



**SOCIETY OF
ACTUARIES**

**HEALTH
SECTION**

Health Watch

ISSUE 81 • NOVEMBER 2016

- 3 Letter From the Editor**
By Marilyn McGaffin
- 4 Chairperson's Corner**
By Elaine Corrough
- 6 Up Front With the SOA Staff Fellow**
By Joe Wurzburger
- 8 2016 SOA Health Meeting: Event in Review**
By Brian Pauley
- 10 Recommendations for a Successful ACA Rate Filing**
By Joseph P. Slater
- 15 ASOPs, Anti-Selection, Affordability and ACA Alternatives**
By Greg Fann
- 21 Review: "Do Individuals Make Sensible Health Insurance Decisions? Evidence From a Menu With Dominated Options?"**
By Randy Herman, Alex Leung and Jonah Yearick
- 28 Review: "Health Insurance for 'Humans': Information Frictions, Plan Choice, and Consumer Welfare"**
By Christopher Coulter, Kathy Dobrzynski, Tyler Engel and Dorothy Andrews
- 34 MACRA Ramifications to Medicare Supplement**
By Marilyn McGaffin
- 36 An Introduction to Palliative Care for Patients With Serious Illness**
By Diane Meier, Torrie Fields, Randall Krakauer and Bruce Smith
- 39 ACA Financial Reporting: The Second Year**
By Aaron Wright
- 48 The State of Predictive Analytics in U.S. Health Care**
By the Society of Actuaries

Health Watch

**Issue Number 81
November 2016**

Published by the Health Section
Council of the Society
of Actuaries.

475 N. Martingale Road, Suite 600
Schaumburg, Ill 60173-2226
Phone: 847.706.3500
Fax: 847.706.3599
soa.org

This newsletter is free to section
members. Current issues are
available on the SOA website
(www.soa.org).

To join the section, SOA members
and non-members can locate
a membership form on the
Health Section Web page at
www.soa.org/health/.

This publication is provided for
informational and educational
purposes only. Neither the Society
of Actuaries nor the respective
authors' employers make any
endorsement, representation
or guarantee with regard to any
content, and disclaim any liability
in connection with the use or mis-
use of any information provided
herein. This publication should
not be construed as professional
or financial advice. Statements of
fact and opinions expressed herein
are those of the individual authors
and are not necessarily those of
the Society of Actuaries or the
respective authors' employers.

Copyright © 2016
Society of Actuaries.
All rights reserved.

2016 SECTION LEADERSHIP

Officers

Elaine Corrough, FSA, FCA, MAAA
Chairperson

Brian Pauley, FSA, MAAA
Vice-Chairperson

Sarah Osborne, FSA, FCA, MAAA
Secretary/Treasurer

Council Members

Terri Bauer, FSA, MAAA
JoAnn Bogolin, ASA, FCA, MAAA
David Dillon, FSA, MAAA
Gregory Fann, FSA, FCA, MAAA
Jennifer Gerstorff, FSA, MAAA
Julia Lambert, FSA, MAAA
Marilyn McGaffin, ASA, MAAA
Michelle Roark, FSA, MAAA
Rina Vertes, FSA, MAAA

Newsletter Editor

Marilyn McGaffin, ASA, MAAA
Editor-in-Chief
marilyn.mcgaffin@cigna.com

Board Partner

Teresa Winer, FSA, MAAA

SOA Staff

Joe Wurzburger, FSA, MAAA
Staff Partner
jwurzburger@soa.org

Leslie Smith
Staff Specialist
lsmith@soa.org

Julia Anderson Bauer
Publications Manager
jandersonbauer@soa.org

Julissa Sweeney
Graphic Designer
jsweeney@soa.org

Letter From the Editor

By Marilyn McGaffin

Welcome to the November issue of *Health Watch*. Although much of this issue focuses on Affordable Care Act (ACA) topics, there are several other special interest articles that add insights into what else is going on within the health insurance industry. I would like to thank all of the authors for their willingness to share their insights with the actuarial community, and all of those who have reviewed and edited the articles in order to make this issue worthwhile.

This issue of *Health Watch* opens with Joe Slater's article on developing successful ACA rate increase filings. The article contains tips on how to make even the most difficult filing process go as smoothly as possible. In the next article, Greg Fann expresses his opinion regarding the ACA's affordability, the role of the Actuarial Standards of Practice (ASOPs), and alternatives to the ACA. It should cause quite a bit of discussion amongst actuaries, and serves as an important reminder of why professionalism matters.

The following two articles focus on behavioral economics and the choices individuals make when choosing health insurance policies. The first is a summary of the work of Saurabh Bhargava and George Lowenstein of Carnegie Mellon University and Justin Sydnor of the Wisconsin School of Business. The authors reviewing this study—Randy Herman, Alex Leung and Jonah Yearick—conclude that individuals need to be empowered with the appropriate knowledge to improve the decision-making process in purchasing health insurance. Christopher Coulter, Kathy Dobrzynski, Tyler Engel and Dorothy Andrews review an article from the *American Economic Review* from 2015. Their review takes a more theoretical approach, focusing on a review of how a group of 50,000 employees chose between a traditional PPO plan and high-deductible plan.

I also had the pleasure of contributing a special interest article discussing the Medicare Access and CHIP Reauthorization Act (MACRA) and its ramifications upon the Medicare Supplement line of business. MACRA is changing how providers will be reimbursed. The first-dollar coverage Medicare Supplement plans will be available only to those who will be Medicare-eligible prior to Jan. 1, 2020.

Diane Meier, Torrie Fields, Randy Krakauer and Bruce Smith co-authored an article on the role of palliative care for patients with serious illness. It is an area that is small but growing. For those of us who have ever had a loved one use hospice care, this article will have a special interest. It is also a growing area of research for the Society of Actuaries.

A reprint from *The Financial Reporter* focuses on the second year of ACA financial reporting. Aaron Wright reports on a survey regarding the overall methodology for the risk adjustment program, as the 2015 financial reporting statements were being completed. Although the valuation actuaries are still addressing the 2015 financial statements, the pricing actuaries are developing rates for 2017, for which the reinsurance and risk corridors are no longer applicable.

The last article introduces the uses of predictive analytics in health care, showing that its uses vary between payers and providers. Predictive modeling can be a powerful tool in business decision modeling.

We hope you enjoy the November issue, and from all of us at *Health Watch*, we wish you a very happy autumn! ■

5 Numbers

1. \$555,000 median annual compensation for orthopedic surgeons. They're No. 1!
2. Top five causes of death in the United States in order: heart disease, cancer, chronic respiratory disease, accidents and stroke.
3. Only half of payers and just 40 percent of providers say they're ready to implement bundled payment methods.
4. Nineteen percent was the average increase in total cancer treatment costs per patient from 2013 to 2014.
5. \$24.2 billion for *new* treatments for hepatitis C, cancer, diabetes and chronic disease in 2015.

¹ <http://www.modernhealthcare.com/article/20160716/DATA/500036406>

² <http://www.cbsnews.com/news/the-leading-causes-of-death-in-the-us/>

³ McKesson Corporation, "Journey to Value: The State of Value-Based Reimbursement in 2016" white paper.

⁴ <http://www.imshealth.com/en/thought-leadership/ims-institute/reports/medicines-use-and-spending-in-the-us-a-review-of-2015-and-outlook-to-2020#form>

⁵ *Ibid.*



Marilyn McGaffin, ASA, MAAA, is actuarial manager, Medicare Supplement Pricing, at Cigna in Austin, Texas. She is also on the Health Section Council of the Society of Actuaries. She can be reached at marilyn.mcgaiffin@cigna.com.

Chairperson's Corner

By Elaine Corrough

Welcome to autumn! With the imminent end of my term as chair, I first want to express my gratitude to our amazing council and section volunteers. My own activities pale in comparison to the commitment that these people have demonstrated. I am especially grateful to our former chairperson, Andie Christopherson, and our incoming chairperson, Brian Pauley. It has been a privilege to have a term between these two strong leaders, both of whom made my job easier and a heck of a lot more fun.

When I first ran for council two years ago, this was the message resounding in my head:

“I mean actuaries sat down in a room and figured out how they were going to pay for this monstrosity of a program, and they decided ‘let’s just screw over everyone 35 and younger.’” (Reince Preibus, RNC Chairman, March 2014, in reference to ACA)

I must have missed the meeting that Preibus described. In any case, statements like this made me worry about our professional reputation, and I ran for council because of it. Now, two long years have passed, and rather than the bleak imagery presented, I see a bright horizon ahead for us.

What turned my frown upside down? The answer could be as glib as Preibus’ comment—actuaries sitting down in rooms across the country, figuring out how to do our best work in a rapidly changing environment, and deciding to commit to the integrity of our profession. In short: It’s our volunteers.

Until I joined the council, I had no idea of the breadth and depth of our section volunteer activities. Our continuing education



program is driven by dozens of volunteers who take the time to share their experiences for other actuaries’ benefit in a wide range of media. We continue to learn from emerging research on relevant topics, funded by the section and overseen by volunteer members. Special interest subgroups enable practicing actuaries to share ideas and discuss current issues. Members have worked to forge stronger relationships outside the profession, with an eye toward refining our own work, as well as cementing our reputation with other professionals. Finally, the council manages ongoing strategic initiatives that are designed to provide longer-term direction to the profession.

The passion, expertise and good humor of our volunteers have been the highlight of my term as chairperson. These individuals have taken time away from work and personal activities for our collective benefit. Let’s recognize and appreciate their commitment to the profession. To any actuary who thinks we are falling short in any aspect, I invite you to join us and make the same commitment.

Thank you all for continuing to support our profession, and for allowing me the opportunity to serve you. Onward to 2017! ■



Elaine Corrough, FSA, FCA, MAAA, is partner and consulting actuary with Axene Health Partners LLC in Portland, Oregon. She can be reached at elaine.corrough@axenehp.com.

Track Your CPD Credit



The Actuarial CPD Tracker

- Track multiple CPD standards
- Download data to Excel
- Load credits from SOA orders
- Catalog of PD offerings
- Login with your SOA account
- International friendly

Start tracking today at SOA.org/CPDTracker.



Up Front With the SOA Staff Fellow

By Joe Wurzburger

This issue of *Health Watch* is being released during a time when there is a significant amount of focus on the results of an election. Many of us may find ourselves reflecting on what was accomplished during the term that is coming to a close. Others are looking ahead at what may await us in the new term. Will the transition in leadership be smooth? How might our direction change? What does this future hold?

I am, of course, talking about the end of the Society of Actuaries (SOA) year that occurs in October and the results of section elections, especially as they pertain to the Health Section. (Wait, you thought I was referring to something else?)

Let's start with a look back before we shift our focus to the future.

REFLECTION

The Health Section accomplished a great deal during this past SOA year. Any one of these could be the subject of its own article (and one of them is!), but for the sake of brevity I'll limit myself to bullet points.

- **Record-breaking Health Meeting.** As you'll read in Brian Pauley's article in this issue, the 2016 SOA Health Meeting was one for the record books. It was the most highly attended Health Meeting in the SOA's history, and the formal feedback supports anecdotal evidence that the breakout sessions were stellar. Instead of going into detail here I'll recommend that you read Brian's article to learn more.
- **New and improved *Health Watch*.** Hopefully you'll notice that the copy of *Health Watch* in your hands is more colorful than those from prior years. And if you're reading online, you may notice a formal digital version (in addition to the PDF that has existed for some time) with a vanity URL: healthwatch.soa.org. While these may seem like cosmetic improvements, they are representative of renewed commitment to the publication's high standards. For many of our section members, *Health Watch* is one of their most valuable benefits of membership. The Health Section Council places great importance on producing a high-quality publication.



- **Impressive slate of webcasts and podcasts.** Webcasts have included topics as varied as behavioral economics, high-cost drugs, Medicare Supplement, Own Risk and Solvency Assessment (ORSA), MACRA and risk adjustment, just to name a few. Health Section podcasts have provided additional content (at no cost, I might add); one of the podcasts even garnered some media attention, as the interview with Brent Plemons at the Center for Consumer Information and Insurance Oversight (CCIIO) was the subject of an April article in *LifeHealthPro*. Special thanks go to JoAnn Bogolin (the section's webcast coordinator) and Dave Dillon (podcast coordinator).
- **ACA Exchanges Initiative.** The SOA, in general, and the Health Section, in particular, pride themselves on thought leadership. With that in mind, the section recently unveiled a collection of research and articles pertaining to the Affordable Care Act (see www.theactuarymagazine.org/category/aca-initiative). Central to the project was the SOA research report, "An Examination of Relative Risk in the ACA Individual Market." In addition, an all-star cast of authors representing nearly every relevant perspective submitted articles that addressed the following statement: "With the release of two years of risk adjustment data, discuss the prognosis and challenges for the future of a risk adjusted market. In particular, please consider the long-term sustainability of the market." The research upheld the high standards expected from the SOA, while the impressive variety of perspectives represented in the articles reinforced the idea that there is no one-size-fits-all answer to the challenges we all face in today's dynamic health care world.
- **Regulatory Resource.** The SOA's Regulatory Resource was unveiled in August, and one of its primary features is a resource dedicated to the health practice area. Volunteers from the Health Section were the key drivers to make this happen. Special thanks go to Josh Hammerquist, who provided excellent

leadership for this team. If you haven't already, please check it out at <https://www.soa.org/regulatoryresource/health>.

I could go on, but hopefully you get the idea. It was a wildly successful and impactful year for the Health Section.

LOOKING AHEAD

Looking ahead to the next year, the Health Section is poised for continued excellence.

- On Nov. 14, the Health Boot Camps get underway in Portland, Oregon. For those of you looking for two days of hands-on, in-depth learning in the areas of Advanced Commercial Pricing, Medicare Advantage and Part D, or Valuation, this is the place to be. An additional half-day professionalism session on the 16th gives actuaries a chance to earn all of their professionalism continuing education (CE) in one morning. There is still time to register at <https://www.soa.org/Professional-Development/Event-Calendar/2016-health-boot-camp.aspx>.
- The Health Meeting moves to Hollywood, Florida, where the hope is that the outstanding content (and, let's be honest, the beautiful beach) draws in yet another record crowd.
- Health Section strategic initiatives that are currently underway promise to provide further examples of thought leadership, particularly in the areas of value-based care and public health.
- More high-quality webcasts and podcasts are planned, along with excellent *Health Watch* articles and leading-edge content at meetings such as the SOA Annual Meeting & Exhibit and the Valuation Actuary Symposium.

In addition to the items listed, the Health Section Council and its various subgroups will continue to proactively track the seemingly nonstop changes occurring in the health care space and deliver educational content that is necessary and timely.

GRATITUDE

None of this would be possible without strong efforts from our volunteers. There are too many to name in this article without fear of inadvertently leaving someone out. But I would like to recognize a select few.

- Elaine Corrough has provided exemplary leadership in her role as the Health Section Council chair. The role requires her to juggle many balls at once (in addition to her busy day job), but she managed to do so while projecting calm and facilitating a highly collaborative environment. We are lucky that she will remain on the council for one more year.
- Lessening the blow of losing Elaine as the chair is the fact that Brian Pauley has proven himself to be a very skilled

The Health Section Council and its various subgroups will continue to proactively track the seemingly nonstop changes occurring in the health care space and deliver educational content that is necessary and timely.

leader in his role as the council's vice chair. The council is in good hands as Brian ascends to the chair position.

- Five members of the council complete their terms this month. Terri Bauer, Dave Dillon, Julia Lambert, Marilyn McGaffin and Michelle Roark made too many impactful contributions to the Health Section to be able to do them justice in one article. Suffice it to say, they have earned our genuine gratitude for all they have done.

JOIN US

Please consider volunteering yourself. There are many ways to get involved with the Health Section. Some commitments are large, such as being on the Health Section Council. But there are many ways to get involved on a smaller scale, as well. In addition to giving back to the profession, there are many benefits for you and your own career development, including but not limited to developing leadership skills and broadening your network.

The SOA recently created a series of videos about volunteering. (One of the featured speakers is the Health Section's very own Elaine Corrough!) I encourage you to visit the SOA's YouTube channel to check them out. One in particular that I think you'll find worthwhile is called "Professional Interest Sections" and can be found at <https://youtu.be/3wIsYOiCQDw>.

This month we also welcome new members to the Health Section Council. At the time of this writing, their identities are not yet known. But I do know the caliber of people who are on the ballot, so I can confidently say that we are lucky to be welcoming such a strong group. And I hope that you will consider volunteering yourself sometime soon so that I can extend a warm welcome to you, as well. ■



Joe Wurzburger, FSA, MAAA, is Health staff fellow at the Society of Actuaries. He can be reached at jwurzburger@soa.org.

2016 SOA Health Meeting: Event in Review

By Brian Pauley

The Society of Actuaries (SOA) Health Meeting, held each June, is the flagship event for the SOA Health Section. For each meeting, the planning committee strives to provide relevant and timely continuing education and networking opportunities to health actuaries. This year's event was held June 15–17 at the Marriott Downtown in Philadelphia.

The meeting planning began back in November. While June seemed far away at the time, it arrived very quickly! The program committee had two goals in mind relative to the previous year's meeting in Atlanta:

- Increased registration count
- Higher overall meeting rating

With the 2016 SOA Annual Meeting & Exhibit taking place in Las Vegas in October, competition for attendees looking to fulfill their continuing education requirements would be tough. But, the program committee was optimistic! I'm happy to let *Health Watch* readers know that with 1,060 registrations and an overall meeting rating of 4.14, it was the highest attended and second-highest-rated (4.15 in 2011) SOA Health Meeting ever. It was just one-hundredth of a point off from the highest-rated meeting ever!

The 2016 Health Meeting featured sessions covering topics from a wide variety of areas front and center to health actuaries including, but not limited to:

- Affordable Care Act (ACA) and exchange business
- Predictive analytics
- Reserving
- Medicare Advantage and Part D bidding
- Medicaid
- Public health

It also featured sessions covering interesting, niche topics including, but not limited, to:

- Pet insurance
- Machine learning
- Microinsurance
- Pharmacy reinsurance

As a program committee, we pride ourselves in bringing forth a variety of speakers, both actuaries and non-actuaries alike. This year, there were a total of 251 speakers, including 76 non-actuaries, covering 98 concurrent sessions.

Some of the highest-rated sessions included those featuring regulators. A few standouts included:

- Ask the Regulator: Professionalism for Health Actuaries Through the Eyes of Regulators
- ORSA From Regulators' Perspective
- Chief Financial Regulator Panel on Regulatory Initiatives
- Commissioners' Roundtable

I'd like to recognize and thank the regulators who so generously shared their time and expertise with us, including regulatory actuaries Rhonda Ahrens, Jan Graeber, Annette James, Steve Ostlund and Teresa Winer; chief financial regulators Mel Anderson, Michael Humphreys and Ray Martinez; and state insurance commissioners John Franchini, Teresa Miller and Al Redmer.

On Wednesday, the meeting opened up with a speech by SOA President Craig Reynolds, who briefed attendees on:

- The 2017–2021 strategic plan
- Research efforts, which include annual updates to the model for the projection of long-term health care cost trends



- Actuarial education, including a new point of emphasis on predictive analytics
- The growing number of international actuaries
- The latest SOA efforts on inclusion and diversity

The meeting then moved to the keynote talk by Barbara Corcoran, one of the “sharks” featured on ABC’s hit TV show *Shark Tank*. Barbara offered attendees the same spunky personality that has made her a regular on the show, where she has to go toe-to-toe with the likes of Mark Cuban and Lori Greiner. She shared her Manhattan rags-to-riches real estate story and emphasized:

- Perception creates reality.
- There are two kinds of people: expanders and containers.
- “Shoot the dogs early” (i.e., don’t allow performance issues to linger).
- Having fun is good for business.
- Fail well, for it is the beginning of your next big hit.
- You have the right to be there.

Sessions and speakers on leadership and development are typically the most highly rated at the SOA Health Meeting. On Wednesday, the Women’s Leadership Forum took place featuring a keynote presentation by Yvette Bright and a panel discussion with Mary Van der Heijde, Lucinda Lewis, Randy Termeer, Sarah Osborne and Linda Williams. Interactive table discussions and a networking lunch helped to wrap up the forum.

On Thursday morning, a group of attendees participated in the 5K Fun Run/Walk, which we dubbed “The Rocky Run.” The mid-point of the run was centered on the steps leading up to the Philadelphia Museum of Art made famous in the 1976 Oscar-winning movie *Rocky*. While not intentional, the early start time of 6 a.m. made everyone feel just like the movie, despite no one consuming raw eggs before beginning. Participants were

encouraged to dress up as Rocky for the event, with the top three based on participants’ applause receiving a prize.

Thursday also featured the general luncheon keynote speaker Vince Papale. A retired professional football player, Vince was the subject of the 2006 Disney movie *Invincible*, where he was played by Hollywood star Mark Wahlberg. With a contagious energy and likable personality, Vince was a hit with attendees as he talked about the movie and encouraged attendees to be great and “invincible” by focusing on things such as “no one ever drowned in sweat,” and that many keys to success actually take no talent such as being positive and on time.

Friday opened up with the Health Section Breakfast, where Sara Teppema spoke about a new strategic initiative for the Health Section focusing on the role of actuaries in public health. Then, Paul Spitalnic, the final keynote speaker of the meeting, invited attendees to offer their thoughts on emerging actuarial questions that he encounters as the Centers for Medicare and Medicaid Services (CMS) chief actuary.

I want to thank everyone who contributed to the success of the meeting. Jenny Gerstorff and Sarah Osborne, the two Program Committee vice-chairpersons, put in a tremendous effort to ensure that we had a great session slate and keynote speakers. Jenny and Sarah will serve as chairperson and vice-chairperson, respectively, of the 2017 Health Meeting. Also, the meeting would not have been successful without the support and contributions of the SOA staff, including Joe Wurzburger, Anna Abel and Leslie Smith. With this same group intact, I could not be more excited about the prospects of next year’s continued success.

I look forward to seeing everyone at the 2017 Health Meeting in Hollywood, Florida! ■



Brian Pauley, FSA, MAAA, is vice chairperson of the SOA Health Section Council and served as chairperson of the 2016 SOA Health Meeting. He can be reached at bpauley@humana.com.

