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Publication Schedule

Publication Month: February 2018
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2017 SECTION LEADERSHIP

Letter From the Editor

By Greg Fann

While legislation on the health care front has started, stalled and changed directions for much of this year, the important work of health actuaries has not subsided. We have continued our ongoing operations while analyzing the impact of changing scenarios. This issue of *Health Watch* provides an update on the very active Strategic Initiatives of the Health Section, in-depth discussions of actuarial thought on aligning provider reimbursement incentives, a summary of some recent research and relevant conferences, and actuarial leadership related to health policy.

On that last point, we begin with a leader interview from Shari Westerfield, the chief actuary of the Blue Cross Association and an active volunteer leader with the American Academy of Actuaries focused on health issues. She notes her role of tackling the complex challenges of today and the necessity of bringing different perspectives together. In her view, we can "play an important role in helping policymakers understand the issues, develop potential solutions and anticipate the possible outcomes."

A series of articles on the Health Section's Strategic Initiatives follows. Barbara Zabielski, a public health professional, conducts an interview on the developing conversation between actuaries and public health professionals. We can learn many things from each other that will enhance the capabilities of both of our professions. New opportunities through this collaboration may involve exploration of coverage of cost-saving items that historically have been outside of traditional medical benefits. Supplemental information offers direction toward relevant public health resources and highlights how interested actuaries can become involved.

David Dillon, with commentary by the respective authors, highlights the key points of the first three articles from the "Commercial Health Care: What's Next?" initiative. Please see his piece in the March 2017 issue of *Health Watch* for a broader summary of this initiative. This is followed by a summary of the most recent Strategic Initiative, "The Actuarial Role in Self-Insurance," led by Hobson Carroll and Jim Mange. This initiative explores a market with a low level of actuarial attention (relative to market size) and seeks to educate actuaries on this space and clarify some frequently misunderstood technical terms.

With federal legislation in flux, this issue takes a break from specific content focused on individual and small group markets and offers five featured articles unrelated to the Affordable Care Act (ACA) repeal efforts. I accept the gratitude of readers who welcome this news, and promise the rest of you that we will have insightful actuarial commentary on commercial market changes in the 2018 newsletters. Leading off this series are two articles on value-based actuarial models. Ken Beckman addresses the challenging issue of reducing chronic disease and offers an actuarial model solution that he believes will provide the right financial incentives for physicians to appropriately manage care. Tim Smith zones in on how to obtain cost savings, with a broader focus that includes optimal benefits and high-performance networks.

With federal legislation in flux, this issue takes a break from specific content focused on individual and small group markets and offers five featured articles unrelated to the ACA repeal efforts.

Shifting to government programs, Kelly Backes, Hillary Millican, Susan Silseth and Matthew Timm discuss the necessity of proactively anticipating the final adjustments in the development of Medicare Advantage bids. On the Medicaid side, Jeremy Palmer summarizes the 10-year financial performance of Medicaid health plans. In the final feature article, Andrew Mackenzie and Ian Duncan describe a Return on Investment model of medical intervention programs using claims and survey data.

In addition to public health professionals, health actuaries are actively collaborating and building mutually beneficial relationships with other organizations. Ian Duncan provides an abstract of a *North American Actuarial Journal* research article regarding the financial performance of co-ops under the ACA. Rebecca Owen continues her profile series, highlighting AcademyHealth, a nonactuarial consolidator of health research. Ian Duncan discusses survey results indicating the receptiveness of predictive analytics for health care executives.

To close this issue, we have reports from two recent conferences. Margie Rosenberg highlights the AcademyHealth spring conference and the mutual benefits of actuaries collaborating with AcademyHealth members and conference attendees. Jenny Gerstorff, who chaired the planning committee for the SOA Health Meeting, summarizes the highlights of another successful SOA event. If these conferences pique your interest and you are considering attending both next year, allow me to play the traditional actuarial roles of having few words and being the messenger of bad news: schedule conflict.

On a personal note, I would like to thank my friend Brian Pauley for his three years of service and leadership on the Health Section Council and entrusting me to manage this publication. I echo his sentiments on the value of volunteering—it's a rewarding experience and it's also a lot of fun. I hope you enjoy this issue! ■

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

ON THE RESEARCH FRONT

Analysis on Opioid Overdose Deaths

The Society of Actuaries (SOA) released an article on the demographics and geography of the increasing number of opioid deaths in the United States, summarizing data available from the U.S. Centers for Disease Control. Read the article and listen to the podcast with SOA health research actuary Rebecca Owen, FSA, MAAA, as she discusses opioid overdose deaths:

https://www.soa.org/research-reports/2017/2017-opioid-overdose-deaths-us/

Research Examines Margin in Rate Setting for Medicaid Managed Care Organizations

The SOA's Health Section Research Committee's new research study provides an understanding of how margin is used to support Medicaid Managed Care Organizations (MCOs). The researchers conducted interviews with Medicaid MCO executives on components and drivers of margin. The report noted that there is no predetermined formula for developing margin, and actuaries must use their own knowledge and judgment to develop or assess margin in Medicaid capitation rates. Access the research report and listen to the podcast:

https://www.soa.org/research-reports/2017/medicaid-margins/

Chairperson's Corner

By Brian Pauley

Aware of my level of involvement, people frequently ask why I volunteer my time for the Society of Actuaries (SOA). I spent many years taking exams, work is busy and includes frequent travel, and life is otherwise full of various obligations. While all of this is true, I accepted something I learned from success expert Zig Ziglar, who said, "You can have everything in life you want, if you will just help other people get what they want." In other words, helping others is the key to personal fulfillment and success. If we focus on we want and need up front, we ultimately end up with less.

Volunteering for the SOA has exemplified this important lesson to me. As I sit here today, I cannot imagine where my life would be without the experiences and relationships built from being an active SOA volunteer. When you read this, I will be wrapping up my three-year term as an elected member of the Health Section Council, which is concluding with a year as chairperson. This has been an extremely valuable and rewarding experience to me as a professional and a person. If you are not a SOA volunteer, I encourage you to examine if you might be able to. What you volunteer to do doesn't have to be anything major, but it can be something. You just never know where that something might lead you. In October 2009, a co-worker asking me if I was available to grade for an actuarial exam that fall has led to something greatly fulfilling to my life. And, just eight years into my volunteer career, I know there is much more to come. I can't wait to experience the rest.

Those closest to me know I have been through some significant life challenges in the last 12 months. The most notable part of my year as Health Section Council chairperson is that it has overlapped with my most challenging one personally. This has certainly made the experience unique. My SOA staff and volunteer family have been among the most supportive and helpful to me as I use these challenges to forge myself into being the strongest, most positive person possible.

In closing, I am a big believer in vulnerability. It helps us be humbler and allows us to use our personal stories to add value to others. As a John Maxwell Team certified leadership speaker, trainer and coach, I am taught to use *adding value to people* as my decision-making filter. I chose to be vulnerable with my story today to add value to you. Volunteering for the SOA is also a choice to add value to people. When you add value to people, you help them get what they want. And, when you help people get what they want, you will get what you want.

I hope to cross paths with every one of you on the journey. ■

Brian Pauley, FSA, MAAA, is chairperson of the SOA Health Section Council. He can be reached at *BPauley@evolenthealth.com*.

Up Front With the SOA Staff Fellow

By Joe Wurzburger and Karen Shelton

Note from Joe: Regular readers of this column know that I typically write it from my own perspective. But in this issue's column, I share the byline with my friend and fellow health actuary Karen Shelton. What follows is a transcript of the discussion she and I had following the recent Women's Leadership Forum at the 2017 Health Meeting. (The CAS held a similar event in March titled "Women's Actuarial Professionals Network on Confidence and Negotiation Skills for Women in the Workplace.")

Joe Wurzburger: Karen, it was great to see you at the Women's Leadership Forum. What a fantastic event!

Karen Shelton: It was good to see you, too! Yes, it really was wonderful. We have such strong, female leaders in our industry, and we need even more.

JW: True.

KS: So, Joe, I've got to ask, what was it like being one of the few males in attendance?

JW: [Laughing.] Yes, there were a few of us, but we were definitely in the minority. I have to admit, in previous years I thought the attendance was limited to women-only. I only learned this year that men were welcome, too,—which is probably my fault for missing that message in prior years. But I've got to say, I loved it. I've been blessed to have many strong women in my life—family, friends, colleagues—so I actually got a bit emotional a few times as we discussed some of the challenges women face in the workplace. I think I sometimes make the mistake of thinking gender bias is a thing of the past, so it's eye-opening to hear about struggles still going on today, particularly in positions of increasing leadership. And hard to hear.

KS: Would you attend again?

JW: Absolutely. And I'm going to encourage my fellow male colleagues to attend, as well. It's important that we all engage in this kind of dialogue, women and men, in order to see real impactful change.

KS: That's so true. My supervisor, who is male, attended the Women's Leadership Forum at a prior SOA meeting to increase his awareness of women's issues in the workplace, particularly

Regardless of gender, sometimes you need to stretch beyond your comfort zone and put yourself out there.

since much of his team is made up of women. His view is that awareness can only make us better colleagues, and I couldn't agree more.

JW: So, Karen, what did you think of the event?

KS: Oh, where to begin?

JW: Well, it was kind of broken into two parts, the keynote speaker and then the workshop. So let's start with keynote speaker Deborah Watkins.

KS: OK. Ms Watkins—the CEO of Care Bridge International—had an interesting journey, going from a nurse earlier in her career to a CEO now. The part of her story that particularly resonated with me was when she talked about her daughter. As you'll recall, her daughter was going through major physical issues, including hospitalization and brain surgery. And during this period, she said that she found work to be a place of "normalcy."

JW: I was struck by that part, too.

KS: Right, and I felt that I could really relate to it. As a working mom, I sometimes find myself wondering if I'm pouring too much into my career at the expense of my family.

JW: Parental guilt is a real thing.

KS: Exactly! And I guess sometimes I am, but most of the time my career provides the balance I need for my unique wiring. I'd say I'm a better mom because I work, and I'm a better employee because I'm a mom.

JW: That's a really good way to look at it. Sometimes I worry that as the father of two young children myself, I'm not able to be 100 percent devoted to them nor 100 percent devoted to my job. But what you're saying is probably truer, that having divided attention actually helps keep me balanced and allows me to do a better job in both roles.

KS: I think so. That's how it is for me, at least. The other part of Deborah's presentation that I really appreciated was that she didn't necessarily set out to be the CEO of an organization. Rather, it happened organically. She did her best at work, always giving 100 percent, avoiding gossip and striving to make a positive impact. And those things helped get her noticed and the growth opportunities followed.

JW: I liked that part, too.

KS: While there are no guarantees, I like to think that hard work and doing things the right way gets rewarded most of the time.

JW: So what did you think about the second part of the event, the workshop? I've got to say, that was my favorite part.

KS: Me, too! We had free-form table discussions where we tackled a variety of thoughts and observations regarding women as leaders.

JW: Right. Did anything stick out in your mind from this?

KS: A few things, actually. It was noted that women often undersell themselves. They don't tend to apply for positions unless they meet, say, 90 percent of the qualifications. Whereas men are more likely to apply for jobs when they are less qualified.

JW: Do you think that's true?

KS: Sometimes. I mean, it's a generalization, so there are plenty of counterexamples. But it might be truer than we'd like to think. I personally have tried to take this to heart and have applied for "stretch" roles. I haven't always been offered that "next big opportunity," which is an important lesson itself.

JW: Do you think you haven't been offered those next big opportunities because of gender bias?

KS: Not necessarily. In fact, some of the times the role was ultimately given to a woman. But it has taught me that you can't just wait for something to fall into your lap. We talked a moment ago about doing things the right way so that growth opportunities present themselves. But that doesn't mean you can just put your head down and work hard and expect these growth opportunities to just happen. Regardless of gender, sometimes you need to stretch beyond your comfort zone and put yourself out there.

JW: That's so true. And sometimes putting yourself out there for a big opportunity might not work out for that particular role, but it makes it known that you're interested in taking on a bigger role. Sometimes people think that's just assumed, but you'd be surprised. I think it really benefits someone, regardless of gender, to make their career aspirations known. You might not get one particular role for which you put yourself out there, but you might be more likely to be considered for another role down the road since your intentions are known.

KS: Agreed. In my case, it was difficult to experience rejection, but it was also an opportunity to learn resilience and improve my game. I'm a firm believer that the right opportunities will come, but we need to be diligent and resilient along the journey.

JW: Well said.

KS: So, Joe, what part of the discussion stuck out to you?

JW: I was fascinated by so many parts of the discussion. I mean, the time really did fly by. I think what sticks out in my mind the most was a concept that was brought up at my table. Someone said that men are always so confident about their abilities. And I said, No, we're not! But I think we might be less likely to show it if we're lacking in confidence.

KS: [Laughing] Meaning you fake it?

JW: Yeah, something like that, at least at first. Maybe a better term would be "forced confidence" rather than "fake confidence." Because I think sometimes forcing yourself to appear confident can actually make you more confident. Real confidence can grow out of this initial forced confidence. And it might empower you to try new things and expand your skills. In large part that's what Amy Cuddy discussed during her keynote speech earlier today.

KS: In Amy's words, "Fake it until you become it!"

JW: That's right! So anyway, the discussion that followed was interesting. Really, the whole afternoon was fascinating. I'm kicking myself for not having come in previous years.

KS: So will I see you here again next year?

JW: Definitely. ■

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SOA Explorer Tool

Find Actuaries 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®

Leader Interview

With Shari Westerfield

Shari Westerfield, FSA, MAAA, is the chief actuary at the Blue Cross Blue Shield Association in Chicago with more than 25 years of health actuarial experience in both consulting and insurance environments. She also currently serves as the vice president of Health for the American Academy of Actuaries and is a member of its Board of Directors. Karen Shelton, FSA, MAAA, conducted the interview.

ON BEING AN ACTUARY

Health Watch: **How and when did you decide to become an actuary?**

Shari Westerfield: Having grown up with a penchant for math, but not wanting to be a math teacher (as my high school counselor suggested), I entered the University of Illinois in the Math and Computer Science program. I didn't even know what an actuary was until I met someone who was in the actuarial program. He recommended that I talk to the dean about the program and the profession. While it was still difficult to envision what an actuarial career would entail, I made the switch in my sophomore year. It would be years before I realized just what a perfect fit it is for me and how fortunate I was to stumble upon it.

HW: **What other careers did you consider? Or if you have had other careers, can you describe them?**

SW: In addition to computer science, I also considered accounting and finance but preferred the more math-focused actuarial path that also encompasses many aspects of computer science, accounting and finance.

HW: **What was your favorite job before you became an actuary?**

SW: In high school, I worked for my aunt at her catering business. It was inspiring to me to watch her run all aspects of the business, from developing menus with clients, cooking and set up, to managing the finances. I even learned a few cooking skills from her. She is 78 now, still cooking and still an inspiration.

HW: **What has been most crucial in your development as an actuary?**

SW: I started my actuarial career in pension and health consulting where the focus was on learning the basic actuarial concepts, developing and running models, and the importance of accurate data.

Then I went to work for a health insurance company where I not only expanded my actuarial knowledge but had the opportunity to work closely with other areas of the company, including claims, underwriting and marketing. I really gained a keen sense of how all aspects of the insurance business impact the actuarial rating and valuation work. I've tried to maintain this perspective in all the roles I've had since.

HW: **Looking at your career as an actuary—do you see any important learning milestones or turning points in your career?**

SW: In my first job out of college, I really enjoyed digging into the work and learning as much as I could each day. It took me a while to recognize and appreciate the importance of also completing the actuarial examination and credentialing process. Once I finally dedicated myself to the task and achieved it, new doors opened to future career options.

Looking back, another turning point occurred when I began volunteering with the American Academy of Actuaries. I gained a broader perspective on the vast public policy issues in which actuaries can play an important role in the discussion. The experience has provided me with a deeper understanding of the issues, the various perspectives and how our political process functions.

HW: **As an actuary—what keeps you awake at night?**

SW: Between my role at the Blue Cross Blue Shield Association and my volunteer work for the American Academy of Actuaries, I spend most of my days trying to solve some of the health care

issues in the United States. With the complex issues that exist today, there is plenty to keep me awake at night.

The sustainability of the U.S. health care delivery and financing systems will likely be at the forefront of the political agenda for the foreseeable future. Actuaries can play an important role in helping policymakers understand the issues, develop potential solutions and anticipate the possible outcomes.

ON BEING A LEADER

HW: **How much did your actuarial training prepare you for this role? What additional training—formal, informal or otherwise—did you need to be successful?**

SW: I think my actuarial training gave me a solid foundation on which to build leadership skills. I've also taken several managerial and leadership courses and read various materials, which are also helpful, but not necessarily complete. I've learned a lot by watching leaders whom I admire. An approach to leadership seems very personal. Everyone needs to find what works for them. Incorporating your own style will feel more natural and likely be perceived as authentic.

HW: **What are the most important lessons you've learned in your role?**

SW: One very important lesson that I've learned is the need to balance all the varying perspectives that arise in developing health policy. As an actuary, I often want to believe that there is one correct or optimal solution to every problem. But as I stepped into a leadership role focused on health policy, I was exposed to more outside views, including those of policymakers, regulators and consumers. These views are often in contrast to one another, yet a common solution must meet all their needs. It's quite challenging, but it's also what makes my job interesting.

