SOCIETY OF ACTUARIES

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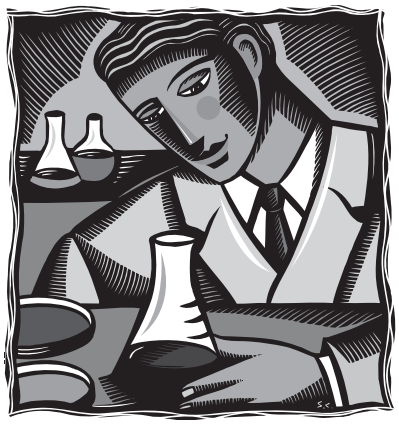
Health Section News

"For Professional Recognition of the Health Actuary"

Pharmacoeconomics: Why Should Actuaries Care?

by Jill Van Den Bos

There is clearly a communication gap between pharmaceutical manufacturers and managed care organizations (MCOs). While pharmaceutical companies have important medical and cost information to share with MCOs, some parts of their message may get lost in the translation for several reasons. One reason is that MCOs seem to view economic research funded by pharmaceutical companies with some skepticism. To them, it resembles advertising rather than information. Second, while medical research conducted to satisfy FDA requirements seems to address treatment issues in a manner that all parties can understand, it is less clear how published economic studies of drug utilization can be used. This article presents an argument for why actuaries should become interested and involved in the field of pharmacoeconomics in order to facilitate its translation between pharmaceutical company economic research and useful information for widespread use within MCOs.



According to the International Society of Pharmacoeconomics and Outcomes Research (ISPOR) lexicon, pharmacoeconomics (PE) is defined as "the field of study that evaluates the behavior of individuals, firms and markets relevant to the use of pharmaceutical products, services and programs, and which frequently focuses on the costs (inputs) and consequences (outcomes) of that use."[1] The consequences of most interest to MCO actuaries would also be costs.

Currently, most PE research is published within a more academic rather than a business framework. Researchers conducting this research are often economists or pharmacoeconomists, many of whom are also academicians. Pharmaceutical companies typically sponsor this research in support of their rollout of a new drug. In the past this research was really a part of their marketing efforts, potentially done with far less planning and funding than was involved in clinical trial research for FDA approval. Such studies usually compare a new drug against one competitor drug or placebo. This research often targets MCO P&T committees with the goal of getting a new drug added to an MCO formulary as a preferred choice.

As a somewhat new discipline, pharmacoeconomics seems to be trying

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SOCIETY OF ACTUARIES

Letter from the Editor

by Jeffrey D. Miller

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Welcome to the October 2002 edition of the *Health Section News*. This edition includes seven excellent articles on a wide range of topics of interest to health actuaries. We hope you find them enjoyable, informative and useful.

After an excellent meeting in San Francisco and a very busy summer, I'm sure most of you are ready for the fall. Fall has always generated an increased energy in my practice, and new projects always come to light this time of year.

The major questions I'm now facing include:

1. Can private enterprise truly serve as a funding mechanism for major medical expenses without some sort of government mandated participation?

2. Will limited benefit medical plans (e.g. $5,000 maximum annual benefit) truly catch on in the group market?

3. Will the growth in ancillary benefit plans, particularly dental insurance, continue?

4. Will benefit plans emphasizing consumer choice really take over the market (as we heard in San Francisco)?

5. What can be done to bring reinsurance capacity back to health care programs outside the United States?

If you have answers to these questions, please let me know. We'll try to publish your thoughts in our next edition.

Have a great fall!

to establish itself. The PE literature, for example, has several unique problems. Many of the studies published use sample sizes that are too small for drawing the conclusions desired. While relatively small groups of people randomly assigned to treatment groups may be adequate for studying the efficacy of drug treatment options, studying cost implications of these treatments such as side effects requires much larger sample sizes. Drug side effects might be infrequent but costly events such as hospitalizations, in which case the difference of one occurrence between groups may change the conclusions one might draw about the comparative total costs of two drug treatments in a study with small sample size. In one such published study, the two treatment groups were comprised of 6 and 10 people. The group with 10 people experienced one side effect requiring hospitalization, the cost of which overwhelmed all other costs associated with this treatment. The author concluded that the other treatment was therefore more cost effective.[2]

Sponsorship bias is a problem of particular interest when it comes to research funded by pharmaceutical companies. This occurs in two ways. One is due to the sponsor's interest in publishing only studies that result in favorable conclusions regarding its own drugs. Studies that do not support the preferred conclusion are not published at all, and only studies expected to produce a conclusion favorable to the sponsor are ever funded. Another results when the conclusions of a published study are presented so as to seem favorable to the sponsor's drug when the data in the study may not support this conclusion. In a review of 56 pharmaceutical company funded studies, 40 of the studies concluded that the sponsor's drug was as effective as the comparator and the remaining studies concluded that the sponsor's drug was superior. Out of 22 studies where drug toxicity was compared, the study author concluded that the sponsor's drug was less toxic in 19 cases while the author of the review article thought that conclusion was warranted in only 12 of them.[3]

A final problem with the PE literature is the inability of the reader to ascertain important details about how the study was conducted. In other words, many published studies are not transparent. When trying to evaluate the quality of a study, the reader must be able to determine what measures were taken, how they were taken, what other assumptions the authors made, and so forth.

Prior to now it seems that actuaries have not shown interest in PE data. This may partially be due to the problems with many of the published studies. It may also be due to the study methods employed and the type of results presented. Economists usually publish PE studies with results that are not oriented toward actuarial and other business needs. For example, many comparisons of drug costs in the literature use relative ratios rather than comparing per member per month claim costs (PMPMs). While such results do impart information, the information is not readily usable for MCO purposes. Cost rates per member would be more consistent with the "language" used within an MCO and make PE analysis more useful.

