Celebrating 25 Years
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Health Watch

"For Professional Recognition of the Health Actuary"

Update on Massachusetts Health Care Financing Reform

by Bela Gorman

In April of 2006, Massachusetts passed groundbreaking legislation that restructured a portion of the health care system. The main focus of Chapter 58 of the Acts of 2006, An Act Providing Access to Affordable, Quality, Accountable Health Care (the Act), was to extend affordable health insurance coverage to the uninsured population. Strategies to increase coverage included creating a new subsidized insurance program, introducing insurance market reforms, establishing a Commonwealth Health Insurance Connector Authority (the Connector) and developing new health insurance products in the market.

The legislation is unique in that responsibility for coverage is shared by individuals, government and employers. The intent of the Act was to fund these new programs through state and federal funding (which included a redistribution of funds from the free-care pool and a federal waiver to the funding of subsidized insurance products), new state funds and employer assessments.

Now, many states are looking at portions of Chapter 58 of the Acts of 2006 as a potential model for health reform in their own state. In particular, many states have been interested in market reforms, introduction of an exchange (such as the Connector), the individual mandate and employer assessments. This article focuses on the key components of the Act, and also provides a status update regarding implementation in Massachusetts.

Subsidized Insurance Programs

For adult residents that do not have access to employer-sponsored insurance, with income at or below 300 percent of the Federal Poverty Level (FPL)[1] and otherwise ineligible for the Massachusetts' Medicaid program (MassHealth), the Act created a subsidized insurance program called the Commonwealth Care Health Insurance Program (Commonwealth Care). Premiums for the program are set by a ten member Board on a sliding scale based on household income.

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Bela Gorman, FSA, MAAA, is a consulting actuary with Gorman Actuarial, LLC in Marlborough, Mass. She can be reached at *bela.gorman@verizon.net.*

[1] In 2007, 300 percent of the federal poverty level is $30,630 for an individual and $61,950 for a family of four.

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475 N. Martingale Road, Suite 600
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ph: 847.706.3500 • f: 847.706.3599 •
Web: *www.soa.org*

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Gail Lawrence, Editor
ph: 515.224.4380
LawrenceConsulting@mchsi.com

Ross Winkelman, Editor
ph: 303.862.6455
rossw@wakelyconsulting.com

Sofi Garcia, Project Support Specialist
ph: 847.706.3597
f: 847.706.3599
sgarcia@soa.org

Julissa Sweeney, Graphic Designer
ph: 847.706.3548
f: 847.273.8548
jsweeney@soa.org

Kathryn Wiener, Staff Editor
ph: 847.706.3501
f: 847.706.3599
kwiener@soa.org

Meg Weber, Director, Section Services
ph: 847.706.3585
f: 847.273.8585
mweber@soa.org

Steve Siegel, Research Actuary
ph: 847.706.3578
f: 847.273.8578
ssiegel@soa.org

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Letter from the Editor ... In This Issue

by Gail M. Lawrence

It was about 15 years ago that Bill Clinton was elected, capitalizing on a weak economy with his famous slogan, "It's the economy, Stupid." For many of us in the health care industry, we waited with some trepidation for the unveiling of the Clinton health care plan, fearing that our jobs may become obsolete.

The political process for building the plan left a lot to be desired with secret meetings and little collaboration with the industry. It seemed that the momentum for health care reform was stopped in its tracks during a presidential town hall meeting when Mr. Cain, the then President of Godfather's Pizza, used some persuasive words to punctuate the point that "it's all about the cost, Stupid."

Fast forwarding a decade or so, I sent a letter to one of my Senators from Iowa, sharing my own particular vision of health care financing reform. I received a very nice reply that effectively said "it's not about the plan, it's about the cost, Stupid." He was right. It will take great political will and a large financial commitment to implement a federal solution for our nation's uninsured.

Despite the lack of action at the federal level, some states have demonstrated progressive leadership in the direction of universal coverage. Massachusetts implemented a plan in 2006, mandating that all citizens purchase health insurance that included premium subsidies for the lower income households.

The results of this plan are being monitored with great interest by other states and the general approach is similar to that being advocated by a number of presidential candidates. We thought you'd be interested too, so an update on the Massachusetts plan is our lead article. It was written by Bela Gorman, a consulting health actuary who lead a 2006 study on the impact of merging the non-group and small group markets for the Commonwealth of Massachusetts.

It seems that controlling health care costs will be a perpetual issue, especially with all of the perverse incentives and supply-induced demand for health care. The conundrum is the delivery of quality health care we need, which is probably a lot less than the health care many want. Providing the proper incentives to providers for the efficient delivery of quality care would be a huge step in the right direction.

Geisinger Health Plan has implemented some innovative programs to reimburse providers for *an entire episode of care* designed to both improve quality and reduce cost. These improvements were possible through better integration within the health care delivery system and the application of actionable and verifiable best practices. Other health maintenance organizations may want to consider developing similar programs.

Actuaries can have a role in the design of innovative provider reimbursement systems that can encourage changes with proper incentives. This point was raised by John Cookson in his takeaways from the Annual Quality Colloquium at Harvard.

Providing the right incentives through risk adjustment in state Medicaid programs is the topic presented by Winkelman and Damler. Theirs is a thorough primer on the pros and cons of alternative risk adjustment techniques being used today.

Weible and Shanks present the impact of proposed legislation that would reduce the amounts that Medicare Advantage plans are paid. The impact of this legislation would be far reaching, affecting health plans, providers and Medicare beneficiaries.

And last, with this issue we introduce Rajiv Nundy as our featured interview and we welcome the new Health Section Chairperson, Jim Toole. I'd like to thank Jim for his many contributions to *Health Watch*, both as an author and a leader in recruiting content for our readers.

Gail M. Lawrence, FSA, MAAA, is a consulting actuary. She can be reached at 515.224.4380 or at *LawrenceConsulting@mchsi.com.*

Chairperson's Corner

Maintaining Professional Relevance in a Rapidly Changing Environment

by Jim Toole

Jim Toole, FSA, MAAA, is a managing director, life & health, for MBA Actuaries in Winston–Salem, N.C. He can be reached at *jim.toole@mbaactuaries.com.*

I could not be more excited to be involved in the Health Section at this time in our 26-year history, much less have the opportunity to serve as chair. The role was never my objective, but things happen that you can't anticipate or control. Today's professionals must be able to adapt quickly, learn from their successes, and more importantly, their failures. Our actuarial training has provided us with a robust approach to problem solving, enabling us to adapt and thrive in the vagaries of today's business environment.

I started my career as a life actuary. I have been surprised to find how many high level health actuaries did not follow a conventional path into the discipline through the exams. It is also true that more health actuaries find rewarding, high level roles at the career ASA level than in the life discipline, indicating either that the market does not place a premium on the exam curriculum or the way in which it is delivered. From a qualitative perspective, it is my observation that health actuaries have more than our fair share of the business savvy and communication skills that surveys suggest are in short supply in our profession.

Although I do not have a traditional health background, I bring valuable experience to the role of chair. I have been involved in the SOA's strategic planning process since the formation of the Strategic Planning Committee (SPC) in November 2000. As the SPC began to focus on discipline specific strategic issues, Broader Financial Services and ERM (primarily life issues) were targeted for the initial cycle. At that time I was becoming aware of the need to have a strategic discussion surrounding the health discipline and I surfaced the concern at one of the SPC meetings. However, due to lack of resources and leadership from the health discipline it was tabled for the next planning cycle.

Why does this matter? Twenty percent of SOA members (some 3,500 in total) are in the health discipline. We shape the financing and structure of 16 percent of the U.S. economy (some $2 trillion dollars), but do not come close to keeping up with demand for our services, an important component of the SOA's strategic plan. While the number of health actuaries has grown a respectable 80 percent since 1990, the size of the health economy has expanded almost 300 percent in the same time period. It seems obvious now, but when I was a life actuary I was frankly oblivious to the critical role the health discipline played in the economy in general and the health sector in particular.

In terms of importance to the public, health is the number one domestic campaign issue and for the last decade has consistently polled in the top three. Actuaries might develop great models and projections, but we clearly missed an opportunity to prepare ourselves for an inevitable conversation with the U.S. public, politicians and policy wonks: What is it that health actuaries **do** again? How exactly do you add value to the health care system? And, the great granddaddy, if you are so smart why can't you fix it? More to the point, do we have the time and inclination? By the looks of things, the discipline is woefully unprepared to participate in one of the most important (periodic) discussions to impact the discipline's future in this decade.

Fast forward a couple years. When I started on the Health Section Council in fall 2005, we immediately initiated a member survey modeled after surveys we had performed with the SPC. One of the issues consistently voiced in the survey was the difficulty employers were having identifying and hiring qualified health actuaries. It seemed to cross all boundaries—geography, industry and employer type. The results of this survey sparked substantial discussion among Health Section Council members. The SOA's own difficulty in hiring a staff actuary (an ongoing source of concern for the council) has made the issue painfully apparent.

In an attempt to open up the conversation with the board, an issue brief entitled "Unrealized

Opportunities in the Health Discipline" was prepared and delivered to the Issues Advisory Council. I firmly believe the health discipline has far and away the most untapped opportunity for growth in our profession. The flip side of this opportunity is the risk inherent in not participating in designing a system to better address the needs of the public, and the risk of finding the discipline marginalized as a result. Whereas growth in other disciplines is stagnant or declining due to challenging economic and demographic forces, we cannot keep up with demand for traditional services, much less provide the intellectual capital needed to carve out niches in emerging and non-traditional areas. Because of this, opportunities that were once our sole domain are now being shared with or ceded to other professions with similar toolkits, if less rigorous training.

The Board of Directors decided in January 2007 that this issue merited strategic attention—both as a health specific issue and as part of the broader challenge of how the SOA should address the changing marketplace for actuaries. In preparation, we conducted another member survey, interviewed a dozen chief health actuaries, and researched public information. The results were incorporated into a white paper that was sent out to the board. The results of these studies as well as the work of the board, the Health Section and others in addressing the risks and opportunities facing the health discipline will be the subject of my next two corners.

In the meantime, the Health Section has taken concrete steps to respond to issues brought to the surface by members and employers during the course of this process:

1) The council has expanded from nine to 12 leaders to coordinate our response to the challenges facing our members.
2) The section organizational structure has been aligned with the SOA strategic plan and expanded to include team coordinators for volunteers, communications, continuing education, research, marketplace relevance, professional community and special interest groups.
3) Additional CE offerings are being developed to address the need for core skills, including pricing and valuation. This "boot camp" will be offered in a family friendly setting at a time convenient for actuaries involved in the Medicare bid process.
4) The research pipeline is being strengthened and the results are being better promoted both inside and outside the profession.
5) Support for the development of stronger relationships with other professional organizations, from supporting actuaries to attend and speak at other meetings, to recruiting outside speakers for ours, to assigning reciprocal liaisons to participate in council conference calls.
6) Development of an updated section Web portal attractive to members and non-members showcasing actuarial and non-actuarial resources useful to our extended family of professional communities.
7) Support the development of additional special interest groups to address the needs of underserved segments of the membership.
8) Establishment of a volunteer coordinator to ensure stewardship of volunteer resources.
9) Follow through on the Board of Directors' strategic issue "Untapped Opportunities in the Health Discipline."
10) Incorporate leadership development into section council activities to ensure health issues are well advocated inside the profession as well as out.

We welcome your input and volunteer enthusiasm. Please feel free to contact me or any member of the section council if you have any questions or comments.