Recommendations for a Successful ACA Rate Filing

By Joseph P. Slater

I define a successful rate filing as one that:

- a. Is accepted by the rate reviewers and regulators without changes and with no, or very few, questions or requests for additional information
- b. Reflects the insurance company's best estimate of expected claim costs, administration expenses, broker commissions, taxes, fees, and necessary profit/risk margin/contribution to surplus to cover the expected membership for each plan, rating area and contract type.

The first goal (i.e., having a rate filing readily accepted without change by regulatory authorities) can often be in conflict with the second goal (i.e., having the proposed rates cover expected costs and necessary profit in such a way as to protect the insurer against selection risk). This can be especially true for Affordable Care Act (ACA) rate filings. Assuming that the rate review is done correctly, it is essential that an ACA rate filing complies with the ACA's rating rules and the Unified Rate Review (URR) instructions. The ACA's modified community rating rules prohibit the rating of policyholders based on health status, while also limiting the allowable rating factors that an insurer can use to price different members and plan options. As a result, ACA rates tend to underprice older and other high-cost members, while overpricing younger and healthier members. This situation presents the very real potential for selection risk if younger and healthier members forgo coverage, while older and more care-needy members purchase coverage.

Many carriers and health plans underpriced their ACA product offerings in 2014 and 2015 because they underestimated the average morbidity of their individual and/or small group ACA risk pools. While federal risk adjustment and reinsurance programs offset some of the underpricing for some carriers, many insurers sought larger-than-expected rate increases in 2016 to raise the premiums for their ACA blocks up to more reasonable and profitable levels. Unfortunately for the insurers who submitted the rate filings, these large rate increases often met very stiff resistance from rate reviewers and regulators as they were subject to aggressive rate reviews.

My consulting experience over the past two years suggests that the rate-filing process for most carriers can be improved to help streamline the rate-review process, in most situations resulting in quicker approval of more reasonable rates. I saw firsthand the degree to which ACA rate filings could be reviewed. Several of the filings received multiple rounds of rate-review questions, with each round having a dozen or more questions requesting additional details, data and rate development exhibits. What I found most interesting was that, for the most part, the rate increases being requested were not unreasonable. In fact, several of them were actually too low based on the experience data and reasonable assumptions and projection factors. The biggest fault I could find with the rate-filings I reviewed was not the associated rate development, but the actual rate filings themselves. While the rate developments underlying the requested rate increases were sound and consistent with the law and applicable regulations, the rate-filing documents, especially the Part III Actuarial Memorandum, were often poorly prepared, hard to understand, did not provide the information requested by the URR instructions, and did not sufficiently demonstrate that the underlying rate development followed the ACA's rating rules.

The purpose of this paper is to discuss several key issues that will improve the carrier's ACA rate filings, and increase the chances that these ACA rate filings, especially those requesting significant rate increases, will be successful.

UNDERSTAND YOUR RATE REVIEWER

To assure that an ACA rate-filing review proceeds in an efficient and relatively painless manner, it is critical that the actuaries involved provide comprehensive rate-filing documents that are easily comprehended and navigable by the rate reviewer. In addition, the rate filing must be demonstrably consistent with the rate development and rate-filing requirements (i.e., the URR instructions). To help with this goal, it is highly advisable that the actuaries develop an understanding of the rate reviewer's job, requirements and circumstances. To develop a better understanding of the rate reviewer, it would be helpful for actuaries working on ACA rate filings to keep the following in mind:

- **The rate reviewer is not familiar with your business.** The rate reviewer usually does not understand the company and its business as well as the filing actuaries do. Certain aspects of a rate development are company- and product-specific, and might not be easily understood by someone unfamiliar with them. Additionally, the rate reviewer may not be the same reviewer as in prior years. There will probably be limited, if any, learnings from previous filings concerning a specific company's products that will be carried forward with each rate review. Essentially, the reviewer starts from scratch each time.

- **Your rate reviewer might not be a seasoned pricing actuary.** The primary rate reviewer may be an actuarial student or analyst without any formal actuarial credentials, with limited or no experience in the real world as a pricing actuary, although perhaps reporting to a credentialed actuary. The rate reviewer might have little to no experience in developing rate filings for an insurance company in the past. Many ACA rate reviews are conducted by contracted consulting firms that need to complete much of the review using less-experienced staff, possibly due to budget constraints, with oversight from a seasoned and credentialed actuary. The supervising actuaries will be involved in the rate review, of course, but much of what they understand will come from the analysts they supervise who are responsible for doing the “heavy-lifting” part of the rate review. With this possibility in mind, it is prudent that filings be developed at a level that is consistent with the background of a less-than-experienced actuarial analyst.
- **Your rate reviewer is busy.** A typical ACA rate reviewer might be conducting reviews of several different rate filings at the same time. As such, he or she does not have the time to become actively engaged in understanding a specific rate filing and rate development. In other words, rate reviewers are more likely to be passive consumers of a rate filing than an actuary who has the time and inclination to actively work through and develop a deep understanding of the rate filing and rate development being reviewed. Therefore, if an aspect of a rate filing is not fairly easily understood, or obviously consistent with the specific rating rules or rate-filing instructions, the reviewer may delay approval of the rate filing and request more information from the actuaries who submitted the rate filing.
- **Rate reviewers are probably using a “review outline” and/or checklist.** To ensure a level of consistency across rate reviewers, and to streamline the work involved with a rate review, it is highly probable that rate reviewers work from a standard “review outline” or checklist. This standard outline or checklist will take a large amount of subjective judgment away from the rate reviewer, and thus places more onus on the filing actuaries to develop a rate filing that is demonstrably consistent with the associated rating rules and rate-filing requirements. Such outlines may focus on specific aspects of the rate filing with the emphasis changing each year.
- **Rate reviewers are probably under significant pressure from their managers.** Finally, rate reviewers are often responding to political or consumer pressures to keep rate increases low. As such, any rate filing that requests rate increases greater than a specific benchmark, or is not consistent with “expected improvements” in insurance costs due to

health care reform, may be subject to extensive scrutiny. For these filings, it is very important to provide as much evidence as possible to counter any possible skepticism concerning specific aspects of the rate development. Of course, this is much easier said than done, and it is not wise to produce a 200-page rate filing. However, it is prudent to anticipate rate-review questions around the parts of the rate development that are most responsible for high requested rate increases, and develop exhibits and narratives above and beyond stated requirements to answer these questions in the original rate-filing submission.

LEARN AND MASTER THE FUNDAMENTALS OF ACA RATE FILINGS

Whether one aspires to be a world-class professional basketball player, an elite concert pianist or a great actuary, it is important to practice and master the fundamentals. The fundamentals for actuarial pricing work should be well understood by any actuary signing an actuarial memorandum for an ACA rate filing. However, it is also important that these same pricing actuaries learn and master the fundamentals of creating an ACA rate filing. Understanding the ACA’s rating rules and URR instructions are a necessary, but not a sufficient, component of the fundamentals of ACA rate-filing creation. There are other important factors to consider. This list of recommendations should also be considered necessary components of the fundamentals of ACA rate-filing creation. Many of these recommendations are straightforward, but they are not always easily executed.

- **Oftentimes more information is required.** Prior to the ACA, many states required relatively little information from insurers submitting individual and small group rate filings. However, the ACA, which set uniform minimum requirements for rate filings of ACA-compliant plans, increased the actual filing requirements in a number of states. Based upon my review of multiple individual and small group ACA rate filings, it seems to be clear that submitting an ACA rate filing that does not adequately provide all of the information outlined in the URR instructions is not a smart strategy. Missing information can be a red flag to rate reviewers, and may even be interpreted as the insurer having “something to hide.” This could lead to the insurer having to submit much more information, and on relatively short notice, on certain aspects of the rate development than would have been unnecessary if sufficient information had been provided with the initial submission.
- **Make your rate filing reviewer-friendly.** An ACA rate filing is not simply an exercise in getting the correct answer while faithfully following the rules and instructions. A successful ACA rate filing will provide a thoughtful and rule-adhering rate development in a simple and easy-to-understand format.

- **Follow the rules and instructions.** You should develop each section of the Unified Rate Review Template (URRT) and Part III Actuarial Memorandum with the ACA's rating rules and URR instructions in mind. For example, if the URR instructions request that you explain the adjustments you made to the source data to develop your trend factors, and then list six potential adjustments you may have made, you should list the adjustments you made to the source data and explain why some, if any, of the example adjustments were not made. In other words, provide the information being requested.
- **Remember that different people have different learning styles.** Filing documents should take into account the fact that different people learn and comprehend in different ways. Some people are “numbers” people; some are “narrative” people; and some are a combination of the two approaches. Provide plenty of information to satisfy all types of learning styles. This means that you need to populate each section of your Part III Actuarial Memorandum with both quantitative exhibits and a detailed narrative of the information being requested.
- **Be redundant.** Redundancy in providing information and explaining an assumption or calculation is significantly preferable to providing incomplete information from the reviewer's point of view. If you faithfully follow the previous recommendation about giving both quantitative and qualitative answers to requests for information, you will necessarily be providing redundant information. Additionally, it may make sense to provide the same information in more than one section of your Part III Actuarial Memorandum (e.g., projection period area factors may need to be provided in both the “Projection Factors” and “Calibration” sections). If this is the case, go ahead and provide detailed information in each section. It makes it easier for the rate reviewer to follow along, and it ensures that you are following the rules and instructions.
- **Be consistent.** Numbers, data and assumptions should be consistently presented in the rate-filing documents. If there is an inconsistency, explain it before being asked. Going back to the area factors mentioned in the previous recommendation, it is allowable to use a different set of area factors in the “Projection Factors” section than the set that must be used in the “Calibration” section. If you did use different sets of area factors in both sections (e.g., the projection area factors might be more granular than the area factors allowed by the Centers for Medicare and Medicaid Services (CMS)), then you need to be crystal clear in both sections what area factors you used and how they were created. On a related basis, it is helpful to provide references to numbers or assumptions used in a calculation that were developed in other sections of the filing. The references will help the reviewers understand the source of the calculation input, and see how different pieces of the rate development and the filing tie together.
- **Document every assumption and calculation.** Every assumption and calculation needs to be documented, and the logic behind it explained. If an assumption is just given without any sort of explanation, it is likely that the rate reviewer will request information on how the assumption was chosen and how the assumption is consistent with the ACA's rating rules and/or URR instructions.
- **Develop high-level summary exhibits.** The Part III Actuarial Memorandum of each ACA rate filing should include high-level summary exhibits that tie together the experience data, assumptions and final rates. We recommend that the rate-filing actuaries develop, at a minimum, exhibits that show the experience period index rate, projected period total allowed claims per member per month (PMPM), projected period index rate, the market adjusted index rate and plan adjusted index rates. In these exhibits, it should be clear how each part of the rate development is related, and inputs in one exhibit are outputs from others.
- **Anticipate the rate reviewer's questions.** You should consider what is requested in the URR instructions as the minimum amount of information that you need to provide in the Part III Actuarial Memorandum of your ACA rate filing. Additionally, it is important that you provide detailed evidence of your rate filing's compliance with the ACA's rating rules. This is especially true for the portions of your rate filing that drive your ACA product's rate increase. If your rate filing is requesting a 35 percent rate increase, which is partially due to an assumed increase in morbidity between the experience and projection period of 20 percent, it is very likely that your support of the 20 percent increase in morbidity will be extensively vetted by the rate reviewers. Therefore, it is important that you provide as much evidence as possible that your morbidity increase assumption was developed using sound actuarial principles, is supported by the data and recent trends, and is consistent with the ACA's rating rules. Leaving any of this in doubt puts your rate filing at risk of being rejected.
- **Learn from prior rate filings.** At the end of each year's rate-filing process, it is essential that you spend time reviewing the list of objections from your filing's formal rate review. You should use these objections to learn which parts of your filing received the most scrutiny and why. Consider the objections as suggestions on how you should improve your ACA rate filings going forward. Hopefully, the objections will allow you to see what you should have provided in the initial filing to avoid the objections altogether.

DEVELOP AND CONDUCT A FORMAL PEER-REVIEW PROCESS

Some actuaries can provide a brilliant analysis that doesn't completely address the question or issue at hand. Additionally, some of the most experienced and diligent actuaries make simple mistakes. For most actuaries, it is very helpful for another actuary to review their work prior to submitting it to the business unit, to external actuaries, or to rate reviewers. In some states an external third-party peer review is actually required by the insurance department. Additionally, the ACA rating rules and URR instructions can be somewhat confusing and even counterintuitive for many actuaries who are used to different rating rules and rate-filing instructions. Given these challenges, it is highly advisable that pricing actuaries producing ACA rate developments and rate filings have their work peer reviewed by other actuaries.

For rate filings that receive a great deal of scrutiny, like ACA rate filings, a formal peer-review process makes a great deal of sense. A formal peer-review process, as opposed to an ad hoc or informal peer review, typically has two elements. The first element involves the use of formal review tools, such as review outlines and checklists, to provide an objective score of the rate filing. The objective score is used to determine the quality of the filing from several perspectives:

- Compliance with the rating rules and rate-filing instructions of the regulatory authority reviewing the filing
- Documentation of the assumptions and data used to develop the rates
- The ease of understandability of the rate development presented in the rate filing
- Technical correctness of the rate development, rate filing, and any supplemental exhibits submitted to support both

A minimum objective score could be set to ensure that the rate filing is at least adequate from each perspective that the filing entity deems important. A rate filing that fails to meet that minimum objective score would be sent back to the filing actuaries with a list of items needing revision before submission.

Peer-review tools, for example a review outline and checklists, would need to be created based upon a review of the ACA's rating rules, the Unified Rate Review instructions and previous rate filings' rate-review objections. These tools could be developed by an internal or external group of actuaries, but must be comprehensive, regularly updated, and approved for use by senior actuarial leadership.

The second important element of a peer-review process is the independence of the actuaries conducting the peer review. A

formal peer review should be conducted by an independent actuary, or team of actuaries. Independence is defined here as meaning that the actuaries who are conducting the peer review were not involved in, or familiar with, the actual rate development and/or creation or population of the rate-filing exhibits. This independence allows for the peer-review actuaries to have the proper detachment and unbiased point of view necessary to properly critique and objectively score the rate filing. The peer-review actuary or actuaries could be internal or external to the filing entity's actuarial department, but it is highly recommended that they be seasoned pricing actuaries who are familiar with the ACA's rating rules and the URR instructions.

Large health insurers might have the personnel necessary to conduct most or all of their ACA rate-filing peer reviews, though there might be circumstances in which they would prefer that external consultants also conduct a thorough peer review. Smaller insurers probably do not have the staffing resources available to properly conduct an effective ACA rate-filing peer review. For these companies it is advisable that they have a third-party actuary perform a formal peer review of each of their ACA rate filings. All companies, regardless of size, should consider having a third-party actuary develop, or help develop, their peer-review tools and objective scoring system.

REVIEW THE UNDERSTANDABILITY OF YOUR ACA RATE FILING

Insurance companies submitting ACA rate filings might also benefit from a review of how easily understandable their rate filings are. As mentioned earlier, it is very possible that the primary rate reviewer of any specific rate filing is a somewhat inexperienced actuarial analyst who may have never developed nor signed a rate filing for an insurance company. To ensure that the rate filing will be easily understood by the rate reviewer regardless of his pricing experience, it would be helpful if the rate development and rate filing's Part III Actuarial Memorandum was also reviewed by a less-experienced actuarial associate.

The purpose of this associate's review would be to determine that the rate-filing exhibits and memorandum narrative provide enough information, from the perspective of an actuary with less-than-expert knowledge, to follow the development of the rate increase. This reviewer could work from an outline and/or develop a "back-of-the-envelope" rate increase calculation, and could provide the filing actuaries with recommendations to develop additional or revised exhibits to better explain the rate development.

GET STARTED EARLY

The recommendations previously outlined will take time to successfully implement. The reason for this is that while many of the suggestions are simple, carrying them out will not always be easy. I am a strong believer in planning ahead and not trying to

do too much in too short of a time period. If you need to revise the format and content of your rate-filing documents, you may need many months to make the proper revisions.

This leads to my final recommendation: Start developing your rate filing early. In my opinion, the time to properly design and develop the format of a successful rate filing is many months prior to the next filing submission date, even before any work is started on the rate development underlying the next rate filing. Ideally this work would happen soon after the previous year's rate-filing work has been completed.

The advantage of starting the work to revise your rate-filing documents so early is twofold. First, the lessons learned from the prior year's filing work will still be fresh in the filing actuaries' minds. Second, doing the work in advance allows for senior actuarial management to have time to properly review changes to the filing's format, especially the Part III Actuarial Memorandum. If the work is started early enough, sufficient time can be spent to fine-tune exhibits, language and the overall presentation to ensure future filings meet the URR instructions and anticipate the vast majority of rate reviewers' questions.

FINAL THOUGHTS ON A SUCCESSFUL RATE FILING

I am sympathetic with actuaries who find the entire ACA rate filing and rate-review process to be a tedious and stressful exercise, because they are correct. However, I also firmly believe that by considering my recommendations, especially redesigning your filing documents to comply completely with the URR instructions, analyzing the objections from prior rate reviews, and looking at your recent filings' documents with a critical eye, you can make your future ACA rate-filing process much less painful and more successful. While the specifics of your future filings might make some back-and-forth with your filing's rate reviewers inevitable, by adopting some or all of these recommendations, you should be able to greatly lessen the pain and length of the process in the future, and put yourself and your company on the path to ACA rate-filing success. ■



Joe Slater, FSA, MAAA, is a senior consulting actuary at Axene Health Partners LLC in Murrieta, California. He can be reached at joe.slater@axenehp.com.

Knowledge On-the-Go

SOA Podcasts

The SOA releases free podcasts each month, designed to help busy professionals find the time to gain insight and hear different perspectives. Recent podcasts explored topics ranging from how nonqualified annuities are taxed to how to be an ethical leader.

SOA.org/Podcast

ASOPs, Anti-Selection, Affordability and ACA Alternatives

By Greg Fann

Author's note: The views expressed herein are those of the author alone and reflect current information as of August 2016. They do not represent the views of the Society of Actuaries, Axene Health Partners LLC or any other body.

In August 2015, the Society of Actuaries (SOA) Health Section published *The ACA@5: An Actuarial Retrospective*. This one-time publication provided a comprehensive look back at the work of actuaries related to the implementation of the Affordable Care Act (ACA). At the time, there was a general sense of cautious optimism regarding the ACA. The early implementation struggles had been resolved; market participation was active for buyers and sellers; and several legal battles that reached the U.S. Supreme Court had been weathered.

In the last year, numerous complications have increased concern and discussion among actuaries and other market observers regarding the long-term sustainability of the ACA individual market. A sampling of the adverse list¹ includes:

- Financial failure of two-thirds of Consumer Operated and Oriented plans (CO-OP)
- No appropriation for cost-sharing reduction funding
- Complaints of inequities in the risk adjustment transfer formula (disadvantage to new carriers, no recognition of pharmacy claims, under-diagnosis for partial-year enrollees, use of statewide premium average in formulas, transfer of administrative expenses)
- Risk corridor funding of only 12.6 percent of amounts due
- Little enrollment growth in 2016, resulting in enrollment about half of original expectation
- Lack of special enrollment verification
- Large financial insurer losses and market exits across the country
- High premium increases in 2017
- High morbidity in markets due to transitional policy presence

- Numerous exemptions to individual mandate penalty
- Need to regulate short-term plans due to growth

A *Politico* article by Paul Demko suggested that the various problems with the ACA were the fault of three guilty parties: “self-inflicted wounds” from President Obama and his administration, undercutting of safeguards from Republican “saboteurs,” and (this one will sting a little) “one big miscalculation” by the health insurance industry.² Demko may not have had actuaries directly in mind, but discussions with “calculations” and “insurance” in the same sentence customarily point in our direction. As stated in prior articles, I believe that the ACA has created greater professional and reputational risks for health actuaries than any prior market development,³ and public reporting of “miscalculations” supports that argument. Professional risk is being discussed more among health actuaries recently, and it will be a covered topic at the 2016 SOA Annual Meeting & Exhibit, as several health sessions including the Health Section Breakfast will focus on lessons we have learned from the ACA.

As actuaries who are experts at predicting and managing risk, it is appropriate to ask ourselves: How much of this was predictable? I had some front-end thoughts on market dynamics that I expressed in 2014.⁴ As I considered what we have learned and what we know now, I thought about my experiences with the ACA over the past six years. As I reflected on a variety of topics, I traveled down a path where I was not necessarily expecting to go. As background, I have worked with ACA products since inception, have been a very active volunteer with the SOA since becoming a fellow in 1998, and have done some occasional volunteer work on behalf of the American Academy of Actuaries (Academy). In 2014, I accepted an invitation to join a task force for the purpose of exploring whether an Actuarial Standard of Practice (ASOP) should be developed relating to minimum value and actuarial value under the ACA. The final result of this journey was the milestone ASOP No. 50, which fortuitously highlighted the Academy’s 50th-year celebration. I had obviously read prior ASOPs and related comments in the past, but my first experience serving on a task force committee gave me a new appreciation of the amount of effort and diligent thought that goes into ASOP development.

ASOPs

This brought me back to my question: How much of this was predictable? If separate groups of bright, experienced actuaries had been through the same year-long experience that I went through 50 times (and we had the benefit of their work), does our body of knowledge include any foretelling indications of what we might have expected with the ACA? It occurred to me that other ASOPs, constructed with general actuarial principles of risk management with perhaps no relation to the ACA, might provide some real insight. This led me, in a sense, to a review of

all of the ASOPs with an ACA focus in mind, and more generally, an expedition into the wondrous history of our profession.