The Academy of Managed Care Pharmacy (AMCP) recently disseminated a Format for Formulary Submissions. This is a guideline to aid pharmaceutical companies in their preparation of formulary submissions for new drugs. The Format is a template, rather than a mandate, to be used to ensure that formulary submissions with MCOs include adequate quality information, enabling MCOs to better decide what drugs should be included on their formularies. The Format suggests information that demonstrates the following five points:

1. Disease description and the agent's role in treatment
2. Clinical efficacy, safety and effectiveness
3. Economic evaluations
4. Modeling
5. Clinical value

Since economic information is now being requested by MCOs through the Format as one of five main areas of interest, PE research is moving from the realm of marketing to the realm of data. Consequently, improved quality and increased quantity of available PE research seems likely in the near future.

With more plentiful and better PE research on the horizon, PE information should find a broader audience within an MCO. Actuarial input into PE research would make such information more useful to MCOs primarily by changing the type of results presented to something more readily usable within an MCO environment. PE research results focusing on the direct costs of using a drug treatment such as drug cost and the cost of treating side effects could be combined with claims data and clinical research to yield total costs affiliated with drug treatment, presented as expected PMPM claim costs. Treatment costs and medical cost offsets in other areas of the claims budget could be estimated and monitored. PE data would therefore become

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useful to not only to the pharmacy department but also potentially to the MCO actuaries, utilization management, and executive management, people who are responsible for the total MCO bottom line.

In order to demonstrate one possible way in which PE research might be modified by an actuarial approach, we used published research to compare treatments for osteoarthritis. We focused on non-steroidal anti-inflammatory drugs (NSAIDs), which are the primary drug treatment used for this condition. Our research suggested that, while NSAIDs have roughly the same efficacy in the population in general, the extent to which one NSAID is more effective than the other seems to be an individual matter. The side effects associated with NSAIDs, however, vary substantially. We found that it is primarily the cost of treating gastrointestinal side effects resulting from NSAID use that made one treatment more or less expensive than another. Incidentally, since greater cost was associated with greater probability of side effects, we also assumed that greater quality of life would be associated with the least expensive treatment option as well. Our goal, therefore, was to make a suggested order in which individual NSAIDs are tried as treatment until an individual finds one that is suitable such that the least expensive drug treatment options are tried first.

We created a decision tree for NSAIDs available in the United States at the time of our study using data from PE studies, clinical trial drug studies, AWP and proprietary drug frequency data. We added acetaminophen as a low-cost and low-side-effect treatment option to be tried first. The reader should note that our research was done prior to the introduction of the COX-2 inhibitors, including Celebrex and Vioxx, which are currently experiencing large utilization. For each person treated, we considered the probabilities of the most likely outcomes, including adverse reactions to the drug treatment. The probably of ending up at any "branch" multiplied by the cost of treating any side effects along that path all summed and added to the cost of the drug itself comprised the total direct cost associated with that choice of drug. This is how we modeled costs associated with each potential drug's use, for a total of three months in this case.

The total decision tree has 17 nodes in it for 17 different drug treatments. Figures 1 and 2 present the nodes for two of those drugs, one for nabumetone, which has relatively low toxicity, and one for ketoprofen, which has relatively high toxicity. In each figure, the dollar values to the right represent the cost of that path. The percentages to the left of these values represent the percentage of time this path is expected to occur. The dollar value above the name of the drug is the cost of the three-month supply of the drug. The dollar value to the right represents the total direct cost of the three-month treatment that includes the cost of the drug and the costs of the five paths multiplied by the probability of each path. Note that while the drug costs for both drugs are not vastly different, the total costs of the treatments with the two drugs are due primarily to the high cost of treating ulcers developed while taking ketoprofen.

Figure 1: Total Treatment Costs for a 3-Month Period Using Mean Ulcer Rates Nabumeteone

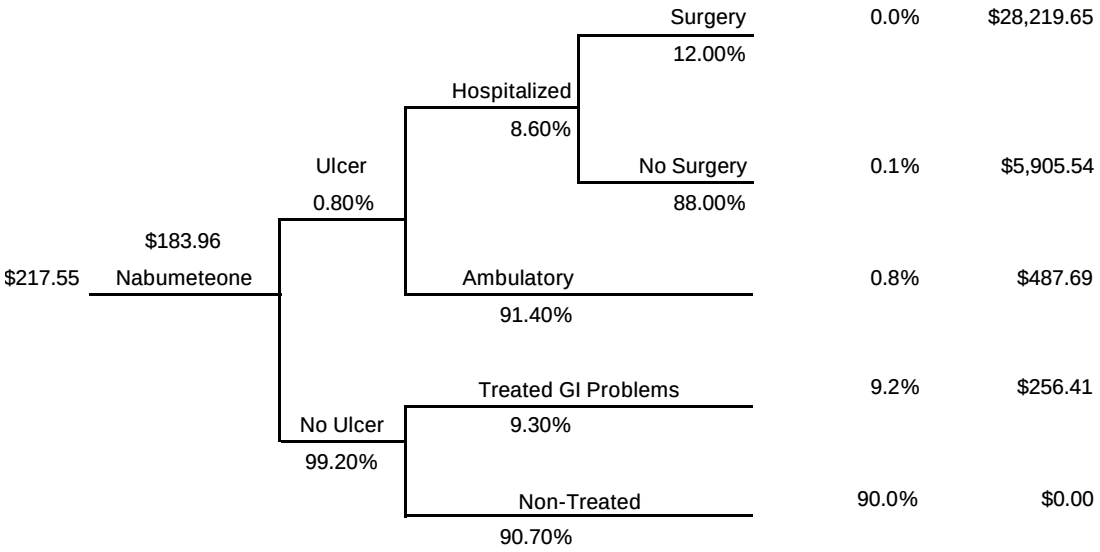
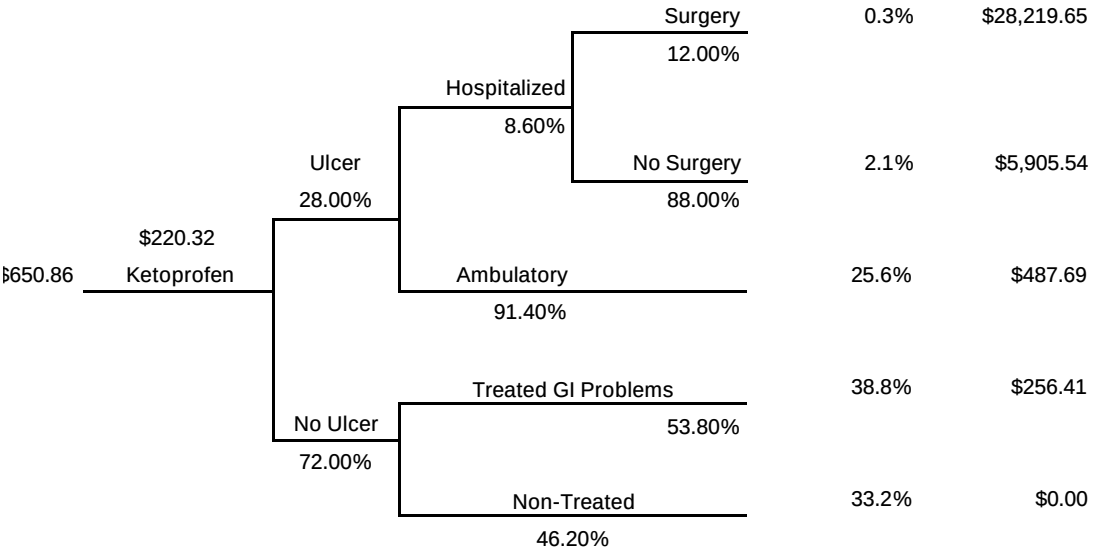