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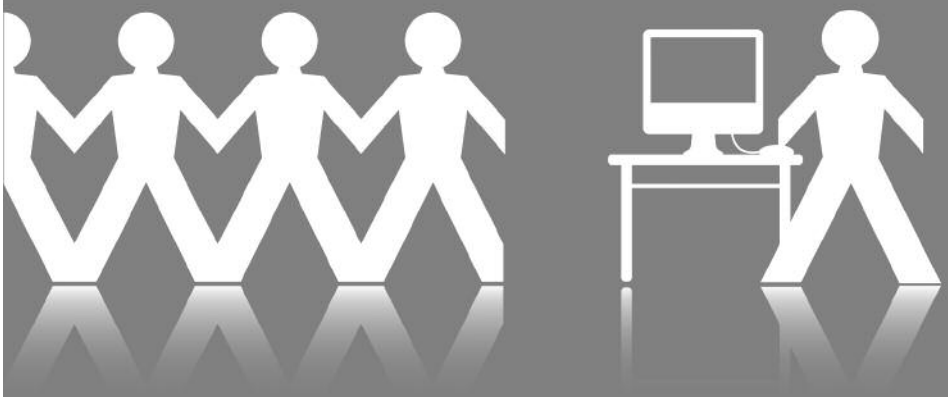

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New Concepts for Reducing Costs and Increasing Quality

by Roy Goldman

Of the three issues in health care—coverage, financing, and cost—the overriding issue is holding down the growth in health care costs while simultaneously improving the quality of care. Actuaries have traditionally played a major role in the first two issues, but our most significant contribution today and tomorrow is to apply our analytical and creative skills to reduce the growth in health care costs.

Eventually and, I believe, sooner rather than later, the United States will join the rest of the world in providing universal coverage. One could argue this is the right thing to do for moral reasons, but is it also the right thing to do in order to keep the population healthy. But universal coverage is not a "silver bullet" for reducing the growth of health care costs.

Take Medicare, for example. It's a near-universal system for people over 65, yet the only way CMS has been able to control the growth in cost of traditional Medicare is by unilaterally making changes in the reimbursement factors, which shifts costs to other payers.[1] While CMS achieves some administrative savings due to uniform billing and claims payment methodology, the lack of care management techniques gives CMS no mechanism for controlling the factors that contribute to health care costs.

To be clear, when I use the phrase "universal coverage," I do not mean "single payer." No matter how universal coverage is established, whether through a national system, which is unlikely in the near term, or through a combination of Medicaid expansion, employer "pay or play" options, and health purchasing cooperatives, clinical and actuarial input will be needed to insure that there are fair mechanisms in place to control the growth in costs while improving quality.

Cost Drivers

Some people think the answer to controlling health care costs is in benefit design by making sure the consumer has a financial stake in the cost of his care. I think that some cost sharing is definitely needed, but I do not agree that high-deductible plans are the answer. Relatively few insureds have large enough expenses to meet these high deductibles, and those that do often have a chronic condition or have had an acute episode or accident, and they cannot reduce costs below the deductible.

In my opinion, a better approach is to:

(1) give both providers and consumers access to information as to what services cost;

(2) design benefits with incentives for the consumer to obtain necessary preventive care and necessary treatment to keep whatever conditions they have from getting worse; and (3) give consumers incentives to seek care from the most efficient providers.

Roy Goldman, Ph. D., FSA, MAAA, is the chief financial officer for Geisinger Health Plan in Danville, Pa. He can be reached at *rgoldman1@thehealthplan.com.*

[1] The Pennsylvania Health Care Cost Containment Council *(www.PHC4.org)* 2006 report of the financial health of Pennsylvania hospitals. The council states that "costs are shifting to offset Medicare underpayment."

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But even this approach is simply playing around the edges. If we are going to successfully control the growth in health care costs, we need to go to the source. Even with the advent of managed care, physicians still drive the system. There have been numerous publications by the Institute of Medicine, the Rand Corporation, and others with examples of inappropriate care that leads to unnecessary expense or a poor outcome, which, in turn, drives more expense.[2,3,4] The most surprising news for the average consumer is that fewer than 55 percent of adult patients receive recommended care, and this result is independent of age, gender, and income.[5]

Stand-alone programs such as disease management, consumer cost sharing, electronic medical records (EHR), and pay-for-performance (P4P) are not by themselves the solution.

As I have studied this business over the last twenty years, the expert opinion that I have received from physicians has consistently pointed to the variation in procedures and outcomes as the key driver of health care costs. What would happen if there were mechanisms in place to make sure all physicians followed the best-evidence clinical guidelines every time? This is a question we are trying to answer at the Geisinger Health System with our ProvenCare℠ and Geisinger Medical Home models.

First, a little more background is helpful. Fifteen years ago physicians at the Rand Corporation concluded that 60 percent of the Coronary Artery Bypass Graft operations (CABGs) should not have been performed. Yet, did cardiologists and cardiac surgeons change the way they practiced? Some did, of course, but not the majority. As late as 2003 the rate of CABGs for Medicare enrollees varied from 1.9 per 1000 to 9.5 in regions throughout the U.S.[6]

Why didn't all cardiologists change their practice? Often it is because the study was not conducted *at their facility*. I know a group of cardiologists who were considered "cash cows" by the hospital system that employed them. When the hospital system decided that it would be better off taking full risk from the health plan, they put the cardiologists on capitation. The capitation was insufficient to support business as usual, so the physicians decided to review all the CABG operations performed in the prior year. Guess what? They found that 40 percent of them were probably unnecessary—a conclusion published by the Rand Corporation 10 years earlier.

Still today there is great variation in outcomes and procedures related to CABGs.

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2 Kohn LT, Corrigan JM, Donaldson MS, editors. To Err is Human: *Building a Safer Health System,* National Academy Press, Washington, 2000.

3 Committee on Quality Health Care in America, Institute of Medicine, *Crossing the Quality Chasm: A New Health System for the 21st Century,* National Academy Press, Washington, 2001.

4 Schuster MA, McGlynn EA, Brook RH, "How Good is the Quality of Health Care in the United States?" *The Milbank Quarterly,* Vol. 76, 1998, pp517-63.

5 McGlynn EA, Asch SM, Adams J, et al., "The Quality of Health Care Delivered to Adults in the United States," *The New England Journal of Medicine,* Vol. 348(26), June 26, 2003, pp2263-645.

6 Regional variations in rates of Coronary Artery Bypass Grafting. Dartmouth Atlas of Health Care: Studies of Surgical Variation. *(http://www.dartmouthatlas.org/atlases)*

- 30-day mortality (2003) for selected states: NY (1.6%), NJ (2.3%), PA (2.4%), CA (2.9%)[7]
- Hospital mortality rates in PA (2003): from 0.4% to 3.0%[7]
- Hospital seven-day readmission rates: from 1.1% to 10.5%[7]
- Statin usage: when used, the mortality rate is 2.5% vs. 5.6% when they are not used; when used, the morbidity rate is 5.9% vs. 8.3% when not used[8]
- Post-operative atrial fibrillation increases length of stay up to five days, increases charges by $10,000 and is associated with a 2-3 fold increase in post-operative stroke. Virtually every study of beta-blockers used to reduce post-operative atrial fibrillation has shown significant benefit.[9] Yet, beta blockers are not administered every time they are required.
- Surgical infection rates are reduced more than 50 percent when pre-operative antibiotics are given appropriately. Yet, only 23 percent of hospitals had a system to ensure proper administration.[9]

Current Environment for Acute Care

Physicians at Geisinger Health System, which is known as a high-quality system in Pennsylvania, characterize typical acute care in the United States as having:

- Uncertain appropriateness
- Unreliable compliance with evidence-based guidelines
- Lack of outcomes and quality accountability
- Incomplete communication across continuum of care
- À la carte payment for services
- Perverse incentives: more payment for complications
- Limited patient engagement

Current payment methodologies do not recognize health care quality or efficiency. Stand-alone programs such as disease management, consumer cost sharing, electronic medical records (EHR) and pay-for-performance (P4P) are not by themselves the solution. Geisinger has had an EHR for 10 years and while it is necessary for optimal care, it is not sufficient unless used to (1) identify patients who need certain tests or medications and (2) guide physicians in practicing evidence-based medicine. The physicians see P4P as generally insurer-imposed, outpatient-care based, chronic-diseased focused and often bonuses are paid for process improvement rather than outcome improvement.

Transformational Approaches to Health Care

The remainder of this article discusses two programs that have been initiated by Geisinger Insurance Operations in conjunction with the Geisinger hospitals and physicians as well as with non-Geisinger physicians with whom we contract. One deals with specialty care and the other with primary care.

Both approaches seek to transform the way care is currently delivered. Both are patient centric and outcomes focused. Both approaches systematically apply evidence-based care and seek to increase the reliability of quality outcomes. One approach, ProvenCare℠, takes dead aim at removing perverse incentives while the other, Geisinger Medical Home, seeks to contain costs through full-time coordination of care for patients.

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[7] PHC4 2004 report

[8] *JTCVS,* Vol. 131, March 2006, pp. 679-85

[9] Presentation by Alfred Casale, MD, lead author of "ProvenCare℠: A Provider Driven Pay-for-Performance Program for Acute Episodic Cardiac Surgical Care." To be published in Annals of Surgery.

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ProvenCare℠

In the ProvenCare℠ model, hospitals and physicians are paid a global fee for a given operation that covers pre-operative, inpatient, and post-operative care *including any complications* up to, say, 90 days after discharge. This approach is much broader than a diagnosis-based reimbursement method because it covers the entire episode of care. Since there is no guarantee of a perfect outcome for every patient, the providers have a financial incentive to re-engineer their processes to optimize the probability of a good outcome. To accomplish this transformation, the approach needs to be patient centric and outcomes focused with evidenced-based care consistently applied.

Geisinger Health System (Geisinger) introduced ProvenCare℠ in February 2006 to apply to non-emergent CABG operations. It is available to all insured commercial and Medicare members of Geisinger Insurance Operations. Geisinger's surgeons reviewed the literature and after months of study and argument, unanimously agreed on 40 verifiable, actionable, best practice behaviors.

These behaviors cover:

- pre-admission documentation (12 items including screening for stroke risk and patient preferences)
- operative documentation (eight items including correct dosing of beta-blocker and administration of pre-op antibiotic)
- post-operative documentation (10 items including monitoring for atrial fibrillation for > 48 hours, tobacco counseling, and administering aspirin, beta-blockers, and statins)
- discharge documentation (four items including cardiac rehabilitation and prescriptions for aspirin, beta-blockers and statins)
- post-discharge documentation (six items including monitoring tobacco use, rehabilitation activity, and use of aspirin, beta-blockers, and statins)

Geisinger's CABG program was already considered one of the best in the state of Pennsylvania[10], yet, initially, only 59 percent of patients received all 40 best practice behaviors. Within six months all patients consistently received 100 percent of the behaviors, and this reliability has remained at this level for over a year.

As you can see from the various behaviors, the patient must be engaged as a partner in the care process. Indeed, the patient is asked to sign a participation agreement wherein he agrees to comply with recommended medications, complete cardiac rehabilitation, engage with hospital and health plan care management services, stop smoking and manage weight.

	Before ProvenCare℠ (n=137)	*With Improvement ProvenCare℠* (n=117)	*After* (% Reduction)
In-hospital mortality (death)	1.5%	0%	100%
Patients with any complication (STS)	39%	35%	10%
Atrial fibrillation	23%	26%	0%
Any pulmonary comp	7.3%	2.6%	64%
Re-admit ICU	2.9%	0.9%	69%
Blood products used	23%	6%	30%
Re-operation for bleeding	3.6%	2.6%	28%
Deep sternal wound infection	0.7%	0.8%	0%
Discharged not to home	19%	9%	53%*
Readmission within 30 days	6.6%	5.1%	23%

*statistically significant at p=0.033

[10] Pennsylvania's Guide to Coronary Artery Bypass Graft Surgery, PHC4 report *(http://www.phc4.org/reports/cardiaccare.htm)*

As shown in the table on page 10, results after 12 months showed improvement in all outcome measurements.

In addition, from a cost perspective, length of stay decreased by 16 percent and mean hospital charges fell by 5.2 percent. Considering the actionable behaviors, it should not be surprising that NCQA rates Geisinger Health Plan as #1 in the country in appropriate use of beta-blockers. Geisinger aims to develop a suite of ProvenCare℠ services that cover gastric bypass, knee and hip replacements, cataract surgery, and emergent CABG.