As we all know, the guidance in the ASOPs is to “identify what the actuary should consider, document, and disclose when performing an actuarial assignment.”⁵ These standards have guided our work since 1989 and cover many facets of the profession. Two ASOPs have directly addressed the ACA:

- ASOP No. 8
- ASOP No. 50, as discussed, provided guidance on actuarial value and minimum value

ASOP NO. 8

ASOP No. 8, dealing with regulatory filings for health benefits, was updated to reflect the ACA rate review process. It addresses one of the most notable challenges of the ACA pricing actuary: “The actuary should consider the impact of future changes in the underlying covered population on the projected claims. These changes may include, but are not limited to, changes in demographics, risk profile, or family composition.”⁶

ASOP NO. 12

Interestingly, the ASOP that captured my attention was not one of the 16 developed by the Health Committee of the Actuarial Standards Board. ASOP No. 12, originally titled “Concerning Risk Classification,” was initially adopted in 1989 but the history is much older. As described in the Appendix 1 background:

Risk classification has been a fundamental part of actuarial practice since the beginning of the profession. The financial distress and inequity that can result from ignoring the impact of differences in risk characteristics [were] dramatically illustrated by the failure of the nineteenth century assessment societies, where life insurance was provided at rates that disregarded age. Failure to adhere to actuarial principles regarding risk classification for voluntary coverages can result in underutilization of the financial or personal security system by, and thus lack of coverage for, lower risk individuals, and can result in coverage at insufficient rates for higher risk individuals, which threatens the viability of the entire system.⁷

Actuarial literatures around risk classification date back to *Selection of Risks* by Shepherd and Webster, 1957. Other works on risk classification and actuarial principles followed and the study of risk classification continues to be updated by scientific improvements and technology. Regardless of the era, risk classification has been a bedrock principle of actuarial science and has been “used to treat participants with similar risk characteristics in a consistent manner, to permit economic incentives to operate and thereby encourage widespread availability of coverage, and to protect the soundness of the system.”⁸



One reason for the ACA sustainability challenge relative to other government programs is the “voluntary” nature of the program as highlighted in ASOP No. 12. Compared to other health programs, such as Medicare and Medicaid, there is a substantial portion of the premium required to be paid by some beneficiaries that may result in selective enrollment patterns.⁹ ASOP No. 12 provides clear direction: “The actuary should select risk characteristics that are related to expected outcomes” and strive for “sufficient homogeneity with respect to expected outcomes.”¹⁰

To the extent risk characteristics are not allowable rating factors (i.e., health status, gender) and eligible enrollees are responsible for a significant premium contribution, anti-selection is a strong potential. The corollary in the group market is anti-selective enrollment for dependents who are responsible for a larger share of their premiums than employees. The ASOP goes on to define a “fair” and “equitable” market as one where “differences in rates reflect material differences in expected cost for risk characteristics.”¹¹

It is important to recognize that health plan ACA premium revenue received is different from the net premium payment of the beneficiary, due to federal premium subsidies and risk adjustment transfer payments. A health plan assessment of “fair” revenue related to a beneficiary may not be consistent with that beneficiary’s assessment of a “fair” premium. Therefore, it is incumbent upon health plans to recognize the beneficiaries’ financial viewpoint when developing enrollment and market projections. Related to this, an actuary should consider the revenue impact of the risk adjustment results on a changing market enrollment.

ANTI-SELECTION

Anti-selection (adverse selection) is defined in ASOP No. 12 as, “Actions taken by one party using risk characteristics or other information known to or suspected by that party that cause a financial disadvantage to the financial or personal security system.”¹²

Warnings and implications of adverse selection are provided:

- 3.3.2.a: “If the variation in expected outcomes within a risk class is too great, adverse selection is likely to occur.”
- 3.4.1: “Adverse selection can potentially threaten the long-term viability of a financial or personal security system. The actuary should assess the potential effects of adverse selection that may result or have resulted from the design or implementation of the risk classification system.”
- Background section in Appendix 1: “Classes that are overly broad may produce unexpected changes in the distribution of risk characteristics.”¹³

According to Demko, adverse selection is occurring in the individual market as “the biggest problem plaguing the exchanges is that for many states, the balance has turned out to be way off. Fewer individuals signed up for coverage than projected, and they’ve proven sicker and more expensive than insurers had expected.”¹⁴

So, what is our responsibility when we see inherent challenges in the financial structures that we have been asked to manage? I think that was articulated quite well in another SOA section publication in 2013: “We build and manage systems and structures that are designed to be sustainable and are not built to fail. We understand and can demonstrate the consequences of building weak structures and systems. In cases where there are obstacles to sustainability, it is imperative that we objectively opine and seek to overcome these obstacles.”¹⁵ In the next two sections, I will offer my opinion on the challenges of ACA individual market sustainability and the sustainability impact of other new approaches relative to the ACA framework.

AFFORDABILITY

A simple question to ponder for a minute: Do people necessarily purchase products or services because they can “afford” them? Or do their consumption patterns reflect their desires and perceived needs, even if that requires an occasional stretching of their personal budgets?

In my opinion, our public policy has generally exaggerated the linkage between “affordability” and the purchase of health insurance. It is a rather simplistic notion to suggest that “people would have health insurance if they could afford it.” President Obama admitted in 2014 that it was actually a more complicated decision. When asked about consumer choices, he said, “If you looked at that person’s budget, and you looked at their cable bill, their telephone, their cell phone bill, it may turn out that it’s just they haven’t prioritized health care because right now everybody’s healthy. Nobody actually wants to spend money on health insurance until they get sick.”¹⁶

The ACA is built on the concept of affordability; after all, it’s in the name. The ACA framework is intended to provide a guaranteed level of coverage (second-lowest-priced silver plan in geographic area) for a graded “affordable” percentage of income up to a threshold; anyone above the threshold presumably could afford health insurance without government assistance and would be inclined to do so. There was little consideration in the ACA methodology to determine whether that fixed percentage of income (or market premiums for individuals above the income threshold) would provide “value,” perhaps from an expected-claims-to-premium-ratio perspective, and how this calculation might change for various age and income levels. Is it reasonable to expect a younger person and an older person at the same income level to have the same willingness to pay the same premium for the same coverage? As demonstrated in several examples, older adults actually pay less than young adults at the same income level for the same coverage for some plans,¹⁷ undoubtedly shifting the risk pool.

In a free market society, people will rationally purchase products that provide “value” to them. Our focus, consistent with the equity and promotion of widespread availability of coverage discussed in ASOP No. 12, should be on offering products with attractive value for all, rather than relying on promotional efforts to certain groups to balance the risk pool with other groups who are arguably receiving excessive value.

Unfortunately, the ongoing challenge of encouraging young people to enroll in the ACA markets is being magnified by recent market results indicating that the risk adjustment transfer methodology results are driving poor health plan financial performance for enrollees without high-cost medical conditions. To put it rather bluntly, we seem to be in a situation where we all want young people to enroll in the market with only two exceptions: young people and the health plan that would likely enroll them.

Opportunities for innovation and market improvement through value creation are on the horizon and available at the state level in 2017. Some of the unbalanced federal subsidies can be adjusted by the implementation of state innovation waivers.¹⁸ Within limits, states can use the federal funds provided through the ACA and redistribute them in a more efficient, equitable manner to provide incentives across a broader market; at the time of this article, no explicit state plans regarding this effort are publicly available. The next section considers some specific alternatives at the federal level, including numerical comparisons to ACA products.

ACA ALTERNATIVES

Over the last few years, various federal alternatives to the ACA have been proposed in Congress. Two of the most notable proposals have been developed by Rep. Tom Price of Georgia and

Rep. Fred Upton of Michigan. Price, an orthopedic surgeon and chair of the House Committee on the Budget, was a presenter at the 2015 SOA Health Meeting. Upton is chair of the Committee on Energy and Commerce. Similar to the ACA, both proposals recognize the correlation of age and health care costs and feature age-based tax credits. Both proposals also allow a steeper age curve of 5:1, which is more reflective of actual costs, rather than the ACA 3:1 limit. Unlike the ACA, the proposals from Price and Upton provide tax credits that are directly determined and independent of premium rates in the marketplace. Each proposal also avoids the so-called “family glitch,” and the Price proposal would remove both of the ACA complications of an Internal Revenue Service (IRS) reconciliation with tax returns and the enrollee burden and risk of estimating personal income each year.

Price’s proposal (*Empowering Patients First Act*) “provides for refundable, age adjusted tax credits with amounts tied to average insurance on individual market adjusted for inflation.”¹⁹

- \$1,200 for those between 18 to 35 years of age
- \$2,100 for those between 35 and 50 years of age
- \$3,000 for those who are 50 years and older
- \$900 per child up to age 18

Upton’s proposal (*The Patient Choice, Affordability, Responsibility, and Empowerment Act*) is similar to the Price proposal but is not universal and is more complex. Upton proposes tax credits similar to Price but only to individuals at below 300 percent (and graded down linearly from 200 percent) of the federal poverty level (FPL) who do not work for employers that provide health insurance and that employ more than 100 people.²⁰ Upton’s plan does not include a specific child credit but offers a higher family deduction (individual/family):

- \$1,970/\$4,290 for those between 18 and 34 years of age
- \$3,190/\$8,330 for those between 35 and 49 years of age
- \$4,690/\$11,110 for those between 50 and 64 years of age

My 2014 *Health Watch* article examined the ACA impact on net premiums and expected total cost (ETC) for an exchange enrollee after considering cost sharing.²¹ The conclusions from the analysis indicated that the premium and cost-sharing subsidies were far more generous to lower-income and older enrollees and had the potential to create an imbalanced marketplace. In fact, the calculations indicated that most older enrollees should enroll (based on ETC analysis) in bronze or silver plans and most younger people would have lower ETC without procuring coverage or retaining coverage on a pre-ACA plan.

Using the same illustrative example in the referenced article, the following analyses compare the impact of the Price and Upton proposals to the existing ACA provisions. Similar to Figures 12 and 13 in the referenced article, Figure 1 displays the ETC in 2016 of having no coverage (which includes the cost of the “individual mandate” tax penalty), ACA-level coverage, and the Price and the Upton proposals. The bronze and the silver plans have the lowest ETC of the exchange metal-level options. The bronze ETC is generally the lowest among metal-level plans except when cost-sharing subsidies (only available for silver plans) are sufficiently large. The Price and Upton results are illustrated assuming bronze-level coverage.

Figure 1
Expected Total Cost

	No Coverage	Bronze	Silver	Price	Upton
Age 24					
175% FPL	176.89	87.49	80.74	72.13	54.00
275% FPL	200.83	232.22	248.43	72.13	131.08
375% FPL	224.77	232.22	248.43	72.13	172.13
Age 44					
175% FPL	379.39	147.52	97.89	213.13	135.00
275% FPL	403.33	292.29	300.03	213.13	321.67
375% FPL	427.27	383.98	391.73	213.13	388.13
Age 64					
175% FPL	851.89	187.50	122.29	664.63	523.79
275% FPL	875.83	396.64	404.75	664.63	816.92
375% FPL	899.77	506.69	514.80	664.63	914.63

Several observations regarding the ETC include:

1. The Price results do not vary by income as the tax credits are universal and not based on income.
2. Both the Price and the Upton results are lower than the ACA levels at age 24 for each income level.
3. Both the Price and the Upton results are higher than the ACA levels at age 64 for each income level.
4. Only the Price proposal results in lower cost than forgoing coverage for each age and income level.

Let’s discuss the impact of these proposals with a major caveat. There are many relevant factors that are not a part of this analysis. For example, it is beyond the scope of this article to measure the cost to the federal government of each of these proposals. Obviously, higher government spending for one proposal would provide an advantage of being able to achieve lower enrollee ETC. There are also many other policy-related issues that are out of scope. For example, ACA tax credits are only available for a prescribed level of coverage and specific benefits sold through an exchange. The Price and Upton tax credits are more generally available. Our evaluation is narrowly focused on evaluating

the net premiums and resulting ETC of each proposal and understanding how that might impact market enrollment and program stability.

Figure 2 displays the ETC relationship of each plan to the “no coverage” costs. For each age/income cell, a lower percentage indicates a greater value and a likelihood of higher enrollment. The results illustrate the current challenge of enrolling young people above 200 percent of FPL and the market attractiveness to older enrollees in the ACA exchanges.

Figure 2
ETC Relation to No Coverage

	Bronze	Silver	Price	Upton
Age 24				
175% FPL	49%	46%	41%	31%
275% FPL	116%	124%	36%	65%
375% FPL	103%	111%	32%	77%
Age 44				
175% FPL	39%	26%	56%	36%
275% FPL	72%	74%	53%	80%
375% FPL	90%	92%	50%	91%
Age 64				
175% FPL	22%	14%	78%	61%
275% FPL	45%	46%	76%	93%
375% FPL	56%	57%	74%	102%

Due to the steeper age slope and more balanced tax credits, more young eligible enrollees would likely enroll under the Price and Upton proposals than the current ACA framework.

Figure 3 displays statistics of the results in Figure 2. Based on a straight average of the nine data points, the Price proposal offers the best value. The Price proposal also produces the lowest median, the lowest standard deviation, the lowest maximum and the highest minimum. Based on this illustration, it appears that the Price tax credits provide a more “efficient use of funds,” better “aligned incentives,” and greater “equity among participants” in line with actuarial requirements of sustainable financing programs.²²

Figure 3
ETC Relation to No Coverage

	Bronze	Silver	Price	Upton
Minimum	22%	14%	32%	31%
Maximum	116%	124%	78%	102%
Average	66%	66%	55%	71%
Median	56%	57%	53%	77%
Std Deviation	31%	37%	17%	25%

CONCLUSION

The ASOPs have guided our profession well since 1989. In our primary duty of analyzing risk, adverse selection is almost always a consideration in some fashion. Our input to develop and maintain sustainable programs should focus on minimizing adverse selection. To the extent obstacles to sustainability exist in the financial systems that we manage, we should apply our expertise to manage that risk and offer our opinions to facilitate a better-functioning marketplace.

The ACA individual market is the only long-term health insurance option²³ for people who do not have insurance through their employer or a government program. It is in the public interest for this market to be attractive to health insurers and for the rating structure and associated tax credits to provide value to attract all eligible consumers. In the middle of 2016, neither of these appears to be true.

Using the sample calculations, the proposal from Price seems to attract the most people across the age and income spectrum. In particular, the changes from a 3:1 to a 5:1 age ratio and the provision of universal tax credits for all enrollees provide incentives for younger individuals to enroll that are lacking under the current ACA framework. Additionally, it does not involve an IRS reconciliation and is administratively simpler than the ACA.

Challenges remain with respect to the principles of risk classification. The days of aligning premium rates with the risk characteristic of health status in the individual market seem to be behind us. In this environment, appropriate incentives are needed to attract a cross section of eligible enrollees.

The ACA has demonstrated that the allotment of federal funds into a marketplace, combined with heavy promotion, a coverage mandate and a guarantee issue market, will initially increase the market size. It is also clear that the ACA subsidies, as currently structured, are targeted toward an older, low-income population and the ACA marketplace has not attracted the desired cross section of eligible enrollees into the individual market. New proposals that are being considered provide broader tax incentives across the age/income spectrum and should facilitate a more robust, stable marketplace. ■



Greg Fann, FSA, FCA, MAAA, is senior consulting actuary with Axene Health Partners LLC in Murrieta, California. He can be reached at greg.fann@axenehp.com.

Continued on page 20

ENDNOTES

- ¹ This article is primarily focused on the ACA individual market. Some of these complications (i.e., risk adjustment) apply to the ACA small group market as well.
- ² “Obamacare’s Sinking Safety Net,” <http://www.politico.com/agenda/story/2016/07/obamacare-exchanges-states-north-carolina-000162>
- ³ “The Sustainability of the New American Entitlement: Actuarial Values and the ACA,” <https://www.soa.org/sipf/>
- ⁴ “Implications of Individual Subsidies in the Affordable Care Act—What Stakeholders Need to Understand,” <https://soa.org/news-and-publications/newsletters/health/pub-health-section-newsletters-details.aspx>
- ⁵ <http://www.actuarialstandardsboard.org/about-asb/>
- ⁶ http://www.actuarialstandardsboard.org/wp-content/uploads/2014/08/asap008_176.pdf
- ⁷ <http://www.actuarialstandardsboard.org/asops/risk-classification-practice-areas/>
- ⁸ *Ibid.*
- ⁹ *Supra*, note 3.
- ¹⁰ *Supra*, note 7.
- ¹¹ *Supra*, note 7. The ACA explicitly recognizes a gap between risk characteristics and allowable rates and attempts to bridge that gap through the risk adjustment transfer mechanism. The methodology is intended to address the ASOP No. 12 concern of “insufficient rates for higher risk individuals” but not the related concern of “lack of coverage for lower risk individuals.” Most of the complaints related to the risk adjustment methodology seek revenue shifting between health plans and do not specifically address the larger issue of fostering a balanced risk pool.
- ¹² *Supra*, note 7.
- ¹³ *Supra*, note 7.
- ¹⁴ *Supra*, note 2.
- ¹⁵ “Actuarial Values,” <https://soa.org/news-and-publications/newsletters/sipf/pub-sipf-newsletter-details.aspx>. See Publications: January 2013.
- ¹⁶ <https://www.youtube.com/watch?v=gRllyR4v0rE>
- ¹⁷ “The True Cost of Coverage,” www.theactuarymagazine.org/archives
- ¹⁸ “Section 1332 Waivers. Coming Soon to a State Near You?” <http://healthwatch.soa.org/?issueID=1&pageID=33>
- ¹⁹ <http://tomprice.house.gov/sites/tomprice.house.gov/files/Section%20by%20Section%20of%20HR%202300%20Empowering%20Patients%20First%20Act%202015.pdf>
- ²⁰ <https://energycommerce.house.gov/sites/republicans.energycommerce.house.gov/files/114/20150205-PCARE-Act-Plan.pdf>
- ²¹ *Supra*, note 4; <http://www.actuarialstandardsboard.org/table-contents-standards-library/>
- ²² *Supra*, note 18.
- ²³ Medi-Share and Samaritan Ministries offer non-insurance “products” that provide reimbursement for medical costs. Their customers receive an exemption from the individual mandate tax penalty.

Join the RWJF Actuarial Challenge!

The Affordable Care Act (ACA) has brought extensive changes to the individual health insurance market, resulting in improved access to health insurance coverage. As the market evolves under the new structure, challenges have emerged related to provider choice, unexpectedly high costs and issuers exiting the market.

In light of these observations, the Robert Wood Johnson Foundation (RWJF) is sponsoring a collaborative actuarial challenge to identify possible paths forward by testing different approaches to improving the market. This actuarial challenge is meant to elicit innovative ideas and proposals for how the ACA could evolve or be reformed to move the individual market further toward the goal of universal access to quality health services and providers in a financially secure and stable way, with consideration of the costs the solution places upon various health-sector stakeholders.

This challenge is open to all actuaries. If you’re passionate about these issues and have ideas on how to reform our individual health care system, join in the Challenge! Join a team or form your own team. You will have an opportunity to have your ideas discussed, and, in some cases—through use of a common simulation model—you’ll be able to quantify how your approach will promote increased enrollment and stable, affordable costs.

The successful conclusion to the challenge will see realistic, innovative solutions proposed, which further stimulate discussion about moving the individual health insurance market forward toward addressing the challenges stated above. RWJF will make public those papers that best meet these goals.

More information about the Challenge will be available on SOA.org, or contact Darleen.Jeske@ActuarialChallenge.com.

Act fast since deadlines are approaching.

Review: “Do Individuals Make Sensible Health Insurance Decisions? Evidence From a Menu With Dominated Options”

By Randy Herman, Alex Leung and Jonah Yearick

A growing body of economic research is focused on understanding how consumers choose and utilize their health benefits. This is one of a series of article reviews prepared by the Behavioral Finance Subgroup of the Health Section that will highlight substantive articles of interest to health actuaries. It focuses on a report by Saurabh Bhargava and George Loewenstein of Carnegie Mellon University and Justin Sydnor of the Wisconsin School of Business.¹

For many Americans, health care spending represents a meaningful portion of their annual household expenditure. At its core, health insurance protects individuals from catastrophic financial risk when falling ill or suffering injury in exchange for fixed periodic payments. When choosing a health care plan, consumers aim to select the most favorable options that provide benefit coverage to meet their anticipated health care needs. However, new research shows that individuals, when making health plan choices through an employer-sponsored plan, often make suboptimal or even contradictory choices that lead to unnecessary out-of-pocket expenditures. To better understand why these suboptimal choices are made, Bhargava et al. performed a series of experiments designed to elicit key factors that influence health insurance decisions.

These experiments, and the authors’ subsequent analyses, provide useful insights for health actuaries consulting with large employers as well as product actuaries working in both the group and individual markets.

EMPIRICAL EVIDENCE OF POOR HEALTH PLAN CHOICES

The authors begin with an empirical assessment of the health plan choices made by more than 50,000 employees at an undisclosed Fortune 100 firm. Beginning in 2010, these employees were required to assemble their own health plan by selecting four in-network, cost-sharing features from a menu of options. Choices available included four annual deductible levels (\$1,000; \$750; \$500; \$350), three out-of-pocket maximum levels (\$3,000;

\$2,500; \$1,500), two office visit copayment levels (\$15 for primary care physician (PCP)/\$40 for specialist; \$25 for PCP/\$35 for specialist), and two coinsurance rates (90 percent; 80 percent) for a total of 48 distinct plans. All plans were administered by the same insurance company and featured the same provider network; therefore the only variations between plans were the four cost-sharing features and the corresponding premiums.

What makes this menu of health plan options notable is the presence of “financially dominated” options. A particular plan is considered financially dominated if there is an alternative plan that results in lower overall out-of-pocket costs across the entire range of potential medical spends. For example, consider two hypothetical plans—Plan A and Plan B—that are identical except for the in-network deductible level.

Plan A	Plan B
Deductible: \$500	Deductible: \$1,000
Out-of-pocket max: \$1,500	Out-of-pocket max: \$1,500
Office visit copay: \$15 PCP \$40 specialist	Office visit copay: \$15 PCP \$40 specialist
Coinsurance: 90%	Coinsurance: 90%
Annual premium: \$1,568	Annual premium: \$930

By selecting Plan A over Plan B, an individual would pay an additional \$638 in annual premium in exchange for a maximum potential savings of \$500 in deductible expenditure. Even after considering the tax implications associated with these different premiums (assuming the deductible would be spent using after-tax dollars and the premium would be paid using before-tax dollars), the expected tax-adjusted cost differential still exceeds the potential savings in deductible expenditure.