The sustainability of the U.S. health care delivery and financing systems will likely be at the forefront of the political agenda for the foreseeable future.

HW: **Let's say you're hiring your successor. If you're presented with two actuaries with equivalent experience and training, what characteristics will help you choose one over the other?**

SW: There are two main characteristics that I would look for. The first is communication skills. Actuaries are not always perceived as the best communicators, but I think that is changing. Both written and verbal communications are important to convey technical issues to nonactuaries, but also to clearly and succinctly describe to your team what your expectations are. Listening skills are just as important for clear and effective communications.

The second characteristic I would look for is emotional steadiness. Good leaders must be able to tolerate frustration and stress, and there's a lot of it in the health policy.

HW: **Describe the biggest one or two challenges that you have faced in your role.**

SW: I think one of the biggest challenges I've faced as a chief actuary is to accept that I actually need to spend less time on actuarial projects and more time on talent management projects. I need to recognize that time spent on training, developing and coaching my staff, as well as talent assessments and succession planning, is an investment in the team's future. I really do enjoy the actuarial work, and it's difficult at times to step back and focus more on the leadership aspects of my role.

HW: **What advice would you give to another actuary going into a leadership position for the first time?**

SW: As actuaries, we generally like to get things done ourselves. You may need to step out of your comfort zone and let people do the work themselves, but it will be worthwhile in the end. My favorite quote is that true leadership lies in guiding others to success. ■

At the Intersection of Public Health and Actuarial Practice

By Barbara Zabielski

In 2016, the Society of Actuaries (SOA) began a formal collaboration with the Centers for Disease Control and Prevention (CDC).[1] The partnership is set within the CDC's 6|18 initiative,[2] but both actuaries and public health professionals could benefit from far more extensive interaction.

Actuaries would benefit from greater awareness of public health concepts, including the consensus that social determinants of health[3] are the most significant predictors of health outcomes. More excess mortality in the United States, for instance, is attributable to poor education, racial segregation, low social support, income disparities, individual-level poverty, and area-level poverty together than to smoking and obesity combined.[4] Moreover, the social determinants are emerging as parameters in areas of actuarial practice. For example, adjustment for social determinants was incorporated into a risk-based Medicaid payment model developed in part by Dr. Arlene Ash,[5] a member of the SOA Public Health Task Force.

A substantial portion of the costs borne by payers also comes from treating chronic conditions that are amenable to preventive interventions. According to the Institute of Medicine, cases of heart disease and type-2 diabetes could be reduced by about 80 percent through simple changes in diet and exercise habits alone.[6] These are things public health can effectively address.[7]

At a minimum, a deeper partnership with actuaries would provide public health professionals with new insights into insurance practices from insiders who have been involved in health care delivery and financing for decades. Actuaries' unique perspectives might be leveraged in utilizing limited resources more effectively, for example, in the development of strategies for maximizing health care quality while protecting risk-bearing organizations. Interviewee Matt Varitek mentioned in a 2009 essay how premium adjustments might be used to incentivize healthy behaviors.[8] The need for actuarial input in such innovations is practically self-evident.

Actuaries could also assist in efforts to make a case for increased public health funding. Despite the fact that most of the sharp rise in life expectancy in the United States during the 20th century was due to things like infectious disease control, motor vehicle and occupational safety regulations, vaccination programs and screening for treatable cancers,[9] people still tend to attribute it to advancements in medical technology.[10] Actuaries could play a key role in persuading citizens and policymakers that public health investments are crucial and cost effective.

Despite actuaries' major role in the U.S. health care system, even a basic overview of the field wasn't included in my formal public health education. It wasn't until I was approached to coordinate this interview that I began to understand who actuaries are and what they do. Now that I know a bit more, the idea of collaboration between the public health and actuarial professions is both exciting and obvious.

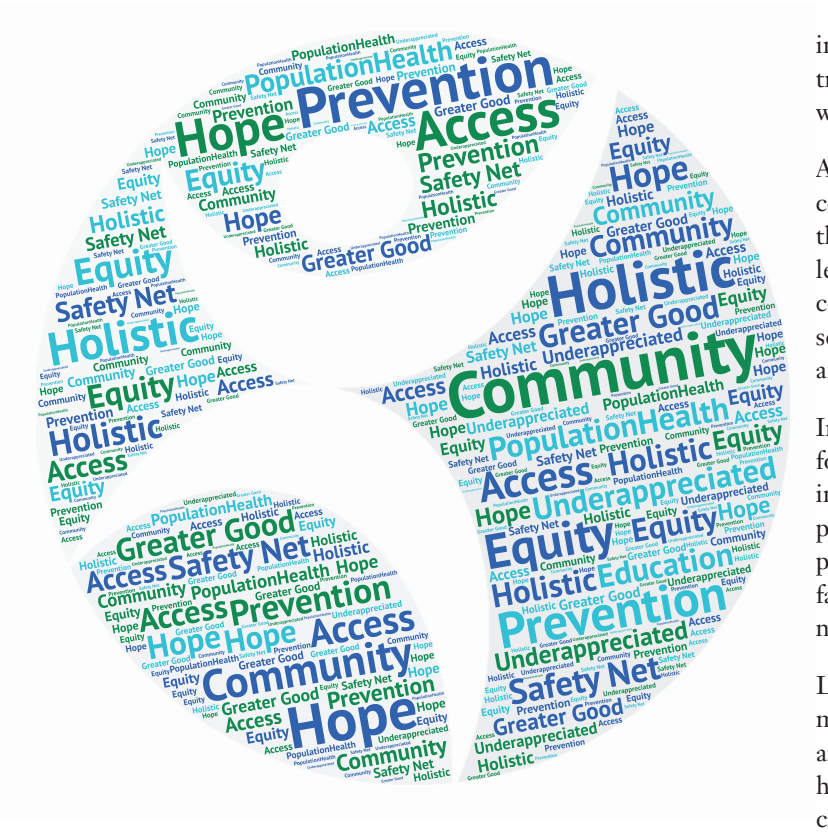
The following is an edited written interview with two actuaries and a public health professional on issues related to the intersection between the actuarial and public health fields. I hope it will broaden your understanding of what public health is and inspire you not only to support—but even join in and become a part of—what we in the public health profession are doing to promote the health of every member of our communities.

Sara, tell us what this strategic initiative is all about.

Sara Teppema: The SOA Health Section Council recognized the need for actuaries to expand their view of health beyond traditional medical care delivery and financing. At the same time, SOA staff and section volunteers had begun to forge a partnership with the CDC,[11] creating the need for a more structured and strategic approach.

The goal of the task force is to create that structure through a two-phase approach. The first is to educate actuaries on the various concepts, disciplines, initiatives and research that fall under the umbrella of public health, and why they are important to us professionally and as citizens in our communities. This education includes articles (like this one!), meeting sessions, and our newly created Health Section subgroup.[12]

The second phase is to turn our focus outward, bringing actuarial insights to the public health community, through both our work and volunteering. We will work with partners like the CDC, the American Lung Association and others to identify ways we might be of help. An early observation is that we seem to be especially effective in helping public health professionals and researchers "translate" their work for a payer audience. We also hope to find ways to connect actuaries to community or other organizations that may benefit from volunteering at the individual level.



What inspired you to get involved?

Sara Teppema: I became interested in the field of public health through my interest in health care equity and ethics.

Lisa Macon Harrison: In North Carolina, we are fortunate to have an actuary, Julia Lerche, working at the state's Department of Health and Human Services. Julia connected me to the SOA and is helping in general to connect the dots across the practice of public health, the costing of public health services and the role our state's Medicaid approach may play in providing resources in the future.

What do you mean by the term "public health"?

Sara Teppema: It's a well-defined discipline, but the simplest explanation I've heard is the people and infrastructure that work to keep us healthy and safe.

Lisa Macon Harrison: The definition of public health has evolved over time, from Public Health 1.0 to 2.0, and now to 3.0.[13] In part, the evolution reflects the responsiveness of public health to changing needs. Public Health 1.0, post–Industrial Revolution, focused on the prevention and detection of diseases through things like immunizations, screening programs, and sanitation. By the mid-1980s, state agencies had gone in separate directions that made public health harder to speak about in general terms. There were new public health threats, including HIV/AIDS, along with the daunting challenge of trying to provide safety-net services for vulnerable populations while contending with the growing burden of chronic diseases.

A 1988 report by the Institute of Medicine lamented that the country "has lost sight of its public health goals and has allowed the system of public health activities to fall into disarray."[14] This led to Public Health 2.0, which included the development of a common set of goals and a commitment to focus on ten essential services [15] plus the three core functions of assessment, assurance, and policy development.

In the 21st century, we are moving into Public Health 3.0, which focuses on the many things that determine health. Research indicates that quality clinical care accounts for only about 20 percent of health outcomes and health behaviors for around 30 percent, with roughly 50 percent related to social and economic factors and the physical environment—the "social determinants" of health.[16]

Local health departments focus increasingly on the social determinants of health as they work to improve community health and reduce health disparities. Something we agree on in public health is that, genetics aside, people should have reasonably equal chances of enjoying good health. Achieving that kind of equity means moving beyond the notion that individuals are entirely responsible for their health-related behaviors and recognizing that the environment exerts considerable influence over people's behaviors and their exposures to various health risks.

Merriam-Webster defines public health as "the health of people in general and the science of caring for the people of a community by giving them basic health care and health information, improving living conditions, etc."[17] It's the "etc." where the nuance lies. Public Health 3.0 gives expression to that. Public health is at its best when it responds to the unique needs and concerns of individual communities.

Matthew Varitek: Public Health 3.0 seems particularly relevant to actuaries in the Medicaid space. Requirements around access to care are a focal point of contracting agreements with Medicaid Managed Care Organizations. Some Medicaid programs show interest in considering social determinants in rate setting and risk adjustment. Medicaid actuaries can help demonstrate the long-term value of short-term investments by helping to quantify influences like environmental and social factors on health care utilization and costs, especially for programs that cover people for longer durations than observed in the commercial space.

Lisa, as a public health professional, what do you think of when you think of public health?

Lisa Macon Harrison: Working on the front lines of public health in a rural community, I think first of a competent, compassionate, dedicated public health workforce. It's incredible what a few nurses, social workers, nutritionists, health educators and environmental health specialists who really care can accomplish. It sounds hyperbolic, but public health workers really do change the world one community at a time.

Certainly, the work also includes a tremendous amount of less-inspiring duties—things every agency (both private and public) has to deal with, like budgets, communications, human resources, legal questions and politics. I think the hardest thing about public health is probably how much politics influences our ability to accomplish our work.

Public health work is full of nuance and challenge, and your best hope is ultimately to leave a legacy of influence for a better future—not always easily measured or something in which leaders and funders can find instant gratification. Delayed gratification is key to public health and, in my view, why so few dollars are invested in prevention and public health services.

A lot of actuaries talk about "population health" today. How is that different than "public health"?

Matthew Varitek: I draw a distinction between "population health," which describes aggregated health outcomes for any subset of the total populace, and "public health," which describes efforts to prevent disease and promote healthy behaviors across the entire populace.

Sara Teppema: Population health has different meanings to different people. Besides Matt's definition, some actuaries think of population health as a way of looking at health care delivery and costs, in which a provider is asked to be accountable for the health (and costs) of a population. As advanced as this view may seem, it is still comparatively narrow and cost-centric.

Kindig and Stoddart[18] proposed the following definition of population health: "the health outcomes of a group of individuals, including the distribution of such outcomes within the group." Their article provided an "a-ha!" moment for me, defining population health not only in terms of the population's health *outcomes* but also in terms of the many *determinants* of those outcomes. The authors noted that because much of what determines health (e.g., education, income and medical care) was still "outside of public health authority and responsibility," population health extended beyond what public health at that time could address. Now, Public Health 3.0 has incorporated that notion of population health into a broader, emerging vision of public health.

We make strides in public health across generations, not congressional terms.

How/where does public health intersect with Medicaid? Medicare? Commercial payers? Health systems and providers?

Sara Teppema: It's not so much an intersection as the foundation of the health of the populations that these entities serve. When public health infrastructure is strong, health care delivery and costs become more predictable.

Lisa Macon Harrison: Public health depends a tremendous amount on payers, health systems, and providers. Half of local health departments in North Carolina offer primary care in addition to maternal and child health programs, family planning services, and other more typical health department services. Much of our preventive work is funded through reimbursements from Medicaid, Medicare, and private insurers.

We recognize that social determinants of health need to be addressed, but we haven't yet found a way to pay for that through Medicaid, Medicare or private payers. People are also talking a lot about moving from volume-based to value-based care, but we're still stuck at a point where the policies and payment models have not evolved.

Matthew Varitek: Public health is improved as the number of people without health coverage is reduced. Medicaid expansion was a primary driver of the drop in the uninsured rate since 2013. Some aspects of the Medicaid benefit package are oriented toward improving public health. For decades, Medicaid programs have covered early and periodic screening, diagnostics, and treatment for children. Recent years have seen enhanced efforts to provide preventive services for adults. Smoking cessation programs are an example of a benefit that is intended to improve the health of one population but has an ancillary benefit—reducing nonsmokers' exposure to secondhand smoke—that improves public health. Discussions concerning repeal and/or replacement of the Affordable Care Act center on the number of people who would lose coverage, or the potential impact to premiums for exchange policies, but the potential cumulative impact to public health—and therefore to health care costs—is even larger.

Why should actuaries expand their perspective to include modern public health concepts?

Lisa Macon Harrison: Public health saves money and saves lives. It's far wiser to purchase a $300 air-conditioning unit for

a child's bedroom than to pay for a $3,000 visit to the emergency room for a breathing treatment. It's likewise far cheaper to fund effective diabetes prevention programs than to pay to treat diabetes. According to the CDC, the costs associated with medical care, lost work and lost wages for people with diabetes is upward of $245 billion in the United States.[19] At the same time, hospitals, health centers and health departments have been forced to cut diabetes prevention programs because there is still no mechanism to pay for evidence-based preventive approaches. Why is this? It is still so much easier in this country to find ways to pay for disease treatments than for disease-preventing interventions. We need both.

Matthew Varitek: More people receive health insurance coverage through Medicaid than any other single source, and no other single payer covers a population with a more diverse risk profile. Some of Medicaid's members—whether elderly, living with disabilities or certain genetic conditions, or children from stressed environments—are among the most vulnerable to extreme health events. These members may therefore be among the first to benefit directly from investments that focus on improving public health.

Actuaries today may be missing some of the public health levers that can be used to manage their populations' health care costs. Why are they important to the practicing health actuary?

Sara Teppema: Imagine if our public health infrastructure failed and communities stopped ensuring safe drinking water or lifted smoking bans or ceased immunization programs. We would see a significant decline in health and quality of life.

Matthew Varitek: We should at least be mindful of negative impacts to public health, like changes in air or water quality that could lead to increased incidence of asthma attacks, cancer or other forms of poisoning. As Lisa mentioned, preventive measures that are not delivered by medical providers, whether an air-conditioning unit for an individual or an upgraded municipal water system, may result in savings of health care expenses that far outweigh the cost of the preventive effort.

What constraints are there on the financing of public health initiatives?

Lisa Macon Harrison: There are so many! One of the most frustrating is the short-term nature of so much of it. Funders often place the responsibility for sustaining programs at the local level after an initial brief funding cycle, and many even stipulate a sustainability plan to receive funds. Yet in poor rural areas, it is nearly impossible just to cover the basic costs of staff, equipment, and infrastructure, much less sustain interventions that show promising results.

Since funding often depends on federal leadership and relationships between federal and state governments, both predictable and unpredictable swings occur in the amounts and durations of funding for mandated services such as communicable diseases services, vital records maintenance and environmental health services. Funding is generally even less dependable for interventions like opioid overdose reduction initiatives, obesity prevention programs and HIV prevention activities.

It's worth noting that only about 3 percent of the nearly 2.6 trillion spent by the United States on health care goes to public health.[20] In many states, funding remains uneven, unpredictable and unstable, even though the best investments in public health are long-term ones. We make strides in public health across generations, not congressional terms.

What might be done to overcome some of those constraints?

Matthew Varitek: The Arizona Smokers' Helpline is funded through a state tax on tobacco products. More recently, certain goals of Arizona's Medicaid value-based purchasing initiatives, such as a target percentage of program members receiving a flu shot, improve public health by reducing everyone's exposure to contagious diseases.

Lisa Macon Harrison: Consistency, flexibility and more effective ways to measure impact over time will help. But until more people understand the value of public health and what it does for every individual, family, group and community, it will be difficult to make those levers of change stick. Actuaries helping advocate and educate could go a long way!

A better, more accurate approach to the costing and the value of public health services is also needed. It would be helpful to have federal and state policies dictating minimum amounts of funding per capita for public health. Creative approaches like the tobacco tax initiative Matt mentioned are another potential funding solution.

Sara Teppema: Public health initiatives tend to be cost-assessed in terms of things like return-on-investment ratios, such as those presented in the 2017 Trust for America's Health report.[21] Large or regional health plans might be convinced to contribute funds to public health programs if they could see their value expressed in terms of projected cost savings PMPM. Actuaries might prove uniquely able to contribute to the cause of improving public health by helping public health professionals make their findings more accessible to payers.