Geisinger Medical Home

The typical primary care physician feels underpaid, overworked, and under appreciated. The current primary care model is better suited to manage acute illness rather than chronic conditions. Primary care is episodic (one patient at a time), fragmented, and lacks a coordinated patient-centered approach to care. The burden of chronic care requires a change in strategy.

Medical Home is a concept that has appeared in the medical literature[11] as a replacement to the way physicians and their nursing and office staffs interact with patients and the community. The integrated nature of Geisinger Health System allows for a unique opportunity to create a Geisinger Medical Home that partners with the health plan to re-design primary care and improve quality and cost outcomes.

Essentially, PCP's offices are transformed into a patient care management center ("home"). I refer to it as a "full-court press." Patients are put at the center with easy access to practice personnel including same-day appointments, extended hours, after-hour availability, home visits, and nursing home visits. Partnerships are created with the local emergency rooms, specialists and community resources so that patients can obtain the best outcomes in the most cost-effective environment.

If an emergency room visit is required, the practice manages the patient while in observation and discusses treatment options prior to admission. If admitted to a hospital, nursing home, or end-of-life care, the patient is closely monitored using the most advanced techniques of case/disease/complex management, EHR and chronic care guidelines.

Success is measured by a range of quality and efficiency metrics:

- Number of "care" visits
- Use of best-practice guidelines for diabetes and coronary artery disease
- Vaccinations for flu and pneumonia
- Patient satisfaction
- Documented care plans
- Risk assessments
- Emergency room visits
- Acute admissions, especially for avoidable conditions
- Readmission rates
- PMPM medical costs

Geisinger Insurance Operations is currently working with physician sites to create Medical Homes for Medicare and commercial members. To be successful, each site requires committed and *engaged physician leadership* and full time *nursing support* from the health plan. The health plan also supplies *integrated population management* (i.e., wellness and disease, case, and complex-care management) and *analytical support* to measure results and help physicians to spot trends on a daily, weekly, and monthly basis.

Actuarial modeling is needed for each potential site to determine baseline metrics and reasonable targets for improvement. Modeling is also required to design an *innovative payment model* that encourages physicians and their office staff at a given site to make the necessary substantial changes in their practices while, at the same time, ensuring that incentives are aligned for all stakeholders.

[11] The American Academy of Pediatrics (1992), The American Academy of Family Physicians (2004), and The American College of Physicians (2006) have all described versions of a medical home concept as has Ed Wagner in his Chronic Care Model.

Health Care Quality Issues Need Actuarial Input

by John P. Cookson

Quality in health care has come to the forefront in recent years, especially since the Institute of Medicine's seminal works "To Err is Human: Building a Safer Health System" in 1999 and followed by "Crossing the Quality Chasm: A New Health System for the 21st Century" in 2001. Many health care providers and administrators have taken this call to heart by learning quality improvement techniques, such as Six Sigma. The error rates, or lack of quality in health care, profoundly affect healthcare and insurance costs. There aren't many industries that will pay a vendor to do something, and if a mistake is made, pay them more (sometimes much more) to fix it. Now Medicare and other payers are beginning to consider quality in the insurance reimbursement.

With this background in mind, I recently attended the Sixth Annual Quality Colloquium at Harvard representing the Health Section Council. Some of what I learned is outlined below.

At this time there is a significant need for expertise in measuring the impact of the quality problems and the potential cost impact of fixing them. In addition to the need for measurement expertise, there are other hurdles to making positive changes, including data limitations and inertia. One major problem is the current insurance reimbursement structures. Providers have found that when they reduce errors and improve quality, costs are often reduced, but unfortunately sometimes revenues are reduced by an even greater amount because of the indirect relationship between costs and revenues. This presents a dilemma to providers, and points for the need for both the insurance industry and the actuarial profession to take a proactive role to help overcome these hurdles. This needs to be a win-win situation for all sides.

To put the medical error rates into perspective, some comparisons were made to the nuclear power and aerospace industries. Error rates in medical care are at the magnitude of 10^{-1} to 10^{-2}, whereas nuclear and aerospace error rates are in the magnitude of 10^{-5} to 10^{-6}. The higher rate in health care would be the equivalent of crashing a jumbo jet every week—killing everyone on board.

The kinds of errors that occur are many, including among others:

- Wrong dosages
- Wrong procedures
- Wrong patients
- Wrong drugs
- Hospital acquired infections
- Procedure errors
- Process and timing
- Patient falls

These errors all add up and contribute to the increased cost of health care. Many of these problems can be significantly improved within the existing health care infrastructure, but others may require new construction with larger room sizes and other infrastructure improvements. Such construction can improve patient lifting (which causes accidents and worker's compensation claims by hospital workers) and reduced patient falls, as well as reducing infection rates.

John P. Cookson, FSA, MAAA, is a consulting actuary with Milliman Inc in Wayne, Pa. He can be reached at *john.cookson@milliman.com.*

Fortunately, estimates show that future operating cost reductions are substantially in excess of the added capital costs.

There is a severe lack of good estimates of the cost implications of the poor quality of health care, and the potential impact of improvements.

The insurance industry appears to have low visibility in becoming involved in the quality improvement initiatives. However, now is the time to be proactive and for the insurance industry and actuarial profession to assume an active role and increase the momentum for improving quality in health care.

Cost of Paper to Print SOA Research Report: $0.17
New Health Research Ideas: Priceless

The SOA Health Section Council is seeking new research ideas or proposals on a health-related topic for potential funding. The Council has a dedicated annual budget to fund research projects that benefit health actuaries. You can submit a proposal or idea at any time. Proposals are chosen among those submitted for funding based on their relevance to health actuaries and available budget. Examples of prior studies funded include the newly released report on the commercially available Risk Adjusters and the Impact of Medicare Part D on Drug Costs study. Here's an opportunity for you to advance the profession and potentially uncover new knowledge!!

For more details on how to submit a proposal and the selection process, please contact Steven Siegel, SOA research actuary, at *ssiegel@soa.org.*

Risk Adjustment in State Medicaid Programs

by Ross Winkelman and Rob Damler

Risk adjustment is a critical tool for the development and sustainability of Medicaid Managed Care Programs. Risk adjustment, if done properly, allows Managed Care Organizations (MCOs) to compete on how efficiently they can deliver care and negotiate provider reimbursement, rather than on how well they can enroll the healthiest individuals.

This article discusses some of the most important considerations in implementing risk adjustment within a Medicaid Managed Care program. The University of Maryland, Baltimore County (UMBC) and Actuarial Research Corporation published a more detailed guide, entitled "A Guide to Implementing a Health-Based Risk-Adjusted Payment System for Medicaid Managed Care Programs." This article includes references to this guide among other sources.[1]

Risk adjustment systems that use claims data were first developed in the late 1980s. Prior to the development of risk adjustment systems, rates were primarily based on age, gender, geographic region and other demographic characteristics. However, these methods generally have much lower predictive power than methods based on diagnoses and historic healthcare utilization data, especially for the more chronically ill Medicaid disabled populations.

Risk Adjustment models measure the relative morbidity of individuals. The tools use demographic and health care claims data to develop these morbidity measures. The tools that are currently being used in Medicaid Managed Care capitation rate setting are CDPS, MedicaidRx, ACGs, CRxGs and DxCGs. These tools use various algorithms that assign each person into demographic and morbidity or disease categories. Each of these categories is assigned a risk weight based on historic relationships between members in these categories and overall healthcare expenditures for these individuals.

The following table lists some of the states using or in the process of using risk adjustment in their Medicaid programs, and several of the key characteristics of the approach used in each program (where the information was available):

State	Risk Adjustment System	Individual or Aggregate	Prospective or Concurrent
Colorado	CDPS	Aggregate	Prospective
Florida	Medicaid Rx / CDPS	Aggregate	Prospective
Maryland	ACG	Individual	Prospective
Massachusetts	DxCG		
Michigan	CDPS	Aggregate	Prospective
Minnesota	ACG	Aggregate	Concurrent
New Jersey	CDPS	Individual	Prospective
New York	CRxG		
Ohio	CDPS	Aggregate	Prospective
Oregon	CDPS	Aggregate	Concurrent
Pennsylvania	CDPS		
South Carolina [(a)]	ACG		
Tennessee	CDPS	Aggregate	Concurrent
Utah	CDPS	Aggregate	Concurrent
Washington	CDPS		

(a) South Carolina has suspended risk adjustment until 2009.

Individual versus aggregate systems and prospective versus concurrent models are described in more detail later in this paper. The risk adjustment systems themselves (CDPS, etc.) are not discussed in detail since a great deal of information exists elsewhere.

The information in the table above is a combination of several sources[2,3] and the authors'

Rob Damler is a principal and consulting Actuary at Milliman Inc in Indianapolis, Ind. He can be reached at *Rob.Damler@milliman.com*.

Ross Winkelman is managing director of the Denver office of Wakely Consulting Group in Denver, Colo. He can be reached at *rossw@wakelyconsulting.com*.

[1] The guide is available at: *http://www.chpdm.org/publications/Risk%20Adjustment%20Manual%20without%20appendices%20-%20March%202003.pdf.*

[2] "A Guide to Implementing a Health-Based Risk-Adjusted Payment System for Medicaid Managed Care Programs," Center for Health Program Development and Management, University of Maryland, Baltimore County, and Actuarial Research Corporation, Annandale, VA, 2003.

[3] "Health-Based Risk Assessment: Risk-Adjusted Payments and Beyond," Martin et. al., January 2004.

consulting experience. The information listed may be out of date. We encourage readers to send us updates and we will include an updated, expanded table in a future edition of *Health Watch.*

There are a number of potential pitfalls when implementing risk adjustment that may cause unintended consequences and unfairly penalize or reward health plans participating in Medicaid Managed Care Programs. This article discusses some of the most important issues associated with implementing risk adjustment. Readers are encouraged to refer to the UMBC paper for a full list of considerations. While the authors of this paper do not agree with all of the opinions presented in the UMBC paper, it is fairly comprehensive in listing the issues to consider.

At a high level, the steps for implementing risk adjustment into a Medicaid Managed Care Program are as follows:

1. Decide which risk adjustment system will be used (CDPS, ACG, etc.).
2. Decide what type(s) of data should be used in the risk adjustment system (the plan may be to change this over time).
3. Decide which Medicaid eligibility groups will be risk-adjusted. In addition, some subpopulations may be excluded (i.e., AIDS and HIV).
4. Decide whether to employ a prospective or concurrent risk adjustment system.
5. Decide whether to base the risk adjustment factors on the individuals enrolled during the rating period or during the experience period ("individual" vs. "aggregate" approach).
6. Decide whether or not to customize the risk weights inherent in the risk adjustment model.
7. Decide on criteria for including individuals in the risk adjustment calculations (minimum eligibility during experience or rating period, etc.).
8. Develop criteria for claims records to be included in the risk adjustment model. This step is designed to ensure that the data being used in the risk adjustment calculations is consistent with the rating algorithms and that it is consistent across all comparative organizations.
9. Determine the phase-in schedule and whether or not risk corridors will be used. Typically, adjustments to managed care capitation rates are phased in over time as the risk adjustment process, data and calculations are refined.

The steps above are roughly in sequential order, with some interdependencies.

The UMBC guide also describes many of the eligibility and data criteria in detail, and other administrative and budgetary considerations that are outside the scope of this paper.

Two Important Definitions

Two definitions are used throughout this article, describing the two most important time periods for risk adjustment:

Experience Period – The experience period represents the data collection period. The experience period is usually 12 months in duration, and usually precedes the period which rates are being paid (in the case of retrospective risk settlements, the experience period would be the same as the period rates are being paid).

Rate Period – The rate period is the time period that rates are being paid. The rate period usually follows the experience period. The rate period is usually 12 months in duration. Also, there are usually three to nine months in between the end of the experience period and the beginning of the rate period to allow paid claims data for the experience period to complete.