This example may seem trivial, but in reality all but one of the 36 low-deductible plans offered by the employer were financially dominated by the corresponding \$1,000 deductible plan on a pretax basis (30 of the 36 were dominated after tax





considerations). The authors found that a majority, nearly 63 percent, of plan enrollees selected plans that were financially dominated on a pretax basis.² Even after tax adjustment using the inferred marginal tax rate for each employee based on reported salary, 46 percent of employees chose financially dominated plans, nearly half of whom were paying more than 50 percent more in annual premium than the difference in deductibles. To make things worse, the evidence further suggests that the most financially vulnerable enrollees (e.g., lower-income employees, older employees, and those with chronic conditions) were significantly more likely to select the financially dominated plans. Employees in the lowest band of reported income could have saved more than 4 percent of annual income, on average, with the actuarially best plan. The disproportionate impact on the most financially vulnerable individuals due to the burden of complex insurance decisions highlights the fact that these poor plan choices critically undermine the propositions of choice expansion. The authors conclude that individuals who selected a plan with a deductible lower than \$1,000 could have saved on average \$353 per year by switching to the corresponding \$1,000 deductible plan. Given average employee salary below \$30,000 for individuals in this sample, this represents a significant savings of nearly 2 percent of total after-tax salary.

UNDERSTANDING POOR HEALTH PLAN CHOICES

The underlying question as to why individuals, with their own financial best interest in mind, would choose dominated plans was tested in a series of experiments focused on different perceived behavioral biases in plan selection. The fact that each of the 48 plans offered by the firm had a nontrivial percentage of enrollees suggests that there are a wide variety of search strategies, motivations and preferences at play. The experiments were presented through an online module that allowed test subjects to make plan choices in a manner similar to that of the firm’s employees, but with various interventions imposed to elicit the key drivers underlying the decisions made. The test groups for each of the experiments described were drawn from

a homogeneous population and were demographically diverse in gender, age, education level, race and income. In addition, the test groups consisted of individuals with and without health insurance.

Experiment 1: Search Complexity

The first experiment was designed to test the hypothesis that poor plan choices made by plan enrollees could be attributed to “search complexity,” a catch-all term to refer not only to the large size of the plan menu and the plethora of individual choices to be made, but also the difficulty in comparing distinct plans. The test group was exposed to a plan menu that, although differing in number of customizable attributes and total options from the firm’s plan, included the same degree of price domination. Subjects were each exposed to a plan interface that varied across the following three attributes, for a total of eight “interventions”:

- **Premium mode.** Premiums were either presented annually or monthly in order to assess whether displaying premiums annually, and thus on the same basis as the deductible, improved plan choice.
- **Number of plan attributes to be selected by the test subject.** Options varied between four deductibles and three maximum out-of-pocket (MOOP) (12 options) and four deductibles with MOOP held constant (four options).
- **Ease of comparison.** Some test subjects were required to build plans sequentially (similar to the firm’s plan) with the option to price different plans separately, while others were shown a single table containing all potential plan options with corresponding premiums.

Figure 1 illustrates the options used in this experiment.

The authors found that the elections of financially dominated plans under the experiment were in line with the empirical data collected from the firm. In the experiment, only 32 percent of subjects elected a plan with the maximum deductible of \$1,000 (compared to 37 percent of the firm’s enrollees), meaning that more than two-thirds of the sample group selected financially dominated plans. Modest improvements were noted for subgroups whose interventions included the side-by-side comparison of all available plans; however, the researchers note no noticeable improvement in plan selection due to limiting the number of selectable attributes or through displaying monthly versus annual premiums.

Experiment 2: Insurance Literacy and Search Motivation

While the results of the first experiment provide modest evidence that complexities with the plan selection interface may contribute to the selection of dominated plans, the second experiment focused on the complexity of fundamental insurance

Figure 1
Experiment 1—Search Complexity

Select plan menus faced by subjects in comparison choice conditions

(menus vary by number of attribute combinations and time-horizon of premium display)

The following table tells you how much you would pay in premium for the deductible you select.

TABLE OF MONTHLY PREMIUMS FOR HEALTH PLAN OPTIONS			
DEDUCTIBLE			
\$350	\$500	\$750	\$1,000
\$163/month	\$118/month	\$110/month	\$68/month

- Comparison Choice
- Single Attribute
- Monthly Premiums

The following table tells you how much you would pay in premium for the deductible and out-of-pocket maximum you select.

TABLE OF MONTHLY PREMIUMS FOR HEALTH PLAN OPTIONS			
DEDUCTIBLE	OUT-OF-POCKET MAXIMUMS		
	\$1,500	\$2,500	\$3,000
\$350	\$163/month	\$151/month	\$134/month
\$500	\$118/month	\$104/month	\$93/month
\$750	\$110/month	\$97/month	\$86/month
\$1,000	\$68/month	\$55/month	\$53/month

- Comparison Choice
- Two Attributes
- Monthly Premiums

The following table tells you how much you would pay in premium for the deductible and out-of-pocket maximum you select.

TABLE OF YEARLY PREMIUMS FOR HEALTH PLAN OPTIONS			
DEDUCTIBLE	OUT-OF-POCKET MAXIMUMS		
	\$1,500	\$2,500	\$3,000
\$350	\$1,957/year	\$1,808/year	\$1,605/year
\$500	\$1,419/year	\$1,252/year	\$1,114/year
\$750	\$1,321/year	\$1,168/year	\$1,038/year
\$1,000	\$817/year	\$662/year	\$634/year

- Comparison Choice
- Two Attributes
- Annual Premiums

Source: Reproduced from “Do Individuals Make Sensible Health Insurance Decisions? Evidence From a Menu With Dominated Options” by Saurabh Bhargava, George Loewenstein and Justin Sydnor, May 2015.

concepts as the key driver to suboptimal plan selection. In the second experiment, subjects were presented a short narrative of a recent health care enrollee and subsequently asked to define key cost-sharing attributes of a typical insurance plan (copayment, deductible, out-of-pocket maximum and coinsurance) prior to plan selections from a simplified menu. The subjects’ insurance “literacy” was determined based on the responses given. Results of the “literacy” analysis found that 71 percent of respondents were unable to identify and explain the four cost-sharing attributes correctly. The researchers found that high insurance literacy corresponded to better plan selection with approximately 65 percent of “literate” subjects selecting

non-dominated plans versus approximately 50 percent for their “illiterate” counterparts.

In further iterations of the experiment, subjects were coached on how to identify dominated plans (i.e., comparing difference in premium to difference in deductible). An example of this coaching is shown in Figure 2.

Introducing coaching saw increases in selection of non-dominated plans versus a control group for both “literate” and “illiterate” subjects. In total, education and coaching interventions improved the quality of plan choices; however, 30 to 40 percent of the subjects persisted in making suboptimal choices.

Figure 2
Experiment 2—Health Literacy

In the final part of the survey, we will ask you to choose a health plan from a menu of possible plans.

However, before you choose, we’d like to spend a few minutes and walk you through a couple illustrative scenarios. For these scenarios imagine that you are only responsible for your own health care, and not that of a spouse or dependents.

First, it is helpful to define two terms:

A **plan premium** is the amount that must be paid for a health plan (usually monthly, quarterly or annually).

A **plan deductible** is the annual amount that must be paid out-of-pocket for medical care before a health plan begins to pay. For example, if a plan deductible is \$1,000, the plan won’t pay anything until a customer has exceeded \$1,000 in medical expenses.

Imagine that Bill is presented with the following health plan for the next year (“Plan Green”):

Plan Green has a \$1,200 annual premium and a \$800 deductible. The plan covers all expenses after the deductible is met.

What is the *minimum* and *maximum* amount Bill might have to spend next year on health care (including both his premium and possible out-of-pocket costs)?

	0	400	800	1200	1600	2000	2400	2800	3200
Minimum Bill Might Spend	0	400	800	1200	1600	2000	2400	2800	3200
Maximum Bill Might Spend	0	400	800	1200	1600	2000	2400	2800	3200

Yes, you are correct!

No matter what, Bill would end up paying *less* with **Plan Green**.

Why? Note that plans with a lower deductibles (here, **Plan Blue**) cost more in annual premium.

If Bill does not use any medical care, he will definitely pay more with the low deductible plan.

If Bill does use care, the low deductible plan may save him money by reducing his out-of-pocket spending but will only be cheaper overall if these savings are larger than the additional plan premium.

In this example, if Bill chooses **Plan Blue**, he has to pay an *additional \$800 in premium* (\$2,000–\$1,200). However, even if Bill uses a lot of medical care, **Plan Blue** can only *save him a maximum of \$400* in out-of-pocket spending (\$800–\$400).

Now imagine that Bill has the option of choosing between the same **Plan Green** or a new **Plan Blue**

The plans provide access to the same doctors and quality of service, but the plans have the following features:

Plan Green has a \$1,200 annual premium and a \$800 deductible. The plan covers all expenses after the deductible is met.

Plan Blue has a \$2,000 annual premium and a \$400 deductible. The plan covers all expenses after the deductible is met.

For each of the following scenarios, which plan will be cheaper for Bill?

	Plan Green	Cheaper Plan for Bill	
		Plan Blue	Plans are Equal
Bill does not visit the doctor all year	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bill visits the doctor at a total expense of \$500	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Bill visits the doctor and hospital at a total expense of \$3000	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Source: Reproduced from “Do Individuals Make Sensible Health Insurance Decisions? Evidence From a Menu With Dominated Options” by Saurabh Bhargava, George Loewenstein and Justin Sydnor, May 2015.

In addition to testing whether basic *knowledge* of key insurance principles could result in better plan selection, the authors also tested whether an individual’s preconceived *beliefs* that some insurance plans are simply bad deals correlated to improved selections. Subjects were presented with the following question:

When enrolling in health insurance, typically you would be asked to choose from a set of health plans with very different prices (premiums). What would you expect to be true about these plan options?

Subjects who responded that price differences usually reflect difference in quality or coverage were classified as “trusting,” while

those responding that price differences do not necessarily reflect these differences were classified as “suspicious.”

Although a majority of the test group was identified as “suspicious,” the researchers only found marginal improvements in plan choice for this cohort. For those given a simplified plan menu (four plans varying only by deductible), 56 percent of suspicious individuals selected non-dominated plans compared to 55 percent of trusting individuals. When the plan menu became more complicated (12 plans varying by deductible and MOOP), however, the gap widened to 57 percent of suspicious individuals selecting non-dominated plans compared to 48 percent of their trusting counterparts. These minimal discrepancies between the

Consumers are valuing the deductible level using some convoluted heuristic, when a simple comparison of the differences in deductibles to the premium differential should suffice.

suspicious and trusting groups may suggest that suspicious individuals, although correct in their belief that some plans were simply a bad deal, lacked the ability to identify which plans were, in fact, the bad deals.

Experiment 3: Plan Price and Perceived Health Status

The final experiment performed in this study focused on the sensitivity of plan choice to two additional attributes: plan price and perceived health status. To measure consumer sensitivity to plan price, a test environment was designed with four plan options differing only by deductible. In the baseline case, all low-deductible plans were financially dominated by the \$1,000 deductible plan. A second case (“more expensive”) was designed so that the premium gaps between the \$1,000 deductible plan and the low-deductible plans were increased by a factor of 1.25, with the \$1,000 deductible plan premium unchanged. The third case (“less expensive”) was designed in a similar manner to the “more expensive” case, but with premium gaps scaled by a factor of 0.75. The researchers found a marginal increase in optimal plan selection as price differentials rose, with 44 percent selecting the \$1,000 deductible plan in the “more expensive” case compared to 36 percent in the baseline case and 32 percent in the “less expensive” case. This apparent sensitivity to the magnitude of price differentials is not particularly surprising, however, as nearly all low-deductible plans were dominated in each of the three scenarios. This strongly suggests that consumers are valuing the deductible level using some convoluted heuristic, when a simple comparison of the differences in deductibles to the premium differential should suffice.

The latter portion of the third experiment focused on perceived health status as a primary motivator for plan choices. Prior to having subjects select from a menu of four plans varying only by deductible level (and with all low-deductible plans dominated by the \$1,000 deductible option), individuals self-reported their health status as either “extremely healthy,” “fairly healthy,” “somewhat healthy,” or “unhealthy.” Of those self-reporting as “extremely healthy,” a majority, 51 percent, selected the \$1,000 deductible option. In comparison, only 33 percent of their less healthy counterparts made the same election. Despite a similar rate of election of dominated plans in the “fairly healthy,”

“somewhat healthy” and “unhealthy” groups, those self-reporting in the lowest two groups were significantly more likely to select the plan with the absolute lowest deductible. The authors conclude that the results of this experiment show that subjects “. . . do not appear to make choices randomly, but instead appear to recognize the existence of tradeoffs involving plan prices and health risks.”

UNDERSTANDING THE PRICING OF PLAN OPTIONS

The results of the aforementioned experiments, as well as the empirical data, strongly suggest that a substantial proportion of consumers may make poor insurance decisions when offered a menu that includes financially dominated plan options. The natural follow-up to this conclusion is to question the rationale behind offering financially dominated plans to the employees in the first place. The authors noted that the firm studied partnered with an actuarial/health insurance consulting firm to price the plan options. The authors propose that the existence of financially dominated options was a consequence of adverse selection and the use of an “average-cost-pricing” approach that set prices for each plan based on the cost of those individuals selecting the plan. Furthermore, the dominated options were made apparent because of the “build-your-own” menu of cost-sharing options presented to employees instead of offering fewer, more widely varied “bundled” options that would make the dominated options less transparent.

To determine whether or not the observed plan menu is consistent with an average-cost-pricing strategy, the authors employed a series of regression analyses using premiums, plan features and health care spending. Based on these techniques, they were able to determine the marginal difference in employee plan price associated with each cost-sharing feature and the “average incremental cost” to the employer associated with each cost-sharing feature (both relative to the option with highest cost-sharing). These regression models showed that the average incremental cost to the employer (or benefit to the employee) was much less than the price charged for the benefit. This result further validates the empirical assertion that there is substantial cost savings to the consumer associated with non-dominated plans. For example, the analysis shows that the marginal cost of choosing a plan with a \$500 deductible instead of an equivalent plan with a \$1,000 deductible would be approximately \$625. Compare this to the average incremental cost to the insurer of only \$230 (equivalent to out-of-pocket savings for the consumer of the same amount); it becomes apparent that the consumer would be better off choosing the option with greater cost-sharing.

Additional regression analysis found that the premium patterns observed seem much more reasonable when viewing them through the lens of total cost borne to the insurer. By regressing the average total expenditure on medical spending with features

of the chosen plan (the “average-cost-pricing” approach), both the incremental cost to the insurer for covered health spending and differences in total health spending between employees by plan choice could be accounted for. Consistent with the assertion that employees are self-selecting based on their own perceived health status, the researchers find that individuals opting for lower cost-sharing, and hence dominated plans, are also spending more on health care. Back to the \$500 deductible versus \$1,000 deductible example, this analysis shows that individuals choosing the \$500 deductible spend, on average, more than \$1,200 than those selecting higher-deductible plans—all else equal. It is clear from these results that anti-selection of plan participants can—at least partially—account for the presence of financially dominated plan options when an average-cost-pricing methodology is used.

The authors suggest that using the average incremental cost approach rather than an average-cost-pricing approach would diminish the consequences of poor choices, as premiums would never be financially dominated. Furthermore, the authors note that healthier employees (who are the most disadvantaged by dominated options) would tend to migrate to higher cost-sharing plans, which would result in increasingly dominated pricing under the average-cost-pricing approach. This suggested pricing under the average-cost-pricing approach. This suggested approach is essentially encompassed in the “single risk pool” requirements of the Affordable Care Act, since plan options cannot be priced as separate risk pools.

IMPLICATION FOR ANALYSIS OF INSURANCE MARKETS

In the final section of the paper, the authors offer a modification to the standard model of insurance markets. In the standard model, consumers are rational and would not purchase a financially dominated option. The authors suggest that some consumers may naively assume that the price presented is an “actuarially fair” price and will purchase coverage based only on their perceived risk, ignoring the price. By weighting the standard model with this modification, the authors demonstrate how the choice of financially dominated options could occur.

CONCLUSION

In conclusion, the authors note that the empirical results do not follow the standard economic model of insurance demand, which

posits that individuals select the available plan that maximizes utility given accurate beliefs about the financial consequences of coverage choices based on expectations of benefit utilization and level of financial risk aversion. However, we live in a world where many of our everyday decisions may not be considered “rational” in a purely economic sense. An overabundance of options, as seen in the study, can cause individuals to make financially nonsensical decisions with no one the wiser. Health insurers, as well as employers sponsoring group health plans, should focus on providing their members with the tools and assistance needed to support educated plan enrollment rather than focusing solely on expanding plan menus. Individuals are ultimately responsible for the choices made, but empowering them with appropriate knowledge could go a long way in improving the consumer decision process. ■



Randy P. Herman, FSA, MAAA, is chief executive officer of Deft Research, a market research firm focusing on the health insurance consumer. He can be reached at rherman@deltresearch.com.



Alex T. Leung, FSA, MAAA, is the cofounder and appointed actuary at AI Financial Technology in Hong Kong. He can be reached at alex.leung@ai-fintech.com.



Jonah Yearick, FSA, CERA, MAAA, is a senior actuarial associate at the Standard Insurance Company in Portland, Oregon. He can be reached at Jonah.yearick@standard.com.

ENDNOTES

- ¹ The original report can be found at <https://www.cmu.edu/dietrich/sds/docs/bhargava/w21160.pdf>.
- ² It is worth noting that the plan with the highest degree of cost-sharing, and therefore lowest annual premium, was the default plan for those with existing coverage and electing not to make a choice using the new plan selection interface. The authors were unable to make a distinction between those who had actively versus passively selected this plan.

SOA Professionalism Ready-to-Go Kit

Host a Top-Notch Professionalism Workshop for Your Employees (Without Leaving the Office)

Check out the Professionalism Ready-to-Go Kit:

- Includes a facilitator guide, logistics guide, slide presentation and participant guide
- Participants may attain Continuing Professional Development credits
- Uses real-life scenarios and provides opportunities for group discussion
- Ideal for 20-30 employees of any level
- At \$500, it is an excellent value

Learn more at SOA.org/ReadyToGoKit.



Review: “Health Insurance for ‘Humans’: Information Frictions, Plan Choice, and Consumer Welfare”

By Christopher Coulter, Kathy Dobrzynski, Tyler Engel and Dorothy Andrews

A growing body of economic research is focused on understanding how consumers choose and utilize their health benefits. This is one of a series of article reviews prepared by the Behavioral Finance Subgroup of the Health Section that will highlight substantive articles of interest to health actuaries.

CONSUMER PURCHASING DECISIONS FOR HEALTH INSURANCE

Currently, more than 80 percent ¹ of large U.S. employers offer their employees, either as one of several options or as the sole medical plan option, a consumer-directed (high-deductible) health plan (CDHP or HDHP) with either an employer-funded health reimbursement account (HRA) or a health savings account (HSA). Approximately one-third of employers offer one or more HDHPs as the sole option. In the Affordable Care Act (ACA) health care exchanges, HDHPs are prominently featured as well.

Historically, when HDHPs are offered as an option along with more traditional PPO plans, enrollment in the HDHP is low. This is true despite the fact that the HDHP is priced significantly lower than the PPO plan, and would make more economic sense for most of the employees.

Researchers in the economics department at the University of California, Berkeley, and the Wharton School, University of Pennsylvania, conducted a rigorous research project in an attempt to identify some of the factors that cause consumers to make suboptimal purchasing decisions when choosing a health plan.²

The population studied was the employees of a large employer with more than 50,000 employees. This employer offered employees a choice between a traditional PPO plan and an HSA-qualified HDHP, both with no payroll contributions. The PPO plan covered most in-network health care costs at 100 percent with no cost sharing. For employees enrolled in the

HDHP, the employer contributed the amount of the deductible to the employee’s HSA account. A key difference between the plans was a 10 percent coinsurance band after the HDHP deductible, although the paper shows that the employees preferred no deductible over a deductible combined with an HSA contribution in the amount of a deductible. Cost sharing for out-of-network services was higher for both plans.

This employer intended to eliminate the PPO option in the following year. The researchers estimated the impact of that action on the overall welfare (total economic utility) of the employee population. From a public policy perspective, it is important to understand the implications of the movement to HDHPs for Americans as a whole, in order to inform the political debate over such issues as the “Cadillac tax” and the cost of government subsidies to health insurance purchasers. As actuaries, we also have a responsibility to participate in the public dialogue about these issues and to understand the possible economic welfare implications of the solutions that we propose.

The researchers conducted a survey of enrolled employees “soon after” the open enrollment period in order to gauge their understanding of plan features such as the provider network, deductibles, out-of-pocket (OOP) costs, contributions required, and perceived time and hassle costs (e.g., the amount of time dedicated to sorting out medical bills, managing the HSA account, etc.) of each option, as well as the employees’ estimation of the OOP costs they would expect to pay under each plan. The survey results were combined with enrollment data, employee attribute data (age, gender, salary, etc.) and actual claims and OOP cost information from the previous year.

Researchers also used the Johns Hopkins ACG predictive medical cost model to predict the average and distribution of total medical expenditures for the upcoming year based on the past year of diagnoses, drugs and demographics. These predicted expenditures were then used to estimate the future OOP cost



expenses each individual and family would incur in the enrollment year under each of the health plans. This data was used to assess the accuracy of the employees' own estimates of their likely OOP costs and to determine which of the plans would have been the optimal choice for each employee.

The researchers are economists, so their terminology and methods will be unfamiliar to many actuaries. For example, their results are presented in terms of a "gamble interpretation," where they are estimating the amount of certain loss a consumer would consider equivalent to a specific plan choice. The cost difference between the two plan options was assumed to be the amount of HSA contribution the employee would forgo by enrolling in the PPO plan.

