 percent higher than the national average). He sees Massachusetts as a model for national health reform, and gave several lessons that other states can learn from the Massachusetts experience. Mark Olson approached the arrival of 2014 from an employer's perspective, including the strategic decisions to play or pay (or both), and the impact of the excise tax. Employers will need to consider their options when it comes to pre-65 retiree medical coverage, the consistency of exchange and plan structures across states, adverse selection, and whether or not the exchanges are available on a timely basis.

Immediately prior to Tuesday's lunch, we saw Session 49, "To Thine Own Health Be True," an update on consumer-directed health plans (CDHPs). Myrene Santos began with a CDHP overview, and the dramatic growth of CDHPs (companies with a CDHP in place have increased from 2 percent in 2002 to 53 percent in 2011, with 66 percent projected for 2012). Santos talked about some of the research underlying CDHPs, noting that enrollees have experienced better preventive care utilization, more generic drug usage (although perhaps less compliance) and a large drop in repeat emergency room visits. Daniel Pribe walked us through a lesson in behavioral economics, a marriage of traditional economics and psychology that can help us to predict individual behaviors in a complex system (such as health care). Pribe described framing (the notion that a decision maker's actions are dependent upon the way a problem is presented) and heuristics (not necessarily rational rules of thumb that people often use to make decisions), and talked about how behavioral economics can be used to entice members to improve their own health. Jean-François Beaulé focused on how plans are advancing health ownership for their membership, and how the largest barriers to improving individual health are motivation and ability. Engagement is the key to improving health, and Beaulé gave us several lessons learned about how to effect positive outcomes. These include auto-enrollment, models that include both a "carrot" and a "stick," ongoing multimodal communications to all eligible participants, and socializing a program across all employees.

Tuesday's lunch featured Shawn Achor, a researcher on the subject of happiness in the workplace who presented his findings linking positivity with success. Achor began by leading the room in an experiment demonstrating the ripple effect and mirror neurons (when someone smiles—or yawns—at you, you are more likely to do the same). One of Achor's main findings is that only 10 percent of long-term happiness can be predicted by external factors. In other words, 90 percent of our happiness is within our own control. Achor presented evidence that happier people experience better success at securing and keeping jobs, are more resilient and suffer less burnout, and have superior productivity and greater sales. Achor mentioned the importance of a good social support network, and described the "Tetris Effect," where one's brain can be trained to create long-term cognitive changes. Five suggested habits to improve one's long-term happiness include:

- Gratitude training—listing three specific items each day that one is grateful for
- Journaling—identifying (and chronicling) one moment of meaning each day
- Exercise

CONTINUED ON **PAGE 22**

- Meditation
- Random acts of kindness—each day, emailing one person who has had a positive impact on one's life.

According to Achor, adopting these behaviors for a 21-day period will create long-term changes in one's outlook on life. He described the "twenty-second rule," which helps to change the activation energy for both positive (and negative) behaviors, and concluded with key conclusions from his research: happiness is a choice, happiness spreads to others, happiness is a work ethic, and happiness is an advantage. Achor's book, The Happiness Advantage, is available online, and he can be reached through his website, HappinessAdvantage.com.

Session 61, "Text Mining: Approaches and Applications," featured Paul Lewicki describing a society in which there is an abundance of valuable information available in electronic form, but this data is not easily digestible. Text mining is the process of extracting relevant (and actionable) information from large corpora of text without reading the text itself. Applications of text mining include sentiment analysis, the determination of the general sentiments and opinions from a body of text (such as the determination of whether or not a movie is good based upon online reviews). Lewicki outlined the general process of text mining, including singular value decomposition, and gave an example where the accuracy of a predictive model was improved using text mining. Jonathan Polon followed with a claim severity case study, using text mining in a workers' compensation setting to predict the likelihood that an individual would incur claims above a given threshold. Polon described one modeling approach from start to finish, looking for words that are predictive in this fashion, and key considerations to be made while implementing this approach.