Figure 2: Total Treatment Costs for a 3-Month Period Using Mean Ulcer Rates Ketoprofen



Using costs estimated from this decision tree and current utilization of the drugs therein, we developed an estimated PMPM claim cost for each of the drugs for a standard Medicare population mix. These costs are presented in Table 1.

Table 1 Estimated Current Cost of OA Drugs for Medicare Enrollees

Treatment	Rate of Use	Cost per month	Cost PMPM
Acetaminophen	0.000%	$0.00	$0.00
Ibuprofen	0.515%	66.65	0.34
Nabumetone	0.000%	72.52	0.00
Piroxicam Gel	0.155%	74.58	0.12
Indomethacin	1.573%	98.57	1.55
Naproxen	5.949%	109.14	6.49
Piroxicam	0.470%	114.52	0.54
Ibuprofen+Misoprostol	0.031%	126.35	0.04
Diclofenac	3.264%	129.39	4.22
Fenoprofen	0.155%	134.99	0.21
Naproxen+Helidac	0.005%	136.02	0.01
Sulindac	0.957%	144.83	1.39
Aspirin	1.546%	152.34	2.35
Etodolac	0.069%	161.30	0.11
Diclofenac+Misoprostol	0.094%	194.33	0.18
Flurbiprofen	0.587%	216.66	1.27
Ketoprofen	0.98%	216.95	0.21
TOTAL	15.465%	-	$19.03

(continued on page 6)

Table 2 Estimated Cost of OA Drugs for Medicare Enrollees, Following Intervention

Treatment	Rate of Use	Cost per month	Cost PMPM
Acetaminophen	1.551%	--	--
Ibuprofen	1.551%	$66.65	$1.03
Nabumetone	1.551%	72.52	1.12
Piroxicam Gel	0.776%	74.58	0.58
Indomethacin	2.017%	98.57	1.99
Naproxen	3.723%	109.14	4.06
Piroxicam	0.310%	114.52	0.36
Ibuprofen+Misoprostol	0.620%	126.35	0.78
Diclofenac	1.551%	129.39	2.01
Fenoprofen	0.155%	134.99	0.21
Naproxen+Helidac	0.310%	136.02	0.42
Sulindac	0.465%	144.83	0.67
Aspirin	0.465%	152.34	0.71
Etodolac	0.031%	161.30	0.05
Diclofenac+Misoprostol	0.155%	194.33	0.30
Flurbiprofen	0.155%	216.66	0.34
Ketoprofen	0.078%	216.95	0.17
TOTAL	15.465%	_	$14.80

We then assumed a new target distribution after intervention in which patients starting a new NSAID regimen would be directed toward treatments starting with the top of the table and moving down. We assumed a certain percentage of utilization in each category from the current distribution would move to a treatment that is above it on the list. The estimates of claim costs after this intervention are presented in Table 2.

While this is only one possible method for using PE data to create a model of drug costs that is useful to an MCO, it demonstrates how a combination of data sources and focus on a more actuarial approach can help transcend usual problem of "silo economics." Other studies might focus on medical cost offsets from the use of various drug treatment regimens in other claim cost areas; hospital utilization or office visits, for example. An important element from an MCO standpoint, however, is to state results in terms of PMPM claim costs so that the information is readily comparable to other aspects of data and actuarial analysis being used by the MCO.

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Footnotes

1) Pashos CL, Klein EG, Wanke LA, eds. *ISPOR Lexicon*, 1st Edition, 1998.

2) Jansen RB, Burrell A, Nuijten MJC, Hardens M. An economic evaluation of meloxicam 7.5 mg versus diclofenac 100 mg retard in the treatment of osteoarthritis in the UK: a decision analysis model based on gastrointestinal complications. *Br J Med Econ*. 1996;10:247-262.

3) Rochon PA, Gurwitz JH, Simms RW, et.al. A study of manufacturer-supported trials of non-steroidal anti-inflammatory drugs in the treatment of arthritis. *Arch Intern Med*. 1994;154:157-163.

Chairperson's Corner

by Daniel L. Wolak

The San Francisco meeting held in June provided us an opportunity to see which way the wind was blowing in our health-care markets. Unfortunately, we quickly found which way the winds were blowing in San Francisco, which were off the bay at 65 degrees Fahrenheit! For us from the Northeast (and the Midwest) who wait all year for summer to arrive in late June, that wind was an unpleasant surprise. But at the health meeting, the Health Section sponsored several events that provided us direction on our "winds".

Survey Says...

At the Health Section Hot Breakfast in San Francisco, attendees were served up bacon and eggs..and a health section survey to complete. Of those attending, 123 completed the survey. Now, I'm not sure of the confidence interval we have in regard to the statistical results, but we did get a sense from you which way the "wind was blowing" regarding several issues.