In addition to measuring the impact of various "information frictions" (essentially, a mistaken belief about some aspect of the HDHP) on these "gamble interpretations," the researchers also attempted to measure the impact on employee welfare of restricting the choice of plan to only the HDHP. A limitation to this calculation is that the authors don't take into account the potential of reduced medical spending with a switch to the HDHP. However, in a newer paper, they do just this.³

Terminology

This study is very technical in nature and uses advanced statistics and economics, which are reflected in the terminology of this review. This section is intended to provide a basic knowledge of terms that are important to the interpretation of the results presented by the authors.

- **Information friction.** The absence or inaccuracy of data by a consumer that impedes rational decision-making
- **Time and hassle costs.** The amount of time dedicated to sorting out medical bills, managing the HSA account or health plan
- **Certainty equivalent.** A certain amount of gain or loss for which the member is indifferent relative to a specific uncertain outcome
- **Constant absolute risk aversion.** In utility theory, an individual's aversion to risk remains constant and does not depend on wealth
- **Random coefficient model.** A model where the intercept and the coefficients are allowed to vary according to a distribution for each observation rather than remain constant for all observations
- **Copula methods.** Mathematical probability functions that use multivariate distributions from independent random variables

Survey Findings

The responses to the survey will be of interest to actuaries reading this article. The study highlights the following:

1. Only 27 percent of survey respondents were able to correctly identify the deductible for the HDHP plan. A narrow majority of HDHP enrollees chose the correct response, and only 21.5 percent of PPO enrollees knew the answer.
2. Only 18.5 percent of survey respondents and fewer than one-third of HDHP enrollees knew the coinsurance rate and OOP maximum.
3. About 70 percent of HDHP enrollees knew how much the employer would contribute to the HSA, but only 22.5 percent of PPO enrollees answered this question correctly.
4. More than 75 percent of all respondents knew that they could keep the HSA funds after the end of the plan year, but few understood the tax impact of HSA contributions.
5. Fewer than half of HDHP enrollees and about one-third of PPO enrollees knew that both plans utilized the same provider network.

It may not be a surprise to readers that employees didn't understand the details of the HDHP. Particularly when you have decided not to enroll in a plan, there isn't much to gain from remembering those details. In fact, some of us don't really know the details of the plans we are enrolled in. Clearly, employers (and insurers) fall short in communicating to "customers" about their options, and HSA plans are different from what most consumers are used to.

EMPIRICAL FRAMEWORK

The authors developed a series of models that attempt to quantify the impact of information frictions, perceived hassle costs and risk preferences on the choice of health plan. They started with a baseline model that attempts to explain health plan choice using health risk, risk preferences and health plan characteristics, employing the standard expected utility model used by economists. They then added the different consumer attributes to the model. With both the baseline model and the models with added variables, they can attempt to measure how these attributes impact the conclusions made through economic analysis.

The baseline model and the full model will be summarized here. However, the authors developed several different models with which they investigated the impacts of each of the measures.

Description of the Models

The authors constructed several different utility models for this analysis:

- **Baseline model.** Uses only demographic characteristics and modeled costs. Assumes that families' beliefs about their OOP expenditures conform to the model.

- **Baseline model with inertia.** Incorporates an inertia parameter (as a cost of switching plans) into the baseline model for employees who were enrolled in the prior year.
- **Full model.** Incorporates information frictions as determinants of plan choice.
- **Types model.** Builds off the baseline model using a one-dimensional measure of the information available to the consumer.

Baseline Model

The baseline model is an application of expected utility theory, and relies on an equation of the form

$$U_{kj} = \int_0^\infty f_{kj}(s) u_k(x_{kj}(W_k, P_{kj}, s)) ds$$

This formula is a standard expected value of a consumer's utility (u_k) where the distribution of OOP costs (s) is the agent that varies (through the distribution function f_{kj}). A typical assumption in the literature assumes that the utility function inside the integral displays constant absolute risk aversion (CARA), which has a form like

$$u_k(x_{kj}(W_k, P_{kj}, s)) = \frac{1}{\gamma(\mathcal{X}_k^A)} e^{-\gamma_k(\mathcal{X}_k^A)x_{kj}}$$

Here γ_k is a family specific risk factor and is unobservable. It was modeled as a function of employee demographics \mathcal{X}_k^A . Consumption, x_{kj} , is modeled linearly in terms of wealth (W_k), premium (P_{kj}), OOP costs and an error term

$$x_{kj} = W_k - P_{kj} - s + \epsilon_{kj}$$

Note that in this analysis, the premium of the PPO plan is assumed to be the amount that would have been deposited in the employee's HSA had the employee chosen the HDHP.

Full Model

The authors used a reduced form approach to model the consumer attributes, just adding them in as linear factors with coefficients in the choice model. In the reduced form model, the information frictions are incorporated into the consumption equation as follows:

$$x_{kj} = W_k - P_{kj} - s + \eta(\mathcal{X}_k^B)I_{j_t=j_{t-1}} + Z_k'\beta I_{HDHP} + \epsilon_{kj}$$

Actuaries interested in public policy would do well to understand the welfare implications of the non-rational agent.

The full model includes 13 different measures of friction, so has 14 dimensions (one is the "no frictions" dimension). Here are the other 13 dimensions:

1. Two variables about the individual's knowledge of plan financial characteristics (e.g., deductibles)
2. Three variables about provider network knowledge
3. Three variables summarizing information of their own total health care expenditures
4. Two variables about knowledge of the tax benefits of an HSA
5. Three variables about the individual's expectation of and attitude toward time and hassle costs

There are many situations where actuaries are concerned with who is choosing a product or service. For example, assumptions about the risk attributes of buyers are important in pricing and network modeling. In pricing a health insurance plan, an actuary is concerned with the risk profile of people who will eventually choose to be on the plan. In building a limited network, an actuary is concerned with the health care utilization patterns of people who will select a limited network. In each situation, a discrete choice model can aid in the estimation of the pool.

Parameter Identification

Wikipedia⁴ defines the parameter identification problem in the following way:

In statistics and econometrics, the parameter identification problem is the problem of inferring the parameters of the structural equations of an econometric model from a set of observations.

In other words, what are the specific attributes or ranges of attributes that impact consumer choice? The difficulty in identifying parameters comes about when multiple variables appear to have similar impacts on results. For economists, who are trying to measure a causal relationship, this can be a difficult problem to solve. Sometimes they will use structural breaks in the data for identification; other times they will assume some sort of orthogonality within the model for identification. Actuaries are also concerned with identification when measuring or calculating drivers of experience—particularly when using estimates to project future outcomes.

In the baseline model, the authors used a similar strategy for identification as others in the literature. For the model with inertia, the authors compared the choices of new employees, who are forced to choose between the plans, with continuing employees who may just stay with the plan they enrolled in previously.

This subsequently allowed for the identification of the other variables. The authors note that new employees are of a credible size so that estimates using that group as a comparison can be relied on. Identification of the full model follows from the assumptions made regarding the friction variables. Specifically, these variables are assumed to be independent from risk preferences and inertia, conditional on demographics.

Estimation

All specifications are estimated with a random coefficient simulated maximum likelihood model (also known as a mixed model). A summary of this methodology can be found in Kenneth Train's *Discrete Choice Methods with Simulation*.⁵ Actuaries should be familiar with fitting models using the maximum likelihood technique. However, an actuary would have less experience with a random coefficient model. It assumes that one or more of the coefficients in the model are randomly distributed. This is useful when subgroups behave differently from each other with respect to a given independent variable.

There are a few uses for a random coefficient model within a typical actuary's responsibilities. A random coefficient model can be used to deal with situations where credibility is a concern. Sheamus Parkes,⁶ Fred Klinker⁷ and James Guscza⁸ all discuss the benefits of using random coefficient models in a low-credibility environment. Second, the development of factors for pricing, such as age and sex, would benefit from a random coefficient approach. Generally, an actuary will make tables for every age/sex pair and calculate the factors for each of these pairs. However, not every 25-year-old is the same. There is a distribution of costs for each age and gender. As actuaries, it is important to estimate the underlying distribution of costs to mitigate risks unique to individual attributes, especially those risks with long tails. Klinker⁹ provides an interesting exposition of pricing using a mixed model. Last, Guscza¹⁰ details the use of a random coefficient model for the calculation of claims reserves.

Cost Model

The models specified previously all rely on the distribution of OOP costs as an input. The authors used the Johns Hopkins ACG software package as the basis for this cost prediction and have enhanced their model as follows:

1. Incorporate individual survey information—measures accuracy of knowledge.
2. They bucket costs into four types: inpatient, outpatient, mental health and pharmacy. Each of these types is modeled

separately and then aggregated into a joint distribution using copula methods.

3. Estimate OOP spending using plan characteristics. Since there are no assumptions on private information (anti-selection-type issues) or moral hazard, costs and utilization are not assumed to vary by type of plan.

RESULTS

The results aren't surprising. However, they do give us some intuition into how much variation there can be in member choice due to information frictions.

Parameter Estimates

From the development of these series of models, the authors produced a set of coefficient estimates for each model. Each of these models is very detailed and is characterized using many parameters to define how each consumer's underlying knowledge and perceptions about their health plan options will affect their choice. We note the following parameters that are of significant interest in the "full model":

- The full model predicts a mean CARA coefficient of $8.6 \cdot 10^{-5}$. This coefficient translates to an individual being risk-indifferent between not taking any action and taking on a gamble in which he gains \$1,000 with a 50 percent chance and loses \$920.47 with a 50 percent chance.
- Those who answered "not sure" to any of the primary questions regarding financial characteristics of the HDHP valued the HDHP by \$467.48 less than the value of the HDHP for those who answered all of these questions correctly.
- Consumers who thought that the PPO network was larger compared to the HDHP network valued the HDHP \$2,362.85 less than those who correctly answered that the PPO and HDHP have the same size network.
- Consumers who are concerned about the time and hassle costs associated with the billing, administration and logistics of managing their health plan value the HDHP \$127.87 less for each hour they expect to spend managing it. Consumers with a strong dislike for the time and hassle costs valued the HDHP at \$138.70 less per hour.

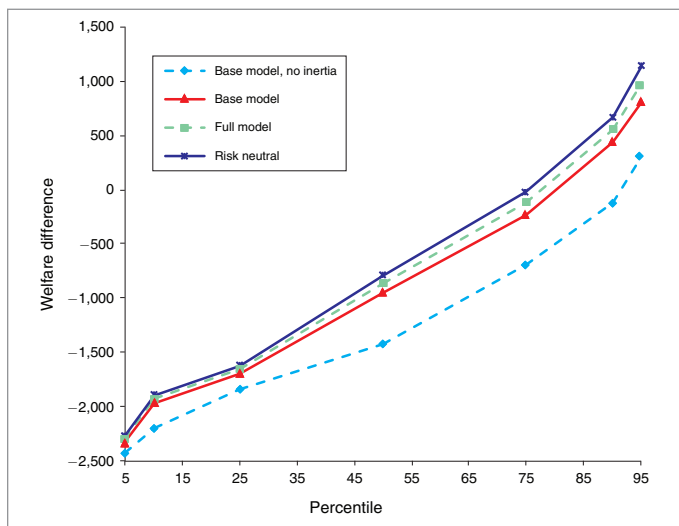
The results of these parameter estimates met our common expectations of how consumers' knowledge and perceptions would change their decision of whether or not to choose an HDHP. In general, consumers who know more about the characteristics of their health plan will value their health plan more accurately. Consumers will also be worried about the overall time spent managing their health plan and will place a lower value on an HDHP if they perceive they will have to spend a lot of time managing it.

Welfare Impact Analysis

The authors proceed with a case study analyzing the theoretical welfare impact of forcing all consumers into the HDHP and the effects of exposing consumers to additional risk of an HDHP plan as opposed to a PPO plan. This type of analysis is very relevant to the current health care climate, as many employers are encouraging employees to use HDHPs as a way of lowering costs. In 2015, 24 percent of workers who had health insurance were covered by an HDHP.¹¹

The consumer welfare loss is defined as the average difference between the certainty equivalent loss under the PPO plan and the newly calculated certainty equivalent loss under the HDHP across all members. Using the total study population, the full model predicted an average consumer welfare loss of \$789 with a member standard deviation of \$1,021. At least 75 percent of these consumers incurred an increase in their certainty equivalent loss when they switched from the PPO to the HDHP. So for the majority of members, their overall uncertainty regarding their plan increased. Figure 1, taken directly from the paper, shows the distribution in the welfare difference among consumers under the different models.

Figure 1
Welfare Effects of Forcing Employees into HDHP



Source: Reproduced from "Health Insurance for 'Humans': Information Frictions, Plan Choice, and Consumer Welfare" by Benjamin R. Handel and Jonathan T. Kolstad, *American Economic Review*, 2015, 105(8): 2449–2500.

In addition to producing these consumer spending relativities, the authors continued with their analysis by examining the concept that the HDHP will incentivize consumers to reduce any wasteful medical expenditures. As consumers are responsible for more risk with an HDHP, it naturally follows that they will do more to reduce any unnecessary spending they may have incurred under their PPO. The authors present an upper and



lower bound on the minimum elasticity factors such that any elasticity above this factor would be socially optimal for everyone switching to the HDHP. For the full model, the elasticity lower and upper bound necessary to justify the switch to an HDHP is 0.178 and 0.258, respectively. Another way to interpret this factor is that in order for the HDHP to be socially optimal, it would require that the average consumer lower their total medical spend by at least 17.8 to 25.8 percent. This is in contrast to the current estimates of savings in the literature, which are from 5 to 15 percent.

APPLICATIONS AND CRITICAL ANALYSIS

Health plan choice is a central assumption for actuaries pricing health insurance plans. Often these assumptions are implicit in actuarial modeling and reflect rational decision-making by consumers. This research project, along with myriad others, shows that indeed consumers don't act rationally. Actuaries interested in developing a better understanding of this concept, or implicitly accounting for it in their modeling, would do well to understand the methods and outcomes of this paper. The methods provide examples to explicitly model consumer choice. The outcomes are estimates of the parameters of interest. At a minimum, the results of the study can drive applications of actuarial judgment. Actuaries interested in public policy would do well to understand the welfare implications of the non-rational agent.

We know that adverse selection does occur, despite the fact that consumers neither have perfect information about their own risks nor understand perfectly the coverage that they are purchasing. This analysis confirms that consumers are risk-averse, and that they have a bias toward overestimating their own health care costs. Similar evidence can be found throughout the literature. A 2014 survey¹² by the Kaiser Family Foundation

attempted to measure how well consumers understand the language of health insurance terms such as premium, deductible, coinsurance and out-of-pocket maximum. The multiple-choice survey found that fairly high percentages of American adults understood these terms. For example, 76 percent could correctly identify the definitions of “premium” and “provider network.” Another 72 percent chose the correct definition of “deductible” and 67 percent could identify “out-of-pocket limit” correctly. But when they were asked to calculate how much they would pay out of pocket for a specific medical expense and plan design, only 51 percent could do the calculation correctly. The results were much better for insured individuals than for the uninsured.

The paper gives actuaries the framework to explicitly model consumer choice. A pricing actuary can use the modeling for renewal calculations, answering the question, “Who is going to pick which plan?” The results also provide a numeric estimate of the inertia members have when renewing a plan. This has always been of interest to a pricing actuary. Actuaries involved in the valuation of limited provider networks can use the results as an estimate of how much consumers value limited networks. They can also view the results of this study with others¹³ to gain a better understanding of the value consumers place on these networks.

The researchers estimated an average welfare loss of \$62 per person as a result of eliminating the PPO option, considering they modeled OOP costs from both plans. When information frictions are added to the equation, the welfare loss increases more than 8 times, to \$511. Clearly communicating plan features to employees, as well as providing information on their own risk of incurring significant costs, could go a long way toward improving overall welfare. It should be noted that this welfare loss didn’t consider the potential of reduction of wasteful medical spending. In a subsequent paper, the authors go on to show that the switch to a HDHP plan does result in reduced medical spending, and this reduction isn’t entirely from the reduction of waste.¹⁴ It was shown that consumers simply reduced all types of medical spending, even necessary or preventive medical spending.

However, there are limitations to this study. Confirmation bias, where respondents are more likely to choose responses in favor of the attractiveness of the plan, can distort results. Also, the authors made generous use of assumptions for unknown parameters in their analysis. Any actuary looking to consume and implement the results of this survey is well advised to thoroughly examine the methods employed and assumptions adopted to understand the study’s limitations. With continued monitoring and improved communications of health plan options, health plans can better “nudge” consumers toward options that optimize their long-run health outcomes and minimize the expense to health plans. ■



Christopher Coulter, FSA, MAAA, is an actuary at Cambia Health Solutions in Seattle and leader of the Behavioral Finance Subgroup of the SOA’s Health Section. He can be reached at actuarychris@gmail.com.



Kathy Dobrzynski, FSA, MAAA, is a vice president and actuary for Willis Towers Watson based in Milwaukee. Kathy consults with large employers on their self-funded plans. She can be reached at Kathy.dobrzynski@willistowerswatson.com.



Tyler Engel, ASA, MAAA, is an associate actuary with the New York health practice of Milliman. He can be reached at tyler.engel@milliman.com.



Dorothy Andrews, ASA, MAAA, is a consulting actuary for Merlinos & Associates Inc. She can be reached at dandrews@merlinosinc.com.

ENDNOTES

- ¹ “Large Employers’ 2016 Health Plan Design Survey,” National Business Group on Health, August 2015.
- ² Benjamin R. Handel and Jonathan T. Kolstad. 2015. “Health Insurance for ‘Humans’: Information Frictions, Plan Choice, and Consumer Welfare.” *American Economic Review* 105(8):2449–2500.
- ³ Zarek C. Brot-Goldberg, Amitabh Chandra, Benjamin R. Handel and Jonathan T. Kolstad. 2015. “What Does a Deductible Do? The Impact of Cost-Sharing on Health Care Prices, Quantities, and Spending Dynamics.” NBER Working Paper. https://en.wikipedia.org/wiki/Parameter_identification_problem
- ⁴ Kenneth E. Train. 2009. *Discrete Choice Methods with Simulation*. 4th ed. Cambridge, U.K.: Cambridge University Press.
- ⁵ Sheamus Parkes. 2014. “Advanced Business Analytics: Applied Statistics, Programming and Actuaries.” *Health Watch*, January.
- ⁷ Fred Klinker. 2011. “Generalized Linear Mixed Models for Ratemaking: A Means of Introducing Credibility Into a Generalized Linear Model Setting.” *Casualty Actuarial Society, E-Forum*, Winter.
- ⁸ James Gusczcza. 2008. “Hierarchical Growth Curve Models for Loss Reserving.” *Casualty Actuarial Society, E-Forum*, Fall.
- ⁹ *Supra*, note 7.
- ¹⁰ *Supra*, note 8.
- ¹¹ Kaiser Family Foundation. “2015 Employer Health Benefits Survey,” September 2015.
- ¹² Kaiser Family Foundation. “Assessing Americans’ Familiarity With Health Insurance Terms and Concepts,” November 2014.
- ¹³ Keith Marzilli Ericson and Amanda Starc. 2015. “Measuring Consumer Valuation of Limited Provider Networks.” *American Economic Review: Papers and Proceedings* 105(5):115–119.
- ¹⁴ *Supra*, note 3.

MACRA Ramifications to Medicare Supplement

By Marilyn McGaffin

PAYMENT REFORMS

The Medicare Access and CHIP Reauthorization Act of 2015 (MACRA; HR 2) is effective Jan. 1, 2017. It is known as the “Doc Fix” because it is permanent legislation that will not cause Congress to address the Medicare Sustainable Growth Rate (SGR) each year in an attempt to assist the Centers for Medicare and Medicaid Services (CMS) to control spending on physician services. The Medicare SGR was introduced in 1997 as a methodology to limit Medicare physician expenses per beneficiary not to exceed the growth in the gross domestic product (GDP).

To replace the SGR, CMS is introducing alternative reimbursement methodologies to the physicians. At the time of passage, the bill averted a 21 percent physician pay cut and eliminated the SGR. Between 2015 and 2019, there is a 0.5 percent annual update to the reimbursement rates. These rates will be maintained at the 2019 levels through 2025. During this period of time, physicians will be provided the opportunity to receive additional adjustments through the new Merit-Based Incentive Payment System (MIPS). In 2026 and beyond, physicians will be permitted to participate in alternative payment models (APMs). The physicians who participate in APMs and meet a certain criteria would receive a 0.75 percent fee schedule increase; all others would only receive a 0.25 percent fee schedule increase. Physicians will be allowed to participate in MIPS or APMs, but not both.

The MIPS streamlines and improves upon three current law incentive programs—meaningful use of electronic health records (EHR MU), the Physician Quality Reporting System (PQRS) and the Value-Based Modifier (VBM), which is a budget-neutral program. The penalties associated with these incentives sunset in 2018. The VBM will be incorporated into the MIPS. From 2017 until 2022, the MIPS adjustment to the Medicare fee-for-service (FFS) payments will range from +/-4 to +/-9 percent in 2022, where it will level out. MIPS will only apply to doctors of medicine or osteopathy, doctors of dental surgery or dental medicine, doctors of podiatric medicine, doctors of optometry, chiropractors, physician assistants, nurse practitioners, clinical nurse specialists and certified registered nurse anesthetists beginning in 2019. The list may expand to

include other professionals who treat Medicare patients in 2021. Those exempt are new, rural and low-volume providers. MIPS will also assess the performance of eligible professionals in quality, resource use, EHR meaningful use and clinical practice improvement activities. Measures for the performance will be updated and published annually.

Physicians who participate in the APMs can obtain a qualifying participant status or partially qualifying participant status. By doing so, the providers could receive a 5 percent lump-sum bonus. An APM can be comprehensive care for joint replacement, comprehensive end stage renal disease (ESRD) (large dialysis organization (LDO) and non-LDO), comprehensive primary care plus, Medicare Shared Savings Programs Tracks 1, 2 and 3, a next generation accountable care organization (ACO) and an oncology care model—one- and two-sided. An advanced APM is a subset of this—comprehensive ESRD care (LDO), comprehensive care primary plus, Medicare Shared Savings Programs Tracks 2 and 3, a next-generation ACO, and an oncology care model two-sided. To become a qualifying participant, the provider must participate in an advanced APM and meet a claim-dollar or a patient-count threshold.