Choosing a Risk Adjustment System

There may be too much focus on the predictive power of the different risk adjustment models, and not enough on their transparency and usability. The recently released Society of Actuaries (SOA) sponsored research report on the commercially

(continued on page 16)

available risk adjustment models[4] (lead by Winkelman who co-authored this paper), studied the predictive power of the different risk adjustment tools on commercial populations. On an individual member basis, there were important differences in the predictive power of the various tools which depended on the testing conditions.

The following table, taken from the SOA sponsored research project shows differences in the R-squared and Mean Absolute Prediction Error (MAPE) statistics across the different prospective and concurrent models:

Table IV.8 – R-squared Offered Nonlagged (Without Prior Cost & 250K truncation) – Prospective versus Concurrent

		R-Squared			MAPE%		
Risk Adjuster Tool	Inputs	Prospective	Concurrent	Change	Prospective	Concurrent	Change
ACG	Diag	19.2%	29.7%	10.5%	89.9%	75.0%	-14.9%
CDPS	Diag	14.9%	32.9%	18.0%	95.3%	80.6%	-14.7%
Clinical Risk Groups	Diag	17.5%	43.3%	25.8%	90.9%	70.5%	-20.4%
DxCG DCG	Diag	20.6%	51.8%	31.2%	87.5%	65.0%	-22.5%
DxCG RxGroups	Rx	20.4%	N/A	N/A	85.3%	N/A	N/A
Ingenix PRG	Rx	20.5%	N/A	N/A	85.8%	N/A	N/A
MedicaidRx	Rx	15.8%	28.1%	12.3%	89.6%	79.1%	-10.5%
Impact Pro	Med+Rx+Use	24.4%	N/A	N/A	81.8%	N/A	N/A
Ingenix ERG	Med+Rx	19.7%	42.4%	22.7%	86.4%	67.7%	-18.7%
ACG - w/ Prior Cost	Diag+$Rx	N/A	N/A	N/A	N/A	N/A	N/A
DxCG UW Model	Diag+$Total	N/A	N/A	N/A	N/A	N/A	N/A
Service Vendor	Inputs	Prospective	Concurrent	Change	Prospective	Concurrent	Change
MEDai	All	N/A	N/A	N/A	N/A	N/A	N/A

The goal of a risk adjustment system in Medicaid managed care is to accurately capture the overall relative risk at the MCO level, not at the individual level. It may be argued that the differences noted in the SOA study would not be meaningful at the MCO level. Among the top systems, it is therefore more important to choose a system based on the data used and the ability to customize the risk adjustment system, than the published accuracy of that system in individual member level predictions.

Data to be Used

In general, all risk adjustment tools use eligibility data because it is high quality, does not cause health plans to upcode or game the risk adjustment system and it increases predictive power. Therefore, risk adjustment models should include demographic information (age, gender and eligibility category).

There are three broad categories of additional data that risk adjustment models may use (including various combinations of the three):

1. **Diagnosis data from inpatient admissions –** Generally less susceptible to gaming, but health information for those without inpatient admissions is not available.
2. **Diagnosis data from outpatient services –** More susceptible to gaming than inpatient diagnosis data, but outpatient data provides a more complete picture of relative morbidity for those both with and without inpatient admissions. Outpatient diagnosis data may be incomplete for MCOs where capitation or other risk sharing arrangements exist (i.e. encounter data is often incomplete because it does not drive payment).
3. **Pharmacy data –** Pharmacy data has been shown to be very powerful for prediction, at least in part because it is plentiful and specific, but also because it completes very quickly compared to medical data. However, pharmacy data has the potential for gaming because prescribing patterns may be influenced. Off-label prescribing and the rapid adoption of new drugs are also concerns with pharmacy data.

As an example of a state using methods which change over time, Florida has decided to use a pharmacy data based risk adjuster (MedicaidRx) initially, and then transition to a diagnosis based model (CDPS) as MCO encounter data improves.

Which Eligibility Groups to Risk Adjust

There are two major considerations in deciding which rate categories to create and whether or not to apply risk adjustment within that rate category: 1) to what degree does health status vary among beneficiaries in the rate category, and 2) will the risk adjustment system appropriately capture health status variations for that category.

[4] Winkelman et. al, "A Comparative Analysis of Claims-Based Tools for Health Risk Assessment," Society of Actuaries, April 2007.

Significant variation has been observed among the Supplemental Security Income (SSI) population. As a result of this variation [and the fact that risk adjustment systems have been shown to accurately capture variations in health status], most states making risk-adjusted payments have chosen to use health status to risk adjust their SSI population.[5]

The Temporary Assistance to Needy Families (TANF) population exhibits less variation, but may still have enough meaningful variation to justify applying a risk adjustment system. In particular, the prevalence of adult diseases such as hypertension and heart disease and childhood diseases such as asthma and diabetes may vary from one population to another. A major challenge when risk adjusting a TANF population is the high level of turnover in this population. These members move in and out of the Medicaid system very frequently. Additionally, a significant portion of the population will not have medical claims with a chronic condition in a fiscal year.

The Sixth Omnibus Budget Reconciliation Act [1986] (SOBRA) population consists of women who are pregnant, but who fail to meet the TANF eligibility standards. By definition, all SOBRA women must be pregnant in order to meet the program's eligibility requirements. The medical costs for this population are often paid through a maternity "kick" payment.

Prospective or Concurrent/ Retrospective

Prospective risk adjustment uses experience period data to estimate morbidity for a future period. Because of issues with data and administrative requirements, the rating period may begin nine or more months beyond the end of the experience period.

Concurrent risk adjustment uses experience period data to estimate morbidity during that same time period. Concurrent risk adjustment is (understandably) more accurate than prospective risk adjustment.

Stated another way, concurrent risk adjustment models estimate or recognize costs during the experience period, while prospective risk adjustment models estimate costs during the rating period. For example, prospective risk adjustment models would not assign weight to conditions or injuries that would not continue to produce costs (i.e., a broken arm), while concurrent risk adjustment models would generally recognize the relative morbidity associated with these conditions or injuries.

Using a concurrent risk adjustment model in its purest form would require states to distribute payment retrospectively since data requires some time to be adjudicated and then be available to the risk adjustment system.

Assuming that MCOs systematically attract certain types of risk, a concurrent model would do the best job of estimating exactly how much variation in risk exists from one MCO to another. However, since retroactive adjustments to rates are generally not favored by states or MCOs, most states have chosen to utilize a prospective model.

Individual Versus Aggregate Risk Factor Calculation

While all risk adjustment systems calculate risk scores for each individual, the application of the risk adjustment factor in the rate process varies. Some programs calculate a composite health plan risk score across all eligible members. Then, for a subsequent period of time, the health plan capitation rate is paid at that composite health plan score. However, some state Medicaid programs transfer an individual member's risk score to a health plan when they move. Therefore, the capitation rate paid to the health plan will vary based on the actual risk factors of the members enrolled on a periodic (usually monthly) basis.

(continued on page 32)

[5] "A Guide to Implementing a Health-Based Risk-Adjusted Payment System for Medicaid Managed Care Programs," Center for Health Program Development and Management, University of Maryland, Baltimore County, and Actuarial Research Corporation, Annandale, VA, 2003.

Soundbites from the American Academy of Actuaries Health Practice Council

by Heather Jerbi and Geralyn Trujillo

What's New

In October, the Consumer Driven Health Plans Work Group released a new issue brief, *FAQs on HSAs*, which uses currently available data to answer some of the more common policy questions regarding enrollment experience with HSAs, the socioeconomic characteristics on HSA/HDHP enrollees, key actuarial concerns related to adverse section in HSAs, employer and employee contributions to the accounts, and the impact of the plans on health care costs and health care providers.

In late September, the Mental Health Parity Work Group sent a letter to policymakers encouraging them to balance the concerns of the public, health plans and health insurance affordability while considering current mental health parity legislation. With their comment letter, the work group included an updated version of its 2004 issue brief, *Mental Health Parity: Often Separate, Usually Unequal.* The comment letter and updated issue brief can be found online at: *http://www.actuary.org/pdf/health/menhealth_sept07.pdf.*

The Academy's Disease Management Work Group has completed its work on their practice note. The final version will be available electronically by the end of the first quarter of 2008.

In November, the Medicare Steering Committee of the American Academy of Actuaries' Health Practice Council released a new practice note for public comment. The exposure period for the Actuarial Equivalence for Prescription Drug Plans and Medicare Advantage Prescription Drug Plans under the Medicare Drug Program practice note will end on December 31st. The note can be found online at: *http://www.actuary.org/pdf/practnotes/health_partd_nov07.pdf.*

Ongoing Activities

The Academy's Health Practice Council has many ongoing activities. Below is a snapshot of some current projects.

Consumer Driven Health Plans Work Group (David Tuomala, Chairperson) – This work group is developing a paper analyzing emerging CDHP data.

Health Practice Financial Reporting Committee (Darrell Knapp, Chairperson) – The committee continues to work on updating several practice notes (Small Group Certification, Large Group Medical, and General Considerations). An exposure draft practice note on Medicare Part D accounting will be available for comment in early January.

Individual Medical Market Task Force (Mike Abroe, Chairperson) – This task force continues to work on a monograph related to how the current individual market operates. Issues examined in the paper relate to affordability and barriers in the individual medical insurance market.

State Mandated Coverage Task Force (Kevin Borchert, Chairperson) - This task force will be developing a discussion paper in 2008. The paper will help state policymakers evaluate proposals by providing considerations and implications of the various mandate options.

Uninsured Work Group (Cathy Murphy-Barron, Chairperson) – One subgroup is looking at issues related to the fundamental principles of insurance and the characteristics of health insurance, and a separate subgroup is looking at issues related to drivers of health care costs.

NAIC Projects

The Committee on State Health Issues and the Health Practice Financial Reporting Committee continue to work with the NAIC on topics, including LTC, health insurance issues, Medicare Part D, principles-based methodologies, Medigap modernization, etc.

Upcoming Activities and Publications

Several documents are slated for publication in

late 2007 and early 2008, including the paper on individual market issues, health care coverage, disease management practice note, and Medicare. The Health Practice Council is also developing a strategic plan to address health care reform issues as they pertain to the 2008 presidential election. This plan will include the development of policy statements and factsheets on relevant issues; outreach to policymakers through annual Hill visits and new Hill briefing series; and media outreach through op-eds and letters to the editor.

If you want to participate in any of these activities or you want more information about the work of the Academy's Health Practice Council, contact Heather Jerbi at *Jerbi@actuary.org* or Geralyn Trujillo at *Trujillo@actuary.org*

8th Annual Intercompany LTC Conference, March 16-19, Jacksonville, FL

The 2008 ILTCI Conference will bring together the industry's leading talent to address the many elements critical to responding and assuring that the Pace - continues to - Pick Up. For many carriers, sales are trending up again, and Long Term Care Distribution teams are working to leverage their evolving expertise towards the improvement of processes and profitability. We hope that you will join us and actively participate as we focus on these issues and challenges, through the varied viewpoints, expertise, and live polling sessions offered in our ten track lineup, We know you will also enjoy the networking opportunity always integral to the ILTCI's annual conference.

Statistical Tools for Actuaries—First in New Series of Guides Available

by Steven Siegel

See if you can answer this question: What do the following four items have in common?

A. Part 2
B. Exam 110
C. Course 1
D. Exam P

If you answered that they have been or are SOA examinations on Probability and/or Statistics, you are correct! (You get partial credit if you answered No. 2 pencils, writer's cramp or Tylenol). Indeed, it's come in a variety of incarnations over the years, but being tested on their knowledge of probability and statistics is one thing almost all actuaries have in common. Yet, I would imagine that many of you reading this may find yourself like me with dimming memories of studying this material and passing the applicable exam.

Likewise, over the years I've heard from many health actuaries of their desire to incorporate more statistical concepts into their daily responsibilities, such as reserve estimates, benefit pricing, etc. At the same time, as a result of greater scrutiny on financial reports because of Sarbanes-Oxley and other measures, the pressure on health actuaries to demonstrate validity in their estimates has grown steadily.