If practicing actuaries are interested in getting involved in public health in their communities, where can they get started?

Lisa Macon Harrison: Many local health directors are so busy dealing with the daily grind that poring over financial data to share important points with county commissioners becomes very difficult. Offer to help your local health department director by writing a letter to legislators outlining the financial benefits of providing public health service or making relevant comparisons to other legislative districts and outlining needs. Actuaries could really help with those kinds of projects and with advocating for increased and more consistent funding.

Sara Teppema: Start with a local community health organization that does work that you believe in. It doesn't have to be a fancy job title, although these organizations would probably love to have actuaries on their boards and finance committees. I volunteer as a cashier at a secondhand shop that supports a community clinic in my town. Contact your county or state public health department and ask for organizations that might need help. Get involved on public health issues you care about, and you will make a difference. ■

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MORE ABOUT PUBLIC HEALTH

By Jim Mange

You can find more information through your local or state health department, the American Public Health Association (APHA[1]), the U.S. Department of Health and Human Services (HHS[2]), the National Association of County and State Health Officials (NACCHO[3]), the Centers for Disease Control and Prevention (CDC[4]) or the National Institutes of Health (NIH[5]).

For a more in-depth exploration of a variety of public health issues, consider the books listed in "Thomas Frieden Recommends the Best Books on Public Health"[6] or Goodread's list of popular public health books.[7]

For a brief history of the evolution from Public Health 1.0 to 2.0 and 3.0, read Public Health 3.0: Time for an Upgrade.[8]

To gain greater appreciation for how the public sector environment influences the success or failure of public health managers and workers, such as how goals are set, progress measured, change managed and funding constrained, check out *The First 90 Days in Government: Critical Strategies for New Public Managers at All Levels.*[9]

To explore public health issues that are a little closer to home for many actuaries such as estimating the health and economic effects of the U.S. health delivery and financing systems, look into the writings and presentations of Glen Mays.[10]

If your curiosity about the social determinants of health has been piqued, check out the PBS Series "Unnatural Causes,"[11] or look into the writings and lectures of Sir Michael Marmot, Chair of the Commission on Social Determinants of Health of the World Health Organization (WHO). Examples include a 2006 lecture, Health in an Unequal World,[12] and a video of his 2014 lecture to the WORLD.MINDS Annual Symposium, Social Determinants of Health: From Research to Policy.[13]

In November 2016, Health Affairs published a themed issue built around the culture of health.[14] Members of the Health Section can access that and other issues of Health Affairs.[15]

Finally, consider joining the Health Section's new subgroup on public health.[16] There will be monthly conference calls on public health topics with both actuarial and non-actuarial presenters. You can contact Dee Berger at *lberger@soa.org* with questions about joining the subgroup. ■

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Commercial Health Care: What's Next?

A Health Section Strategic Initiative

By David Dillon

In June 2017, the Society of Actuaries (SOA) Health Section released a new strategic initiative entitled Commercial Health Care: What's Next? This initiative was designed to be an anthology series of white papers and articles focusing on education and research concerning key issues concerning health care reform. This article contains a condensed summary and excerpts from the first three white papers that were released. The full articles and newly released companion pieces are located at *http://www.theactuarymagazine.org/category/web-exclusives/commercial-health-care-whats-next/*.

THE NEXT-GENERATION HIGH-RISK POOL

By Liz Leif FSA, FCA, MAAA, and Cecil Bykerk, FSA, FCA, HonFIA, MAAA

Traditional high-risk pools were designed in the era prior to the guaranteed access requirement of the Affordable Care Act (ACA). The goal was to provide the additional funding needed for high-risk individuals through a separate funding mechanism, while keeping the cost for the majority of insured individuals at a lower level.

High-risk reinsurance pools also focus on financing the cost of health care for high-risk individuals. In this approach, high-risk individuals remain in the commercial market, but behind the scenes the insurance carrier cedes all or part of its risk exposure for those individuals to the reinsurance pool. Because the existence of the funding mechanism is invisible to the high-risk individual and the approach allows individuals with preexisting conditions access to the commercial market, it recently has gained favor at both the federal and state levels.

HIGH-RISK POOLS: ACCOLADES

- High-risk pools are a good mechanism for keeping rates lower in the individual market, because the cost of the highest-risk individuals is segregated from the insured risk pool and funded in a different way.
- When high-risk pools are funded through a broad-based mechanism, such as assessing carriers in all markets or using state general funds, the shared cost is less for all.
- High-risk pools have no profit motivation, and their goal is to serve the needs of this specialized population.
- The existence of a high-risk reinsurance program is invisible to the insured individual, so there is no stigma attached to the source or type of insurance coverage.
- With high-risk reinsurance, the high-risk individual's premium rate level is the same as other individuals with the same plan, age and geographic location. The reinsured high-risk individual has the same plan choices as others in the same geographic location.

HIGH-RISK POOLS: CRITICISMS

- The high-risk pool concept is often criticized for not being self-sustaining and always requiring outside funding.
- Traditional high-risk pools typically do not offer multiple carrier choices, since they operate as self-funded rather than fully insured programs. This criticism is resolved in the high-risk reinsurance approach, since the individual purchases coverage in the commercial market.
- Traditional high-risk pools result in the segregation of high-risk individuals from other individuals who can purchase lower-cost policies directly from the insurance market.
- Traditional high-risk pool premium rates historically have been high because of statutory rules allowing for the price to be set at a multiple above the standard risk rate.
- High-risk reinsurance programs that reimburse insurers for the payment of large claims leave the insurer with less incentive to appropriately manage care and seek cost-saving alternatives.

Is There a Future for High-Risk Pools?

If the ACA was to be repealed in its entirety—or modified to eliminate guaranteed access or to allow carriers to charge higher rates for high-risk individuals—the traditional high-risk pool concept could make a comeback. Whether these programs will play a role on a broader basis in the future is still an open question.

THE OLD AND THE BEAUTIFUL

By Doug Norris, FSA, MAAA, Ph.D., Hans Leida, FSA, MAAA, Ph.D., Erica Rode, ASA, MAAA, Ph.D., and T. J. Gray, FSA, MAAA

All forms of insurance involve some level of concurrent subsidization—in health care, everyone signs up for coverage, and those who end up healthy during the year subsidize those who fall ill. For the individual and small group commercial major medical markets, the ACA mandates an additional prospective subsidization (based upon age and gender), prescribing a maximum premium variation (between adults purchasing the same benefit plan in the same area) of no greater than 3 to 1 (and no premium variation between males and females of the same age). This restriction is built into the ACA's risk adjustment program, in order that carriers with a disproportionate share of older individuals can be compensated from other market carriers.

> The existence of a high-risk reinsurance program is invisible to the insured individual, so there is no stigma attached to the source or type of insurance coverage.

Prior to 2014, states were typically the ones who decided what age/gender premium limitations would be imposed in their individual and small group commercial markets. Most states had either no age restrictions at all, or had restrictions that were less compressed than the ACA's 3 to 1 requirement (and most states did not require unisex rates).

Under some forms of insurance, the issue of age subsidization is mitigated by the fact that a policy remains in force for a substantial portion of an enrollee's lifetime, with future costs prefunded over the first years of the policy. In commercial health insurance, both the insurable event ("health") and the benefit amount are difficult to predict over that long of a time frame. For a number of reasons including this, commercial health products have evolved to the point where a one-year contract has become the standard.

Although Actuarial Standard of Practice 12 (Risk Classification) gives us some guidance in this situation, the question of how much commercial market subsidization is appropriate is not so much an actuarial question, but a societal question. However, society's answer to this question has actuarial repercussions. On average, older enrollees do have more medical conditions (and consume more health care services) than their younger counterparts. On the other hand, all younger people presumably aspire to one day be older people (or at least would likely agree that growing old beats the alternative). If the commercial market is age subsidized to a low degree (or not at all), then it becomes more difficult for older enrollees to afford coverage; the greater the subsidization, the more difficult it becomes to entice younger enrollees to purchase coverage. As of this writing, proposed reforms to the ACA have included a lower subsidization level (of 5 to 1) between younger and older enrollees.

Tied to all of this is the effectiveness of the individual mandate. When individuals do not believe that they are required to have health coverage, then they are more likely to purchase insurance if they feel that they will need it during the coming year. Additionally, the level of premium subsidy that some enrollees receive through the ACA (or through its successor) will impact the affordability of coverage.

HOW SMALL EMPLOYERS WILL BE IMPACTED BY REFORM

By Trey Swacker, FSA, MAAA

As the federal government debates the U.S. health care system and specifically the future of the ACA, the majority of the media

coverage and attention has been focused on the uncertain future of the individual market. This article spotlights the potential impacts to health coverage for small employers.

The small employer market has already been through a period of dramatic change under the ACA. Changes to the availability of plan options, rating rules and the federal risk adjustment program have increased premiums significantly in many cases. Will new benefit strategies be available? Can I continue to keep my plan? Can I buy plans sold in other states? Can I self-insure? Can I join a purchasing alliance? Can my employees afford coverage in the individual market? These are just some of the questions that small employers and brokers in the market are thinking about.

The number of small employers offering fully insured medical coverage has been declining for several years, but the trend has increased since the implementation of the ACA's rating rules and premium stabilization programs in 2014. Some smaller employers have chosen to self-insure their benefits, but it would appear more small employers have chosen to allow their employees to purchase coverage in the individual market.

Various versions of ACA repeal-and-replace legislation have stalled in the House and Senate, but there are other pieces of legislation that have passed (or enjoy stronger support) that will have some impacts on small employers.

The 21st Century Cures Act, which became law in December 2016, will allow small employers to fund Health Reimbursement Accounts that their employees can use to fund premiums for policies on the individual market.

The Self-Insurance Protection Act, which passed the House with bipartisan support, clarifies the ERISA preemption for employers who self-insure their medical benefits and purchase stop-loss protection. ERISA challenges had largely been upheld to date, but many states have implemented or are considering minimum thresholds for stop-loss policies.

The Small Business Health Fairness Act passed the House along partisan lines, and the bill outlines a structure for "Association Health Plans" that would preempt state regulation of insurance. This provides the structure for small employers to band together to purchase health coverage. It is not as sweeping as the policy proposals to allow sales of health insurance across state lines, but is viewed as a litmus test for that issue.

The more comprehensive House (American Health Care Act) and Senate (Better Care Reconciliation Act) bills to reform health care appear stalled at the moment. While the future of the ACA and health care reform in general remain uncertain, it's never too soon to start explaining the different scenarios and impacts of proposed legislation. Small employers are key to the economic engine of the United States. Meeting their health care needs is imperative under any regulatory framework. ■

David Dillon, FSA, MAAA, is vice president and principal at Lewis & Ellis Inc. He can be reached at *ddillon@lewisellis.com*. David has been appointed to lead the Commercial Health Care: What's Next? strategic initiative by the Health Section Council.

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The Actuarial Role in Self-Insurance

A Health Section Strategic Initiative

By Hobson Carroll and Jim Mange

Did you know?

- The Henry J. Kaiser Family Foundation reports that employer-sponsored health benefit plans cover half of the nonelderly population, about 150 million people, and that about 61 percent of covered workers are enrolled in partially or completely self-funded plans.[1]
- The Employee Benefits Research Institute reports that 39 percent of firms offering health benefit plans in 2015 offered at least one plan that was self-insured and that 60 percent of workers covered by health plans are under self-insured plans.[2]
- Deloitte Advanced Analytics reports that of plans filing a Form 5500 for 2014, 41 percent are self-insured and 7 percent are "mixed funded."[3] Of the 70.8 million participants covered by the 51,643 plans in the study, 46 percent of participants are covered by a self-insured plan, and another 36 percent are covered by a mixed funded plan.[4]

It is challenging to reconcile these analyses. They use different terms, some of which have multiple meanings and others of which have the same meaning, are based on different sources and measure different things. Suffice it to say that tens of millions of people—perhaps a majority—are covered by employee health plans that their employers chose to self-insure.

A HEALTH SECTION STRATEGIC INITIATIVE

Recognizing the importance of self-insurance to the employer-based health insurance system, the inconsistent terminology used across the self-insurance industry and the limited actuarial literature addressing self-insurance, the Health Section has kicked off a new strategic initiative called "The Actuarial Role in Self-Insurance."

The overarching objective of the task force is to educate health actuaries on the role of actuaries in the self-insurance marketplace both as advisors to self-insured employers and as developers of tools self-insured employers need to manage the risks they assume. The task force expects to produce a white paper written "by actuaries, for actuaries" to fulfill this inwardly directed objective. The task force hopes to leverage the white paper to enhance the basic education of aspiring health actuaries and to offer educational material to potential non-actuarial audiences, a potential outwardly focused impact.

SELF-INSURANCE—WHAT IS IT?

The term "self-insurance" itself can be a source of confusion. Many people prefer the term "self-funded." Others make a distinction between "self-funded" and "partially self-funded," which itself has multiple contextual meanings. Other ways to categorize a self-insured plan include whether it is:

- Self-administered, administered by a third-party administrator or through a carrier's administrative-services-only contract
- An ERISA or non-ERISA plan
- Subject to the requirement to file a Form 5500
- Audited
- Covered by a stop-loss insurance policy, and if so, who purchased the policy, the employer or the plan itself, and what kind of stop-loss insurance was purchased

Perhaps we can leave this question of classification by noting one primary characteristic to assist in recognizing a self-insured employer health plan—that self-insurance via an employer ERISA plan has a special place within the employee benefits

marketplace because such plans are generally exempt from state insurance department regulations and control.

HOW ARE ACTUARIES INVOLVED?

Because a self-insured health plan is a true risk-taking entity, most actuarial issues relating to evaluating risk—estimating expected claims under different plan scenarios, using and evaluating the various tools available to manage this risk—apply. In short, most of the actuarial functions within any health insurance organization are applicable to a self-insured plan. Important differences are found with the counterpart issues and functions of a large insurance company, however, and therein lie many of the challenges and opportunities for the health actuary involved in self-insurance. The health actuary may be a consultant advising the self-insured client directly, a stop-loss pricing actuary, a state regulator evaluating stop-loss policies and rates filed with a state insurance department, a self-insurance product developer designing risk management products for the self-insurance industry, an advisor to stop-loss renewal underwriters, or a valuation actuary estimating reserves for either the employer or the stop-loss carrier.

HOW WILL THIS HELP ME IN MY WORK AS AN ACTUARY?

Understanding the actuarial underpinnings of self-insurance can help us better understand the interrelatedness of different market segments within the health insurance arena. For example, a lot of speculation and analysis in the regulatory and academic worlds surrounds the potential damage of adverse selection to the individual and small group fully insured markets if self-insurance among smaller employers expands. Understanding the actuarial foundations of self-insurance may provide the basis for analysis of whether the hypothesized adverse selection exists, and if so, the resulting impact; as well, it may suggest appropriate public policy initiatives to "level the playing field."

Self-insured health plans provide an excellent testing ground for innovative plan designs and claims management tools that are easier to implement because of the limited regulatory environment in which such plans operate. As actuaries wishing to design and then measure and evaluate the impact of such designs and tools, self-insured plans offer a way to test such initiatives without the risk of locking in pricing and terms through filed forms before costs and benefits are clearly understood.

HOW CAN I LEARN MORE ABOUT THE TASK FORCE'S WORK?

The members of the Actuarial Topics in Self-Insurance Task Force include actuaries covering the breadth of the self-insurance industry. Members of the task force are Jeremy Benson, Kristi Bohn, Hobson Carroll, Tom Doran, Mike Kemp, Mehb Khoja, Jim Mange, David Olsho, Shaun Peterson, Nick Sarneso, Brent Seiler, Joe Slater, Greg Sullivan, Dustin Tindall and David Wilson. The task force is supported by Health Section Council members Greg Fann and Jackie Lee, and SOA staff Joe Wurzburger and Ladelia Berger. Contact any of them to learn more. ■

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2 *Employee Benefit Research Institute Notes*, July 2016, Vol. 37, No. 7.

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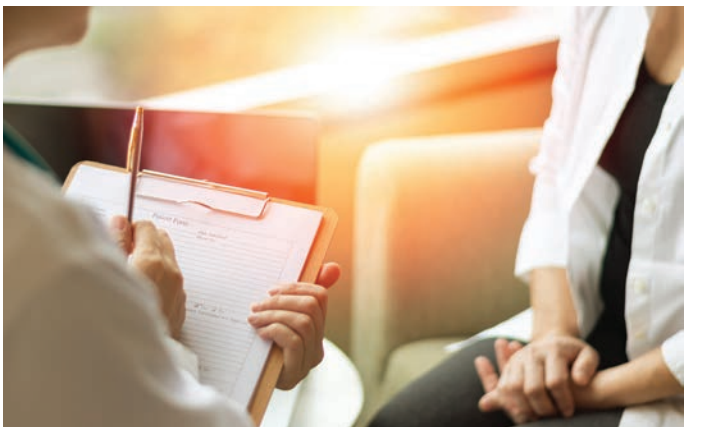
An Actuarial Model to Improve Health and Reduce Costs

By Ken Beckman



Chronic disease accounts for 86 percent of U.S. health care costs and an ever-increasing share of individual, corporate and government budgets.[1] While everyone is searching for a solution to reduce chronic disease and lower costs, under the current health care framework there are no financial rewards (in some cases there are penalties) for health care providers to do just that. The result is the present unsustainable system that can be characterized as having uncontrolled risk, causing financial and possibly even physical harm to millions of individuals.