- 110 out of 123 responded that the San Francisco sessions were "relevant".
- 105 out of 123 responded that they read several to all of the articles in the *Health Section News*.
- Only 1 out of 123 responded that the *Health Section News* was NOT valuable to them. (I guess there is one in every crowd!)
- What really surprised me was that 61 out of 121 respondents said that they would ONLY like an electronic version of the *Health Section News*.
- Only 2 out of 123 indicated that they do NOT want the Health Section to continue to support research projects such as the Risk Adjusters Project. (The strong interest in continuing to support research was a pleasant surprise for me.)
- Regarding research, 87 supported a mandatory dues increase of $10; another 12 supported an optional dues increase to fund research!
- In regards to using technology, a smaller number responded. 45 out of 84 respondents have used the Health Section Web site during the past year.
- 19 out of 123 have used the Health Section list serve.

So the results do provide the members of the Health Section Council direction as we move forward. We need to consider a way of making this newsletter available to everyone electronically, but also provide a paper copy to those who request one. We will continue to support research, and will consider a vote on the council to increase dues to do so. And we will look for ways to better utilize the Web site and the list serve.

Practical Health Care Reform

The Health Section sponsored a luncheon speaker, Brian Kleppler, who is the Executive Director of Center for Practical Health Reform. Dr. Kleppler's presentation was thought provoking and energized. He was excited about the opportunity to address close to 400 health-care actuaries. From those I spoke with, the feedback was very favorable. (Maybe I should have made that a survey question, too!)

Brian stated that if there is a single idea that is at the root of the system's troubles and that defines his project, it is **accountability**. At present, the results of health care processes are all but invisible, which makes it difficult to compare and manage quality and cost. Worse, those who do gather performance information tend not to share it; reliable, publicly available data that everyone can use is scarce. This single fact thwarts our capacity to rein in costs quickly enough to stave off eventual system collapse. His organization sponsored a meeting in Chicago on July 13 with various players in the health equation. If you would like to monitor the winds of healthcare change, Brian's web site is *www.practicalhealthcare.org*.

New Council Members

With the results of the recent election tabulated, the new members of the council who will begin a three-year term beginning in October are: Bryan Miller, John Lloyd and Karl Volkmar. Congratulations to all!!

And Thanks

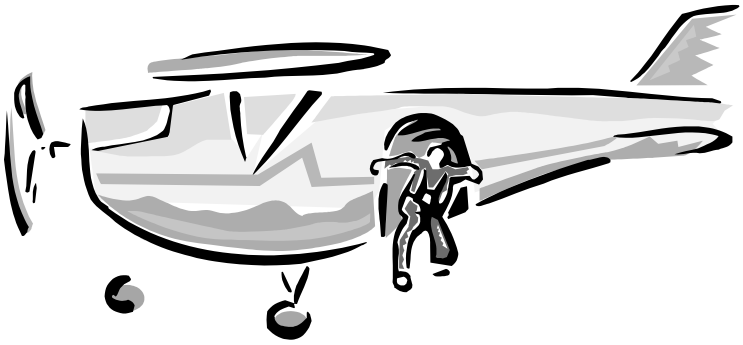
Thanks to all of the speakers and moderators who made the San Francisco meeting successful. A special thanks from the Health Section goes out to Bob McGee and Karl Volkmar who were the Health Section representatives on the Program Committee.

Danield L. Wolak, FSA, is chairperson for the Health Section Council. He is senior vice president of Group Operations at GeneralCologne Re in Stamford, CT. He can be reached at dwolak@gclifere.com.

Make the Call

Evaluating Managed Care Networks

by Steve Gaspar



Editor's Note: This article is a recap of Mr. Gaspar's contribution to session 92 "Evaluating Managed Care Networks" presented at the Spring Society of Actuaries meeting in San Francisco in June 2002

Ten years ago I jumped out of an airplane—or more accurately, I parachuted from an airplane. That decision to actually get out of the plane was my moment of truth—I had prepared for the jump all morning and now it was time to make a call. Clearly that call mattered a great deal.

The fact that I was able (some would say stupid enough) to make that decision was a direct result of a process of risk assessment that I had done up to that point. Prior to visiting the parachuting school, I had done some research regarding fatalities and injuries of first-time jumpers. During the half day of training that led up to the jump I was constantly evaluating the risk I was contemplating. Who packed my parachute? How often does a chute fail to open? What are you supposed to do if that happens? Can I trust myself to be able to do what I need to do under the pressure that comes with knowing that I am plummeting toward the earth? And on and on. In the end, when it was my turn to go, I made the call. I chose to jump.

Another call I am asked to make, one that is not nearly so crucial to my continuing heartbeat, involves evaluating managed care networks. I work for a large direct writer of self-funded employer stop-loss coverage. Employers who choose to self-fund the medical benefits for their employees commonly purchase stop loss protection from companies such as mine. Coverage is of two varieties, individual (or specific) risk and aggregate (or group) risk. The presence or absence of a managed care network materially affects my company's risk as the excess loss coverage provider. Given the high prevalence of such networks in self-funded risk arrangements, the more important issue is not *if there is a network present, but which network and in which area?* One of my teams evaluates managed care networks to determine the value of a given network as it relates to the stop-loss coverage. The process my team follows shares some steps with my approach to deciding to jump out of that plane: gather information, assess the risk, and make a call.

I suspect that the instructions given to a firstime parachutist is much more consistent than the information my team gathers from managed care networks day to day. The variance in responses to my network questionnaire is significant. Often this is a result of differences in the backgrounds of the contacts or differences in systems. Getting the data is the hard part. Often this involves repeated phone calls and e-mails.

After the information has been collected, it is refined and dropped into an actuarial model. I review the results of the model and, of course, make a call. This call is in the form of potential rate action for quote opportunities that utilize that particular network.

Assessing the cost basis for a managed care network is at the core of the managed care evaluation issue. Cost data fall into two main buckets: hospital and physician. Hospital arrangements take various forms, but are commonly either straight discounted fee for service, per diem, DRG or case rate based. Outlier provisions are clauses that dictate that a hospital will be reimbursed by the payer at a straight discount off of billed charges for all claims that have a billed amount in excess of

some threshold, e.g., $25,000. Outliers are of particular interest to the stop-loss carrier, as nearly all stop-loss claims will fall into this category (see Hospital Charges Become A Significant Issue Again in the June issue of *Health Section News*).