Recognizing an opportunity to help serve its members in this age of increased financial oversight, the Health Section of the Society of Actuaries commissioned a series of guides on the use of statistical techniques specifically geared for the work of health actuaries. In the recently released first guide in the series, the topic is an estimate well-known to health actuaries—the calculation of incurred but not reported (IBNR) health claims reserves. In particular, the guide focuses on the development of confidence intervals around IBNR estimates. Future guides to be published in this series include applications of credibility theory to health actuarial tasks.

The guide, co-authored by Jinadasa Gamage, Jed Linfield, Krzysztof Ostaszewski and myself, was written with a number of distinct audiences in mind, and these audiences will likely want to use the guide differently. An experienced health actuary with distant, yet pleasant (well, maybe not so pleasant) memories of actuarial exams may choose to skip over the introductory chapters and concentrate more on the later chapters. For beginning health actuaries, the statistical concepts in the guide may be fresh on their minds, but they might not yet have actually calculated an IBNR claims reserve. These actuaries can use the guide as an introduction to how IBNR claims reserves are typically calculated in practice and then move on to the statistical perspective.

The guide includes an overview of health care liabilities and the completion factor method, as well as step-by-step descriptions of how to use regression and simulation techniques to calculate confidence intervals for IBNR estimates. Accompanying the guide are two Excel workbooks that can be used for educational purposes to demonstrate how to use the techniques. All of the material is available to download from the SOA Web site at:
http://www.soa.org/research/health/research-stats-hlth-act.aspx

The guide would have not have been possible without the advice and wise counsel of the Project Oversight Group appointed to oversee its development: Rowen Bell, David Dickson, Doug Fearrington, Chuck Fuhrer, Eric Smithback, Tony Wittman and Kurt Wrobel.

Special thanks also to Claire Bilodeau, Elaine Canlas, Walter James, Stuart Klugman, Jim Mange and Jeanne Nallon for their invaluable assistance.

Finally, for experienced health actuaries who have already incorporated statistical techniques into their daily practice, it is the hope of the authors of the guide that this inspires them to further their work and devise new methods that they might want to share with the health actuarial community. And it is my own personal wish that this guide sparks continued interest in this topic and that when health actuaries think Monte Carlo, it's for more than casinos and famous celebrity sightings.

Steven C. Siegel, ASA, MAAA, is a staff research actuary with the Society of Actuaries in Schaumburg, Ill. He can be reached at *ssiegel@soa.org.*

New Horizons: An Interview with Rajiv Nundy

by Peggy Hermann

Rajiv Nundy's career as an actuary is practically the definition of non-traditional. Over the past 28 years, he's worked on annuities, pension plans, compensation and all types of health insurance, and his employers have included large Canadian and U.S. insurance companies, the Canadian government and currently, the World Bank. As he put it, "pretty much the only type of work I haven't done is consulting."

Background

Nundy grew up in India and came to Canada after high school to study computer science at the University of Waterloo. After a summer co-op job with an insurance company, he realized that the actuarial science career path seemed interesting and took his first two exams while at Waterloo. His first two jobs were with insurance companies in Toronto working mainly with reserves. A few years out of college he interviewed for an actuarial position with the Federal Department of Insurance in Ottawa. It was during the interview that he learned that the position was for pension work, not insurance. As he recalls, "I admitted that I had no experience with pensions, but I got the job anyway." He found the pension position to be very interesting, and enjoyed learning on the job. Nundy described his time as being split between working for the Pension Benefits Standards Act making sure the rules were being followed and working for Revenue Canada making sure the costs were reasonable.

In the mid-80s, an opportunity presented itself with an insurance company in Philadelphia, so he moved to the United States. He primarily worked in medical employer trusts, which he helped grow to a sizeable line of business. Ironically, the company sold the business after he worked so hard to grow it and make it profitable. He stayed through the transition of the business and then moved to another Philadelphia insurer where he focused on disability insurance. This was a very demanding job that took a toll on his personal life. Nundy said that at this point he felt like he "finally reached [his] level of incompetence."

Rajiv Nundy

The World Bank

Nundy has spent over half of his career working for the World Bank in Washington D.C. And it all started with a phone call. In early 1991, he got a recruiting call from the World Bank. He describes the call as the recruiter asking if he was a Canadian National and if so, does he want a job. His reaction was "World Bank, who?" The World Bank recruiter was very persuasive and encouraged him to come to D.C. for a visit, which he did. He was hired by the end of the day, and he's been there ever since.

Nundy described the World Bank as an international development bank that provides know-how and loans to developing countries. The organization's Web site expands on this description somewhat, outlining the work that the World Bank does in developing countries to support education and conservation and to fight poverty, corruption and HIV/AIDS. The World Bank's staff resides in over 120 countries and includes professionals with experience in a wide range of fields, such as architecture, power, medicine and finance.

Nundy started in the World Bank working in Human Resources managing the insurance programs for World Bank employees. He worked

Peggy R. Hermann, FSA, MAAA, is a manager with KPMG, LLP in Radnor, Pa. She can be reached at *mhermann@kpmg.com*

on all benefits offered: workers compensation, disability, life, accident and medical. About five years ago, he got involved with compensation, specifically for the East Asia region (17 offices). He describes it as a very demanding job with a fair amount of travel. Some of his responsibilities include: developing the pay scale each summer, budget projections and the in-house valuations of termination benefits that are provided to employees when they leave the World Bank and return to their home countries. He also oversees insurance renewals each year and determines the contribution rates for the employee medical plans for active and retired employees in 120 countries. He mentioned that his actuarial background helps quite a bit when dealing with the insurance brokers and consultants. Nundy and his staff have been working hard to contain health care costs and have been successful, with World Bank's health care costs raising an average of only 5.5 percent per year over the past 15 years.

Life Outside of Work

Nundy defines his perfect day as sitting around reading a book. He usually has three or four books in progress at any one time. Given the amount of travel he has to do for work, he doesn't travel much for fun, and unfortunately it's rarely feasible to add days to the end of a business trip for sightseeing. He visits several countries in Asia within each trip, with a very packed itinerary. Such exotic travel may sound appealing, but Nundy cautions, "You need to be very organized, to say the least. I've gotten very good at using the long plane trips to get work done in order to make the schedule a little more manageable." However, given that his trips are usually close to a month long each time, he manages to do some sightseeing on weekends "if [he has] the energy." Now that he's traveled to Asia several times, he's much more comfortable doing sightseeing on his own.

Of all of the places he's been—China, Mongolia, Papua New Guinea, Africa, and Europe to name a few—he named China as his favorite. His work has allowed him to travel all over China, and he enthused that it is "one of the most interesting countries I've traveled to." He likes the culture and the friendliness of the people, as well as the natural beauty, familial emphasis, and history that he finds there. He mentioned that "the level of change there is amazing. Every time I'm there I see building cranes all over the place." One of the things Nundy really loves about China is the food. As a strict vegetarian, he's still surprised that he can find at least 20 vegetarian restaurants in Beijing. Because ordering a vegetarian meal in another language can get tricky, he has friends in the country office write out his requirements in the local language on an index cards. He has an index card for every country to which he's traveled.

While many of us picture our retirement to include plenty of relaxation, Nundy has a different goal in mind. His dream is to open a school in India for children who don't have access to an education. His family runs a charity in India, and his sister has already opened one school for 240 students. He hopes to open another school is a different region of the country, using what his sister has already learned from her experience. "I really admire what my sister has done and hope to do the same thing." He states that he has "been very fortunate, and [he wants] to give others that opportunity." While retirement may still be a little ways off, Nundy has already started doing some research into what it would take to realize his dream. One goal is to set up a school administration so that the school runs itself after awhile, which would allow him to continue living at least part of the year in North America. He also envisions that the school would teach entrepreneurial skills to parents, in addition to their children, getting the whole town or village involved in education.

Nundy thinks that actuaries could play a very interesting and important role in large non-insurance companies, as he does for the World Bank. "Actuaries can add value in all sorts of ways, such as acting as a liaison for consultants or brokers and managing both technical and non-technical processes." He provided this final thought, "This profession can serve a very useful purpose outside of our traditional roles in insurance, teaching and government. We haven't begun to tap into it yet."

Editor's Note: Since this article was written, Rajiv Nundy has accepted a position with the Asian Developement Bank in the Phillipines. We wish him well in his new position.

Impact of Proposed Change in Medicare Advantage Payment

by Brian Weible and Kirk L. Shanks

The Centers for Medicare and Medicaid Services (CMS) currently bases Medicare Advantage payments on county benchmarks. The benchmarks are determined as the greatest of three values:

1. The national growth percentage in per capita Medicare spending (multiplied by previous year's per capita Medicare spending)
2. A minimum percentage increase from the prior year's payment rate of 2 percent
3. 100 percent of projected fee-for-service (FFS) Medicare costs, with direct medical costs excluded and including a VA/DOD adjustment

Congress has been debating a revision to Medicare Advantage payments including limiting payments to the Medicare Fee-For-Service (FFS) cost. Wakely has performed a county-specific impact study to the benchmark payment rates for each county nationally based on the FFS limitation criteria. This article includes results for Florida, California, Pennsylvania and New York. Results for additional states can be found at: *http://www.wakelyconsulting.com/research.htm*

The charts in Table 1 on pages 24 and 25 show the estimated reduction in the 2008 Benchmark per member per month if limited to the 2008 projected FFS costs.

The following table shows the percentage of counties and MA enrollees that would be affected by this change in each of the four sample states.

State	% of Counties Affected*	% of MA Enrollees Affected*
California	98%	100%
Florida	84%	64%
New York	94%	63%
Pennsylvania	97%	98%

*2007 Profile of Medicare Advantage, CMS

The maps in Table 2 on page 26 summarize the county specific impact from Table 1.

The legislation would significantly impact the total revenue Medicare Advantage plans receive. The impact of this legislation, if approved, would have two primary impacts in the marketplace:

1. Fewer managed care choices for beneficiaries in counties where the updated payment rate was below Medicare Advantage Plans' costs for offering the standard benefit with reasonable enhancements to attract members.
2. Less rich benefits for members in counties where Medicare Advantage plans would continue to operate.

While it can be argued (and is being argued) that the current payment calculations result in a windfall to Medicare Advantage plans, the primary results of the higher payment rates under the current methodology are increased choice and benefits to Medicare beneficiaries. Competition among Medicare Advantage plans and the structure of the Medicare Advantage bidding and enrollment process limit the relative profit that Medicare Advantage plans can realize.