Actuaries have consistently developed long-term, stable financial security systems based on objective data that continue to be successful because risk is controlled and reduced. So consider if actuaries could implement a solution that provides lucrative financial incentives for health care providers to help reduce the prevalence of chronic disease. An example of this solution is illustrated in Figure 1. A diabetic patient incurs $15,000 in total annual health care spending, of which the primary care physician (PCP) receives $1,500. If the patient's diabetic condition can be reversed, the annual expected spending drops to $7,500 with the PCP's share at $750. The physician has done a great service in helping the patient improve their health and lower overall costs, but in the current system he or she is essentially penalized with a cut in pay since the patient has less need for future medical services. However, under this Actuarial Patient Value model, the PCP receives an incentive payment of $2,000, bringing the total compensation to $2,750. The model takes a long-term view recognizing that eliminating a chronic condition will likely result in significant savings for the remaining lifetime of the patient. As a result, the $2,000 payment continues for many years, assuming the patient's good health persists.

Simply stated, the Actuarial Patient Value model pays direct cash rewards to health care providers for improving and then maintaining patient health. While there are other systems that offer incentives such as the Medicare Advantage (MA) risk-adjustment mechanism and the Medicare Shared Savings Program, these tend to be of a short-term nature. For example, since MA plans are paid based on the patient risk score from the prior year, the plan actually receives less revenue in future years for a member whose health improved.[2] Similarly, with the Shared Savings Program, an ACO can receive payments based on a reduction in claims, but the benchmark against which these savings are determined is reset after three years.[3] By setting aside the short-term rating focus that has traditionally been used in health insurance, actuaries have an exciting new opportunity that can significantly improve public health and reduce costs.

Figure 1
Actuarial Patient Value Model

	Year 1	Year 2	Year 3	Year 4	Year 5+
Diabetic Patient with HbA1c of:	9.0	6.5	6.5	6.5	6.5
Expected Total Health Spending	$15,000	$7,500	$7,500	$7,500	$7,500
PCP Share of Health Spending	$1,500	$750	$750	$750	$750
Incentive Payment to PCP		$2,000	$2,000	$2,000	$2,000
Net Savings Relative to Year 1		**$5,500**	**$5,500**	**$5,500**	**$5,500**

Values are for illustrative purposes only. Specific health spending amounts for diabetes can be found in American Diabetes Association, Economic Costs of Diabetes in the U.S. in 2012, *http://care.diabetesjournals.org/content/early/2013/03/05/dc12-2625.full-text.pdf* (accessed June 30, 2017).

CURRENT VALUE-BASED MEASURES

While actuaries are already involved with the increasing number of value-based reimbursement systems that are working to encourage better and lower cost care, the measures of value currently being used do very little to actually achieve these goals. As Harvard economist Michael Porter suggests, "Value should always be defined around the customer, and in a well-functioning health care system, the creation of value for patients should determine the reward for all other actors in the system."[4] If no measurement is being done of whether patient health outcomes are improving, it is difficult to determine if a health care system is providing any value. The Healthcare Effectiveness Data and Information Set (HEDIS) consists of about 80 different measures that are "used by more than 90 percent of America's health plans to measure performance on important dimensions of care and service."[5] Similarly, CMS and other payers, providers and consumer groups developed "quality measures that payers have committed to using" so that by "focusing quality improvement on key areas across payers, quality of care can be improved for patients more effectively and efficiently" and "aid in value-based payment." [6] CMS is using these measures as part of its Quality Payment Program whose goal is helping providers "focus on care quality and the one thing that matters most—making patients healthier."[7] Porter observed, "In practice, quality usually means adherence to evidence based guidelines, and quality measurement focuses overwhelmingly on care processes." He characterized HEDIS primarily as "process measures, and none are true outcomes" and commented that "process measurement, though a useful internal strategy for health care institutions, is not a substitute for measuring outcomes."[8]

> "[I]n a well-functioning health care system, the creation of value for patients should determine the reward for all other actors in the system."

To clarify the distinction between care processes and health outcomes, it is helpful to review three of these existing quality measures.[9] The first involves hypertension, which is the number one reason patients visit their primary care physician.[10] The measure "Controlling High Blood Pressure" captures the percentage of patients with a diagnosis of hypertension whose blood pressure was less than 140/90. While it is clearly not harmful to control a potentially life-threatening condition such as high blood pressure, simply having a reading under 140/90 does not promote optimal health since anything above 120/80 is considered abnormal.[11] The second involves diabetes, which has seen an increase in prevalence of more than 600 percent since 1960.[12] The measure "Comprehensive Diabetes Care: HbA1c Poor Control" determines the percentage of diabetic patients who have A1c readings of greater than 9 percent or failed to have their A1c recorded during the year. Given that accepted diabetic control is an A1c of 7 percent, it is unclear how a goal of 9 percent promotes health.[13] The third involves body mass index (BMI), which is significant since 38 percent of adults are obese and 70 percent are overweight.[14] The measure "BMI Screening and Follow-Up" is the percentage of patients who had their BMI recorded and for those outside the optimal range who had a documented improvement plan. While it is a positive step that patients understand their BMI and are alerted if they are overweight, since the measure does not record if the plan is being effectively implemented by reducing BMI over time, it does little to indicate improved health.

As a result of these and the other currently used measures of quality and value, providers are incentivized to design their practice to make sure patients take their medications, information is recorded in the medical records and preventive screenings are performed. Educating patients about how to prevent and reverse chronic disease is not a primary focus.

VALUE-BASED MEASURES IN THE ACTUARIAL PATIENT VALUE MODEL

So how can actuaries develop target measures that will lead to both improved patient health outcomes and lower costs? The first step is to determine metrics that provide clear and objective indication of patient health over time. These underlying metrics must correlate directly with health and not simply record whether a test was done or a condition monitored. While much of the potential data to be analyzed is already being captured in medical records, only by measuring the change in these values over time indicates whether health is improving. Some possible metrics to consider include, but are not limited to, BMI, blood pressure, A1c, cholesterol, triglycerides, C-reactive protein and endothelial function. The resulting analysis would show the impact on claim costs relative to the change a given metric or combination of metrics. For example, if the correlation between A1c and claim costs is high, then A1c would be a likely candidate to use as a value-based measure. Figure 1 illustrates the results of an analysis that showed a high degree of confidence that a 2.5 percent decrease in A1c reduces expected claims by $7,500. In certain cases one metric alone might be not be useful, but when combined with others may have value. That is, a moderately high BMI that may not have a significant relationship to claim costs, but when combined with A1c correlation improves significantly.

After measures that best correlate with patient health are identified, the next step is to determine the proportion and duration of the claim savings that can be paid to providers, while maintaining financial stability for the payer. As shown in Figure 1, $2,000 of the $7,500 savings was paid to the provider with the remaining $5,500 available for some combination of premium reduction or increased retention for the payer.[15]

BASIS OF MODEL: CHRONIC DISEASE CAN BE REVERSED

One may think it sounds idealistic and unrealistic to provide incentives to make people healthier when so much of health spending is due to chronic diseases, and by definition, these are essentially permanent conditions. Even in the medical profession it is widely believed that once someone has a chronic disease the best outcome possible is achieved through medication compliance and preventive screenings, but even then the patient will still have the condition for the rest of their life. The quality measures currently in place would support this view. As further evidence, even highly respected and well-intentioned organizations dedicated to helping those afflicted with these conditions share this belief. The following statements can be found on the website of the American Heart Association: "High blood pressure is a lifelong condition," and "Follow [your doctor's] recommendations carefully, even if it means taking medication every day for the rest of your life."[16]

However, high blood pressure does not have to be a lifelong condition, and taking daily medication for the rest of one's life is almost always unnecessary if the underlying cause is addressed.[17] The clinical, scientific and historical evidence shows there is a highly effective solution to reverse not only hypertension, but cardiovascular disease, diabetes, obesity, rheumatoid arthritis, inflammatory bowel disease, erectile dysfunction and many other chronic conditions without the use of medications or surgical procedures.

This simple, prompt, safe and low-cost solution is known as whole food plant-based nutrition (WFPBN). While everyone knows good nutrition is beneficial and information on the topic is more widely available today than at any time in human history, this clearly has not resulted in better health. Largely due to a constant stream of new research studies, often focusing on a single food or nutrient, the public and health care providers are confused about what health-promoting nutrition actually is. While WFPBN does involve a specific way of eating, the primary focus should be that for many of the most common chronic and costly conditions, *the human body has the ability to rapidly and safely reverse and eliminate these conditions without prescription drugs or medical procedures when given the correct fuel*. This concept is unknown to a vast segment of the population and many in the medical profession. As evidence, no one would consider buying an expensive car and using the wrong fuel since the connection between the proper fuel and automobile performance is clear. But many people give little thought to using the optimal fuel (food) in their own body. The connection between food and human health is, at best, ambiguous in an environment where food is often viewed more as entertainment than fuel and many chronic health conditions are thought to be caused by genes or aging. So while it may be impossible to ever definitively settle a debate about the optimal food for the body, as physician Dr. Michael Greger observed, if all WFPBN could do was "reverse our number one killer of men and women [heart disease], then shouldn't that be our default dietary recommendation until proven otherwise?"[18]

UNDERSTANDING WHOLE FOOD PLANT-BASED NUTRITION (WFPBN)

To provide further definition, WFPBN consists of foods made from plants with a minimal amount of processing. Some examples are rice, beans and other legumes, whole-grain products including pasta and bread, potatoes, fruits and vegetables. Excluded are animal products such as meat, dairy and eggs as well as foods containing artificial ingredients or isolated plant components, such as vegetable oils. Over the past several decades we have seen a constant stream of various fad diets, so the question arises, how is this any different? Most importantly, this approach should not be thought of as a diet at all, where short-term changes are made to achieve certain weight goals, but rather a prescription for permanent lifestyle change to optimize health outcomes. While "permanent lifestyle change" may sound drastic, for someone living with a chronic health condition who has already experienced a negative impact to their lifestyle, WFPBN provides an opportunity to take control over their health, which today is often dictated by a battery of pills, many with harmful side effects.

This approach is successful for two primary reasons. First, while many nutritional approaches require participants to eat less or limit calories, which leads to food cravings and is unsustainable long term, a WFPBN approach encourages consumption of as much whole plant-based foods as desired, without counting calories or targeting any exact proportion of carbohydrates, fat or protein. These foods typically have a low calorie density and

The human body has the ability to rapidly and safely reverse and eliminate the most chronic conditions without prescription drugs or medical procedures when given the correct fuel.

provide a feeling of fullness with a smaller number of calories than an equivalent amount of non-WFPBN food. Second, while there may be a perception that WFPBN consists mainly of salads or vegetables, nothing could be farther from the truth. Fruits and vegetables are certainly an important component, but these alone do not satisfy most appetites.[19] Many favorite traditional dishes can continue to be enjoyed on a daily basis. Foods such as burgers, pizza, sloppy joes, mashed potatoes, lasagna and burritos can all be prepared consistent with WFPBN.

RESEARCH DEMONSTRATING HOW WFPBN HAS IMPROVED HEALTH AND REDUCED COSTS

While this approach is not widely used in the medical profession, several physicians have been successfully prescribing it for many years and have provided a wealth of published peer-reviewed research documenting both the significant cost savings and the rapid and effective health outcomes achieved.

Dr. Dean Ornish has treated patients for nearly 40 years with WFPBN and other lifestyle changes rather than drugs and surgery. After reviewing the evidence, CMS concluded this approach was effective because it showed "significant regression" or reversal of coronary atherosclerosis, reduced the need for bypass or angioplasty and led to significant reduction in all of the following cardiac risk factors: (1) LDL cholesterol, (2) triglycerides, (3) body mass index, (4) blood pressure and (5) required medications.[20] In addition, Ornish showed that for men with early stage prostate cancer only 5 percent of those who consumed WFPBN required radiation or surgery compared to 27 percent of those who maintained their usual dietary habits.[21]

Dr. Caldwell Esselstyn has used WFPBN to treat high-risk heart patients who had been told by their doctors there was little else that could be done for them. These patients were followed for an average of nearly four years, and of the 89 percent that were adherent, fewer than 1 percent of the patients had a subsequent cardiac event after adopting WFPBN, compared to 62 percent of the patients who started but did not adhere to the nutritional treatment.[22] Esselstyn presented his more than 30 years of research findings and the underlying science of reversing cardiovascular and other chronic diseases at the 2017 Society of Actuaries Health Meeting.[23]

Dr. John McDougall has used WFPBN as the primary means of treatment for more than 40 years and has had numerous patients with diabetes, obesity, rheumatoid arthritis, cancer and other conditions reverse or significantly improve their condition.[24] A study of approximately 1,600 of his patients from 2002 to 2011 showed cholesterol was reduced by 29 percent, blood pressure by 18 percent and triglycerides by 48 percent in only seven days. About 86 percent of those taking blood pressure medications, and 90 percent of those taking diabetes medications were able to reduce or stop them in this short time frame.[25]

WHY CONSIDER WFPBN TO REVERSE CHRONIC DISEASE?

There are no other documented and scientifically proven drugs, medical procedures or dietary methods that have been shown to address the wide range of health conditions for essentially no incremental cost (everyone has to eat) in such a rapid and effective manner without negative side effects or complications as the approach presented here. Consider that the now routine coronary artery bypass surgery, which has been performed for more than 50 years and is "the most completely studied operation in the history of surgery," has a complication rate of more than 20 percent, including a 5 percent risk of stroke and 2 percent risk of death, not to mention a significant price tag.[26]

The first scientific evidence suggesting a link between smoking and lung cancer was published in 1912, and it took more than 7,000 additional studies before the U.S. government confirmed this connection in 1964.[27] There will always be those who say more study or evidence is needed, but in this case the goal is not to prove with clinical certainty which specific foods cause certain diseases, but rather to determine the best way to reduce health care costs. For example, in auto and homeowner's insurance, as there is strong correlation between credit scores and loss experience, the scores are widely used in rate classification even though no one suggests that adverse loss experience is caused by poor credit scores. In this same way, while there can be legitimate ongoing debate about which foods or other factors may cause disease, it is difficult to objectively examine the overwhelming and long-standing evidence of a strong correlation between WFPBN and improved health and decreased costs and conclude anything other than this treatment approach should be made available as an option to all patients, but especially those with or at risk for a chronic health condition.[28]

IMPLEMENTATION AND PRACTICAL CONCERNS

A key advantage of the Actuarial Patient Value model is it can operate independently of and simultaneously with existing reimbursement systems (including fee-for-service). This allows for more rapid adoption and alleviates concerns that always arise when introducing new methodologies. Implementation of such a model may take some time in the Medicare and Medicaid markets, but commercial and self-insured payers can put these incentives in place very quickly without regulatory intervention or significant capital investment and serve as motivation for adoption by government payers.

While monetary incentives are important, payers must also be prepared to address concerns providers may have about communicating this treatment option to their patients. The belief of many in the medical and scientific community is that because some patients are not receptive to this approach (which is to be

expected), it is not discussed with any patients. As biochemist T. Colin Campbell observed,

> We should not be ignoring ideas just because we perceive that the public does not want to hear them. Consumers have the ultimate choice of whether to integrate our findings into their lifestyles, but we owe it to them to give them the best information possible with which to make that decision and not decide for them.[29]

It should be emphasized that having 100 percent of the population immediately make a change to WFPBN is not realistic, nor is it necessary. The primary goal is to have trusted health care providers simply make patients aware of both the benefits and risks of all possible treatment options. The evidence shows once patients actually try WFPBN themselves, they experience positive and rapid results and have no desire to revert to their prior nutritional habits, with studies cited earlier having adherence rates approaching 90 percent. In fact, many patients express surprise why their prior health care provider had not informed them of this treatment option.[30] Once adoption reaches 10–15 percent of the population, most providers will have had a number of patients who successfully reversed their chronic condition. Seeing these results firsthand will, possibly even more so than financial incentives, cause providers to believe in and strongly recommend WFPBN to all their patients. Like any successful innovation, a virtuous circle is created, leading to greater adoption rates over time.

WHY DO ACTUARIES NEED TO GET INVOLVED?

A recent *New York Times* article repeated an unfortunate view of actuaries as "anonymous technicians stereotyped as dull and boring … as they crunch the numbers for their Affordable Care Act business."[31] Actuaries can forever put this image on the ash heap of history by publicly acknowledging that continuing to "crunch the numbers" in any health care system where reimbursement is not based on the value received by patients is unsustainable. Given their existing skill set, actuaries are uniquely qualified among professions to objectively evaluate the large body of evidence showing treatment using WFPBN results in both optimal health and cost outcomes and from that develop financially sound incentives for providers to offer this option to their patients. Actuaries have a once-in-a-lifetime *opportunity* to make a lasting impact on society by designing a health care model that is based on the most important value patients receive—their health—that can deliver a significant and sustained reduction in costs.