Most hospital arrangements vary in some fashion by type of service, e.g., a discount for outpatient but a per diem for inpatient, different per diems for med/surg versus ICU/CCU, etc. Some hospitals use combinations of these mechanisms. For example, a hospital contract may indicate a per diem with an outlier except for certain cardiac procedures that revert to case rates.

Issues to consider in evaluating hospital arrangements include: How often can this arrangement change? How does this per diem compare to what I would have paid in this geographic region? Does this network have the right hospitals—can it provide the needed services inside the network?

Physician charges are often expressed in the form of a fee schedule, and are typically provided as a list of fees by CPT code on a spreadsheet. Just about as often, charges are given as a percent of RBRVS. Key issues here are: How soon can this arrangement change? How does this fee schedule compare to what I would have paid in this geographic region? For what areas does this schedule apply?

Once you've collected your data and evaluated the parts, it is time to pull things together into a model. Key assumptions here are: in-and-out-of-network assumption, credibility, physician and hospital weightings, service area, etc.

The in/out of network assumption is a simple concept, but useful statistics often are not available from preferred provider organizations (PPOs). The concept I am labeling as 'credibility' is really a catch-all that encompasses the issue of a lack of timeliness in being informed of contract changes, and mistakes or misreporting of information (it happens).

Decisions need to be made concerning the relative weighting between physician and hospital discounts. Similarly, within the hospital portion the actuary must make an assumption regarding the relative weights of each service type discount—to the extent that reimbursement mechanisms vary by service type.

Service area is another key issue. In the end you will have generated composite discounts for a set of hospitals within a given region, but you still must decide how you will express your discounts. Will they be statewide, by 3-digit zip code, by county, or on some other basis?

Because I am employed by a stop-loss writer, I have a great deal of interest in the leveraging effect of stop-loss deductibles. A $30,000 deductible will leverage medical trend significantly upward, but it will also leverage a PPO discount. Deciding how to account for and express this phenomenon is a significant decision.

And then the door of the airplane opens and your instructor says to get out. . . After gathering all the information, scrubbing the data, and tweaking your model, you have to make a call. What's this network worth? Sit or get out of the airplane. Frequently the actuary will have to make judgment calls on a variety of issues. Having a mechanism for evaluating the accuracy of your calls is important.

One final decision is choosing when to reevaluate a network. Merger and acquisition activity is common in managed care networks, and as a result things change. My preference is to reevaluate networks on an annual basis at a minimum.

Ten years ago, I had to make a call and I did — I jumped. For me, at the time, it was the right call. I glided through the air a couple of thousand feet off of the ground. Minutes later I had a "stand-up" landing (which means I landed on and stayed on my feet). The impact was softer than stepping off of a chair, although I did land off course in a nearby soybean field, but that's another story. . .

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Outpatient Facility Reimbursement

by Brian G. Small

Outpatient Charge Levels

Today's outpatient care can be every bit as intense and expensive as an inpatient admission. In the 1980s it was vogue for group plans to offer 100 percent outpatient coverage as a cost saving measure since it was assumed anything done outpatient had to be less expensive than its inpatient counterpart. Now we know that isn't the case, especially if one has a charge-based outpatient reimbursement program. In the June issue of *Health Section News*, John Cookson documented the considerable variability of charge levels between hospitals and noted the significance of hospital charges to insurers and reinsurers.

An outpatient encounter doesn't necessarily mean a simple procedure followed by recovery at home. In many cases, an outpatient surgery may mean an overnight stay of up to 24 hours. There is a considerable amount of discretion on the part of the doctor and hospital as to whether an encounter is classified as inpatient or outpatient. Outpatients are routinely commingled with inpatients on the same floor. The patient may not even be aware that they were outpatient rather than inpatient.

Outpatient Reimbursement Methodologies

Outpatient reimbursement methodologies are generally composed of fees associated with HCSPCS codes and rules for packaging, code editing, billing and multiple procedure reimbursement. The following methods are widely employed by public and private payers for outpatient services:

- Ambulatory payment groupings (APGs)
- Ambulatory payment classifications (APCs)
- Medicare ambulatory surgery center (Medicare ASC)
- Discount on charges
- Commercial hybrid

APGs were developed by 3M under a HCFA (now CMS) contract. This was an attempt to duplicate the success of the Medicare's inpatient diagnosis related group (DRG) program on outpatient. Not surprisingly the underlying concept is the same. An encounter can be mapped to a single grouping, DRG (inpatient) or APG (outpatient), based on the diagnoses and procedure codes billed for the hospital encounter. The reimbursement for all the services provided during the encounter can be packaged into a single amount for that grouping. The user of the APG system can customize the degree of packaging. The user can set the program to consolidate all applicable APGs into one APG or allow multiple APGs for one encounter. Medicare never adopted APGs, but many commercial payers adopted APGs for reimbursement.

APCs were introduced by HCFA in August 2000. APCs are a modification of APGs. With a few exceptions, APCs are based solely on the procedure code rather than a combination of procedure and diagnoses. Similar procedures are mapped to one APC. Unlike APGs or DRGS, however, there can be and usually is more than one APC applicable per encounter. So there is less packaging in APCs than APGs.

Medicare ASC groupings are used by CMS to reimburse freestanding (non-hospital) surgery centers. There are only nine payment levels. The drawback to Medicare ASCs is that they only cover a limited number of surgical procedures. Many high-volume surgeries are not included. Further, the schedule does not contain any lab or radiology services.

Discount on charges is still a widely used method for reimbursing outpatient. Since hospital charges vary so much, one can't judge whether the reimbursement is fair by looking at the discount.

The final category I call commercial hybrid. These generally consist of some type of fee table, possibly based on one of the above methodologies. The degree of code editing and packaging varies widely. Comparing fee tables between commercial hybrid programs can be misleading if code editing and packaging are not considered. There is also a great deal of variation in the completeness of commercial hybrid programs. For example, an insurer may only have fees for high volume surgeries. Surgeries not on the fee schedule will be paid on a default discount.