There are still many details to be worked out on these reimbursement payment schemes. The American Medical Association (AMA) is asking for the start of these alternative payment strategies to be pushed back from Jan. 1, 2017. Andy Slavitt, the acting administrator of CMS, is in support of the AMA and working with Congress to push back the start date of MIPS.

As the FFS reimbursement methodology changes, financial reporting and experience evaluation implications, such as historical claim lag patterns, may not be representative of the new, or at least initial, claims administration environment. The total impact upon Medicare Supplement is not yet known, as the goal of these payment reforms is to bend the cost curve and promote efficient and cost-effective care.

MEDICARE SUPPLEMENT CHANGES

However, one of the biggest changes as an outcome of this legislation from a Medicare Supplement insurer perspective is that the Part B deductible will no longer be covered for those becoming eligible for Medicare as of Jan. 1, 2020, referred to as “newly eligible.” Part B covers physician and outpatient services. Plans C and F, considered to be first-dollar coverage since they cover the Part B deductible, will go away for this portion of the senior population. However, these plans will remain open for those who became eligible for Medicare prior to Jan. 1, 2020 (i.e., non-“newly eligible”). Those insureds would be known as the possible switchers. Plans C and F have also been the guaranteed issue plan¹ up to this point. Plans D and G, plans very similar to C and F but not covering the Part B deductible, will become the guaranteed issue plans. The High Deductible Plan

F is going away too, and will be replaced with a High Deductible Plan G. This legislation also affects the waiver states—Massachusetts, Minnesota and Wisconsin. The Medicare Supplement plans offered in these states are unique.

For all of this to happen, the Model Medicare Supplement regulation needs to be modified. The National Association of Insurance Commissioners (NAIC) Senior Issues (B) Task Force has assigned a Medicare Supplement workgroup to address how to interpret the implications of MACRA. They will address the issues mentioned previously. Since the model regulation is being reopened, the NAIC Health Actuarial Task Force has requested that recommended changes to the Medicare Supplement rate refund formula be considered.² Among the recommendations was a call for separate benchmark and premium factors for issue age and attained age rated plans. This would produce four sets of factors—two for group and two for individual, per the American Academy of Actuaries. The American Academy of Actuaries has also proposed that a definition of “issue age” plans be included in the Model Regulation as well as that the third-year 65 percent loss ratio requirement be removed for issue age plans. However, the NAIC Senior Issues (B) Task Force has completed the Model Regulation 651 changes required in order to comply with the federal law change, and the rate refund calculation changes were omitted. The waiver states will also need to update their regulations.

The pricing implications for Plans D and G will change. In the past these plans have been able to be cheaper than Plans C and F by more than the Part B deductible due to the favorable underwriting selection. Plans D and G will now need to include the guaranteed issue provisions in the pricing considerations. Ken Clark, principal at Milliman, has written a detailed article on the pricing considerations.³ From a rerate perspective, the pooling of plans D and G will need to be considered. This change in underwriting criteria could be enough to warrant a separate pooling for rerate purposes. However, they could be pooled together for the rate refund calculations, if the same thought process is used as was used for the Modernized plans. Plans C and F will now only be available to the non-“newly eligible” through either guarantee issue provisions or medical underwriting.

Due to the change in reimbursement methods, many new carriers may decide that this is a good time to enter the Medicare Supplement marketplace. Other carriers may view this as a “fresh start.” As the FFS reimbursement methodology changes, financial reporting and experience evaluation implications, such as historical claim lag patterns, may not be representative of the new, or at least initial, claims administration environment. In the marketing of Medicare Supplement, the senior market will be divided into two sections according to Medicare eligibility as of Jan. 1, 2020. Issues regarding policy applications and the outline of coverage need to be addressed. Since Plans C and F will be available for the non-“newly eligible,” companies will need to

decide if there is a need for two outlines of coverage to make it easier for seniors to understand which plans are available to them. Agents too will need to be educated well on the impacts of MACRA. These changes will need to be explained well on web pages to those carriers who offer Medicare Supplement on the internet. If it becomes too burdensome to administer, companies may elect to no longer even offer Plans C and F to those who became eligible for Medicare prior to Jan. 1, 2020. However, this would eliminate a significant segment of the senior population that is older and subject to medical underwriting and in good health. Presumably, the guarantee option would also still be limited to Plans C and F for this segment.

There are many IT issues introduced by this legislation. One of the first issues is how to check the insured’s eligibility date of Medicare Part B since this information will be key as to what plans are available and can be issued. To administer a High Deductible Plan G, there will need to be a check to make certain that the Part B deductible claims are not reimbursable, but count toward the high deductible. This nuance could be very confusing to the consumer and to the agent and make the sale of this plan very difficult. MACRA has also mandated that the Social Security numbers can no longer be used in the Health Insurance Claim Number (HICN), the Medicare beneficiary’s ID number. This is to be phased out by 2019, and will be replaced with a Medicare Beneficiary ID (MBI). New ID cards will need to be sent out by CMS. From an insurer’s standpoint, there will need to be a crosswalk from the HICN to the MBI in order for claims to be paid. Whether this will be sent to the insurer from CMS or if it will be up to the insurer to figure out is yet to be determined. However it is ascertained, this will still be a modification to the claims IT platforms.

There are still many decisions to be made before MACRA becomes effective as of Jan. 1, 2017, and much to be learned. However, it is not too early to start creating a strategy for how to implement. ■



Marilyn McGaffin, ASA, MAAA, is actuarial manager, Medicare Supplement Pricing, at Cigna in Austin, Texas. She is also on the Health Section Board of the Society of Actuaries. She can be reached at marilyn.mcgaiffin@cigna.com.

ENDNOTES

- ¹ <https://www.medicare.gov/supplement-other-insurance/when-can-i-buy-medigap/guaranteed-issue-rights-scenarios.html>
- ² http://www.actuary.org/files/Academy_Med_Supp_Refund_Formula_Report_Nov112014.pdf
- ³ <http://us.milliman.com/insight/2016/Are-Medicare-Supplement-carriers-prepared-for-2020-Implications-of-new-legislation-and-an-opportunity-to-critique-old-rate-structures>

An Introduction to Palliative Care for Patients With Serious Illness

By Diane Meier, Torrie Fields, Randall Krakauer and Bruce Smith

Palliative care is a relatively new medical specialty focused on the complex needs of people with serious illness and/or multiple chronic conditions. With today's focus on patient-centered and value-based care, it is beneficial for professionals working in health care to understand what palliative care is and how it can contribute to the dual aims of higher quality and lower cost.

The Center to Advance Palliative Care (CAPC) is a national organization whose mission is to increase the availability of quality palliative care services. To this end, CAPC operates a Health Payer Initiative both to collect and disseminate best practices and also to educate specific audiences within payers about palliative care, including actuaries. Given its impact on health care services, the net incremental impact of palliative care services may be a useful component of actuarial models. This article seeks to explain palliative care, share the research on its impact, and solicit feedback and suggestions from readers on what types of future research may be beneficial for actuaries and others.

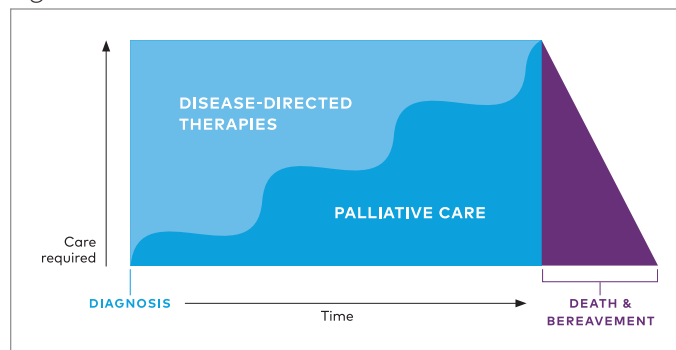
WHAT IS PALLIATIVE CARE?

Palliative care focuses on relieving the pain, symptoms and stress of a serious illness, regardless of diagnosis or prognosis, with the goal of improving quality of life for both the patient and family. It is delivered by an interdisciplinary team of specially trained doctors, nurses and social workers who work with a patient's treating doctors to provide an extra layer of management and support. Palliative care also focuses on clarifying all care options and soliciting goals and preferences.

Palliative care can be appropriate at any age and any stage of a serious illness and is provided together with curative and life-prolonging treatment (see Figure 1). Hospice is a form of palliative care focused on the end of life. In the United States, most hospice care is provided through the Medicare hospice benefit, which requires two physicians to certify that life expectancy is six months or less and patients must agree to forgo curative care.

Because palliative care focuses on the relief of pain, symptoms and stresses of serious illness, patients under the care of a palliative care team tend to experience fewer crises and exacerbations of illness. Common diagnoses for which palliative care has proven helpful and effective include cancer, heart failure, chronic lung disease, dementia, end-stage renal disease, amyotrophic lateral sclerosis (ALS) and HIV/AIDS.

Figure 1



AVAILABILITY OF PALLIATIVE CARE IN THE UNITED STATES

Palliative care is provided in many acute care hospitals. At least 20 percent of hospitals in every U.S. state report a palliative care program; while patients in 18 states can access palliative care services in more than 80 percent of hospitals.¹ There are also many palliative care programs outside the hospital setting; for example, 87 percent of the National Cancer Institute's comprehensive centers incorporate palliative care into their office-based treatment, and many home health agencies are deploying specialized palliative care teams.

The availability of specialized palliative care professionals is still small, but is growing. There are now more than 13,000 nurses certified in palliative care, up 19 percent since 2010, and more than 6,500 physicians have received board certification in palliative medicine since the American Board of Internal Medicine introduced it in 2008. Health plans and other risk-bearing entities have launched specialized care management programs, expanded benefits, and created serious illness network tiers that include certified palliative care providers. Some early adopters include Aetna, Highmark, Cambia Health Solutions, Kaiser Permanente and Blue Cross Blue Shield of Massachusetts, along with Sutter Health, Banner Health and WestMed Medical Group's accountable care organizations.

PALLIATIVE CARE'S IMPACT ON QUALITY

Palliative care teams bring expertise in the care of complex, high-risk patients to all settings, including hospitals, nursing homes, home care, physician offices, dialysis centers and cancer centers. This is important because although patients with serious illnesses, multiple co-morbidities, and significant pain and symptoms typically represent only 5 to 10 percent of patients, they are scattered throughout the health system and disproportionately account for adverse events such as multiple ambulance calls, medication errors and rapid-cycle readmissions.

Through focus on the patient and his/her function rather than the disease, palliative care can enable further quality gains than curative treatment alone. A recent comparative effectiveness review conducted by the federal Agency for Healthcare Research and Quality on home-based primary care for high-need individuals—a key mechanism for delivering palliative care in the community—has found solid evidence for reduction in symptoms, reduction in emergency room visits, increases in quality of life, and increases in satisfaction scores.² In addition, a new study has shown that patients' functional ability in activities of daily living improves—sometimes to the level of the year prior—after admission to hospice.³

PALLIATIVE CARE'S IMPACT ON COST

As noted, palliative care teams work to improve the management of pain and other symptoms—which can reduce emergency room visits and hospitalizations. Several studies demonstrate statistically significant reductions in hospitalizations, days in the hospital, and emergency department visits for patients receiving home-based palliative care services compared to their matched peers in usual care.⁴

Not only does the effective control of pain and symptoms reduce emergency room visits, but well-trained palliative care teams can also help patients and families to weigh the pros and cons of realistic treatment options in the context of patient-centered goals and values. Fully informed patients and families frequently (but not always) choose to receive further care in lower-intensity settings. This usually leads to higher-quality care, most often at lower expense.

Two high-quality comparative analyses—one at Kaiser Permanente⁵ and one at Sutter Health⁶—have calculated the net cost savings from home-based palliative care in the last three months of life. Kaiser Permanente found a net mean savings of \$7,552 per patient—a 33 percent reduction—while the Sutter Health program experienced a \$5,975 mean per-patient savings in the last three months of life.

Health plans have reported similar savings. Aetna's Compassionate Care Program—a specialized care management program for members with serious illness incorporating palliative care

principles and partnership with specialist palliative care providers—has resulted in an 81 percent decrease in acute care days, an 86 percent decrease in ICU days, and a total cost reduction of more than \$12,000 per member.⁷

The patients eligible for palliative care programs are those who are the costliest 5 percent of patients and account for 50 percent of health care spending, according to the Institute of Medicine's 2014 report "Dying in America." Control groups in "usual care" have spending in the last three months of life of more than \$26,000.⁸

PALLIATIVE CARE STRATEGIES ADOPTED BY PAYERS AND OTHER RISK-BEARING ORGANIZATIONS

Since the early adopters, other payers are integrating palliative care principles and practices into their member services, products and programs. Current programs can be broadly categorized as shown in Table 1.

Table 1
Categories of Palliative Care Programs

Program Design Types	Definition
Targeting	Targeting uses claims algorithms, often combined with data from the clinical records, to identify patients and members who can benefit most from palliative care interventions.
Care/case management	Specially trained care management resources made available to members with serious illness. These can be delivered telephonically or in person, either through a dedicated team or across all case managers. Both models have shown favorable results.*
Coverage and benefits	Specific coverage policies to provide access to home-based palliative care, along with practical services such as transportation or stress reduction. Payers may also use existing benefits creatively to incorporate palliative care professionals into the patient's care team.
Payment models and reimbursement	Payment policies, incentive programs for provider training in palliative care, and alternative reimbursement models designed to encourage palliative care consultation and ensure adequate payment for both inpatient and outpatient palliative care and other services.
Provider network	Provider network designs, such as tiers, can help direct members to specialty palliative care and/or hospice when needed. Credentialing requirements can also include palliative care designations for hospitals, home health agencies and selected specialists.
Member palliative care and advance care planning awareness	Using existing member support tools to build awareness of palliative care and its benefits, along with ensuring good documentation of wishes and preferences.

* Randall Krakauer, Claire M. Spettell, Lonny Reisman and Marcia J. Wade. 2009. "Opportunities to Improve the Quality of Care for Advanced Illness." *Health Affairs* 28(5):1357–1359.

FUTURE RESEARCH FOR HEALTH ACTUARIES AND OTHER PROFESSIONALS: WE WANT TO HEAR FROM YOU!

In light of the growing trend for palliative care services, the authors and SOA research staff are greatly interested in suggestions for further work in this area that would be beneficial for actuaries and other health professionals. For example, future research in this area may include how to best incorporate the impact of palliative care into actuarial pricing and predictive models. We would love to hear from you with ideas and suggestions! Please contact Steven Siegel, SOA research actuary, at ssiegel@soa.org with your thoughts and feedback for further consideration. ■



Diane Meier, M.D., FACP, is director of Center to Advance Palliative Care. She can be reached at diane.meier@mssm.edu.



Torrie Fields, MPH, is senior program manager for palliative care at Blue Cross Blue Shield of California. She can be reached at torrie.fields@blueshieldca.com.



Randall Krakauer is a retired chief medical officer for Medicare at Aetna. He can be reached at rmkrakauer@comcast.net.



Bruce Smith, M.D., MACP, is executive medical director at Regence BlueShield. He can be reached at bruce.smith@regence.com.

RESOURCES

Christine Chang, Susan S. Jackson, Tim A. Bullman and Elizabeth L. Cobbs. 2009. "Impact of a Home-Based Primary Care Program in an Urban Veterans Affairs Medical Center." *Journal of the American Medical Directors Association* 10(2):133-137.

Steven R. Counsell, Christopher M. Callahan, Daniel O. Clark, et al. 2007. "Geriatric Care Management for Low-Income Seniors: A Randomized Controlled Trial." *Journal of the American Medical Association* 298(22):2623-2633.

Eric De Jonge and George Taler. 2002. "Is There a Doctor in the House?" *Caring* 21(8):26-29.

Thomas Edes, Bruce Kinosian, Nancy H. Vuckovic, Linda Olivia Nichols, Margaret Mary Becke and Monir Hossain. 2014. "Better Access, Quality, and Cost for Clinically Complex Veterans with Home-Based Primary Care." *Journal of the American Geriatrics Society* 62(10):1954-1961.

R. Sean Morrison, Joan D. Penrod, J. Brian Cassel, Melissa Caust-Ellenbogen, Ann Litke, Lynn Spragens and Diane E. Meier. 2008. "Cost Savings Associated with US Hospital Palliative Care Consultation Programs." *Archives of Internal Medicine* 168(16):1783-1790.

Samantha Smith, Aoife Brick, Sinead O'Hara, and Charles Normand. 2014. "Evidence on the Cost and Cost-Effectiveness of Palliative Care: A Literature Review." *Palliative Medicine* 28(2) 13-150.

Claire M. Spettell, Wayne S. Rawlins, Randall Krakauer, Joaquim Fernandes, Mary E.S. Breton, Wayne Gowdy, Sharon Brodeur, Maureen MacCoy and Troyen A. Brennan. 2009. "A Comprehensive Case Management Program to Improve Palliative Care." *Journal of Palliative Medicine* 12(9): 827-832. doi:10.1089/jpm.2009.0089.

Jennifer S. Temel, Joseph A. Greer, Alona Muzikansky, Emily R. Gallagher, Sonal Admane, Vicki A. Jackson, Constance M. Dahlin, Craig D. Blinderman, Juliet Jacobsen, William F. Pirl, J. Andrew Billings and Thomas J. Lynch. 2010. "Early Palliative Care for Patients with Metastatic Non-Small-Cell Lung Cancer." *New England Journal of Medicine* 363(8):733-742.

ENDNOTES

- ¹ "America's Care of Serious Illness." 2015. Center to Advance Palliative Care.
- ² "AHRQ Comparative Effectiveness Review No. 164, Home-Based Primary Care Interventions." AHRQ Publication No. 15(16)-EHC036-EF, February 2016.
- ³ Shayam Cheraghlou, et. al. 2016. "Restricting Symptoms Before and After Admission to Hospice." *American Journal of Medicine*. March 8.
- ⁴ See "Resources": Counsell (2007); Chang (2009); De Jonge (2002); Edes (2014).
- ⁵ Richard Brumley, Susan Enguidanos, Paula Jamison, Rae Seitz, Nora Morgenstern, Sherry Saito, Jan McIlwane, Kristine Hillary and Jorge Gonzalez. 2007. "Increased Satisfaction with Care and Lower Costs: Results of a Randomized Trial of In-Home Palliative Care." *Journal of the American Geriatrics Society* 55(7):993-1000.
- ⁶ Harris Meyer. 2011. "Innovation Profile: Changing the Conversation in California About Care Near the End of Life." *Health Affairs* 30(3):390-393.
- ⁷ "Improving Care for People with Serious Illness Through Innovative Payer-Provider Partnerships." 2014. Center to Advance Palliative Care.
- ⁸ "MedPAC Spending in the Last Year of Life and the Impact of Hospice on Medicare Outlays." 2015. Institute of Medicine.

ACA Financial Reporting: The Second Year

By Aaron Wright

Editor's note: This article originally appeared in The Financial Reporter, Issue 105, pp. 27–34. Copyright © 2016 by the Society of Actuaries. Reprinted by permission.

As pricing actuaries are preparing to price the fourth year of Affordable Care Act (ACA) plans, valuation actuaries are still in the process of understanding the effects of the ACA risk adjustment, reinsurance, and risk corridor programs (collectively known as the 3R's). While valuation actuaries are addressing uncertainty related to 2015 financial statements, pricing actuaries are developing rates for 2017, for which reinsurance and risk corridors are no longer applicable.

The Health and Financial Reporting Section Councils partnered to survey reporting on new ACA assets and liabilities. This is follow-up to a survey originally conducted in June 2014. The original survey was summarized in the October 2014 edition of *Health Watch*¹ and reprinted in the December 2014 edition of *The Financial Reporter*.

This second survey was given to members of the Financial Reporting and Health Sections. The survey was offered from Feb. 15, 2016, through March 18, 2016. There were 25 respondents, which is approximately half of the number of original survey respondents. Because of the small sample size, readers are cautioned that the results from this survey may not be representative of the market in general.

Since the original survey, which solicited thoughts on anticipated reporting of ACA items, the following has occurred:

- Two years of annual statements have been filed, the second of which was filed during the survey response period.
- One year of post-ACA medical loss ratio (MLR) results have been filed. The attachment point for 2015 transitional reinsurance was decreased from \$70 thousand to \$45 thousand.²
- The Centers for Medicare and Medicaid Services (CMS) provided allocation for 2014 risk adjustment, reinsurance, and risk corridors:

- 2014 risk adjustment transfer results by carrier, including certain transfer formula parameters by state and market were publicly reported;³
- 2014 risk corridor receivables were prorated to 12.6 percent of the total calculated receivable;⁴ and
- The 2014 coinsurance rate on reinsurance increased from 80 percent to 100 percent.
- Following the actual payout of 12.6 percent for risk corridor receivables, the NAIC issued guidance on any remaining accruals for risk corridor receivables for all plan years, 2014–2016.⁵
- CMS announced additional funds from 2014 are available for 2015 reinsurance payments.⁶
- Cost sharing reduction (CSR) reconciliation still has not occurred for plan years 2014 and 2015.⁷
- In certain markets, CMS released preliminary 2015 risk adjustment results⁸ and early reinsurance payments were provided.

The following topics were covered by this follow-up survey:

- Company Demographics;
- Risk Adjustment—Individual and Small Group;
- Transitional Reinsurance;
- Risk Corridor; and
- Cost Sharing Reduction Payments.

The focus of the questions includes reviewing 2014 estimates compared with actual 2014 results, data availability for these estimates, and expectations for 2015 estimates.

COMPANY DEMOGRAPHICS

Of the 25 respondents, 92 percent represented health carriers with the remaining representing multi-line carriers.

Twenty-four percent of the carriers represented cover fewer than 100,000 lives while 32 percent of those represented cover more than one million lives.

Thirty-six percent of respondents identified as mutual/fraternal companies and another 36 percent identified as not-for-profits. One carrier was a privately-held stock company with the remainder being publicly-held.

RISK ADJUSTMENT

The risk adjustment program is designed to financially protect carriers that enroll a higher risk (less healthy) population than the statewide average. Under this program, funds are transferred from carriers with low-risk enrollees to carriers with higher-risk enrollees as measured by the U.S. Department of Health and Human Services (HHS) risk adjustment model. The intent of this program is to equalize differences in cost related to differences in risk. The transfer payments in this program occur at the state and market level and apply to non-grandfathered plans in the individual and small group markets inside and outside the exchange.