While the medical profession is clearly of vital importance to this solution, it is fitting that actuaries should play a key role because one of the first individuals who brought this concept to the public's attention more than 40 years ago was not a physician, but an engineer who looked objectively at the existing data and concluded it was possible to reverse chronic disease without drugs and surgery. When Nathan Pritikin was asked what he was doing, he often replied, "All I'm trying to do is wipe out heart disease, diabetes, hypertension, and obesity."[32] Given the even greater evidence that exists more than 40 years later, actuaries, as the chief engineers of financial security programs, should have no less of a goal. ■

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Cost Savings Opportunities for Provider-Led ACOs: Applying the "24-Lever Model"

By Tim Smith

As an actuary working with providers and accountable care organizations (ACOs), you may find yourself in the situation where you are asked to help find opportunities for cost savings. Like many actuaries working with providers today, I got my start in the health plan world within medical economics. A provider asking for ideas around care cost savings reminds me of health plan marketing and sales teams looking for additional premium savings on a new product.

The advantage in working with the provider directly is that many of the savings "levers" that we suggested on the health plan side were in some way going to take revenue away from the provider or benefits from the member. That made the ideas harder for the sales team to accept knowing this would lead to noise from the market. With the assumption for this article being that the provider created an ACO with an understanding of a future with potentially less volume and revenue, these initiatives are more realistic to attain. For example:

- **Network differentiation.** The preferred provider in the network is often the ACO owner or primary sponsor. They likely set their internal reimbursement levels for ACO products at a level that is best-in-network and lowest in their product portfolio.
- **Benefit alignment.** The ACO products should include differentiators to help the member "do the right thing," including staying in the preferred network and going to the right provider or setting for services.
- **Provider-led utilization and care management.** The product design encourages members to see ACO physicians on a regular basis to help manage their care. With care management now on the provider side instead of the insurer side, there is a direct path to help the insured only get the best, necessary care.

I dusted off the checklist that I used previously with health plan teams on various product features to achieve care cost savings. Applying this exercise of the "24-Lever Model" to the provider-led ACO proved fruitful. Over time, the use of the model grew to take a key role in the strategic planning for an early Integrated Delivery and Financing System (IDFS). The common-sense levers that made one product more affordable also created the blueprint for creating the low-cost product that they were designing for the future.

OVERCOMING TODAY'S MISALIGNED INCENTIVES

The 24-Lever Model works like this. If every health plan consumer made the right choice at every possible care decision point and there was a product effectively able to capture this behavior, the health plan or employer group customer should realize significant savings of up to 20 percent or even 25 percent.

So, if those savings are out there, why have we not achieved them already? Figure 1 shows the ways today's health care system works against the health care consumer, comparing the "Right Decision" to the way things often happen today.

Figure 1
How the Health Care System Works Against Consumers

The Right Decision	Working Against the Health Care Consumer
Consumers pay as little as possible for appropriate, high-quality care.	Very little or very hard to find price transparency on which facility or setting provides the lowest-cost care.
Consumers select the best physician for their specific health care needs.	Very little quality and outcome data to show whether one facility or physician is worth a premium price.
Consumers have a procedure or take a prescription only when necessary.	Even less available data to tell the consumer which providers perform in an efficient, low-cost manner, and which drugs are the best value.

Through the provider-led ACO, these incentives can be easily remedied. If the ACO is being built around a high-quality, low-cost preferred network, there is no need for the member to search for the lowest cost. By the provider leading the care management efforts, they can share quality and outcome data with patients that the insurer just does not have easy access to. Finally, by working to become as efficient as possible and keep

costs low for members, unnecessary care is removed from the equation.

THE PATH TO CARE COST SAVINGS: THE 24-LEVER MODEL

Here is the collection of ideas I refer to as the "24-Lever Model." If you have been around health care for a while, none of these ideas is perhaps "new." But there is value in seeing them all together as you are assessing the overall opportunities around care cost savings. This list is not comprehensive and could have been the 36-Lever Model, but I found that these ideas tackle many of the larger savings opportunities (see Figure 2 for a complete list).

Inpatient Surgical and Maternity Care: "Centers of Excellence"

Because surgeries and deliveries are often planned, they can follow the economics of supply and demand. The "Centers of Excellence" strategy focuses on identifying the most efficient, low-cost networks, with great outcomes, and strongly encouraging them in the benefit, perhaps even excluding some facilities. As an example, I have seen the cost of hip replacements

Figure 2
The 24-Lever Model

Inpatient Care
1. Surgical "Centers of Excellence"—the best-in-class for each service line, including moving care to outpatient
2. Maternity "Centers of Excellence"—preferred facility, with high-quality, low-cost bundles

Emergency and Urgent Care
3. Benefits to discourage unnecessary ER visits; appropriate escalation to Observation/Admission; "UM light"
4. Urgent care for breaks, strains and lacerations, but not for colds (encourage primary, retail, telehealth care)

Outpatient Care *Site of Service*
5. Lab, free at independent lab provider; large copay or coinsurance at hospital
6. Radiology, free at office-based imaging center; large copay or coinsurance at hospital
7. Surgery, free at ASC; large copay or coinsurance at hospital-based surgery center or hospital
8. Cardiac tests, free in office-based setting; copay or coinsurance in the hospital
9. Part B drug infusions, low-cost in office-based setting; significant copay at hospital-based infusion center
10. Clinic fees—reduced fee-schedule or zero-pay; member pressure

Professional Care
11. Tiered provider fee-schedules—lower reimbursement to non-preferred providers

Ancillary Care *Ultra-narrow networks*
12. PT site-of-service, preferred copays for office-based PT; value-based incentives on utilization
13. DME—ultra-narrow network for low-cost, high-quality DME providers
14. Home health—ultra-narrow network for low-cost, high-quality providers; incentives to reduce skilled stays
15. Skilled nursing and rehab—ultra-narrow network for low-cost, high-quality SNF and rehab

CONTINUED ON PAGE 32

Figure 2
The 24-Lever Model (continued)

16. Chiropractors—ultra-narrow network for low-cost, high-quality chiropractors
17. Dialysis—ultra-narrow network for low-cost, high-quality dialysis provider

Retail Pharmacy
18. Optimal formulary—encouraging generic and preferred brands; eliminating high-cost therapeutic equivalents
19. Utilization management programs—step therapy and prior authorization, encouraging use of preferred specialty pharmacy

Other Value-Based Provider and Benefit Levers
20. Narrowing the hospital network to exclude or "tier" expensive or inefficient facilities
21. Significantly lower copays to "efficient" specialists in top specialties (ortho/neuro) *Note: Simplest way to identify "efficient" are those specialists that refer to lower-cost settings and facilities*
22. Limiting PCP network to only "efficient" PCPs *Note: Simplest way to identify "efficient" PCPs are those with low overall cost, or refer to efficient specialists*
23. Cancer care preferred networks or even a "rider" to get high-priced network *Narrow-network if available; value-based programs if not available*
24. Targeting members that care for their conditions—medication adherence, etc.

performed in the outpatient setting at levels close to one-third of those in the inpatient setting.

As a provider-led ACO, they act as the "Center of Excellence." But there are even greater opportunities around care cost savings by the provider itself being able to highly scrutinize whether certain surgeries are even necessary, or whether a less intensive care path would be better. Examples here could be spine surgeries and cardiac catheterizations, which have shown to have high variability in utilization across health systems and regions.

Emergency Care: From Urgent Care to the ER to Observation to Admission

Unlike surgical care, emergencies are not planned. Often the consumer is in a position where they are not necessarily thinking about the cost of care and make a decision that is bad for both their pocketbook and their insurer. The benefit and network design needs to help these consumers make the right decision, from encouraging telehealth or physicians with weekend hours to finding an urgent care center (but not for a cold, please!).

In a provider-led ACO, they can have an even greater impact on ER utilization itself, and reducing escalation once a patient is admitted to the ER. Having primary-care physicians on call on the weekends can be one way of lowering admissions to the ER. And if an ER visit is needed, having the ACO hospitals that will treat efficiently, with no unnecessary escalation to observation or even a medical admission, can save the consumer a lot of money and lead to a better patient experience.

Outpatient Care: The Site-of-Service Dilemma

Think about your experience with a basic lab test. You may have visited an independent lab in a strip mall or perhaps a local community hospital. You may not be aware that the same test in these two settings could have as much as a tenfold difference in cost, and typically at least threefold. In a traditional insurance product without the benefit of an ACO, a benefit change of charging no copay for the independent lab can lead to significant cost savings.

But in the provider-led ACO, the hospital could instead "right price" shoppable services like this to match the lowest cost settings so that consumers do not get stuck in the middle of this cat-and-mouse game between providers and insurers. Many other outpatient services follow a similar pattern, including radiology, surgery, cardiac intervention, drug infusions and even physician visits.

Professional, Ancillary and Pharmacy Care: Encouraging Efficient Care

The professional and ancillary levers reference the savings achieved from narrowing a network of providers, where the

benefit either significantly incentivizes the member to use the preferred, most efficient network, or makes the nonpreferred provider out-of-network. It is important to stress that the preferred network is truly preferred—meaning providers of equal or higher quality, along with lower cost. These are the providers that understand care management and how to provide the least amount of care while still achieving the best outcomes. These providers are often lower-cost because they are referring to the appropriate setting or facility for their specialty care.

From a provider-led ACO perspective, ancillary care and prescription medications are often popular categories to go after for obvious reasons: savings here do not impact the bottom line of the provider! Other popular areas outside of the walls of the provider include durable medical equipment, dialysis providers, home health care and skilled nursing facilities.

These levers apply directly and easily within the provider-led ACO. Efficient care is the key to unlocking significant cost savings, but very difficult to achieve in today's world of broad networks with little benefit differentiation to encourage efficient systems. The provider-led ACO built around a low-cost, highly efficient system makes this reality easily achievable. Think about some of the most successful integrated delivery and finance systems across the country, and you will most likely find efficient care management of chronic conditions, lower inpatient utilization levels relative to the market and lengths of stay for admissions significantly under benchmark averages.

Value-Based Provider and Benefit Levers

With the recent focus on health care costs because of health care reform, value-based provider reimbursement and benefit designs are often mentioned as the bipartisan answer to all our health care cost problems. Just quoting "We will pay for outcomes and not the volume of services" makes everyone nod in agreement. Of course, the provider-led ACO becomes front and center in turning the rhetoric into reality.

Key to the role of the actuary is making sure that the savings and returns on investment are real. The measurement of which physicians and provider networks are efficient and low-cost is complicated and perhaps controversial ("My patients are sicker"), but I have seen it effectively accomplished. Ultimately, the primary care physician performing important preventive care, referring to the most efficient and effective specialists only when necessary, is how savings of 20–25 percent are achieved.

CONCLUSION

The 24-Lever Model for care cost savings, when applied to traditional health insurance products and benefits, was a road map for potentially lowering the premium of insurance products. But uptake of the ideas was often limited because of the unpopularity of the levers with both providers and insurance members.

By applying this same list of levers with the provider-led ACO, though, you can achieve the savings with less noise because the providers themselves have committed to the lower utilization and revenue through ownership of the ACO products. Also, members are only being encouraged to get all care coordinated and provided within the ACO, which is the ACO goal.

Ultimately, the 24-Lever Model describes how to create the optimal benefits wrapped around a highly efficient provider network. Such a product design is necessary to keep future premiums affordable. We see many of the incentives in the health care system today are misaligned, encouraging inefficient and costly care. Ultimately, health plans, IDFSs, employers and even individuals can have a significant impact on the overall cost of care if they follow the steps and ideas in this model. ■

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Medicare Advantage: Seven Considerations to Achieve August Resubmission Success

By Kelly S. Backes, Hillary Millican, Susan Silseth and Matthew Timm

Medicare Advantage organizations (MAOs) are required to submit initial bids to the Centers for Medicare and Medicaid Services (CMS) in early June each year. CMS releases Medicare Part D national average amounts and Medicare Advantage (MA) regional benchmarks in late July, and MAOs have the opportunity to resubmit final bids for Medicare Advantage Part D (MA-PD) plans in early August.

Why should an MAO consider August resubmissions when preparing its initial June submission? The bids are a projection of the future and clearly include some degree of estimation. One of the items MAOs need to estimate in June is the nationwide averages. These amounts are released by CMS typically in late July, and MAOs must rebid their plans in early August based on the published amounts. Because it is statistically likely that the Part D national average amounts and MA regional benchmarks projected in the initial June submissions will differ from the final amounts announced by CMS in late July, additional bid filings in August will be needed. However, it is important to consider the direction and magnitude of this difference and the resulting impact on an MAO's August resubmission. With proper planning in the weeks leading up to the June submission, initial bids can be developed in such a way that adverse impacts to the August resubmissions are minimized or even eliminated.

AUGUST RESUBMISSION OVERVIEW

Typically, in late July CMS releases the Part D national average bid amount (NABA), Part D national average member premium (NAMP), low-income premium subsidy amount (LIPSA) by state and MA regional benchmarks. Final benefits, member premiums and/or gain/loss margins are impacted if any of these amounts differ from the amounts projected in the initial June submission.

Who participates in August resubmissions?

REQUIRED PARTICIPATION

- Regional Preferred Provider Organization (RPPO) plans must resubmit to reflect the published MA regional benchmarks.
- MA-PD plans with Part D basic member premium below $0.

PROHIBITED PARTICIPATION

- Local MA-only plans.
- Local MA-PD plans without MA rebate dollars in the initial June submission.

OPTIONAL PARTICIPATION

- All other local MA-PD plans. MAOs have the option to not participate, in which case any changes in the direct subsidy since June are reflected in member premium.

What changes are permitted?

PART D BID FORM

- The Part D NABA and NAMP may be updated.

PART C BID FORM

- Part A/B mandatory supplemental benefits may be added or removed.
- Cost sharing on Part A/B mandatory supplemental benefits may be enhanced or reduced.

- Allocation of rebate dollars to buy down Part B premium, Part C premium and/or Part D basic premium may be shifted.
- Capitation arrangements and administrative expenses priced as a percentage of revenue may be rebalanced.
- Small changes to the Part C gain/loss margin resulting in no more than a $0.50 change in rebate dollars.

What changes are not permitted?

PART D BID FORM

- No changes other than updating the NABA and NAMP. Part D benefit design, formulary and Part D gain/loss margin changes are not permitted.

PART C BID FORM

- Large benefit changes, such as adding one benefit and reducing another. All benefit changes should be in the same direction, with very few exceptions.
- Removal of one supplemental benefit and addition of a different supplemental benefit.
- Benefit and/or member premium changes resulting in noncompliance with CMS total beneficiary cost (TBC) tests, meaningful difference tests and gain/loss margin tests.
- Any other changes not described in the earlier "permitted" section.

Please refer to the 2018 MA Bid Pricing Tool Instructions, Appendix E, for more information.[1]

JUNE SUBMISSION CONSIDERATIONS

Because of the limited flexibility in August, MAOs should consider the following items in the weeks leading up to the initial June submission to best position themselves for August resubmission.

Indicate the Target Premium Option That Best Aligns With the Plan's Premium Goal

The Part C bid form has two input options for an MA-PD plan's intention for the target premium: "Premium Amount Displayed in Line 7D" (Part D basic premium) or "Low Income Premium Subsidy Amount" (LIPSA). This input indicates the plan's premium strategy and defines the components that may change during August resubmission.

Incorrect population of this input in the June submission can lead to unintended final member premiums in August. For example, a plan targeting low-income members may target the LIPSA, such that the entire premium is paid by the government for low-income members. However, if the Part D basic premium target is incorrectly selected in the June submission and the final LIPSA is lower than the initial Part D basic premium, the plan will not be able to return to the final LIPSA in the August resubmission. Low-income members may be required to pay the difference between the Part D basic premium and final LIPSA, if the premium amount comes in higher than the final LIPSA. This may adversely impact marketing efforts and membership and could be catastrophic for any plans having to collect payments from low-income members if the difference in premium is greater than the de minimis amount prescribed by CMS.

Consider the Implications of the Direct Subsidy Estimate

MAOs are required to estimate the direct subsidy amount in the June submission. Ideally, the final direct subsidy amount is exactly equal to the MAO's estimate. However, it is statistically likely the final amount will differ from the estimate and there are implications of misestimating the amount in either direction.

- The final direct subsidy amount is lower than the MAO's estimate: The MAO will be required to reduce benefits or raise premiums. This scenario is often not popular because benefits have been decided and sales targets have been set.
- The final direct subsidy amount is higher than the MAO's estimate: The MAO will be required to enhance benefits or lower premiums. While this is generally a more favorable scenario, it still introduces post-June submission changes and additional work for the MAO. It can also produce unintended consequences in later years. For example, additional strain will be placed on the following year's TBC testing if the MAO wants to remove the benefits enhancements the following year and effect long-term profits based on whether TBC limits constrain future premium increases.

Consider the Implications of the LIPSA Estimate

Similar to the direct subsidy, MAOs are also required to estimate the LIPSA for the plan bids that target the low-income benchmark.

- If the final LIPSA is lower than the estimate, the MAO will be required to reduce benefits to ensure the LIPSA is achieved and low-income members do not pay any premium. Alternatively, if the difference is within the de minimis limit prescribed by CMS, the additional member premium may be waived, resulting in a lower profit margin.
- If the final LIPSA is higher than the estimate, the MAO may choose to add benefits or "forgo" the higher premium.