Data sources and assumptions include –

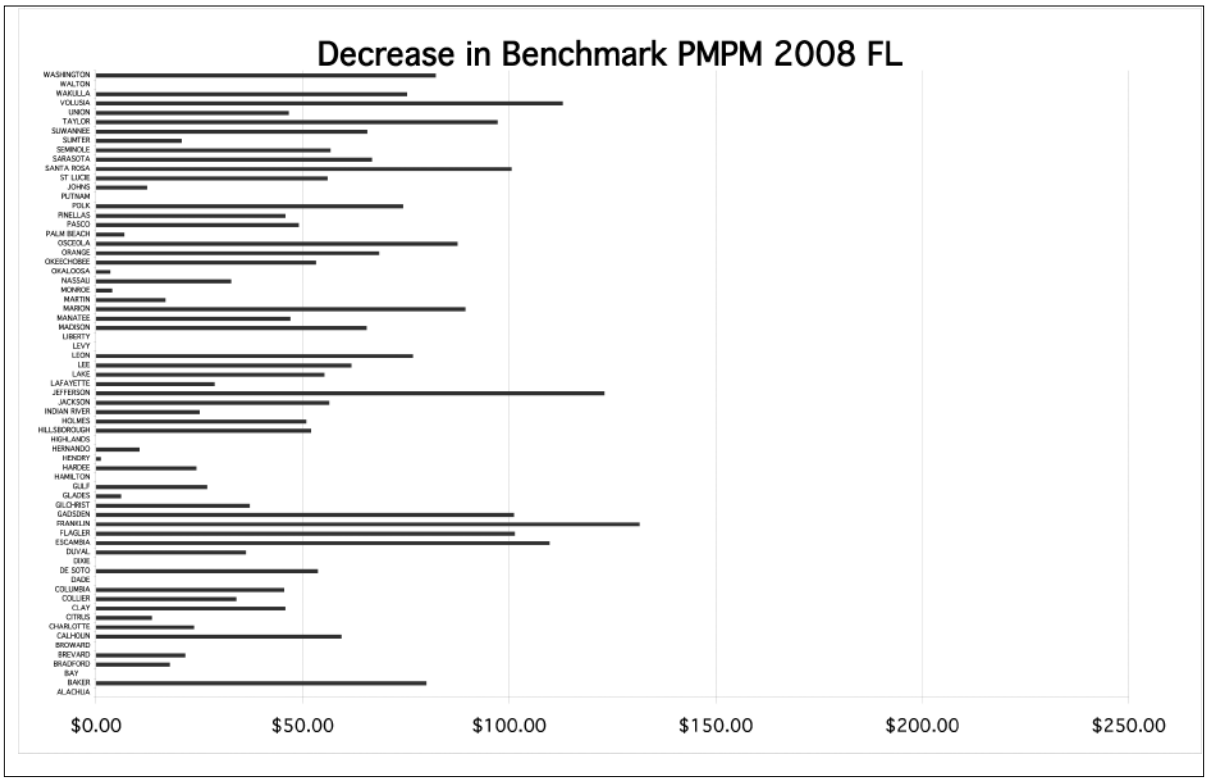
1. 2008 Medicare Advantage Ratebook.
2. 2007 Fee-For-Service costs reported by CMS (normalized to a 1.000 risk score).
3. National Medicare growth percentage for 2007 to 2008 of 5.71percent as calculated by CMS.
4. Budget neutrality adjustment of 1.0169.

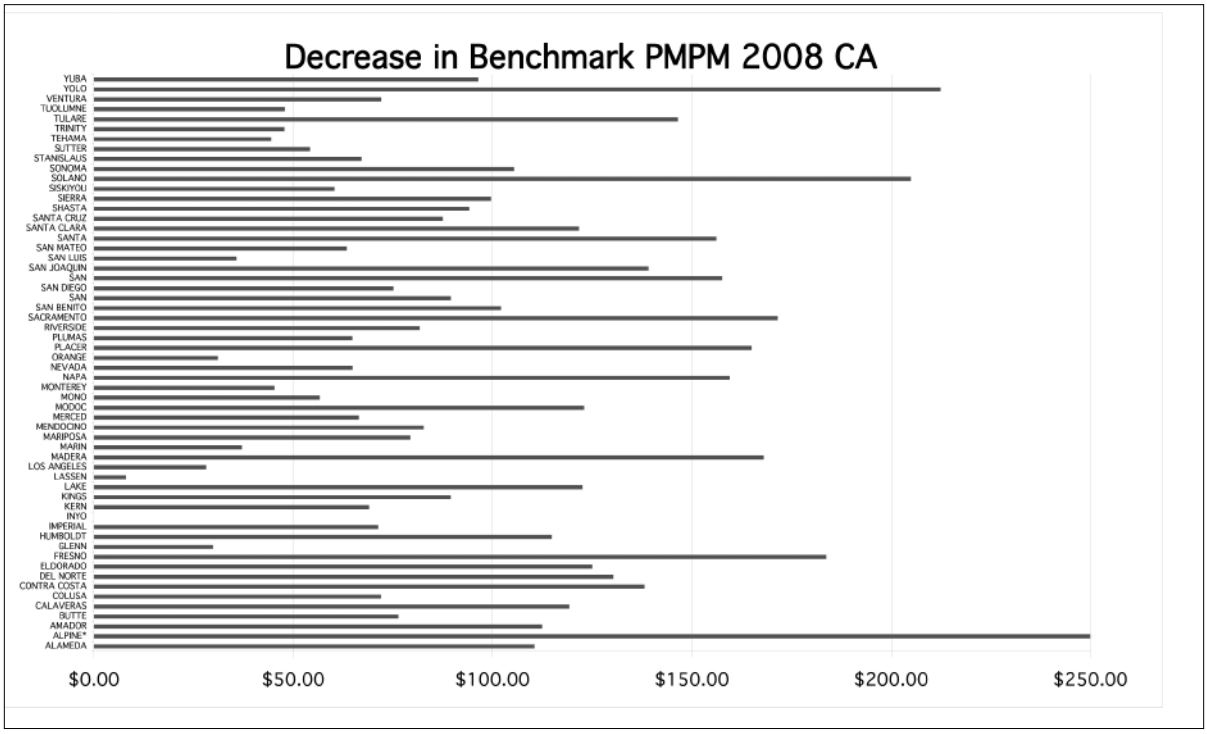
Brian Weible is a consulting actuary and president of Wakely Consulting Group. He can be reached at 727.507.9858 or *BrianW@WakelyConsulting.com*.

Kirk L. Shanks is an actuarial analyst with the Clearwater office of Wakely Consulting Group. He can be reached at 727.507.9858 or *KirkS@WakelyConsulting.com*.

(continued on page 24)

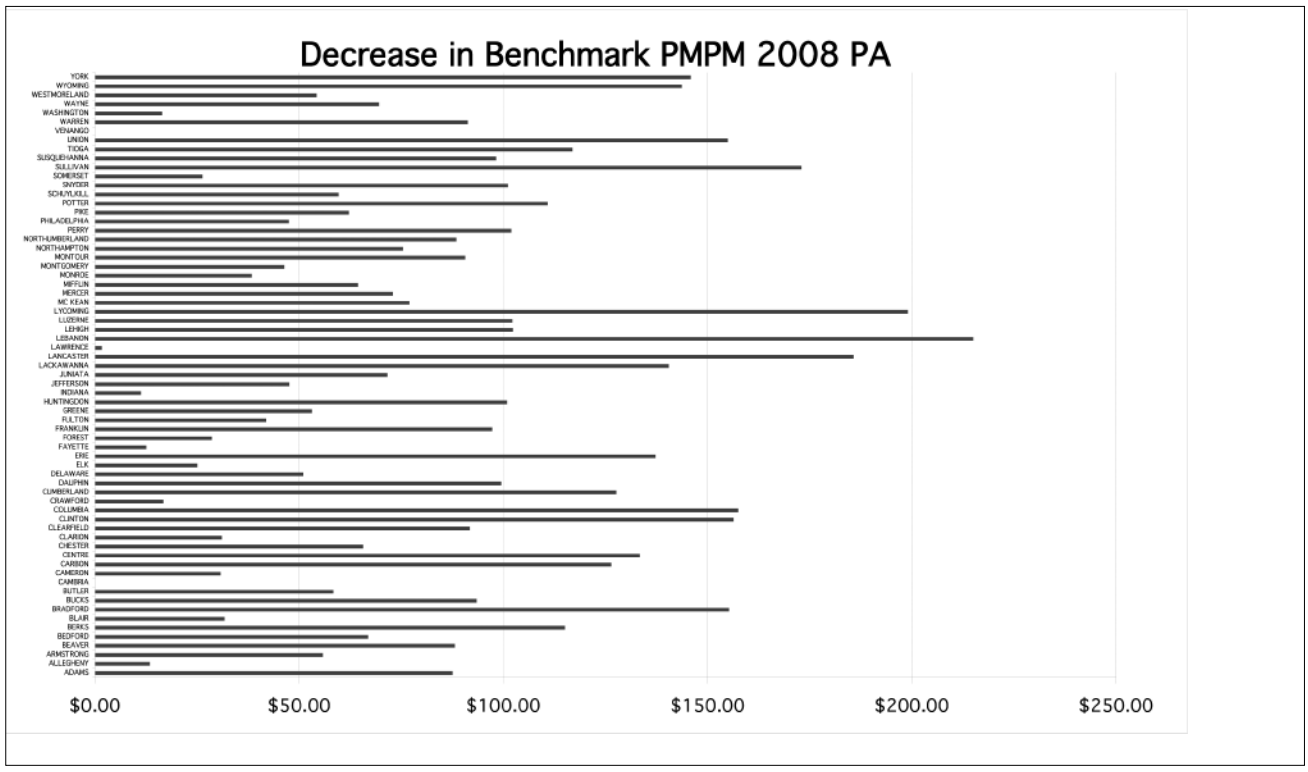
Table 1





* Alpine County, California is an outlier with a Value of $507.23.

Table 1 (Cont.)