Claim Example

The example below illustrates the reimbursement of a hospital claim based on the APC methodology. It is also useful to illustrate the difference between

packaging and code editing. By "packaging" I mean the rules for determining the reimbursable services on a correctly billed claim. Line 4 in the example is packaged. Under APCs, general pharmacy charges are packaged, and therefore are never reimbursed separately. In general, line items without a HCPCS do not receive separate payments. Code editing on the other hand is the process of reviewing a claim for consistency with existing coding standards and clinical logic. In this example, it isn't proper to bill a diagnostic laparoscopy 49320 and laparoscopic cholecystectomy (gallbladder removal) 47562, because surgical laparoscopy always includes diagnostic laparoscopy. Line 2 has a code editor rejection because it is a component procedure of line 1 and should not have been filed.

Summary of Methods and Trends In Contracting

The table below is a comparison of various reimbursement approaches to outpatient facility services. The methodologies are rated on a completeness, provider recognition and ease of modeling. Recognition and ease of modeling are important characteristics for provider acceptance. The fact that Medicare utilizes the APC method gives it credibility and means that providers have an understanding as to how it works and likely have the capability of modeling.

The SOA sponsored the "Provider Contracting Trends and Case Studies" seminar February 11 and 12 in Tempe, Arizona. Based on discussions at the seminar, many plans are considering changing their outpatient reimbursement in the near future.

Sample Outpatient Hospital Claim

Line Item	Rev Code	HCPCS	Description	Charge	APC Payment
1	360	47562	Laparoscopic Cholecystecomy	$2,000.00	$1,915.00
2	360	49320	Laparoscopy Diagnostic	$1,500.00	$0 Code Editor Rejection
3	730	93005	ECG	$ 30.00	$17.82
4	250	-	General Pharmacy	_ $3,530	Packaged 1932.82

Method	Completeness	Provider Recognition	Degree of Packaging	Ease of Modeling For Provider
Discount on Charges	Excellent	Excellent	None	Easy
Medicare ASC	Poor	Good	Moderate	Moderate
Schedule APG	Excellent	Fair	High	Difficult
Medicare APC	Good	Excellent	Moderate	Easy
Schedule Commercial Hybrid	Varies	Poor	Varies	Varies

(continued on page 12)

Those paying a discount on charges or Medicare ASC schedules are looking at an APC- or APG-based system. Many plans that have been on an APG-based system are looking to move to APCs based on provider dissatisfaction with the current program. There was overwhelming consensus the fixed fee-based systems were preferable to paying a discount on charge.

Impact On Trend

The choice of outpatient reimbursement methodology will have a large impact on cost per unit trend. An important issue is the amount of reimbursement that is based on billed charges. As mentioned above, many reimbursement programs with fixed fees have a default discount percent for items not on the schedule. Some programs may also have specific line items paid at a discount, such as implantable devices. For budgeting purposes, it's important to identify separately the component of trend associated with the negotiated change in fees and provider charges.

Component	Percent of Reimbursement	Trend
Negotiated Fees	80%	2%
Discounted Charges	20%	10%
Total	100%	4%

Monitoring, Modeling and Benchmarking

Regardless of the reimbursement methodology employed, it is critical to be able to compare costs between facilities. Simply looking at the discount obtained is useless since hospital charges vary. Benchmarking each facility's current reimbursement versus a standard program can help identify opportunities for enhanced contracting. In order to benchmark, it is necessary to be able to model reimbursement on a standard reimbursement program such as APCs. Consulting firms can run data through the APC pricing programs for a comparison of overall reimbursement to Medicare. It is important to monitor hospital reimbursement through benchmarking on a regular basis. To illustrate, suppose an insurer has a three-year discount on charge contract with hospital XYZ. In year one the insurer determined through modeling that the discount on charge program was 150 percent of the standard benchmark. In year two, hospital XYZ raises charges 50 percent. By modeling versus the standard benchmark, the insurer realizes that hospital XYZ is now 225 percent of the standard. The insurer contacts the hospitals and asks for a larger discount.

Codes Associated With Hospital Outpatient Claims

In order to work with hospital claims, one has to understand the various codes found on the standard UB92 hospital claim form. These codes are:

- Revenue Codes
- HCPCS
- ICD-9 Diagnoses
- ICD-9 Procedure

Revenue codes describe the hospital department billing for the line item. Each line item on a UB92 has a revenue code. In the claim example above revenue code 360 means "Hospital Room Services." HCPCS stands for health care procedure coding system and describes the specific service or item provided. HCPCS encompasses the CPT coding. There are three levels of HCPCS codes:

Level I CPT codes – CPT or current procedural terminology is the major portion of HCPCS. CPT is maintained by the American Medical Association.

Level II National Codes – CPT has a limited selection of codes that describe injections, materials and supplies. Level II HCPCS codes are alphanumeric codes that describe injections, materials, supplies and services. Note that level II and level I service will overlap.

Level III Local Codes – These codes vary by local Medicare carrier.

ICD-9 stands for International Classification of Diseases Version 9. ICD-9 diagnosis codes are

integral to the APG assignment. They are used in a limited fashion to determine the APC grouping for payment of observation rooms. Medicare's outpatient code editor will validate the HCPCS/ICD9 diagnoses code combination. For example, a line item with a HCPCS code indicating an open-heart surgery will be denied if the ICD-9 code indicates a diagnosis of a common cold.

The ICD-9 procedure code is not used in the APC or APG assignment; however, it is used in conjunction with the ICD-9 diagnosis code in the assignment of the DRG. It may interest the reader that much of the world uses ICD-10. If the United States ever moves to ICD-10, the effort to convert claims systems will be extraordinary.

Summary

There are a variety of hospital outpatient reimbursement programs in existence. The method of reimbursement will impact cost per unit trends. In order to dig into hospital claims an understanding of the coding found on hospital claims is needed. Careful monitoring of reimbursement through benchmarking will alert an insurer to changes in provider charging patterns and help identify areas for provider contracting focus.

Related Web sites

http://cms.hhs.gov/hcprofessionals/payment.asp—This site provides information on Medicare payment systems.

www.ingenixonline.com—This site provides an exhaustive list of reference books on payment methodologies and coding.