Session 67, "Quality and Efficiency," featured Kevin Law as the facilitator of an expert panel including Carey Vinson, Jim Toole and Michael Thompson. Vinson discussed delivery activities from a health care insurer and payor perspective, and the variety of quality measures used by physicians and hospitals. He talked about challenges faced when looking at these indicators, including problems involved with comparing these measures across populations. Toole focused on quality initiatives sponsored by the government, including offerings from the U.S. Department of Health and Human Services (HHS), CMS, the Agency for Healthcare Research and Quality (AHRQ) and provider service organizations. The HHS is the largest of these organizations, devoting more grant money than all other federal agencies combined, and there are opportunities for research-minded actuaries to receive some of this funding. Toole also gave an overview of the innovations being sponsored by Medicare and Medicaid, both now and in the near future. Thompson wrapped up the session by discussing how quality and efficiency efforts will be affected by health care reform. Reforms in this area must begin with the current health system's dysfunction, where volume (not value) is rewarded, and delivery is cure-focused (not health-focused). Thompson described the potential impact of the PPACA, including value-based design, comparative effectiveness research, accountable care organizations, community health initiatives and health exchanges. Exchanges will likely fall along the spectrum defined currently by Massachusetts (more involvement and administration) and Utah (less involvement and administration). Finally, Thompson told us about the American Academy of Actuaries' Quality Initiatives Work Group.

Sara Teppema kicked off Wednesday's Health Section hot breakfast on the subject of the section's 30th anniversary, lauding Judy Strachan, Kevin Law and Kristi Bohn for their efforts, as well as the work of Joan Barrett and Dan Bailey, the organizers of this year's health meeting. Strachan followed with an overview of the Health Section's activities over the first six months of 2011, including: the Health Actuarial Research Initiative, the development of new mission and vision statements, the ongoing development of metrics to measure section performance and the creation of boot camp activities (the next of which will be in Nashville in November). Strachan discussed efforts to tackle health care reform issues, where the section has identified gaps in actuarial knowledge and will sponsor research

and develop materials. Finally, Strachan talked about the SOA's Untapped Opportunities Strategic Initiative, which has identified areas where actuaries are underutilized and opportunities exist.

The area of advanced business analytics is one of these untapped opportunities, and Lisa Tourville has been leading an SOA task force to address the concern that actuaries are getting passed by in the analytics world. Tourville spoke on the growth of advanced business analytics in many areas, including the world of sports, and described the nature of both descriptive analytics (the "what") and predictive and prescriptive analytics (the "so what"). Tourville discussed how forward-thinking companies are competing on analytics, and that the "best decision makers will be those who combine the science of quantitative analytics with the art of sound reasoning." One of the goals of the SOA task force is to break the perception that actuaries merely perform day-to-day "traditional" activities, and to publicize new roles that may attract the best and brightest to the profession. Not only will actuaries thrive in these roles, but actuarial ethics and rigor will be a benefit to employers in the area of predictive analytics.

Another area of untapped opportunity is in the field of complexity science, which Alan Mills introduced at last year's health meeting in Orlando. Over the past year Syed Mehmud has continued the charge, and he led Session 81, "Solving Actuarial Problems with Complexity Science." Mehmud defined complexity science and how it differs from traditional actuarial modeling—according to Mehmud, a complexity model is "one in which all prior states must be computed in order to observe a certain state." He catalogued the known literature on the actuarial applications of complexity techniques, ranging from portfolio analysis to policyholder behavior, and from the impact of catastrophes on reinsurers to the impact of rate changes on retention. Mehmud described three approaches for solving actuarial problems in this fashion, and gave guidance for the types of problems that are right for these techniques. He then demonstrated how one might set up a complexity model describing consumer behavior in a health care exchange.

Last (and not least), Jill Wilson moderated Session 84, "Reserving," which featured topics related to (you guessed it) reserving. Bill O'Brien enumerated the National Association of Insurance Commissioners' many changes over the past two years to statements of actuarial opinion, the duties of an appointed actuary, and how a company changes an appointed actuary. He discussed the new minimum medical loss ratio regulations, including the detailed changes required to both the numerator and denominator in the calculation, and outlined recent reserving issues such as: lower-than-expected claim trends, the use of excessive reserves to fund aggressive premiums, and considerations on what constitutes a best estimate. Shea Parkes described his team's analysis of robust time series reserving, including methods for estimating a range of likely outcomes, and dealing with data contamination and shock claims. Most reserve estimates include a provision for adverse deviation of between 5 percent and 10 percent, with these percentages based upon "actuarial judgment." Parkes' team explored the science behind reserve fluctuation, and whether or not these ranges could be considered appropriate, using the variance of lead time demand theory developed for the U.S. Navy. Parkes described the modeling of shock claims using a frequency-severity model, and gave examples of this work in practice.

As you can probably tell, there was a lot going on in Boston in mid-June (and this article does not even cover "Medical School for Actuaries," which immediately followed the meeting). With more than 900 actuaries present, this largest-ever Health Section meeting featured ample opportunity for camaraderie, networking and learning, and the three days flew by in an instant. If next year's health meeting is half as good as this one, then this one will have been twice as good, but that shouldn't stop you from joining us in beautiful New Orleans next June. See you there! ■