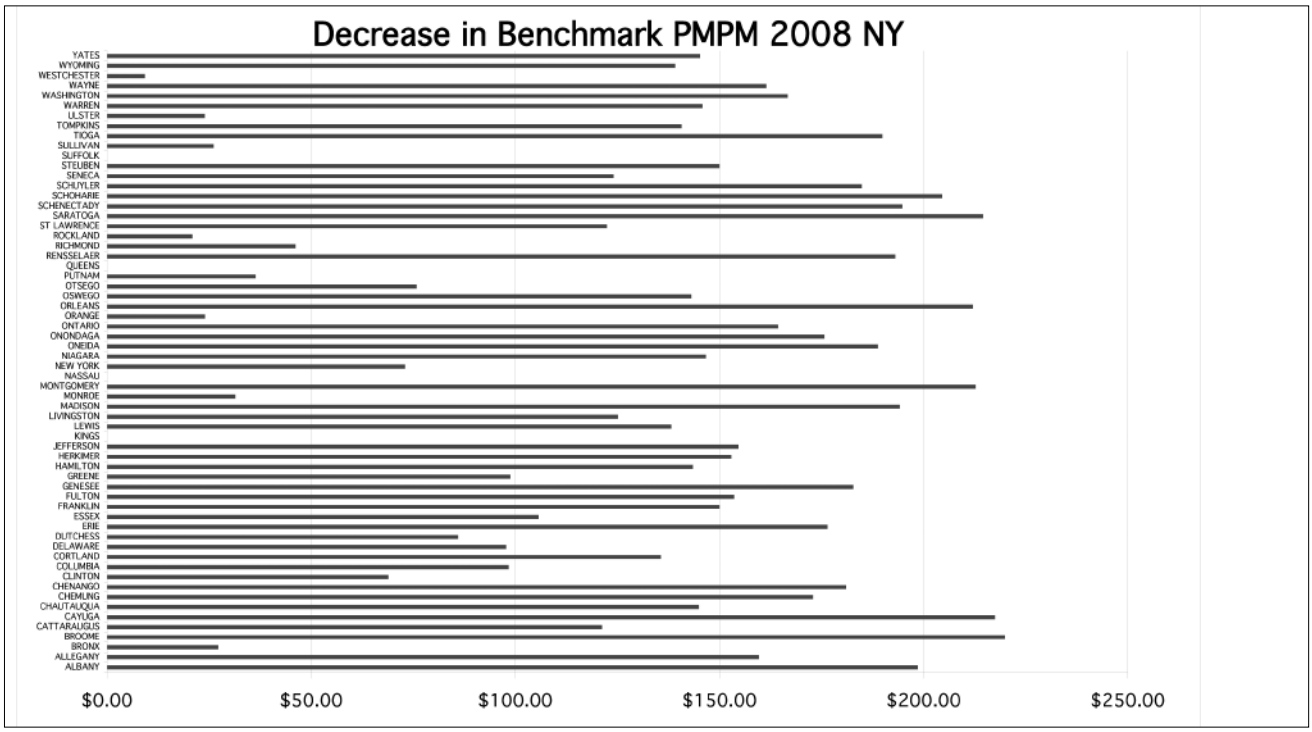


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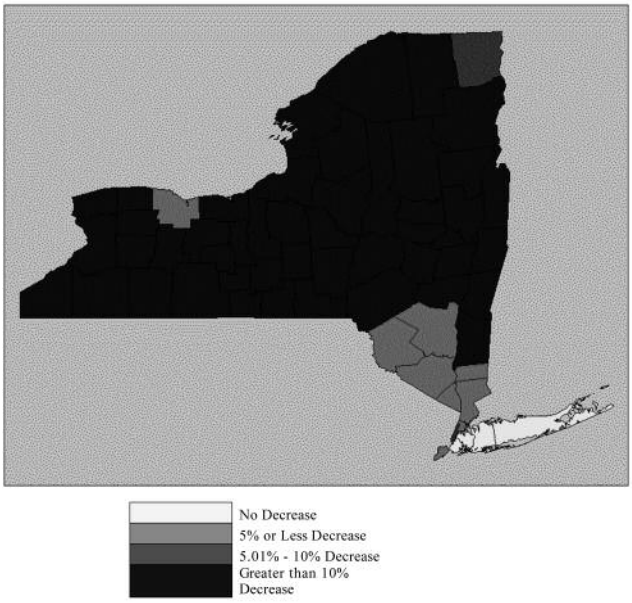
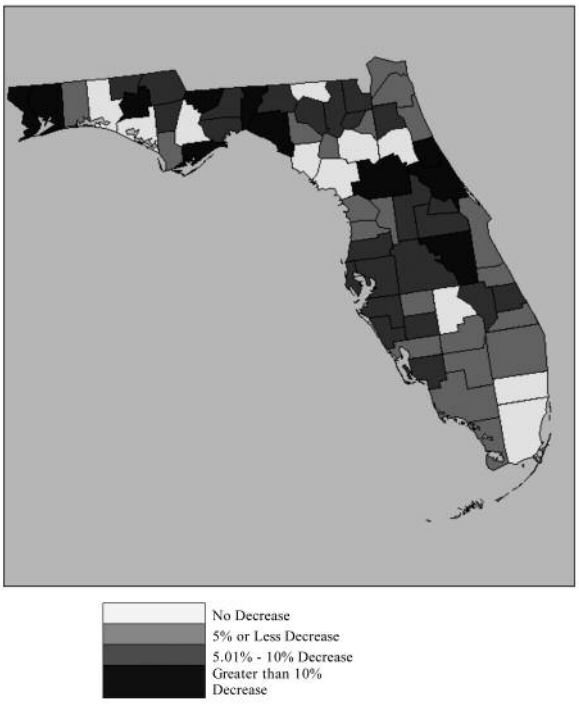
Table 2

Decrease in Benchmark PMPM 2008 for Pennsylvania

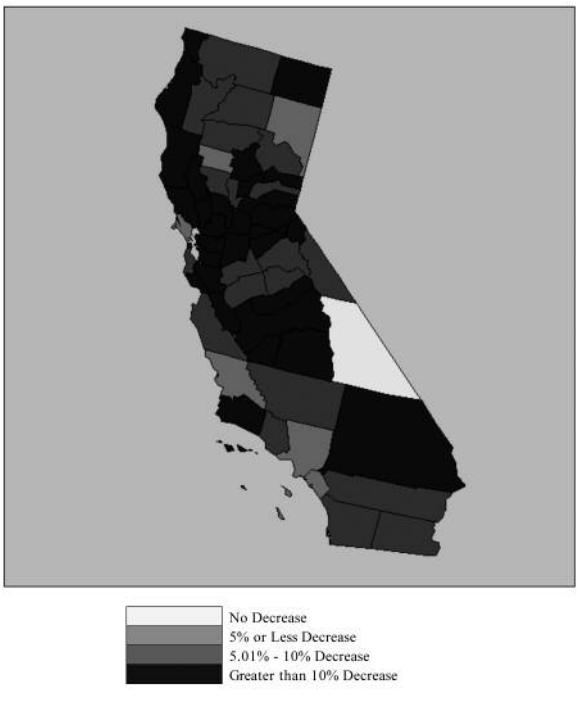
Decrease in Benchmark PMPM 2008 for New York



Decrease in Benchmark PMPM 2008 for Florida



Decrease in Benchmark PMPM 2008 for California



Premiums are waived for individuals who earn up to 150 percent FPL. The plan design for people earning less than 100 percent FPL was established by Chapter 58 and includes very little cost sharing. Plans for those earning more than 100 percent FPL include modest cost sharing at various levels based on plan choice.

Since passage of the Act, premiums have been set and enrollment has been significant. For the lowest cost plans that require an enrollee contribution (i.e., adults with income between 150 percent and 300 percent FPL), premiums vary by income and range from $35 to $105 per month. The enrollment for Commonwealth Care took place in waves. The first wave began with those individuals earning less than 100 percent FPL and started in October 2006. In January 2007, the program began enrolling adults with income between 100 percent and 300 percent FPL.

As of October 2007, there are approximately 76,000 people with income at or below 100 percent FPL enrolled in Commonwealth Care. In addition, after first charging a premium to individuals with income between 100 percent and 150 percent FPL, the Board decided to eliminate the $18 monthly premium for this group, effective July 1, 2007. As a result, enrollment in this category has increased significantly since July, and as of October 2007, there are an estimated 25,000 people enrolled in this second category. Finally, there are approximately 25,000 individuals enrolled who pay some premium.[2]

Enrollment has grown steadily in the greater than 100 percent FPL group. However, it is too early to tell if these individuals are newly insured or had been previously insured. It is also too early to tell if the costs associated with this new population will resemble either the Medicaid or commercial populations.

Insurance Market Reforms

The Act merged the non-group and small group markets in July 2007. An actuarial study of the merging of the two insurance markets was completed in December 2006. This study estimated that premiums for the non-group market would decrease 15 percent and increase 1 percent to 1.5 percent for the small group market.[3] Along with merging the market, the Act revised the rating rules for the newly merged market. Limits to group size adjustment were expanded from [0.95 to 1.05] to [0.95 to 1.10]. In addition, the group size adjustment was excluded from the 2:1 rating band. Prior to the reform, the group size adjustment had to be within the 2:1 band. This allows carriers to surcharge groups of one to compensate for the increases associated with the small group market in the newly merged market.

This study estimated that premiums for the non-group market would decrease 15 percent and increase 1 percent to 1.5 percent for the small group market.

Many states today are considering merging their individual market with their small group market to allow for more affordable premiums in the individual market. While merging these market segments may have been appropriate for the state of Massachusetts, it may not be appropriate for other states. Some characteristics of the Massachusetts market that supported the merger are:

- The non-group market is less than 10 percent of the total merged market. Since the small group market is much larger in market share, it is able to absorb the higher costs of the non-group market without creating a rate shock for the small employer market. [4]
- Plan designs within the non-group and small group market are not vastly different.

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[2] Commonwealth Health Insurance Connector Authority, "Commonwealth Care Progress Report," Oct. 11, 2007.

[3] Gorman Actuarial, et al, "Impact of Merging the Massachusetts Non-Group and Small Group Health Insurance Markets," Dec. 26, 2006.

[4] Ibid

According to an actuarial study, there was approximately a 7 percent difference in actuarial value between the two markets. The small group market's benefits were only slightly richer. [5]

- Rating rules within both markets were quite similar before the merger. Both populations were allowed to vary rates by age and geography. Neither market allowed for health underwriting. Both markets had guaranteed issue. However, the small employer market was allowed to vary rates by industry and group size. Both markets were subject to an overall 2:1 rating band.

- Unlike most states, sole proprietors could purchase insurance in the small group market prior to the market merger.
- The morbidity of the non-group market was estimated to be 30-40 percent higher than the small group market. This difference is significant, but if the morbidity differences were vast (i.e., two times greater), the small group market would have experienced much larger rate shocks. [6]
- The Massachusetts uninsured population is younger and wealthier than the average U.S. uninsured population. This may indicate that their morbidity is healthier than the insured population. An increase in the insured pool may have a positive impact on premium.

In the current market, individuals and small employers are offered the same products and their rates are based on a combined pool. It is still too early to tell if there has been a significant premium impact to both markets. Finally, it is unknown at this time if the morbidity of the uninsured will have a negative or positive impact on the insured population.

Commonwealth Health Insurance Connector

The Commonwealth Health Insurance Connector (the Connector) was created as a new quasi-state authority which connects individuals and small businesses with health insurance products. Functions include allowing the portability of insurance as individuals move from job to job, permitting more than one employer to contribute to an employee's health insurance premium and facilitating the implementation of Section 125 plans for employers.

The Connector was established in the summer of 2006 and is responsible for the administration of the new subsidized program, Commonwealth Care as well as the non subsidized program, Commonwealth Choice. The products approved by the Connector are certified as products of high value and good quality. The Connector allows for one-stop shopping and tools to allow individuals to compare all products offered through the Connector. However, not all products are offered through the Connector and individuals and small businesses can still contract directly with insurers. The Connector is overseen by an appointed Board of 10 public and private representatives. The Board has one actuary that is appointed by the governor. Together, they have made decisions and have encountered issues which may impact the rating environment. Some of these actuarial issues are:

[5] Ibid

[6] Ibid

- Product Selection: Currently the Connector offers up to 42 different products representing six carriers. An individual can log on to the Web site, answer a few questions, and receive up to 42 rate quotes.[7] Along with rate quotes, the individual can compare benefits quite easily. There are significant advantages with this type of centralized information for the consumer. There are disadvantages as well. The rate variance between the lowest rate and highest is over 250 percent. This kind of choice can create an adverse selection issue among the carriers. The richest products with the highest rates may attract a less healthy risk pool.
- List Billing vs. Group Rating: The intent of the Act was to allow individuals as well as small employers to purchase insurance through the Connector. Current rating practice in Massachusetts allows for age rating. Generally, carriers calculate a composite age factor for a small employer which is then applied to a base rate by tier (Individual/Family). This age factor is subject to a 2:1 rating band. These adjusted rates are the same for all employees from the same employer. The Connector would like to allow employees of small employers to have greater choice in their health plan selection and have the premiums reflect the product choice and the individual employee's age. In other words, these rates would be "list billed." By varying the rating practice, i.e., Group Rating vs. List Bill Rating, a selection dynamic may occur. If groups are savvy enough, they will purchase insurance from the distribution system that results in the lowest overall rates for the employer (either direct from the carrier or through the Connector). However, under today's rating environment, if employers choose to purchase their insurance through the Connector, individual employees will receive the highest group size surcharge for groups of one. Due to this rating rule, the selection issue (Group Rating vs. List Bill Rating) may be mitigated.

The Connector would like to allow employees of small employers to have greater choice in their health plan selection and have the premiums reflect the product choice and the individual employee's age.

- Employer contribution: If the Connector allows employees to pick and choose products, it is difficult to calculate the up-front employer contribution. Current practice in the small group market allows an employer to know what their monthly obligation for health insurance premiums will be prior to enrollment. The employer can then develop a budget to determine the employer contribution. It is generally a fixed percentage, or fixed dollar amount. Under the Connector environment, if employees are allowed to choose their own products, total premium may not be known until after enrollment. However, the Connector is developing a mechanism by which employers will be able to select a "benchmark" plan, to which the employer will fix his/her contribution. While employees will be able to select a carrier of their choosing, the employer's contribution will be tied to the "benchmark" and the employer's budget can then be set prior to enrollment.
- Administrative Charge to Carriers: The Act provided the Connector $25 million to assist with start-up costs and operation in its first two-to-three years. The Connector will earn future revenue by charging an administrative fee that will be a percent of premium. It

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[7] Because some carriers are regional and their service area is limited, consumers have fewer than 42 options from which to choose.

is too soon to tell if this charge will increase overall premiums or replace existing administrative expense.

This list is a sample of the complex issues the Connector has encountered while implementing the Act. Due to the complexities, there has been a delay in enrolling contributing employers through the Connector.