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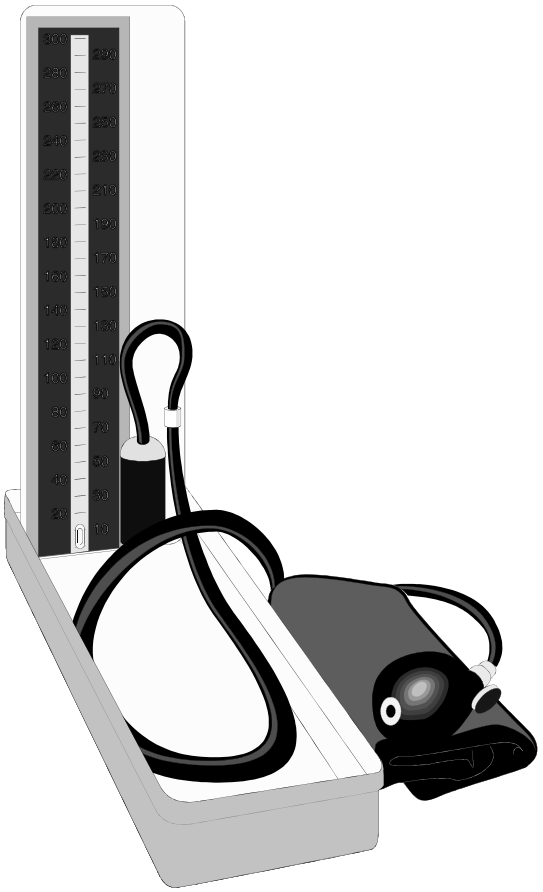
The Actuary and the Medical Device Industry

by Robert F. McCarthy



Traditionally, actuaries have been involved in the medical device arena in estimating the potential in implementing new technologies, as either savings in provider costs or as in reductions in utilization, as it relates to a provider network or carrier plan. Such analyses provide valuable justification in using or disregarding new technologies. These tend to be post-development analyses. Actuaries, however, are well-versed in risk management techniques, and an actuary who becomes involved in the device development process could assist in designing the market analysis model, integrating the cost analysis model and measuring the associated risk severity outcomes. This would ultimately help the firm avoid wasting valuable resources, mainly time and capital investment.

It is well known that the medical device and pharmaceutical industries are among the most regulated industries, primarily overseen by the FDA. While on the surface such regulation may impede new technologies, it is needed primarily to ensure patient safety and validate the efficacy of new technologies. By understanding the regulatory environment and the developer's perspective, insight can be gained as to how an actuary can provide added value in the development, production and marketing processes.

The Regulatory Environment

The FDA classifies medical devices in terms of the regulatory control necessary to achieve product safety and efficacy. These regulatory controls are called the General Controls. Any medical device that is marketed in the United States is regulated under these controls. Regulations under the General Controls include but are not limited to:

- Adulteration and Misbranding—Upon FDA approval, the medical device cannot be marketed with substandard components.
- Regulation and Listing—The FDA requires device manufacturers to register each year.
- Pre-market notification, (510k)—The FDA must be notified by the manufacturer at least 90 days before introducing a medical device. The FDA initially classifies all new devices as class III, the most stringent classification. Upon a petition approval, a device may be reclassified as either a class I device or a class II device, (see below for class descriptions).
- Banning—The FDA has the authority to ban any hazardous or fraudulent device.
- Reporting Requirements—Manufacturers must establish, maintain and provide any information that assures FDA compliance. For example, any adverse effects to the patient must be reported should the device cause injury or death.

The FDA medical device classifications under which the General Controls apply are summarized below:

- Classification I—Medical devices with minimal risk, non-life threatening.
- Classification II—Medical devices requiring performance standards such as:
- Establishing use, functioning and labeling of device.
- Describing component selection, device design, device specifications and device construction.

- Testing the device and assuring conformity to the standard.
- Classification III—In addition to the above, demonstration and approval of safety and efficacy of the device.

The fundamental underlying message in these regulations is to protect the consumer and society from harmful products. In keeping with this theme, significant consulting opportunities exist ranging from dynamic hazard validation analyses to assessing the financial impact of the various litigious risks involved. These opportunities would ultimately benefit both the consumer with a safer and more reliable product, and the developer/manufacturer with a sound business model.

The Designer/Manufacturer Perspective

Developers of new technologies need to balance several events simultaneously. These include:

- Protecting their intellectual property and rights via patents, copyrights and trademarks.
- Determining market potential, physician/patient demand and critical market capture.
- Designing an affordable and marketable product within the constraints of current market practices and demands.
- Assuring safety and efficacy of their product.
- Testing their product.
- Actual marketing of their product.
- Maintaining records of misuse and potential liabilities of their product.

In protecting intellectual property, designers generally go through a step-by-step process to determine the novelty of the product, and to ascertain as to whether the product is worthy of future investment in time and research. These steps generally include describing the product in terms of its use, its purpose, its novelties and its significant advantages.

While the use and purpose of the device tends to be the idea itself, determining novelty and advantage requires research and development. The novelty of an idea is justified by an extensive review of preceding and tangential technologies. This requires a historical background review that presents an overview of the evolution of the significant incorporated technologies. In addition, reviewing current technologies in the market, which may be considered competitive or as the basis of substitution, is a fundamental task as well. The advantages of the product can be based on the patient's perspective or from the physician's perspective. For example, from a patient's perspective, how will this device improve well-being, recovery, monetary cost...etc. From a physician's perspective, how can this device also reduce liability while improving diagnostic or curative capabilities?

In developing a preliminary market analysis model, several key questions are usually addressed. These include:

- How should the product be tied to the market? Is the product diagnosis-oriented or procedure-oriented? Is it specific to a particular disease or condition, or can it be applied across a broad spectrum? For example, an IV system can be used for various diagnoses; however, glucose monitors are predominantly used by diabetics.
- How accessible is useful data and at what cost?
- Do any medical associations provide useful data?
- Is it appropriate to obtain data by classifications of severity?
- Given the current market, where do potential competitors and substitutes fit in? Where are their geographic strengths and weaknesses?
- What is the market size?
- What percentage of the market must be captured to achieve profitability assuming product cost of $X.00?