Think Through the Allocation of Rebates

Target premiums are often achieved by shifting rebates between Part C and Part D basic premium components, in conjunction with benefit changes during August resubmission. If the final Part D direct subsidy (i.e., the difference between the NABA and NAMP) is greater than the initial June submission projection, rebates may need to be shifted from Part D to Part C. If the final Part D direct subsidy is less than the initial June submission projection, rebates may need to be shifted from Part C to Part D. Therefore, it is important to allocate a sufficient amount of rebates to Part C and Part D basic components in the initial June submission to ensure target premiums can be achieved in August.

For example, if an MAO thinks its direct subsidy estimate may be up to $4 different from the final amount, it should allocate at least $4 of rebates to Part C and Part D basic components. The following examples illustrate potential impacts of not allocating enough rebates to Part C and Part D basic components.

Example 1
Direct subsidy is $4 lower than expected
$1 of rebates was allocated to Part C in June submission

The MAO could choose to partially return to the target premium by eliminating all supplemental Part C benefits, allowing $1 of rebates (only $1 is available in this example) to be shifted from Part C to Part D basic. The final premium would be $3 higher than the target because no further Part C rebates are available. Members may have to pay this additional $3 if the plan is targeting the LIPSA, as the amount may be higher than the allowable de minimis threshold prescribed by CMS.

Example 2
Direct subsidy is $4 higher than expected
$1 of rebates was allocated to Part D basic in June submission

The MAO could choose to partially return to the target premium by enhancing or adding supplemental Part C benefits, allowing $1 of rebates (only $1 is available in this example) to be shifted from Part D basic to Part C. The final premium would be $3 lower than the target because no further Part D basic rebates are available.

Include Part C Supplemental Benefits in the June Submission

It may be necessary to make benefit changes to achieve the target premium in August. For example, Part C benefits may need to be reduced or eliminated if the direct subsidy is lower than predicted in the June submission. However, this is only possible if the plan offered sufficient Part C supplemental benefits in its June submission.

The MAO should consider the benefits it would reduce or eliminate, as well as the benefits the plan would add or increase in August *before* the initial June submission. For example, it is often helpful to have benefits with annual limits, where the annual limit can be adjusted for the August resubmission to target the required premium change. A "priority list" of benefit changes will not only help the plan be prepared by ensuring sufficient Part C supplemental benefits are offered in the June submission, it will also speed up the decision process in August when plans have a limited time frame to make changes.

Leave Some "Cushion" in TBC and Meaningful Difference Testing

MAOs must pass CMS tests to ensure that the year-over-year change in premium and benefits does not exceed CMS's TBC limits and that plans are "meaningfully different" from each other. This testing is required in both the initial June submission and August resubmission.

Premium and/or benefits may be revised in the August resubmission, which could lead to TBC and/or meaningful difference test failures. In addition, formulary and benefit review occurs after June submission, which could result in changes in TBC and/or meaningful difference values in August. CMS provides no flexibility in failing these tests. Therefore, MAOs should include benefit designs and member premiums in the June submission resulting in meaningful difference and TBC testing with a sufficient amount of margin (e.g., an amount equal to the maximum amount the MAO expects the direct subsidy and LIPSA to be different from its estimates), such that MAOs are able to pass these tests in August.

Leave Some "Cushion" in Margin Testing

MAOs are allowed to change gain/loss margins by a small amount during August resubmissions to achieve target premiums (as long as the margin change results in no more than a $0.50 change in rebates). If an MAO is close to the gain/loss margin testing limits in its June submission (e.g., corporate margin requirements, maximum margin difference between dual special need plans and non–special need plans), it may not be able to make the margin changes to achieve target premiums during August resubmission. To maximize all options available in August, MAOs should leave some cushion in the allowable margin differentials filed in the June submission.

FINAL TAKEAWAYS

As with all bid work, MAOs that start early and are prepared will have more options than those organizations reacting to changes as they come. Taking time to consider the items discussed in this article beginning in January and through the weeks leading up to the June submission can help increase readiness for the release of national averages and regional benchmarks. Planning for possible benefit and margin changes prior to the release of national averages is also critical to a smooth August resubmission given the short time frame, especially for organizations with several plans.

If the initial June bids are prepared with these items in mind, there should be fewer potential pitfalls present in August, allowing MAOs a smoother and successful August resubmission. ■

Please note the opinions stated in this article are those of the authors and do not represent the viewpoint of Milliman.

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This information is intended to provide considerations related to Medicare Advantage August resubmissions. The information provided highlights select areas and is not an exhaustive discussion of the topic. This information may not be appropriate, and should not be used, for other purposes. Milliman does not intend to benefit and assumes no duty of liability to parties who receive this information. Any recipient of this information should engage qualified professionals for advice appropriate to its own specific needs.

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ENDNOTE

1 CMS, Instructions for Completing the Medicare Advantage Bid Pricing Tools for Contract Year 2018 (April 20, 2017), 121–137, *https://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Bid-Pricing-Tools-and-Instructions-Items/BPT2018.html?DLPage=1&DLEntries=10&DLSort=0&DLSortDir=descending* (accessed April 25, 2017).

Medicaid Risk-Based Managed Care Financial Results: A Decade in Review

By Jeremy D. Palmer

Who cares about the financial results for Medicaid managed care plans? Well, as it turns out, almost everyone! At least this is true in today's world where Medicaid is in the national news on a daily basis. While the financial impact of Medicaid spending is a widely discussed topic in 2017, it was not always the case. When I first began this research almost a decade ago, it was an entirely different Medicaid universe. I would have never guessed that we were creating an annual report that would yield more than a dozen media inquiries a year, be quoted in the Medicaid managed care rule[1] and have us consorting with Ivy League researchers.

To put things in perspective, the first year of our report focused on financial results from calendar year 2008. George W. Bush was President, Barack Obama was still the youngster from Illinois looking to make his national debut, and Donald Trump was in his first year as host of "Celebrity Apprentice." Also, typing "ACA" into Google in 2008 would have yielded only such entities as the American Counseling Association, the American Camping Association or the American Canine Association. So to say things are different today would be a colossal understatement.

Medicaid has become a household term, with perhaps the largest spike in interest taking place right now with the debate in Washington related to repeal and replacement of the Affordable Care Act (ACA). Many casual observers may not have been able to tell that Medicaid was an integral part of the ACA from the time it was enacted in 2010. Most of the conversation focused on health care exchanges. It wasn't until the *National Federation of Independent Business (NFIB) v. Sebelius* lawsuit that many realized the far-reaching changes in store for Medicaid, that is, except for those who were in the trenches of Medicaid all along. The most significant change occurred in 2014 with the introduction of the new optional adult populations accessing Medicaid. Many of these individuals began receiving health care coverage for the first time.

With all of this change in the Medicaid market, we might be expecting large changes in the financial results for Medicaid managed care plans. Taking a look at the financial results published for 2008 and 2016 is sure to show this polarizing notion or two disjoint worlds, right? Well, interestingly enough, although

Figure 1
Financial Results for Medicaid Managed Care Plans

Financial Metric	CY 2008	CY 2009	CY 2010	CY 2011	CY 2012	CY 2013	CY 2014	CY 2015	CY 2016
Number of companies	140	148	150	151	162	167	182	191	189
Medicaid revenue ($ Billions)	$39.5	$48.1	$54.6	$62.0	$73.8	$83.7	$110.6	$144.1	$163.7
Member months (Millions)	163	178	202	215	249	262	311	391	424
Medical Loss Ratio (MLR)	87.4%	87.9%	85.3%	85.5%	88.2%	87.4%	86.0%	85.4%	86.9%
Administrative Loss Ratio (ALR)	11.7%	11.5%	12.1%	12.1%	11.4%	11.4%	12.0%	12.0%	12.2%
Underwriting (UW) ratio	1.0%	0.6%	2.6%	2.4%	0.4%	1.1%	2.0%	2.6%	0.9%
Risk Based Capital (RBC) ratio	464%	447%	511%	515%	490%	467%	423%	407%	399%

Source: Adapted from Medicaid Risk-Based Managed Care: Analysis of Financial Results for 2016, Jeremy D. Palmer and Christopher T. Pettit, 2017, *http://www.milliman.com/insight/2017/Medicaid-risk-based-managed-care-Analysis-of-financial-results-for-2016/*.

the number of individuals covered and the capitation revenue illustrate this changing world, the average financial results are far from disparate. In fact, some of the metrics are so close as to be almost indistinguishable, as shown in Figure 1.

With such mundane conclusions like Medicaid has grown and the financial results are similar year to year, you may still be asking yourself why so many care about this research. With that in mind, the following is a top 10 list of conclusions I have ascertained over the better part of a decade in doing this research.

THE MAGNITUDE OF DOLLARS IS ASTOUNDING

Even actuaries may be impressed by the volume of dollars flowing through the Medicaid program. On the whole, Medicaid expenditures are more than $550 billion annually.[2] Our data sources include approximately $164 billion of capitation revenue for 2016. We have made several exclusions in our analysis that lower the number of Medicaid managed care plans included, most notably, the omission of managed care plan experience in the state of California because of the state's unique reporting structure. We remain optimistic that we will soon be able to include California as a huge addition to our research.

Over the entire nine-year period, we have observed $815 billion of capitation revenue, $706 billion of claim payments, $97 billion of administrative cost and $12 billion in underwriting gain.

ACTUARIES ARE AWESOME

This should not come as a surprise to you, but one of the key takeaways from doing this research over the better part of a decade is that the underwriting gains observed at a national level align very closely with the target underwriting gain used by the majority of actuaries throughout the country. The SOA recently commissioned a study related to calculating margin in Medicaid managed care.[3] My takeaway from that report was that the pricing assumptions for underwriting gain (or margin) among the states largely followed a bimodal distribution with modes at 1 percent and 2 percent. The actual nationwide underwriting gain observed over the recent past has likewise been in the 1–2 percent range. Who doesn't love the law of large numbers?

FILLING A VOID OF INFORMATION

Medicaid is the largest provider of health care insurance in the United States with almost 75 million enrollees.[4] However, expenditure and financial information is scarce or limited in most cases for Medicaid. Much of the reason for this void of information is the segmentation of the program by state and territory. The NAIC financial statements are timely and uniform across most states, allowing for comparison of high-level financial results. There is the promise of more timely and accurate data from CMS, and we, along with many of you, anxiously await its arrival.

MEDICAID EXPANSION HIT BIG

With the ACA came Medicaid expansion for states that chose to implement coverage for the new adult population under 138 percent of the federal poverty level. The enrollment surpassed most expectations and significantly increased the number of covered lives, and therefore the capitation revenue, for Medicaid managed care plans beginning in 2014, with the largest impact coming in 2015 and 2016. The Medicaid managed care plan profitability was also higher in 2014 and 2015 than previous years, adding to the windfall for the risk-taking plans.

One potential adverse impact of Medicaid expansion on Medicaid managed care plan financial results at a national level relates to the level of risk-based capital (RBC) that plans are required by state regulators to maintain on their balance sheets. The average RBC ratio decreased significantly in 2014 compared to previous years, and that level stayed lower through 2016. Notwithstanding the above decrease in RBC ratio, the overall national level of RBC remains approximately twice as large as required by most state regulators before regulatory action levels begin (200 percent).

UNDERWRITING CYCLES ARE NOT A MYTH

From a review of the underwriting ratios for 2008 to 2016, there appears to be evidence of an underwriting cycle within the Medicaid program. Following periods when underwriting gains have not been as high, the gains appear to have a correction of sorts that may be explained by the lag time in capitation rate-setting base data being two to three years behind the rating period. Thus, when claims are higher, the gains are lower, but eventually the higher experience gets into the calculation of Medicaid capitation rates, inflating later years. The same theory stated differently would be that after a couple of years of above-average underwriting gains, the capitation revenue catches up and reduces the gains back to target levels.

RESULTS VARY SIGNIFICANTLY BY STATE

This observation should not come as a surprise to health actuaries, but while the overall national financial results are stable over the years, the year-to-year fluctuation at the state and managed care plan level can be significant. Each state sets their own unique capitation rates that are individually certified as actuarially sound by a qualified actuary. The variance in results comes in numerous flavors, but some of the key trends would be data quality, Medicaid managed care plan efficiency and maturity of the program. Many of the larger national Medicaid managed care plans may have already figured this out and let the diversification of different states and markets assist in smoothing out the volatility.

MANAGED CARE IS HERE TO STAY

How did the term "managed care" survive all these years given that was a buzzword that died tragically in the mid-1990s in the commercial market from consumer backlash? Not only did the term "managed care" survive, the managed care programs have become the largest delivery system for beneficiaries across the country. Many states are embarking on strategies to implement Medicaid managed care to previously excluded populations such as Medicare-Medicaid dual eligibles, long-term care recipients and medically complex individuals through the development of CMS waivers. New states are rolling out managed care programs each year, and fewer and fewer states don't have some form of managed care program enacted.

The size and shape of managed care may change over time, but it is engrained in the Medicaid program such that it is not likely to be dismantled without a significant and sustained outside catalyst.

SPIN-OFFS CAN BE AS GOOD AS THE ORIGINAL

Counter to what you may think about what comes out of Hollywood, a spin-off can be as good as the original. One of the comments we have received over time is the trouble with digging deeper into the administrative costs reported by the Medicaid managed care plans. The problem with this, however, is that the NAIC source data used for our research don't allow us to get to Medicaid-specific administrative cost segmentation. The spin-off research became the solution to this reporting complexity. We truncated the studied Medicaid managed care plans to those that reported largely Medicaid experience in their NAIC report, allowing us to access the detailed administrative cost experience. The drawback, of course, is that we had to limit the number of plans we studied to fewer than 50 percent of the total plans. Even with this limitation, we included 77 managed care plans from 32 states and the District of Columbia in the report, making the administrative cost components worthy of high-level benchmarking, and this allowed for removal of state-imposed taxes that skew the results significantly by state.

THE DEFINITION OF MEDICAL LOSS RATIO

For purists out there, you may be struggling like I am with the idea that a medical loss ratio (MLR) could be anything other than claims divided by premiums. When MLR left the actuarial world and became a contractual metric for everything from commercial ACA plans to Medicare Advantage plans, so went the simplicity of the legacy MLR definition. To make matters worse for Medicaid, there is currently not a requirement for submission of the NAIC Supplemental Health Care Exhibit[5] that allows for direct calculation of the new MLR definitions. To avoid confusion in our reports, we needed to act to illustrate the potential difference in definitions as it changes the story significantly. In 2016, we estimated the difference between MLR definitions at approximately 4–5 percent, with the CMS definition being higher. After adjustment to proxy the CMS definition, we estimated that in 2016 only 15 percent of Medicaid managed care plans may be under the 85 percent MLR minimum.

THE INTENTION OF THE RESEARCH IS UNBIASED

How does one know that their work is unbiased? One method to test the bias is to look at those who are using the information. Are there pockets of individuals or entities that may have an agenda more heavily using the information, or is it consumed and cited by a large variety of stakeholders? I am pleased to state that this work has been cited and used by virtually all players in the Medicaid market, including Medicaid managed care plans, CMS, states, providers, beneficiary advocates and researchers. We take great pride in this result! ■

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Integrating Claims-Based and Survey-Based Data to Estimate Program Savings

By Andrew Mackenzie and Ian Duncan

Quantifying savings from medical intervention programs is a task that actuaries are increasingly being asked to address by their employers and clients. The second author's textbook[1] provides considerable guidance on evaluation principles, but new intervention programs are constantly being developed and older programs modified, providing an ongoing challenge for actuaries and others involved in the financial management of health plans. This article describes an innovative approach that was developed to address the needs of a company that provides a number of related and potentially overlapping interventions. While overlapping programs increase the complexity of evaluation, in this case the overlap provides us with a means of estimation for other programs.

The company serves approximately 2 million people with solutions to help individuals and families navigate the increasingly complex health care system. The objective is to help engaged patients make more informed decisions leading to changes in patient behavior (the Holy Grail of so many intervention programs), thereby increasing quality and reducing the cost of care. They offer a number of programs to do this, including surgery decision support (SDS), medical decision support, expert medical opinion (often referred to as "second opinion" in the industry), evidence-based modules (comprehensive modules defining medical topics or conditions and their associated evidence-based treatment options) and a research desk that provides customized solutions for patients with a rare condition or unusual circumstance.

Some clients commission claims-based return on investment (ROI) analyses based on their own claims data. For all other clients, savings are estimated via a participant survey that has been in place for many years. Within this survey patients are asked to provide responses to 11 quality of care measures termed "A–K," each of which is associated with a savings value. Our challenge was to update these estimates and to make them more data- and evidence-based. Table 1 lists the recorded survey variables.