Along with decisions regarding the above issues, the Connector and its Board were also charged with defining Minimum Creditable Coverage. This is the minimum level of benefits that each individual in Massachusetts must have to avoid penalties under the individual mandate. Some of the guidelines that have been established include requiring deductibles no greater than $2000/$4000 (Individual/Family), out of pocket maximums no greater than $5000/$10,000 and at least three preventive office visits for individuals (six for family).[8] While the Connector has made great strides in defining this level of coverage, they are still in the process of considering what constitutes a minimum level of pharmacy benefit. This process has been difficult, since there is a portion of the insured population today that does not have a pharmacy benefit. A pharmacy benefit requirement could result in a premium increase of approximately 15-18 percent for a portion of the currently insured population.[9] It is estimated that some 160,000 insured individuals do not have pharmacy coverage today.

New Products

The Act expands the small group product offerings to the non-group population and also introduces a Young Adults Plan. Individuals without access to employer-sponsored health insurance, aged 19-26 are eligible for this plan, which is a low cost product specially designed for this age cohort. The Young Adults Plan can only be purchased through the Connector. The intent of the Young Adults Plan is to attract the younger uninsured population, which should help improve the risk pool.

As of October 2007, enrollment in the Young Adult Plan is approximately 1,700 members.[10] It is not known if these individuals were previously insured.

Individual Responsibility

The Act requires that, as of July 1, 2007, all adult residents of the Commonwealth must obtain health insurance coverage. One of the goals of the "individual mandate" is to strengthen and stabilize the insured risk pool. In order to implement the individual mandate, the Connector developed a sliding "affordability" scale. This scale will be revised annually and is posted on the Connector's Web site. Individuals can easily determine whether the mandate applies to them based on their age and income. If there are no plans available that meet the affordability criteria, they will not be assessed a penalty.

Residents will need to confirm that they have health insurance coverage on their state income tax forms filed starting in 2008, for tax year 2007. Coverage will be verified through a database of insurance coverage for all individuals. The Massachusetts Department of Revenue will enforce this provision with financial penalties beginning with a loss of the personal exemption for tax year 2007 and then increasing in subsequent years up to as much as 50 percent of what an individual would have paid toward an affordable premium.

As of Oct. 1, 2007 there are 8,306 individuals who have purchased unsubsidized health insurance through the Connector. It is not clear if these individuals came from the current non-group population or if they were previously uninsured. Health plans are also enrolling individuals directly and have reported a net increase in enrollments since the start of 2007, but the number of newly insured is not yet known.

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[8] "956 CMR 5.00 Minimum Creditable Coverage," *http://www.mass.gov* (Oct. 28, 2007).

[9] Bob Carey, *"Prescription Drug Coverage – Alternative Plan Designs,"* Memo to the Commonwealth Connector Board of Directors, Oct. 5, 2007.

[10] "Commonwealth Health Insurance Connector Authority," Commonwealth Choice Progress Report, Oct. 11, 2007.

Employer Responsibility

The Act established responsibilities for employers, including what is called the "Fair Share Contribution." This is the assessment on employers who are not currently offering health insurance to their employees. The surcharge is no more than $295 per full-time equivalent employee (FTE) per year and applies to employers with 11 or more FTEs. A state agency (Division of Health Care Finance and Policy) defined "fair and reasonable" through regulation as ***either:***

- 25 percent of full-time employees participate in the employer's group health plan ***or***
- An employer contribution of at least 33 percent toward a health plan premium for all full-time employees who are employed more than 90 days

In addition to the assessment, employers with 11 or more FTEs must also offer Section 125 plans to most of their employees, including part-timers and others not eligible for employer-sponsored insurance. These plans allow employees to purchase health insurance through payroll deduction on a pre-tax basis. The typical employer saves 7.65 percent on FICA and employees save approximately 41 percent of their premium payments due to reduced federal and state taxes, and lower FICA contributions. If employers do not make this available to their employees, the employer may be responsible for some portion of health care expenses incurred by their employees and their employees' dependents. This feature of the law is called the Free Rider surcharge. Imposition of the surcharge will be triggered when an employee or their dependents receives free care more than three times, or a company has five or more instances of employees or their dependents receiving free care in a year. The surcharge will range from 10 percent to 100 percent of the state's costs of "free care" services provided to the employees or their dependents, with the first $50,000 per employer excluded.

Although the deadline for employers to set up Section 125 plans was July 1, 2007, the collection of these surcharges begins with this hospital fiscal year beginning Oct. 1, 2007. There are no estimates on how much revenue this provision will generate for the state.

Conclusion

Within a year, the state of Massachusetts implemented legislation that changed the landscape of the health insurance market. The challenges in implementation were many and there are still many to resolve. It will be interesting to see what kind of impact the legislation will ultimately have on the market and on the uninsured. It is not known how many of the approximately 135,000 members enrolled through the Commonwealth Connector were previously uninsured. It is also too soon to understand the risk profile of these people and the adequacy of current funding levels. The Connector and the Commonwealth of Massachusetts still have many challenges ahead. A year from now, we will only begin to understand the impact.

For purposes of discussing the pros and cons of each general approach, we use the following naming convention:

Individual – risk adjustment system where risk scores for individuals are calculated during the experience period. These risk scores follow beneficiaries through the system. The risk adjustment factor for a given MCO is the weighted average of the risk scores for the beneficiaries enrolled during the rating period.

Aggregate – risk adjustment system where the average risk score for enrollees during the experience period is assumed to represent the average risk of enrollees during the rating period.

The UMBC paper discusses the individual and aggregate approaches and generally favors the aggregate approach. The key advantage of the aggregate approach discussed in the paper is that the aggregate approach assigns a claims based risk score to new enrollees (although this risk score assignment is at the average risk score of other members).

It is important to lay out the approach each method typically uses for new and existing enrollees.

Type of enrollee	Individual	Aggregate
New	Demographic enrollee	Experience period average
Existing enrollee	Individual Prospective	Experience period average

Therefore, the pure individual approach typically uses a demographic factor for new enrollees, while the aggregate approach assigns a factor equal to the average risk factor for all existing enrollees.

Rather than discarding the individual approach altogether because of this issue with new enrollees, it is important to consider a potential fix and then make a choice as to which approach to use. For new enrollees, a risk factor either equal to the average of the existing enrollees, equal to a demographic factor, or something in between could be used. With this modified approach, the assumption as to the portion of the variation in risk due to systematic issues could be separately identified. The individual approach has the major advantage of recognizing shifts in enrollment, which is an especially important issue during the initial roll-out of a managed care program.

The UMBC paper also identifies the improved accuracy of concurrent models compared to prospective models and definitively links concurrent models with the aggregate approach and prospective models to the individual approach. The reason prospective risk adjustment models are linked to the individual approach is that the rating period represents a future period compared to the experience period. However, in the aggregate approach, the rating period still represents a future period. The individual approach is not inherently inconsistent with the assumption that MCOs systematically attract certain types of risk. The problem may lie in how states have historically implemented the individual approach. Modifications along the lines of the adjustment for new enrollees might address the concurrent versus prospective issue.

Customization of Risk Weights

Customization of risk weights is often necessary for a state Medicaid risk adjustment system based on differences in the state program as compared to the population underlying the development of the risk adjustment system:

1. Benefit carve-outs
2. Data coding differences
3. Regional practice and patient utilization patterns
4. Regional differences in costs among specialties and care settings
5. Differences in the number of eligibility categories and sub-categories and the criteria for assigning individuals into those categories.
6. The need or desire to include individuals with limited exposure (demographic risk

weights would increase if risk models are customized to appropriately reflect the risk for these individuals).

Birth and delivery "kick" payments are examples of benefit package carve-outs that many states employ and which fundamentally affect the risk adjustment system. It is not appropriate to capture risk differences due to pregnancy or newborn status and then make a separate payment on that basis. Mental health benefit and pharmacy benefit carve-outs also require customization of the risk weights. The calibration step should exclude direct mental health or pharmacy benefit costs. However, because the presence of mental health conditions has been shown to exacerbate some medical conditions, mental health services should be left in the data for purposes of assigning members into their condition categories.

Criteria for Including Individuals

A decision on which specific individuals to include in the risk adjustment system needs to be made in addition to which eligibility categories to include. The criteria should include duration criteria and be consistent with the rate development and MCO contracts. Many states require at least six months of eligibility exposure in the experience period to be included in the risk adjustment calculations. Pharmacy based models require fewer months of eligibility to provide meaningful predictions (because of the frequency of pharmacy utilization and the faster completion).

All else being equal and without customization of risk weights, risk scores will decrease as the number of months of data decreases from the 12 month standard. Ideally, different risk weights should be developed which reflect the amount of experience each individual has in the system. The demographic risk weights will increase as the number of experience period months decrease, and the condition risk weights may increase or decrease. Alternatively, it is important to analyze the average number of months of experience across sub-populations to ensure that one MCO does not have a higher or lower average number of months of experience per enrollee than other MCOs and/or the state.

Phase-in and Risk Corridors

The purpose of phase-in and risk corridor provisions is to moderate the impact of the implementation of risk adjustment, both as MCOs refine data and understand the impact, but also as the state and their technical support staff are able to refine the risk adjustment process.

Phase-in refers to the portion of differences in risk adjustment which are applied to the MCO's capitation rate. For example, if the phase-in for a particular year were 80 percent and the relative risk adjustment factor for a particular MCO was 0.95, then the phase-in risk adjustment factor for that MCO would be 0.96 [0.95 x 0.80 + 1.00 x 0.20].

Risk corridors are often used in the initial roll-out of a Medicaid risk adjustment system to ensure that a particular MCO does not experience too large of an upward or downward adjustment to revenue. For example, a risk corridor of +/- 5 percent would mean that a risk adjustment factor of 0.92 would be increased to 0.95, and a risk adjustment factor of 1.10 would be reduced to 1.05.

It is important to recognize that risk corridors could cause payments to be asymmetric, and therefore could cause the overall risk adjustment system to not be budget neutral.

Other Considerations

There are a number of other considerations that need to be made during implementation of a risk adjustment system, including the following:

1. **Budget neutrality** – It is important that the state does not create an adjustment that changes the overall payment, since risk adjustment is intended to re-distribute funds according to the relative risk being covered

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by the MCOs and state. Phase-in and risk corridors that vary according to how long an MCO has been active have the potential to adversely affect this neutrality.

2. **Timing of updates** – A survey conducted as part of the UMBC survey determined that 70 percent of states updated risk scores annually, 20 percent updated semi-annually, and 10 percent updated quarterly. The characteristics of the population and risk adjustment system should be reviewed to determine the frequency of risk score updates.
3. **Data testing and validation** – Data quality drives the risk adjustment models, and resulting adjustments. Therefore, it is important to have robust data testing and validation process. The UMBC paper outlines a number of methods to test and validate the data going into the risk adjustment system. However, probably no issue is more important than the comparability and quality of encounter data, especially where capitated provider contracts exist. If the state does not intend to penalize MCOs for incomplete encounter data, then adjustments to the standard risk adjustment calculations need to be made and sufficient time and education needs to be provided so that MCOs can improve their data quality.
4. **HIPAA considerations and controls** – Risk adjustment factors inherently contain information on the health of each individual and should be considered Personal Health Information and should be protected as such.
5. **Newborns** – Several states have begun to introduce risk adjustment systems for the TANF populations. However, due to the unique nature of their expenditures and limited months of eligibility in a fiscal year, modifications to the risk adjustment systems may need to be implemented. For example, the six month minimum enrollment requirement should be removed for newborns. Additionally, a prospective payment system would not capture newborn costs. The newborn costs would need to be paid through a concurrent system or through a newborn "kick" payment.

Conclusion

Risk adjustment is an important tool to align incentives between health plans and state Medicaid managed care programs, as well as reward stakeholders who perform well. It is important to recognize and address differences in how the models were built and how each model may be implemented. Some of these differences have important implications. Due to the financial implications associated with the risk adjustment system implementation methodologies, all stakeholders need to work collaboratively to openly share and discuss data and implementation decisions.

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Visit **http://www.soa.org/cpd** for more information.