For risk adjustment, the survey included separate sections for individual and small group market responses. Of the 25 respondents, two did not have business subject to risk adjustment, and one respondent operating in a merged individual/small group market provided responses in the individual section.

For both risk adjustment and reinsurance payments, carriers are required to submit CMS EDGE server data to CMS from which CMS determines final risk adjustment transfers and reinsurance

recoveries. Generally, there is back and forth between CMS and carriers in order to meet the data quality requirements for processing before the close of the window for submitting additional information. The EDGE server submission window closes at the end of April and then CMS processes final risk adjustment transfers and reinsurance recoveries, with this information being made available at the end of June.

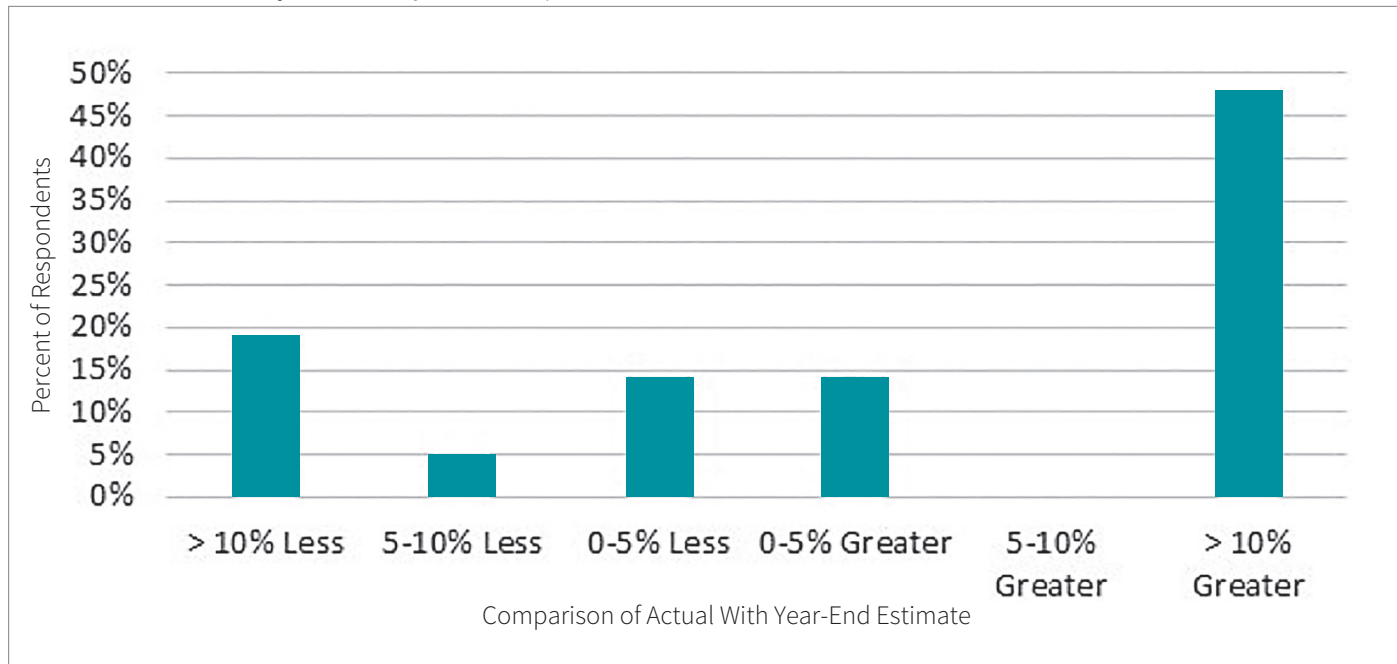
Individual Market

The first two questions focused on actual 2014 results compared to 2014 estimates.

Of those responding to the first question, 76 percent estimated the correct direction of the risk adjustment transfer balance sheet item (i.e., a receivable or payable). One carrier estimated a receivable, but resulted with a payable. The remainder of respondents had estimated \$0 accrual at year-end.

Chart 1 shows the results comparing actual risk adjustment payments with what was estimated as of Dec. 31, 2014. Nearly 50 percent of respondents paid or received more than 10 percent greater than what was expected, while just more than 15 percent paid or received less than 90 percent of what was expected.

Chart 1
Actual Individual Risk Adjustment Payment Compared With Year-End Estimate



When asked about methodology changes for 2015, 59 percent of respondents intended to use either the same methodology or a slightly modified methodology compared with what was used in 2014. Thirty-six percent expected to use a methodology for 2015 reporting that is substantially different from what was used in 2014.

Another question focused on drivers of differences between estimated and actual, including the carrier’s own risk score, the applicable market risk score, and some combination of the two. Data processing issues are also included within the scope of this question. Respondents could select multiple items. Key findings from this question include:

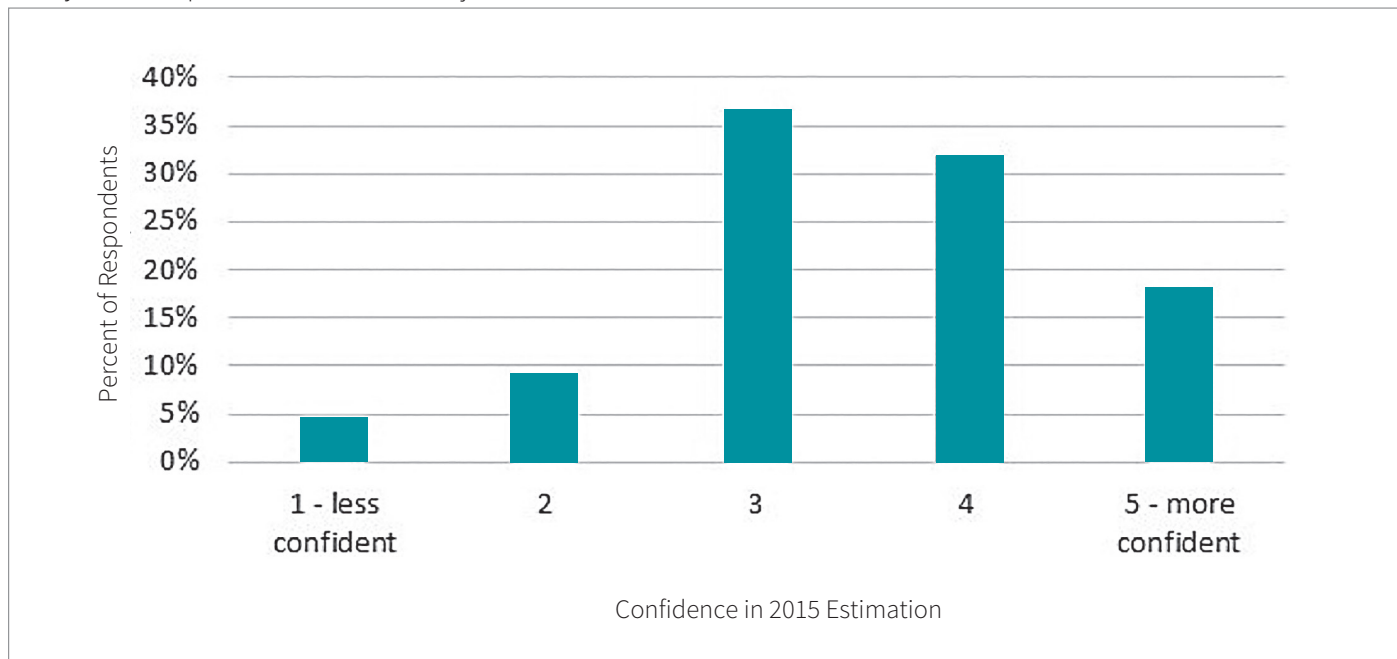
- Ten percent overestimated their final risk score, while no respondents underestimated their own risk score.
- Ten percent overestimated the market risk score, while 35 percent underestimated the market risk score.
- Twenty-five percent felt that between estimating their own risk score and the market risk score, the result was a larger payout than expected.
- Fifteen percent indicated that the combination of estimating their own and the market risk score resulted in a larger receipt than expected.

- Twenty percent felt that data processing was a significant driver of the difference between actual and expected.
- One carrier was not sure what the significant drivers were while another carrier booked \$0 risk adjustment because of their large market share.

In a related question, respondents were asked how their estimated state average plan level risk score (PLRS) compared with the actual state average PLRS. Of 15 respondents, 80 percent underestimated the state average PLRS. Two carriers indicated that their estimate was more than 10 percent less than actual. Three carriers felt their estimates were 5–10 percent less, while another seven carriers had their estimates from 0–5 percent of the final PLRS. Only one carrier said its estimate was greater than the final state average PLRS. Another carrier had cited overestimation of the market risk score as a significant driver (paragraph above), but did not provide a range on the difference. There were two carriers that indicated that they did not have an explicit estimate of the state average PLRS.

Respondents were then asked to rate their ability to develop 2015 risk adjustment estimates compared with 2014, given one year of actual risk adjustments. The range was from one to five, with one representing “I am more confused than 2014 based on the actual payout” and five representing “I am very confident with the methodology I will use for 2015.” Chart 2 shows the results:

Chart 2
Ability to Develop 2015 Individual Risk Adjustment Estimates



Half selected four or five, with the other half selecting three or lower. The results are skewed towards being more confident, but still 36 percent answered with a three, suggesting that uncertainty is still present in risk adjustment estimates.

The final questions of this section related to EDGE Server data processing.

Eighty-three percent had an EDGE Server claims acceptance ratio of 98 percent or higher, while all carriers responding had an acceptance rate of 94 percent or higher.

Seventy-six percent had an enrollment acceptance ratio of 98 percent or higher and all carriers responding had an acceptance rate of 94 percent or higher.

Just over half of the respondents had performed analyses to compare how close data submission was to optimal. Of those who had performed the analysis, 36 percent felt that additional submissions would have improved the risk score. The remaining respondents felt the risk score would have been unchanged.

CMS established an appeals process for several of the programs under ACA, including the risk adjustment program. In this case, the carrier will request reconsideration from CMS. CMS will

then make a final and binding reconsideration decision. Of survey respondents, 10 percent had filed an appeal.

Thirty-three percent were able to submit supplemental data for the 2014 risk adjustment.

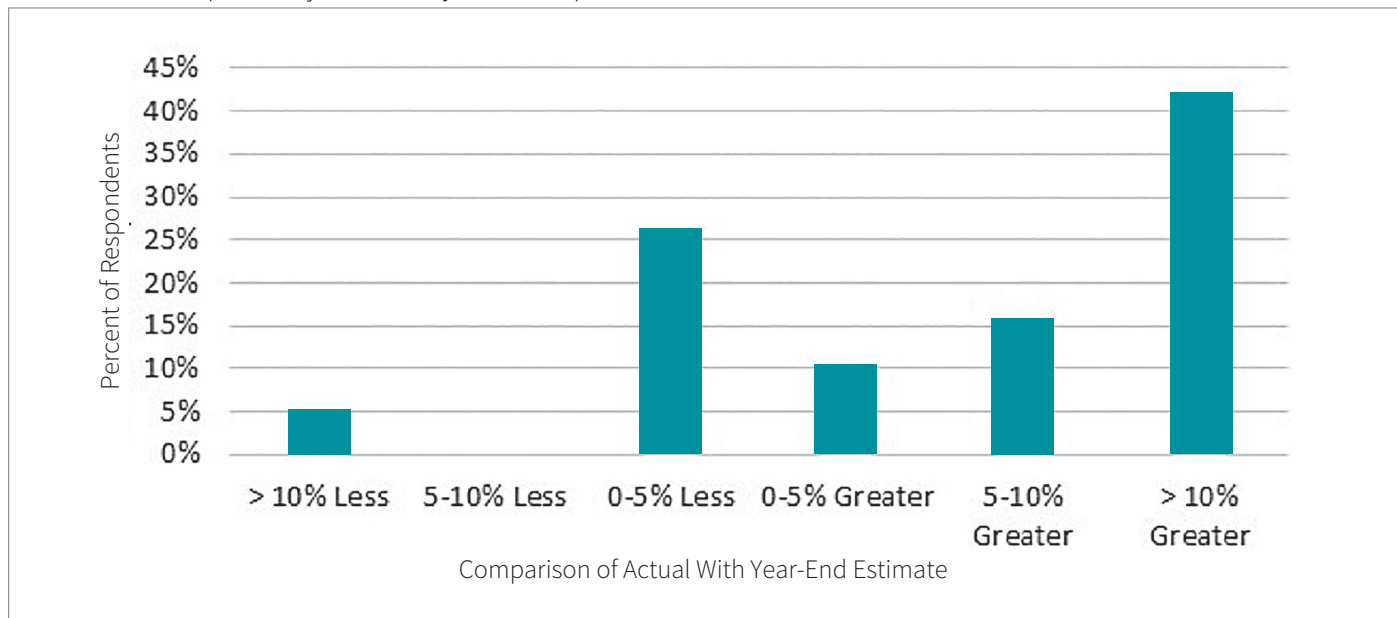
Small Group

The first two questions focused on actual 2014 results compared with 2014 estimates.

Of those responding to the first question, 57 percent estimated the correct direction of the risk adjustment payable, i.e., a receivable or payable. Two carriers estimated a receivable with the final result being a payable and one carrier estimated a payable and ended up with a receivable. Five respondents accrued \$0 at year-end, with four receiving a risk adjustment transfer and the fifth paying a risk adjustment transfer.

Chart 3 shows the results when comparing actual risk adjustment payments to what was accrued at year-end. Similar to the individual estimates, 42 percent of respondents paid or received more than 10 percent greater than what was expected. However, for small group, only 5 percent paid or received less than 90 percent of what was expected.

Chart 3
Actual Small Group Risk Adjustment Payment Compared With 2014 Year-End Estimate



When asked about methodology changes for 2015, 75 percent of respondents intended to use either the same methodology or a slightly modified methodology compared with what was used in 2014. Only 20 percent expected to use a methodology for 2015 reporting substantially different from what was used in 2014, compared with 36 percent in the individual section.

Another question focused on drivers of differences between estimated and actual, including the carrier’s own risk score, the applicable market risk score, some combination of the two, and data processing issues. Respondents could select multiple items. Key findings from this question include:

- Ten percent overestimated their final risk score, while 15 percent underestimated their own risk score.
- Twenty percent overestimated the small group market risk score, while 30 percent underestimated the market risk score.
- Ten percent indicated that between estimating their own risk score and the market risk score, the result was a larger payout than expected; while 20 percent felt that the combination of estimating their own and the market risk score resulted in a larger receipt than expected.

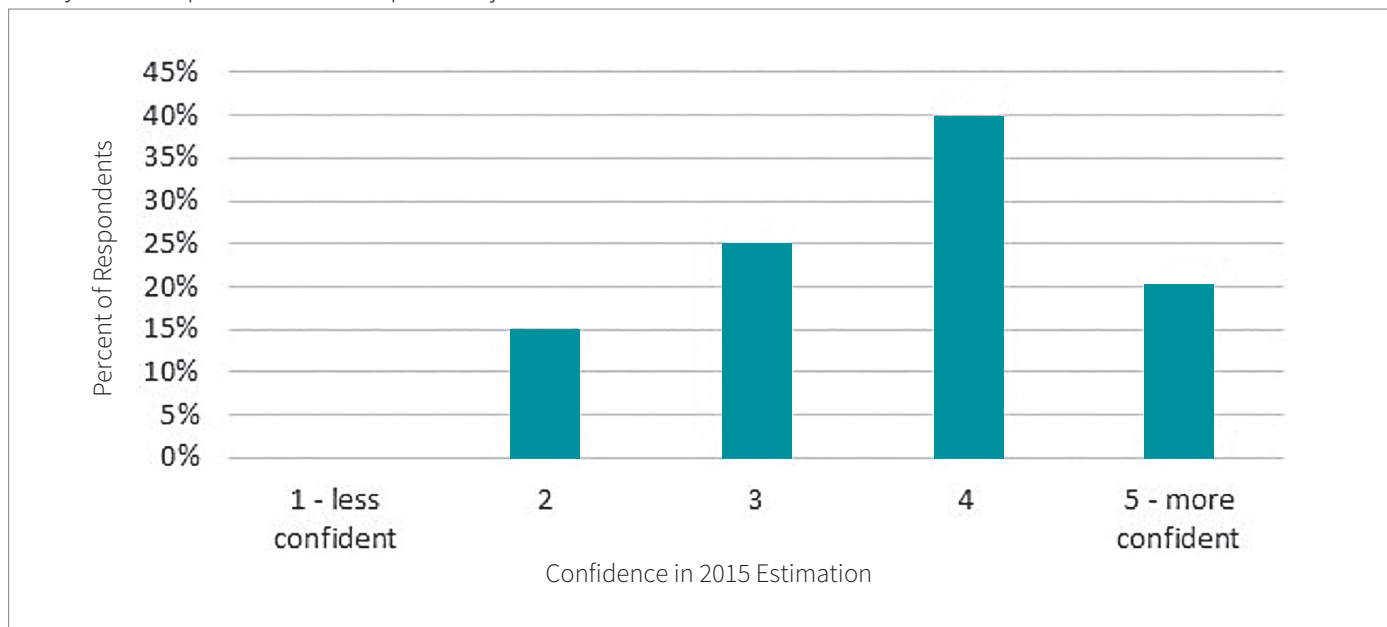
- Ten percent indicated that data processing was a significant driver of the difference between actual and expected.

In a related question, respondents were asked how their estimated state average PLRS compared with the actual state average PLRS. Of 14 respondents, the majority were within 5 percent of the state average PLRS, with 29 percent overestimating and 29 percent underestimating. One carrier indicated that their estimate was more than 10 percent less and two carriers felt their estimates were 5–10 percent less than the actual state average PLRS. One carrier did not have an explicit estimate for the state level PLRS, while another, similar to the response above, had differing results by state.

Respondents were then asked to rate their ability to develop 2015 risk adjustment estimates compared with 2014, given one year of actual risk adjustments. The range was from one to five, with one representing “I am more confused than 2014 based on the actual payout” and five representing “I am very confident with the methodology I will use for 2015.” Chart 4 shows the results.

The average confidence level for the small group market is 3.65 compared with an average confidence level of 3.50 for the individual market.

Chart 4
Ability to Develop 2015 Small Group Risk Adjustment Estimates



Again, given the timing of the survey, it would seem to imply that uncertainty is still very prevalent in risk adjustment estimates.

The final questions of this section related to data processing.

Eighty-one percent of respondents had a claims acceptance ratio of 98 percent or higher, while all carriers responding had an acceptance rate of 96 percent or higher.

Eighty-eight percent of respondents had an enrollment acceptance ratio of 98 percent or higher and, similar to the claims acceptance, all carriers responding had an acceptance rate of 96 percent or higher.

Just under half of the respondents had performed analyses to compare how close data submission was to optimal. Of those who had performed the analysis, 22 percent felt that additional submissions would have improved the risk score. The remaining respondents felt the risk score would have been unchanged.

Of survey respondents, five percent had filed an appeal.

Thirty percent were able to submit supplemental data for the 2014 risk adjustment.

TRANSITIONAL REINSURANCE

Transitional reinsurance is a temporary program which is in operation from 2014 to 2016. While most health plans⁹ are required to contribute to the program, only individual plans receive reinsurance payments. This program's 2015 provisions include:

- Attachment point of \$45,000
- Reinsurance cap of \$250,000
- Coinsurance of 50 percent paid for claims between the attachment point and cap.

For the 2014 calendar year, the coinsurance rate was increased from 80 percent to 100 percent. Also, it should be noted that during the time the survey was available, CMS released a statement citing additional funds (above what was budgeted) for the 2015 plan year. Based on guidance from CMS, the coinsurance rate will be adjusted, if necessary, to pay out the additional funds.

The first survey question of this section related to claims runout. For all carriers, the change in 2014 claims runout from what was booked in the annual statement to the time of the survey was 10 percent or less, with 44 percent citing an increase of 0–5 percent and 28 percent citing a decrease of 0–5 percent. An additional 22 percent cited an increase of 5–10 percent while the remaining

The majority of respondents used the prospective payments from CMS for their estimates of CSR payments.

6 percent indicated a decrease of 5–10 percent. One carrier additionally cited high fourth quarter utilization as driving the additional runout, thus impacting the reinsurance estimate.

Another question was related to the impact of data processing and EDGE server on the final amount received compared with what was booked at year-end. Thirty-five percent of survey respondents felt that the data processing process decreased the amount received, with the remaining 59 percent feeling it had no impact. One respondent felt it increased the amount received. Relating to the EDGE server requirements, another question asked whether the April 30th submission deadline had an impact on estimates. Of those surveyed, only 15 percent felt that the April cutoff had a material impact.

The final question of this section asked about whether or not the 2015 estimate would be affected by CMS's decision to increase the coinsurance rate on the calendar year 2014 reinsurance estimates. Two respondents indicated using a higher coinsurance rate and two more indicated that for year-end reporting they would use the published rate (50 percent), but for other reporting a higher estimate is being considered. Comments for those continuing to use the 50 percent coinsurance rate included:

- “Any payment rate beyond 50 percent will be upside.”
- “We conservatively assumed 50 percent.”
- “Possible amount to receive higher than minimum for 2015, though for year-end purposes reflecting minimum.”
- “No impact still using the published coinsurance.”

RISK CORRIDOR

The risk corridor program is a temporary program which is in operation from 2014 to 2016, and applies only to individual and small group Qualified Health Plans (QHPs) operating on the exchange or plans substantially similar to QHPs offered off-exchange. Large groups, grandfathered, and self-funded or TPA plans do not participate in the risk corridors program. The goal of the risk corridors program is to temporarily dampen gains and losses, due to the mispricing of plans, by having plans pay or receive funding from the federal government.

The risk corridor formula attempts to dampen any profits or losses, including the impacts of risk adjustment transfers, reinsurance, and claims runout.