Surveys are administered over the phone, online or through a hard copy mailed to the participant. These variables are recorded in a binary manner. Some are direct questions that patients either respond "yes" or "no," while others are pulled from a single question that asks for a multiple-choice response in terms of behavior changes made (if any). In 2014, the book of business survey response rate for the SDS program was 83

Table 1
Survey Variables

Variable	Description
A	Achieved best practices when conflicting doctor recommendations given OR doctor changed treatment to best practices based on patient's input
B	Eliminated or minimized side effects of treatment
C	Discontinued or avoided unnecessary or questionable treatment
D	Identified an incorrect diagnosis OR a second, unidentified diagnosis
E	Switched to or added a higher quality doctor or specialist
F	Chose a facility with better outcomes
G	Improved quality of life or peace of mind
H	Improved wellness or treatment compliance
I	Improved physical health
J	Sought a second or third opinion
K	Quit smoking

percent, and for all other programs it was 49 percent. SDS has a high response rate because it is a very high-touch solution.

METHODOLOGY

We updated the savings estimates associated with each variable using a combination of (1) direct claims-based savings and (2) a thorough literature review.

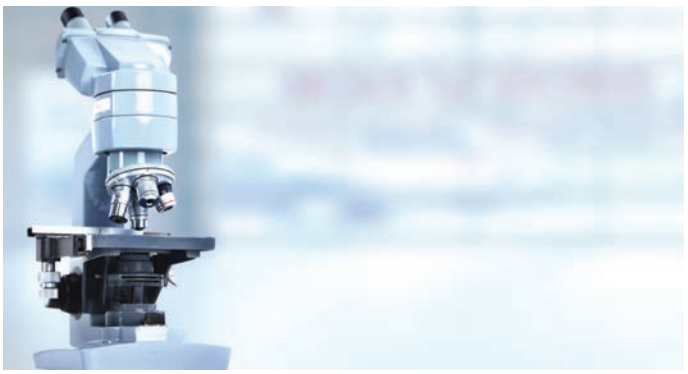
With any financial outcomes evaluation process, the primary challenge involves accurately predicting what costs would have arisen in the absence of an intervention. There are several ways to approach this kind of analysis, including the following:

- **Case-control analysis.** A study group is compared to a control group. The study group receives the intervention while the control group does not.
- **Risk standardization.** A risk model is used to prospectively and/or retrospectively predict what costs should be for a specific population based on a combination of factors. Actual costs can then be compared to predicted costs and the difference attributed as savings.
- **Historical cost trends.** Costs of a cohort subject to intervention are compared longitudinally to observe what costs were before and after the implementation of an intervention program.
- **"Pre-intent versus post-intent" analysis.** An intended course of action and associated cost at the individual level are defined prior to the intervention, and then compared to actual treatment and costs post-intervention. This analysis is particularly well-suited for infrequent events where there are alternative therapies, such as surgeries.

The advantage that we had in developing a new methodology was the existence of two separate estimates of savings for one intervention program, SDS. Savings for these patients were estimated by comparing the episode costs of the patient's intended surgical treatment (on entry to the program) with the cost of the actual outcome (either surgery or less-invasive treatment) post-intervention. This program covers only elective, episodic procedures: hip, knee, back, weight loss and hysterectomy surgeries.

For employers who pursue claims-based validation, survey responses are still recorded. Thus, we have the opportunity to compare survey responses for SDS patients to their claims-based savings. Both survey results and claims-based results were available for three distinct employers across seven program years that included a total of 895 participants.

Claims-based savings estimates were first made using the "pre-intent/post-intent" method. A multivariate predictive



model was then fitted to the survey variables to predict individual estimates of claims-based savings. The model fits well (R^2 = 0.82), implying that estimates made from the survey data (in the case of the SDS program) should be reasonably accurate, in the absence of claims data.

We cannot expect that the weight of each A–K variable within the SDS model will be the same for other programs because the conditions, treatments and resulting costs of medical needs addressed by the other programs differ from those met by SDS. For example, Measure C is defined as "Avoiding Treatment." The weight assigned to this variable for SDS is $28,800, which is close to the average savings we would expect to realize for someone avoiding a surgical procedure. However, potential savings associated with treatment avoidance from other programs, for example, chronic condition management, are not likely to be as large.

Our next step was to map out each program and the distribution of diagnoses associated with that program. We then turned to the literature to estimate weights for the other variables using the SDS results as our underlying baseline. Here it is worth noting the importance of looking at results holistically rather than independently. Each variable interacts with each other variable in the equation, and they need to be taken into account together rather than individually. Thus, we started to quantify expected direct claims savings from similar programs for each condition using summarized results reported by Goetzel et al.,[2] Chapman,[3] Cyboran et al.,[4] Aldana[5] and Duncan.[6]

We also had one other piece of data to inform our weight adjustment for other programs: the data on direct savings not related to SDS. For individuals who say they have avoided or discontinued an unnecessary treatment, the name of the avoided treatment is recorded (e.g., "decided against prostate cancer surgery and opted for watchful waiting instead"). It is then mapped by the Impact Specialist to an average cost associated with the avoided treatment. We averaged these avoided treatment savings, which produced a result of $10,166 per "avoided treatment," which represented about one-third of the savings associated with SDS for this specific variable.

Table 2
Updated A–K Variable Weights

Impact Variable	SDS Weight	All Other Program Weight
A—"Best practices" changed treatment	$6,920	$2,307
B—Minimized side effects	$2,160	$720
C—Avoided treatment	$28,849	$9,616
D—Incorrect diagnosis	$4,857	$1,619
E—Added specialist/changed doctor	−$468	−$468
F—Changed hospitals	$0	$0
G—Improved quality of life	$0	$0
H—Improved wellness or treatment compliance	$1,712	$1,712
I—Improved physical health	$1,982	$1,982
J—Sought second opinion	$1,796	$1,796
K—Quit smoking	$0	$0

Our final step was to look at each variable and then fit it to the expected result based on the survey responses. We used a combination of actuarial judgment and results from the literature to derive the final weights in Table 2.

Let us remind the reader that these variables should not be considered independently but rather need to be considered in conjunction with each other. In addition, these variables should not be used to map an individual's savings alone, but they are an estimate of the entire program's savings, or at least those of a group of employees. Obviously, these are averages, and while one individual's changed treatment path may result in a very small savings or even a cost, someone else's changed treatment path may result in tens of thousands of dollars in claims savings.

Not all variables are correlated with savings. For example, Variable E, adding a specialist or changing a doctor, has a negative weight, consistent with the likely increased cost of adding a specialist to the provider panel. However, if that switch or additional provider results in a change in any other variable, the overall result will be a savings.

The reader may also notice no savings for Variables F, G and K. While the literature associates smoking with increased costs, any avoided costs from quitting smoking tend to be very long term. Likewise, Variable G, improved quality of life, has no defensible direct claims savings—especially in light of the presence of Variables H and I, improved wellness and improved physical health. Finally, we have not assigned a value to changing hospitals. Some researchers report an increase in Quality Adjusted Life Years, but this metric is not one that is normally familiar to, nor considered credible by, many employers. While a case could be made that anyone changing hospitals is doing so either to (a) save out-of-pocket expenses for a low-risk procedure or (b) choosing a higher quality facility with better outcomes, we are unable to derive an actuarially justified savings number for this component. Finally, one may notice the relationship among Variables A through D for SDS and all other programs. While Variables E, H, I and J are consistent for all programs, Variables A to D are one-third the value for non-SDS programs. Direct savings resulting from changes in treatment, side effects and an incorrect diagnosis are much larger for the SDS surgeries than for the disease mix of the non-SDS surgeries. After reviewing the literature and the data available for direct claims savings across programs, we believe that one-third is the appropriate weight to use for these variables. However, we believe that physician costs, improvements in health and wellness, and seeking a second opinion are independent of program type and therefore do not require a weight adjustment from the regressed-SDS results.

RESULTS

Table 3 shows aggregate results by program type for a sample of employers from July 1, 2014, through June 30, 2016. This sample covers a total of 12,944 participant responses.

Table 3
Per Participant Average Savings Results

Program	Average Savings per Participant With Updated A–K Weights	Average Claim-Based Savings per Participant
SDS	$12,349	$12,457
Non-SDS	$2,351	N/A

The per participant average savings approximation is very close to the actual claims-based savings result for SDS. While we don't have an equivalent claims-based savings results for this mix of programs and conditions, results are approximately one-sixth of the SDS results based on the survey response behavior as well as the different measurement values for SDS. While we find a fair amount of variation in the literature among reported savings of decision support programs as well as the potential for claims savings, this $2,351 average savings value per participant is by no means inconsistent with the literature.

Reported ROI in the literature typically ranges from 3:1 to 8:1 according to Goetzel et al.,[7] while Aldana[8] concluded the average ROI is around 3.5:1 in direct claims savings, or 5.8:1 if absenteeism is included, based on his review of 72 peer-reviewed articles examining the financial impact of health promotion programs.[9] In 2010, Harvard University published a meta-study in *Health Affairs* that claimed a direct medical claims savings-to-cost ratio of 3.3:1 with an additional 2.7:1 savings-to-cost ratio in reduced absenteeism costs.[10] The Society of Actuaries also published a meta-study of 61 programs and found an average reported savings-to-cost ratio of 2.8:1[11] while noting a large degree of variance in reported results. Meanwhile, Chapman claims that between 30–60 percent of health plan costs could be either modified or avoided in part by intervening among key behavioral risk factors.[12] Furthermore, in their 2012 meta-evaluation, they note an average 24.5 percent reduction in health care costs across the 32 studies that met the inclusion criteria.[13] Our reported ROI in this study is well within this 3:1 to 8:1 range and fairly close to Aldana's 3.5:1–5.8:1 average (book of business ROI averages 4:1). Direct medical claims per employee will average around $13,000 in 2017 according to Willis Towers Watson.[14] It is common knowledge that 80 percent of this cost is driven by 20 percent of the population. Hence, participants coming into the program seeking medical support are more likely to have claims in excess of $13,000 per employee. Thus, $2,350 in savings per participant represents only about 10–30 percent of total medical claims. This falls well below the 30–60 percent potential intervention range that Chapman defines and is close to the 24.5 percent average.

IMPROVEMENTS AND LIMITATIONS

Compared to the prior methodology, the revised methodology includes the following improvements:

- Used an additional, validated source of data (claims) to compare SDS savings against survey-based estimates.
- Validated estimates by an extensive literature comparison.
- Overall, made a more accurate projection of claims savings.

However, the revised methodology still has the limitation of remaining survey-based and being limited to two program types (SDS versus non-SDS).

CONCLUSIONS

For many programs where relevant claims data are difficult to acquire and, because of program overlap, even more difficult to use, we believe that the methodology described here provides a useful and innovative method for using one program's validated results to estimate savings from survey data. ■

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Articles in the *North American Actuarial Journal* of Interest to Health Actuaries

By Ian Duncan

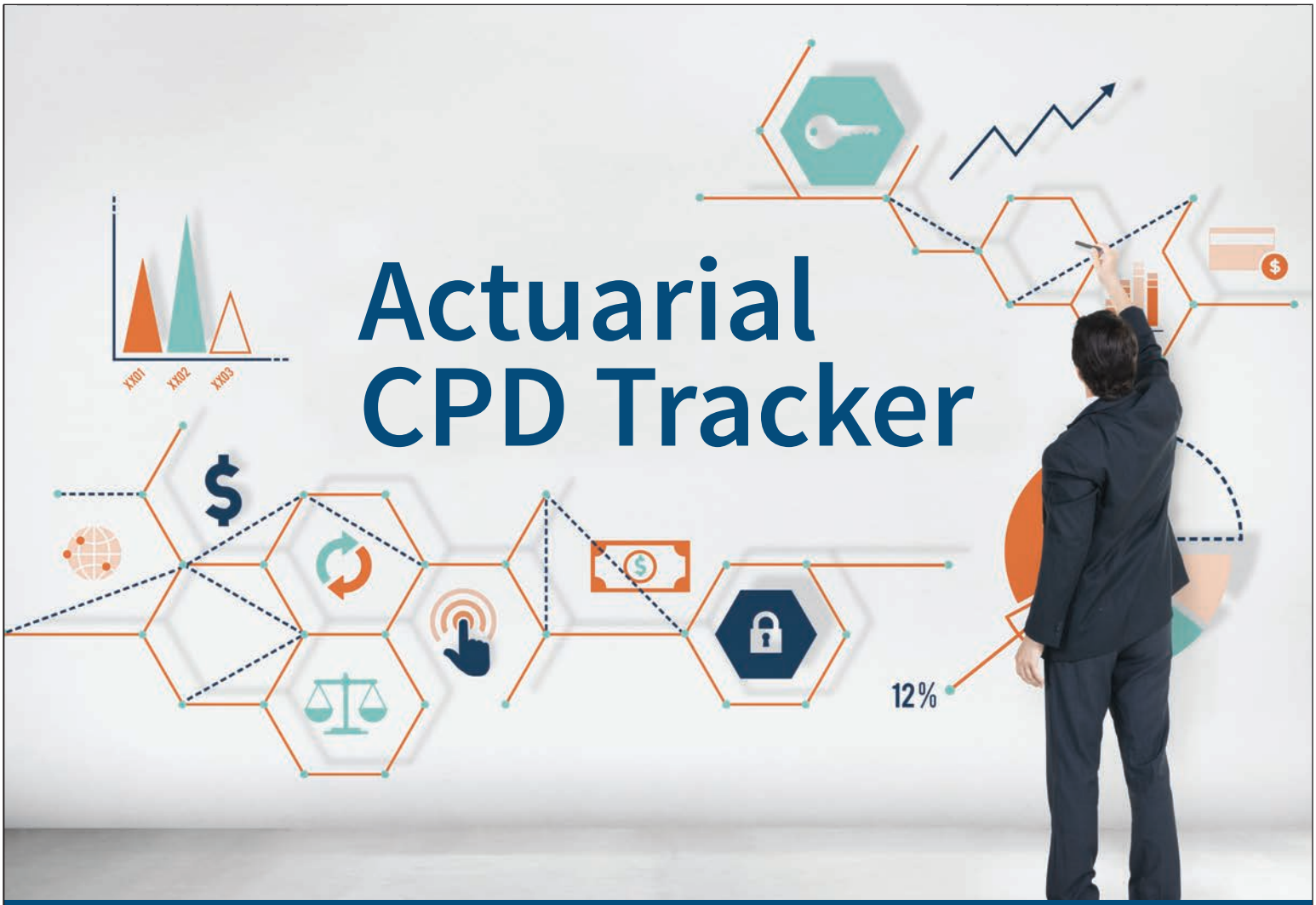
Ian Duncan, FSA, FCA, FCIA, FIA, MAAA, is adjunct professor of actuarial statistics at the University of California, Santa Barbara. He can be reached at *duncan@pstat.ucsb.edu.*

There have not been articles in the *North American Actuarial Journal* recently of specific interest to health actuaries. However, Vol. 21, Issue 2, just published an article that is relevant to many of us: "An Efficiency-Based Approach to Determining Potential Cost Savings and Profit Targets for Health Insurers: The Case of Obamacare Health Insurance CO-OPs," by Charles C. Yang and Min-Ming Wen. Unfortunately, because of the time it takes to complete an article, go through peer-review and make necessary changes, events have proceeded apace in the ACA, including the insolvency and closure of many co-ops. Nevertheless the discussion will still be of interest to many health actuaries.

AN EFFICIENCY-BASED APPROACH TO DETERMINING POTENTIAL COST SAVINGS AND PROFIT TARGETS FOR HEALTH INSURERS: THE CASE OF OBAMACARE HEALTH INSURANCE CO-OPS

By Charles C. Yang and Min-Ming Wen

This research analyzes the performance of the health insurance consumer-operated and -oriented plans (CO-OPs), examines their medical services and operating efficiency, proposes an efficiency-based goal-oriented approach for cost reductions, profit targets, premium changes and government subsidies, and provides an important guide for improvement potentials for both the CO-OP health insurance model and other health insurers. The CO-OPs are not satisfactory in the medical services efficiency, and they are much less efficient compared with other insurers. Potential cost reductions are significant using various (conservative) efficiency goals. Most CO-OPs suffer underwriting losses, as do many other insurers; a few CO-OPs are much more operating efficient than other insurers, but all CO-OPs need significant improvement of financial performance relative to benchmark insurers. Incorporating potential cost reductions, many CO-OPs would barely require any "premium changes and government subsidies," and they are even capable of paying back the federal loans. With both potential cost reductions and premium increases, more CO-OPs would not need any help from the government but survive on their own. This research informs public debates and all stakeholders (including management, consumers, regulators, policymakers) of improvement potentials to be considered for related decision making besides other factors including the political environment and government policies. ■



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Organizations of Interest to Health Actuaries: AcademyHealth

"Moving Evidence Into Action"

By Rebecca Owen

AcademyHealth is the preeminent consolidator of health services research in the United States. Their site is a rich repository of discussion, forums and techniques addressing all aspects of health service. AcademyHealth brings together researchers, practitioners, policymakers and, yes, actuaries to address the emerging needs of health systems, mostly American, but also international systems and concerns.

The organization focuses on evidence-based work and devotes considerable resources to the dissemination of evidence-based policy, programs and methods for research. The organization is nonpartisan, but an advocacy arm promotes health services research as a scientific discipline and monitors activity in both the public and private sectors that relate to the conduct of health services research.

Organizational resources on evidence encompass methods on delivering better care through access, improved quality and enhanced organization among the components of the health systems. An example of information in this topic are links to articles on increasing hospice care in various populations.

There is an evidence subject area on building healthy communities, including issues like equity and both public and population health. Staff highlight research that endeavors to identify factors that improve the health of communities.

Evidence also includes tools, analytic methods, data sharing and sources for accessing health data, validating and using the data appropriately. An example of this is an article on improving risk prediction using machine learning algorithms.

The final component of the evidence foci compiled by AcademyHealth is the engrossing topic of paying for care. The site compiles information and research on costs of care, efficiency and insurance/payer topics including Medicare and Medicaid.

The organization is hosting five big events in the next year:

- **Annual Health Policy Orientation Meeting**. A seminar on all aspects of health policy
- **Conference on the Science of Dissemination and Implementation in Health.** On bridging the gap between evidence, practice and policy
- **National Health Policy Conference.** Brings together all aspects of the health delivery system to have an evidence-based discussion on the entire policy agenda
- **Health Datapalooza.** Assembles all things data driven in the health sphere
- **Annual Research Meeting.** Convenes researchers from all aspects of health services research; see Margie Rosenberg's article in this issue.

As a resource for finding what has been studied or published outside of the actuarial profession, as well as finding opportunities to participate in research going forward, AcademyHealth is a great first option. They have created frameworks led by staff to work teach, learn and advance areas of interest that further health services research and system improvement.

Table 1 shows a list of the programs led by their staff.

Table 1
AcademyHealth Programs

Advancing Research to Reduce Low-Value Care	National Change Leadership Programs
Adverse Childhood Experience	Payment Reform for Population Health
Center for Diversity, Inclusion and Minority Engagement in HSR	PCOR Analysis, Synthesis and Reporting
Community Health Peer Learning Program	Public Health Systems Research
Consumer Patient Researcher Roundtable	Registry of Patient Registeries
EDM Forum	Research Insights
Engaging Businesses for Health	Special Topic Research Programs
Global Programs and Initiatives	State Health Policy and Technical Assistance
Health Care Financing and Organization	Translation and Dissemination Institute
Managing and Learning from Payment and Delivery System Reform	

Many of the resources are available without membership; however, membership does give access to more content as well as offer opportunities to work on collaborative efforts.

Subscribing to their newsletters will provide you with such engaging reads as the enlightening "Patient Characteristics of Opioid-Related Inpatient Stays and Emergency Department Visits Nationally and by State, 2014," from the Agency for Healthcare Research and Quality, but also access to a number of publications from journals that are not always on the radar of the actuarial community. Their website is *http://www.academyhealth.org/*. You can follow them on Facebook and Twitter (*@academyhealth*). ■

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Results From the 2017 Predictive Analytics in Health Care Trend Forecast

By Ian Duncan

The Society of Actuaries (SOA) recently conducted a survey[1] of health payer and provider executives to glean insights into predictive analytics trends. As part of its continuing mission to advance the field of actuarial science and the actuarial profession, the SOA is investing resources into understanding how predictive analytics will temper financial pressures and contribute positively toward the Triple Aim of Health Care—improving patient care, patient health and per capita costs.

The majority of health executives have a clear opinion of the future of predictive analytics in their field: 93 percent believe predictive analytics is important to the future of their business. As the industry becomes increasingly focused on value-based care, executives have become more focused on processes and technologies that reduce costs and improve products and services.

For both payers and providers, the top four outcomes identified by the survey as most valuable to predict—cost, clinical outcomes, patient satisfaction and profitability—all directly impact the goals of the Triple Aim. The overwhelming majority of executives surveyed expressed the belief that predictive analytics will be extremely cost effective in the future. More than half of executives surveyed expect that predictive analytics will save their organization 15 percent or more over the next five years, and a quarter of executives forecast saving 25 percent or more in that same period.

As the industry becomes increasingly focused on value-based care, executives have become more focused on processes and technologies that reduce costs and improve products and services.

These results clearly indicate that executives expect predictive analytics to become an essential element of value-based care. Early adopters of predictive modeling have already seen benefits that include easier identification of patient health risks, improvements in helping doctors anticipate patients' health care needs and mitigate their conditions, and even the identification of new solutions to the needs of patients and providers. However, despite the anticipated financial benefits from adopting predictive analytics, 16 percent of health care executives still indicate that a lack of budget is the biggest challenge to implementation within their organization.

Executives concerned about costs aren't thinking about the initial costs of predictive analytics—major organizational changes are almost always necessary for a company to fully implement predictive analytics from scratch. The changes, financially

sound as they are in the long run, can require investment in new infrastructure and systems, as well as granular adjustments that can extend all the way down to hiring for specialist roles, new skills and day-to-day operations changes.

Regulatory issues, specifically compliance with security requirements in the face of recent highly publicized data breaches, were identified by executives as the second most challenging aspect of implementing predictive analytics (13 percent). Other challenges for implementation include incomplete data (12 percent) and a lack of skilled applicants (11 percent).

Health data can easily be used to identify individuals, so the prospect of having records hacked is very concerning for both payers and providers. Incomplete data and the lack of skilled personnel to make use of data are obvious issues as well. The survey found that the top two expectations for the future of predictive analytics are the refinement of data collection methods to increase security (20 percent), and investment in people with the necessary expertise. Nevertheless, the financial benefits that predictive analytics brings to the table outweigh the potential downsides.

Contemporary data sources are much more complete than in the past, and new, better ways of collecting data are being implemented across dozens of industries as technology becomes more accessible and applicable. Traditional sources like health records and nontraditional sources like wearable devices are more available than ever before.

Similarly, health care payers and providers may need to start looking at nontraditional professions when hiring for predictive analytics roles, such as actuaries. After all, predictive analytics is the cornerstone of the actuarial profession, and actuaries have been analyzing complex sets of data since the inception of actuarial science—long before "big data" became popular.

It's clear that executives are confident about the benefits of predictive analytics: 88 percent of respondents said they currently use or are planning to use predictive analytics. These results indicate that executives are confident that the industry will invest in solutions to the biggest present and future challenges for the health care industry. ■

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Health Section Actuaries at 2017 AcademyHealth Meeting

By Margie Rosenberg

The Society of Actuaries (SOA) Health Section sponsored a half-table at the annual research meeting for AcademyHealth held in New Orleans from June 24–27. AcademyHealth (*http://www.academyhealth.org*) "works to improve health and the performance of the health system by supporting the production and use of evidence to inform policy and practice." The purpose of this article is to summarize the meeting and the SOA participation at the meeting, and to conclude with my main takeaways for future interaction.

The AcademyHealth meeting was well attended, with more than 2,500 participants from the United States and abroad. Those who attended represented a wide array of disciplines, including health economists, health services researchers and providers who work in academics, industry or policy or trade organizations. The meeting was set up similarly to SOA meetings with oral presentations by researchers and panel discussions with experts.

Both the opening plenary on Sunday and the luncheon plenary on Monday illustrated the goals of AcademyHealth to educate stakeholders and to inform decision-making and policy with separate panels of discussants representing different perspectives. The opening plenary was entitled "Health Policy After the Election: What Can We Expect? What Will Be the Role of Evidence?" and the luncheon plenary was entitled "Responding to Crises: The Role of Resiliency in Community and Health Care Systems." The entire list of sessions can be found at *https://academyhealth.confex.com/academyhealth/2017arm/meetingapp.cgi/Home/0.*

Austin Frakt, Ph.D., and Aaron Carroll, M.D., M.S., of The Incidental Economist blog attended the meeting. A link to some of their blog quotes were published at *http://www.academyhealth.org/about/people/incidental-economist*.

The Academy Research meeting featured exhibit booths of various organizations, like the Robert Wood Johnson Foundation, or by universities targeting Ph.D. students or hires. Rebecca Owen, SOA Health Research actuary, spearheaded the idea of having a booth at AcademyHealth to showcase the research of health actuaries and to inform a different, but similarly focused, audience of the knowledge that actuaries have in the health space. The exhibit table displayed reports of sponsored research, as well as some white papers produced by industry actuaries. A flash drive was provided that contained all the health research obtainable from the SOA website in an easy-to-access place. Rebecca and I were able to share actuaries' perspectives with conference attendees.

However, more similar to clinical meetings, AcademyHealth featured many posters of projects. Instead of presenting their work as part of an oral session, vast arrays of posters summarizing the work of the researchers were featured, with at least one of the co-authors standing by the poster to interact with individuals to share their research on a more-intimate basis. Here the participants benefited from the interactive conversation by exploring more of the research in detail, as well as getting answers to questions in a comfortable environment. The authors gained through the sharing process and potentially received advice on ways to improve their work.

As a prelude to the main research meeting, other events took place such as "Interest Groups" (similar to the SOA's sections), where participants had a one-day (or half-day) conference on a particular theme. The one-day themes included State Health Research and Policy, Child Health Services Research, and Public Health Systems Research. Half-day themes included Disparities, Health Economics, Health Workforce, Long Term Services and Supports, Quality and Value, Surgical and Perioperative Care, Translation and Communications, Behavioral Health Services Research, Disability Research, Global Health and Health Care, Health Information Technology, Interdisciplinary Research Group on Nursing Issues, and Women and Gender Health. These themes were repeated during the main meeting in many sessions.

I, together with Kyeonghee Kim, a Ph.D. student at UW–Madison, presented a poster at the Health Economics Interest Group meeting. Our poster, shown as part of this article, was entitled "Identification of Persistent High Utilizers and the Role of Multiple Unhealthy Behaviors." This work represents work in progress that is nearly ready for submission to a journal and is sponsored in part by a grant from the SOA as part of the Center of Actuarial Excellence program. For us, we were able to share our ideas with others who work in the area and then hear how others may have addressed similar challenges.

My takeaways are that actuaries would benefit from participating in the AcademyHealth meetings, and that participants at AcademyHealth would benefit from interacting with actuaries. While many of the talks and posters concerned the costs of health care,

many did not. Considerations of the impact of different policy or operational decisions without considering costs are not sustainable. In my opinion, any impact of an intervention on the cost of insurance is best discussed by actuaries.

Having a presence by the SOA at the AcademyHealth meeting was beneficial to help establish relationships with others who work in similar, complementary areas. I am hopeful that this presence will be continued and further partnerships explored with the AcademyHealth staff. ■

Margie Rosenberg, FSA, is the assurant health professor of actuarial science at the University of Wisconsin–Madison. She can be reached at *mrosenberg@bus.wisc.edu*.

2017 Health Meeting in Review

By Jennifer Gerstorff

The Society of Actuaries' (SOA's) Health Meeting is an annual continuing education event that is attended by more credentialed health actuaries than any other industry meeting directed at actuaries practicing in the health care field. The meeting offers an abundance of quality continuing education and networking opportunities. Attendees range in experience from those who are newly qualified to those with decades of experience, with varying backgrounds that include health insurance, consulting, state and federal governments, and education and research. This year's meeting took place in Hollywood, Florida, from June 12 to 14. Figure 1 illustrates the number of registered attendees and overall quality rating over the past few years by meeting location.

Figure 1
Health Meeting Attendees

Year	Location	Attendees	Rating
2014	San Francisco	1,007	4.00
2015	Atlanta	925	4.09
2016	Philadelphia	1,047	4.14
2017	Hollywood, FL	945	4.28

Audio recordings of all meeting sessions can be downloaded by Health Section members at no cost on the meeting's website, *https://www.soa.org/prof-dev/events/2017-Health-Meeting/*.

INNOVATIONS IN 2017

Every year, the SOA staff in conjunction with the Health Council's planning committee aim to increase innovation to optimize attendees' experience. This year's meeting included several new or enhanced features:

- The SOA meeting mobile application was enhanced to include an option for completing session and meeting evaluations, such that people could send in evaluations at any point after attending a session rather than completing the paper form before leaving the session.
- There was an increase in presenters' use of live polling technology during sessions to encourage higher audience engagement.
- One of the primary goals of the 2017 planning committee was to schedule more nonstandard session formats to help the audience engage more with presenters, leading to better retention of presented information and content that becomes customized to participating attendees. These more dynamic session structures lend themselves well to all the uncertainty around and the constantly changing health care market.
- Our second primary goal was to recruit a higher percentage of non-actuary speakers for our breakout sessions. While we have a great pool of actuarial volunteers, session evaluations consistently report high satisfaction with outsiders. In addition to finding non-actuarial speakers who have high audience engagement skills, they also tend to bring a more rounded perspective to our technical minds.

KEYNOTES

For SOA members who opt to join the Health Section, the SOA collects annual dues that fund a variety of Health Section activities. The two biggest expenses are health research and health meeting keynote speakers. The meeting planning committee recognizes that our section members expect high quality and value for their investment, and we agreed on two brilliant keynote speakers this year. Attendees who completed an evaluation seem to agree based on these statistics, based on roughly 180 respondents, as shown in Figure 2.

Nick Buettner, community and corporate program director for the Blue Zones Project, kicked things off during the opening general session, giving us a lot to think about over the course of the meeting. With the SOA Health Section's increasing focus on public health, it was highly interesting to hear about the immersive research that's been conducted by the Blue Zones team to date. Nick shared lessons they have learned through interviews with centenarians in pockets of the world where the population survives past age 100 at a higher rate than most areas of the world. For more information on Blue Zones, check out their website, *https://bluezones.com*.

Amy Cuddy, associate professor at Harvard Business School, social psychologist and author of *Presence: Bringing Your*

One of the primary goals of the 2017 planning committee was to help the audience engage more with presenters.

Figure 2
Member Ratings of Keynote Speakers

Speaker	Value of Content		Effectiveness of Delivery	
	Average Score	5-Star Rating	Average Score	5-Star Rating
Nick Buettner	4.39	53%	4.61	70%
Amy Cuddy	3.95	34%	4.30	52%

Boldest Self to Your Biggest Challenges, brought a strong presence to the stage and presented us with concepts to consider that are intended to help us become more confident with ourselves in our professional and personal lives using our body language and posture. She also presented the results of some recent gender studies that reiterate a common message in today's society: the campaign for women's equality in the workplace has a long road to travel, and an important focus for everyone is empowering our young girls throughout their lives to be confident and expect equality. Amy has the second most popular TED talk ever, with more than 42 million views on the TED website: *https://www.ted.com/talks/amy_cuddy_your_body_language_shapes_who_you_are*.

SESSION HIGHLIGHTS

On behalf of the Leadership & Development Section in collaboration with the SOA Inclusion and Diversity Committee and the Actuary of the Future Section, Olga Jacobs continued the trend of a strong women's forum session as a centerpiece of the meeting. Immediately following Amy Cuddy's empowering keynote speech, the panel of health industry leaders presented an engaging discussion on women's leadership. This year's panel featured Deborah Watkins, chief executive officer of Care Bridge International; Andie Christopherson, vice president and chief actuary at BCBS Minnesota; and Larry Smart, chief actuary at Wellcare.

The headliner for this year's Health Section breakfast was Timothy Jost, emeritus professor, Washington and Lee University School of Law. Many of us know him as a frequent contributor to the *Health Affairs* blog and journal articles, where he shares his thoughts and research on breaking health care news. While we do not collect attendee evaluations for the section breakfasts, I heard several anecdotes from star-struck actuaries about attending Tim's talk.

SUBGROUP ACTIVITY

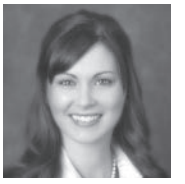
The Health Section Council has been actively working to enhance section members' access to continuing education and networking opportunities through the support of health care topic subgroups of the Health Section. To review available interest groups and sign up for the email distribution lists, check out the website, *https://www.soa.org/News-and-Publications/Listservs/list-public-listservs.aspx*.

One of the most active subgroups to date is the Medicaid subgroup. Members participate in regularly scheduled monthly calls, have access to a private group LinkedIn site, receive monthly Medicaid news updates and meet up for good conversation at the SOA's health meeting. This year, in addition to Medicaid breakout sessions (that always turn into panel/audience discussions), we reserved lunch tables at the meeting's networking lunch to get the group together. Face-to-face discussions like this help facilitate active participation in the group's monthly calls.

The newest subgroup is focused on Public Health, headed up by Sara Teppema and Engy Sutherland. The leaders of the initiative coordinated Session 79 Panel Discussion: Why Health Actuaries Need to Care About Public Health. Many attendees joined the subgroup at that time, and the doors are still open and ready for new members. To review slides from the presentation, check out this link: *https://www.soa.org/pd/events/2017/health-meeting/pd-2017-06-health-session-079.pdf*.

THANK-YOUS

In closing, I would like to thank the SOA Health Section Council for their support of the meeting planning committee, of me as the committee's chair and of the meeting itself. Ashlee Borcan and Jackie Lee put in tremendous effort as co-chairs of the committee in pulling the content for the meeting together. Joe Wurzburger, our SOA staff fellow, was the committee's rock, as usual. He served as a sounding board as the committee reviewed content for inclusion, coordinated activities between the committee and SOA staff, and took charge on developing professionalism content for the meeting. I'd also like to include a special shout-out to Hans Leida, who presented content at five sessions during the Health Meeting and one additional session at the postmeeting Best Practices Seminar. As anyone who has ever volunteered to present knows, preparing as a speaker is a lot of work. Preparing for six total sessions seems like a super-actuary feat. Somebody give this guy a cape! ■



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