The 2014 proration percentage for payout for the risk corridor receivables was only 12.6 percent of total amount due. Those paying into the program paid the full amount. The reduced payout to those with a risk corridor receivable was a proportional adjustment to the risk corridor program to ensure revenue-neutrality.

Because of the revenue-neutral requirement and the actual payout of 12.6 percent, there were only two questions on risk corridors. The first focused on a comparison of 2014 year-end estimates for risk corridor to the risk corridor amounts filed with the MLR templates. As mentioned above, the risk corridor itself is calculated from a formula, so any changes in risk corridor are driven by other accruals. Table 1 shows significant drivers of changes between the 2014 final risk corridor and the estimate at year-end and the percent of respondents citing each.

Table 1

Driver of Risk Corridor Change	Percent of Respondents
Higher Reinsurance Recoveries	20%
Lower Reinsurance Recoveries	13%
Higher Risk Adjustment	20%
Lower Risk Adjustment	0%
Higher Claims Runout	13%
Lower Claims Runout	13%
Other	20%

The largest drivers of change were increases in reinsurance recoveries and increases in risk adjustment transfers. Claims runout was equally impactful in either direction, with 13 percent citing higher claims runout as a significant driver and 13 percent citing lower claims runout as a significant driver. Similarly, 13 percent cited lower reinsurance recoveries as the most significant driver of change. The majority of those citing “Other” did not include any risk corridor accrual in their 2014 year-end statement.

The focus of the second risk corridor survey question was related to what would be accrued for 2015 year-end given the adjustment to risk corridors requiring the program to be revenue-neutral. One survey respondent said they would be accruing a lower estimate and one respondent stated they were recording a payable. The remaining respondents were either not booking anything or at the time of the survey were still undecided. As outlined in the introduction, the NAIC issued guidance on accruals for risk corridor receivables; in general, the guidance suggested that if



anything was booked, it should be booked as a non-admitted asset rather than admitted given the lack of funds in 2015 for payout on 2014 risk corridor receivables.

COST SHARING REDUCTION

Silver product variants are available to individuals whose income is 250 percent or less than the Federal Poverty Level (FPL). The federal government subsidizes a portion of the member cost sharing amounts through CSR payments.¹⁰ The government pays carriers an estimated monthly amount to cover CSR payment amounts (prospective payments). As defined in federal guidance, two different methodologies for determining the actual amount exist: a standard methodology and a simplified methodology. Following the plan year, the federal government will true-up the prospective payments based on results from the carrier’s selected methodology.

Of those responding to the survey, the majority of respondents, 55 percent, used the prospective payments from CMS for their estimate of CSR payments. Twenty-five percent used an adjusted amount and the remaining portion did not have business subject to CSR payments. Of those using an adjusted amount, all used an estimated decrease from the prospective amount. Although the range of the CSR estimates has the potential to affect MLR rebates, only one respondent felt that the potential range of CSR payments could impact whether or not MLR rebates were necessary.

While 2014 CSR prospective payments were originally scheduled to be reconciled in spring 2015, CMS postponed the reconciliation to April 2016 to be reconciled together with the 2015 payments.

Of the respondents, 25 percent expected the delay to affect the methodology (standard vs. simplified) used. The remainder did not expect the delay to impact the methodology.

CONCLUDING REMARKS

Many thanks to all who took the time to fill out this survey.

Uncertainty in market estimates and overall methodology continues to exist for the risk adjustment program, even as we complete 2015 financial statements. For reinsurance, there is still uncertainty in what actual payments will be for the 2015 plan year. The majority of carriers are using published parameters for 2015 with an expectation of increased parameters in what is actually paid out. The risk corridor formula is absorbing impacts of risk adjustment transfers, reinsurance, and claims runout as intended. However, the impact is diminished for plans with a risk corridor receivable as the majority of respondents either estimated \$0 or were still deliberating at the time of the survey. The impact of the CSR payments reconciliation is still unknown for 2014 and 2015 accruals. As a result, there is potential for material impact given that the majority of respondents used the CMS prospective payments (based on pricing) and there were large losses for 2014 based on risk corridors filed.

Many thanks to Nancy Hubler and Dave Liner for their peer review as well as the SOA staff who administered the survey. ■



Aaron Wright, FSA, CERA, MAAA, is an actuary at Zions Bancorporation. He can be reached at wright.aaron.eq@gmail.com.

ENDNOTES

- ¹ <https://www.soa.org/news-and-publications/newsletters/health/pub-health-section-newsletters-details.aspx>
- ² <https://www.gpo.gov/fdsys/pkg/FR-2014-05-27/pdf/2014-11657.pdf>
- ³ <https://www.cms.gov/CCIIO/Programs-and-Initiatives/Premium-Stabilization-Programs/Downloads/RI-RA-Report-Draft-6-30-15.pdf>
- ⁴ <https://www.cms.gov/CCIIO/Programs-and-Initiatives/Premium-Stabilization-Programs/Downloads/RC-Issuer-level-Report.pdf>
- ⁵ http://www.naic.org/documents/committees_e_app_eaiwg_related_int_1501_risk_corridors.pdf
- ⁶ https://www.cms.gov/CCIIO/Resources/Regulations-and-Guidance/Downloads/RIC_2015ContributionsGuidance.pdf
- ⁷ https://www.regtap.info/uploads/library/APTC_CSR_Recon_timing_guidance_5CR_021315.pdf
- ⁸ https://www.cms.gov/CCIIO/Programs-and-Initiatives/Premium-Stabilization-Programs/Downloads/InterimRARReport_BY2015_5CR_031816.pdf
- ⁹ Includes carriers with individual, small group, and large group business markets along with TPAs and self-funded plans.
- ¹⁰ Premium subsidies are also available through the advanced premium tax credit (APTC).

SOA Explorer Tool

Find Fellow Actuaries
Around the Block or
Around the Globe

The SOA Explorer Tool is a global map showing locations of fellow SOA members and their employers, as well as actuarial universities and clubs.

Explorer.SOA.org



**SOCIETY OF
ACTUARIES**



The State of Predictive Analytics in U.S. Health Care

By the Society of Actuaries

Editor's note: This article originally appeared in Modern Healthcare, June 27, 2016, <http://www.modernhealthcare.com/article/2016/0625/SPONSORED/306259941>. Copyright © 2016 by the Society of Actuaries. Reprinted by permission.

If there is one word that has taken on new meaning for health care in the new era of accountable care, it is this one: Risk.

Risk has traditionally, in health care, corresponded to a doctor's or institution's chance for malpractice. But now, as providers and payers take on new responsibilities in the areas of patient experience, clinical outcomes, population health management, and financial accountability, "risk" takes on a multitude of new meanings and roles in the business of health care.

With the expansion of risk, the ability to predict needs and outcomes is more important than ever. Imagine, for instance, a physician being able to predict whether a patient is more or less likely to comply with their medication regimen based on various



demographic factors. Or, imagine a health system being able to project which of its patients are most at risk for high-impact events like infections and readmissions—and taking the steps to proactively manage those patients to avoid these events.

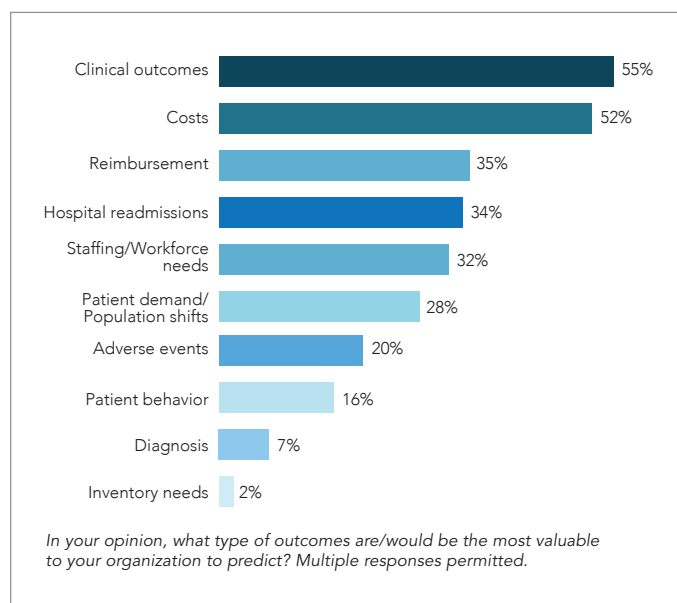
Decision making like this can be possible through the use of predictive analytics—the ability to mine data in order to forecast probabilities and trends, and ultimately, manage risk. Indeed, predictive analytics has the potential to radically change health care, and the way decisions are made at the bedside and in the corner office.

How are U.S. health care organizations leveraging predictive analytics right now? Are they using them at all? What are the barriers to integrating predictive analytics within a health care organization? This survey of 388 health care executives answers those questions and more.

THE OPPORTUNITIES—AND THE BARRIERS

The opportunity for using predictive analytics to make better decisions in health care is high and expansive, according to surveyed health care executives. Direct clinical and financial outcomes are the most valuable data to predict, with clinical outcomes leading (55 percent) and costs—whether per patient, per episode of care, or through another lens—coming in a close second (52 percent). Less critical, but still considered valuable, are the following predictors from data: reimbursement (35 percent), hospital readmissions (34 percent), staffing and workforce needs (32 percent), and patient demand and population shifts (28 percent). (Figure 1)

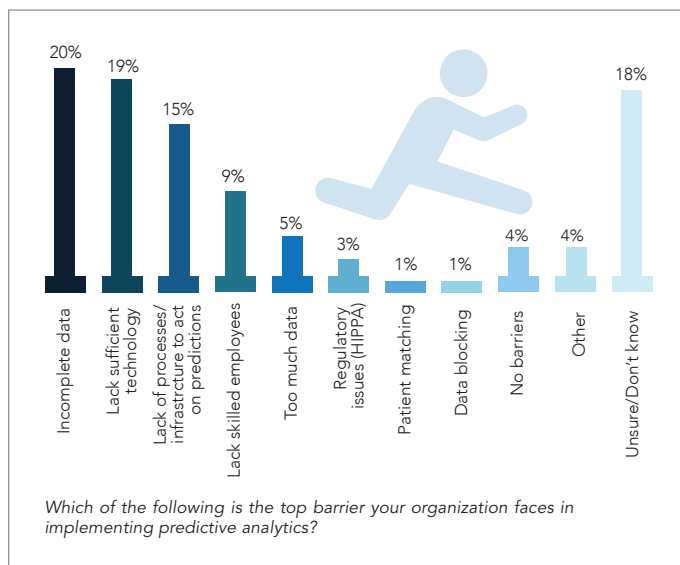
Figure 1
The Most Valuable Data to Predict



There are notable differences between payers and providers. Payers are more than twice as likely as the survey average to choose patient behavior and diagnosis as valuable outcomes to predict. They also place far less emphasis on staffing and workforce needs, with only 8 percent identifying this as a valuable outcome to predict vs. 31 percent of providers.

Where there are opportunities, there are also challenges. When asked to identify their organization's biggest obstacle to implementing predictive analytics at their organizations, health care executives cited incomplete data (20 percent) and insufficient technology (19 percent). These are not unexpected, as the industry's slow acceptance of technology compared with other industries has caused a lack of structured, organized data—both of which are key to leveraging predictive analytics. Interestingly, almost as many health care executives don't know the top obstacle their organization faces, uncovering an absence of strategy or urgency around using predictive analytics. (Figure 2)

Figure 2
A Health Care Organization's Biggest Obstacle Is . . .



Payers and providers exhibit notable differences in this question, as well. Hospitals and health systems are more likely to lack the sufficient technology (23 percent) than payers (3 percent) or medical groups/clinics and nursing homes (14 percent). Payers, on the other hand, are more likely to encounter incomplete data, with 31 percent noting this as their top obstacle, vs. the survey average of 20 percent. Payers are also less likely to face any barriers at all, with 15 percent citing no barriers vs. the survey average of 4 percent. Additionally, medical groups/clinics and nursing homes are twice as likely to lack the skilled employees needed for predictive analytics.

KEY FINDINGS

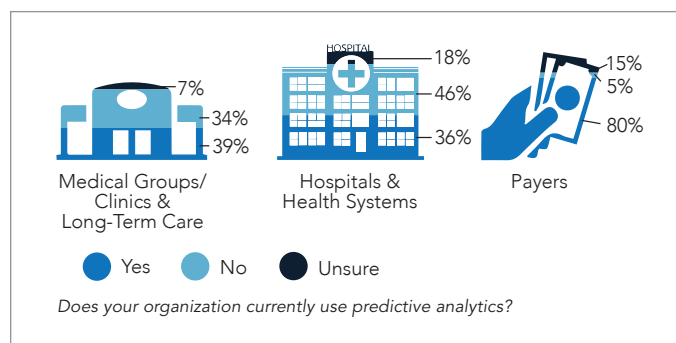
- The most valuable type of predictable data in health care is clinical outcomes, while the biggest challenge to implementing predictive analytics is incomplete data.
- 43 percent of health care organizations use predictive analytics, with hospital readmissions and costs being the most common types of data predicted.
- Predictive analytics roles are swelling in health care—every survey respondent that influences hiring decisions in their organization reported they are adding PA roles.

USING PREDICTIVE ANALYTICS

Within the U.S. health care industry—in this survey, composed of 78 percent providers, 12 percent payers and 10 percent other organizations—fewer than half are currently using predictive analytics (43 percent). Nearly the same amount (42 percent) are not using predictive analytics, and 15 percent of respondents are unsure of their organization's status. This even split represents an honest picture of an industry that has historically made business decisions differently than other industry sectors. The fact that health care is provided regardless of a patient's ability to pay for services is just one factor that makes health care business decision making unique.

When diving deeper into the data, we find disparities among the different sectors within health care. A large majority of payer organizations in this survey use predictive analytics (80 percent). That number dives to 39 percent for medical groups/clinics and nursing homes, and even further to 36 percent for hospitals and health systems. Payers arguably operate more like businesses than providers, basing many of their decisions and systems in actuarial science, like other insurance operations. This helps make sense of their much higher use. (Figure 3)

Figure 3
Health Care Organizations Using Predictive Analytics

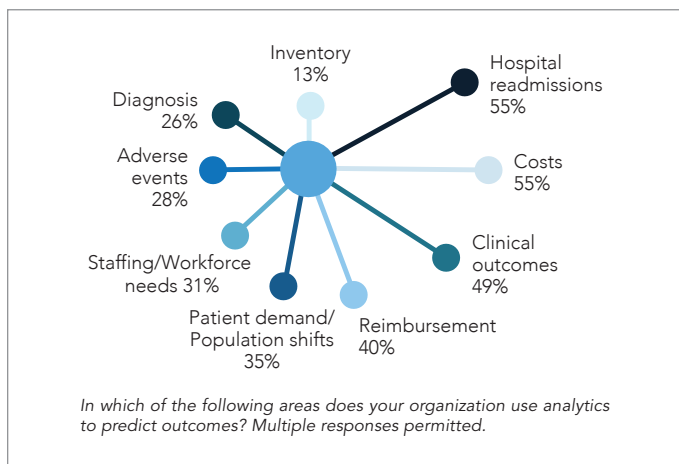




Belonging to an accountable care organization (ACO) affects whether a health care organization uses predictive analytics. Of organizations that are part of an ACO, 52 percent are using predictive analytics vs. 28 percent who are not using them. Why are ACO-related organizations more inclined to use predictive analytics? ACOs need analytics to evaluate risk, more so than the average health care organization, because ACOs tie provider reimbursements to quality metrics. The better able organizations are in predicting outcomes, the better able they are to create positive results.

What type of information is being predicted at the 42 percent of organizations that say they're using predictive analytics? The most common outcomes being predicted are hospital readmissions and costs, both reported by 55 percent of respondents. Inventory needs are the least common to be predicted, with 13 percent of respondents predicting this category. (Figure 4)

Figure 4
What's Being Predicted?



Differences emerged again between the industry sectors on this question. Medical groups/clinics and nursing homes were more likely than other sectors to predict adverse events (39 percent vs. the survey average of 28 percent) and staffing/workforce needs (50 percent vs. the survey average of 31 percent). Payers, interestingly, are more likely to predict clinical outcomes (57 percent vs. the survey average of 49 percent). And hospitals and health systems are more likely to predict hospital readmissions (62 percent vs. the survey average of 55 percent). While nearly half of hospitals and health systems predict costs, a much higher percentage of medical groups/clinics and nursing homes (78 percent) and payers (77 percent) do so.

THE FUTURE OF PREDICTIVE ANALYTICS

As more of the health care industry adopts predictive modeling for various aspects in business decision making, support services and staff are expected to increase accordingly. Where are these roles being housed within health care organizations? (Figure 5) We asked this of survey respondents who are in the position to influence or make hiring decisions related to predictive analytics (PA) roles in their organizations. Of those 50 survey respondents, half indicated that PA roles are increasing at their organizations in an astounding six of the seven possible categories. The most common area for growth is clinical (80 percent), followed by financial (66 percent) and operations (60 percent). (Figure 6)

Figure 5
Who's in Charge?

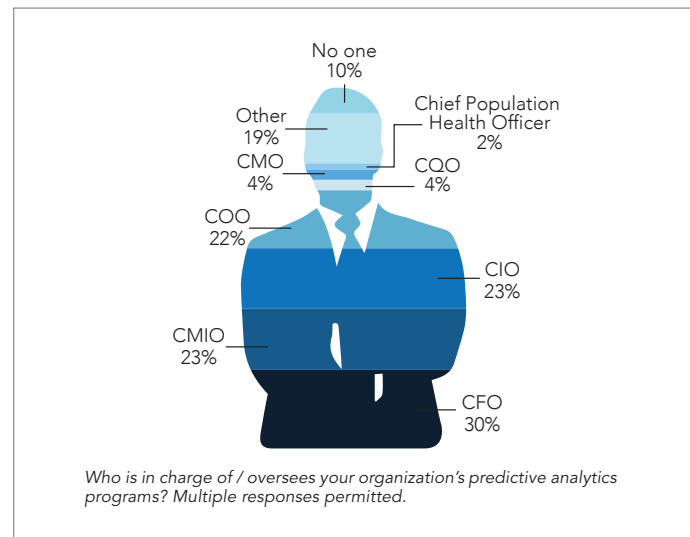
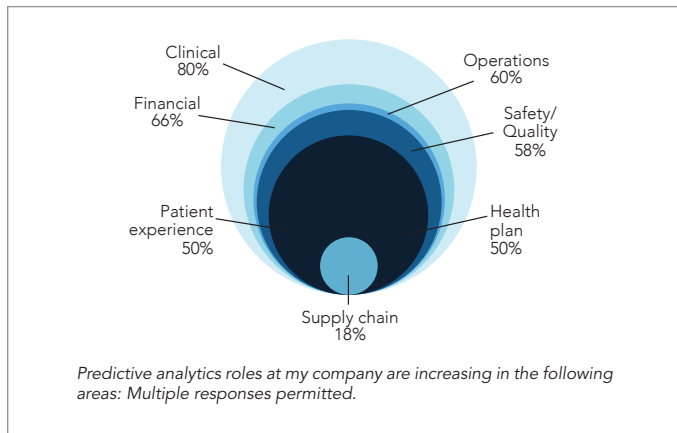
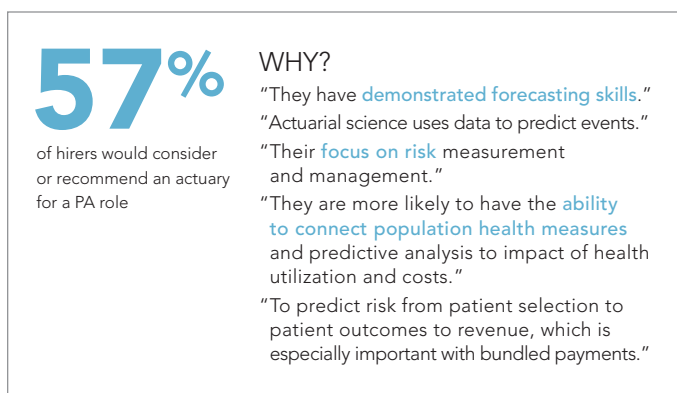


Figure 6
Roles are Swelling. Where are They Increasing?



This group of respondents also specified who might fill these PA roles. With health care organizations taking on more risk, experience with risk evaluation is a more attractive skill than ever: 57 percent said they would consider or recommend an actuary to fill a PA role. (Figure 7) While other backgrounds may be more common among today's health care workforce, actuaries are particularly positioned for success in the area of predictive analytics through their training to measure and manage implications of future events.

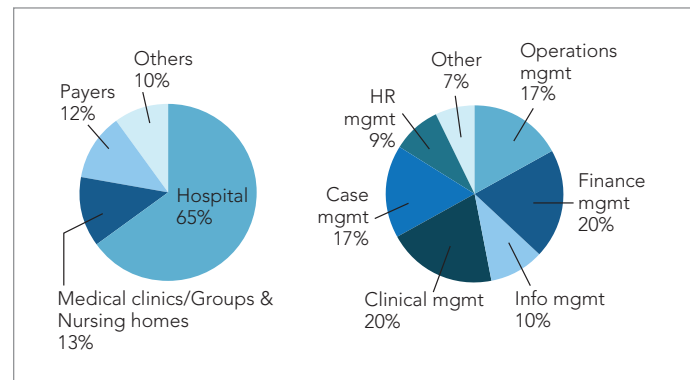
Figure 7
Actuaries in PA Roles



ABOUT THE SURVEY

This briefing summarizes the results of a custom research survey conducted by Modern Healthcare Custom Media on behalf of The Society of Actuaries. Invitations to participate in a web-based survey were sent via email to 20,796 health care executives in April 2016. By the closing date of April 25, 2016, 388 returns had been received for a 1.9 percent response rate. (Figure 8) As an incentive to complete the survey, respondents were offered the chance to win a \$500 gift card. ■

Figure 8
Who Took This Survey?





SOCIETY OF ACTUARIES

475 N. Martingale Road, Suite 600
Schaumburg, Illinois 60173
p: 847.706.3500 f: 847.706.3599
w: www.soa.org

NONPROFIT
ORGANIZATION
U.S. POSTAGE
PAID
SAINT JOSEPH, MI
PERMIT NO. 263



MIX
paper from
responsible sources
FSC® C004755