The cost analysis model generally consists of six separate categories. These are general and administrative costs, research and development costs, production costs, marketing and promotion costs, distribution costs, and equity costs. Upon creating such a cost model, various competitive comparisons can be made that present economic advantages of using new technologies.

Product Failure and Litigation Risk

So far, four areas of new device technology have been briefly discussed, these being government regulation, novelty of an idea, the market, and production costs. An additional area to consider is the potential of product failure and the risk brought upon by the device design, the production process, the use of the device and the outcomes of the device. Such product failures can lead to patient harm and should be reviewed for the potential adverse outcomes of product liability.

These failures need to be identified during the design phase. Generally, failures are identified by theoretically allowing an aspect of the design to

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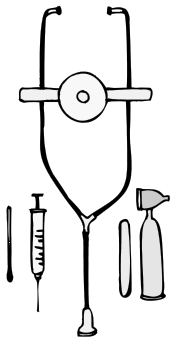
fail, misusing the device and/or considering the biocompatibility of an individual. For example, imagine the product is a portable electro-muscular stimulator. Several potential failures may include:



- Voltage indicator reads too low, (design failure).
- Voltage indicator reads too high, (design failure).
- Electrodes are placed incorrectly, (misuse of device).
- Electrodes are used without conductive gel, (misuse of device).
- Frequency used causes seizures similar to epilepsy, (biocompatibility).
- Over sensitivity to electrode material, (biocompatibility).

For each of these failures, risk and its associated cost must be defined, quantified and reduced sufficiently to make the product economically feasible. Risk and the cost outcomes can be better assigned by answering the following questions:

- What are the causes of these failures?
- What is the likelihood that such a cause will happen?
- What adverse patient reactions can occur?
- What is the severity of the reaction?
- What actions must be taken to reduce this risk?

Looking at two of the above, adverse outcomes can be developed to better estimate the potential of product liability and any litigious concerns that should be addressed.

Failure Study Example #1, Voltage indicator reads too low.

- What are the causes of these failures? Possible internal circuit component failure in analog/digital control component. Possible error in calibration of device.
- What is the likelihood that such a cause will happen? 1 in 100,000? 1 in 1,000,000?
- What adverse patient conditions can occur? If input of voltage is greater than believed to be input, second or third-degree burns, possible skeletal fractures from excessive contractions, potential for heart defibrillation and potential for seizures may occur.
- What is the severity of the reaction? Moderate litigation damage for burns and fractures. Catastrophic litigation for heart conditions and seizures. $100,000? $10,000,000?
- What actions must be taken to reduce this risk? Allow for preventative design measures to calibrate device and to limit voltage potential to a maximum safety level.

Failure Study #2, Electrodes are placed incorrectly, (misuse of device)

- What are the causes of these failures? User doesn't follow indications and directions.
- What is the likelihood that such a cause will happen? 1 in 20? 1 in 100?
- What adverse patient reactions can occur? Little or no muscle stimulation enacted. Potential for burns if voltage is increased to create a stimulus response.
- What is the severity of the reaction? Nuisance litigation. Return of product.
- What actions must be taken to reduce this risk? Proper training demonstration of device through distribution system.

Role of the Actuary

Actuaries persistently take on an integral role in the decision-making process, the development and maintenance of a financial system. This is evident in many arenas including but not limited to medical insurance, managed care, provider networks, long-term care and continuing care retirement communities. In taking on this role, actuaries draw upon several areas of formal training including economics, statistics, financial modeling and risk management, which is a broader span of knowledge than an economist, a statistician, or an MBA can provide. This fundamental knowledge base is essentially transferable in addressing potential consulting needs of a medical device company.

In addition, the actuary's knowledge and experience can be significant in designing and maintaining a financial model for a medical device company. Such a model will not only assist in determining and understanding the cost benefits for all parties involved (medical device company, consumer, provider network, insurance carrier, managed care organization, society as a whole), but also provide a tool to continually and dynamically reassess any risk implications borne upon a medical device and the consequences of addressing or ignoring the risk. In this manner, the actuary provides a sound demonstration, often the best marketing tool to potential buyers, addressing a win-win scenario for all affected parties.

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Comparison of Risk Adjusters

by Bob Cumming

We recently finished a research project that compares the performance of several claims-based methods for health risk assessment. Both diagnosis-and pharmacy-based methods of health risk assessment, also referred to as risk adjusters, were analyzed. This research project was sponsored by the Health Section Council. The lead researchers for this project include Bob Cumming from Milliman USA, Inc and Dave Knutson from the Park Nicollet Institute Health Research Center. The following provides some background, a brief description of the study and some high level results.

Background

The use of claims-based health risk assessment continues to grow. The federal government has been using hospital inpatient diagnoses to adjust payments to Medicare + Choice contractors and plans to switch to an approach that uses both inpatient and outpatient diagnoses in 2004. Numerous states have implemented methods that use medical diagnosis codes to adjust payments to managed care plans for Medicaid enrollees. Employers are using diagnosis-based methods of risk assessment to analyze how employee contributions should vary by choice of provider or health plan. Health insurers are increasingly using, or are considering using, diagnosis- or pharmacy-based methods of risk assessment for provider profiling, case management, provider payment and rating/ underwriting.

Although the use of risk adjusters is becoming much more prevalent, there is a lack of independent testing and comparison. The most recent comprehensive, independent study of risk adjusters for commercial populations is the prior study done by the Society of Actuaries in 1995.

Purpose

The purpose of this study is to provide an independent comparison of several currently available risk adjusters. Specifically, the goals of this study include:

1. Analyzing several recently developed pharmacy-based risk adjusters.
2. Comparing the performance of pharmacy-based risk adjusters with the latest diagnosis-based risk adjusters.
3. Comparing results based on the "standard" risk weights provided with the models with results based on recalibrated risk weights developed from the data set used for this study.
4. Analyzing the change in performance of diagnosis-based risk adjusters since publication of the 1995 Society of Actuaries study.
5. Comparing alternative measures of predictive accuracy.

This study should provide useful information to payors and insurers for evaluating diagnosis and pharmacy-based risk adjusters.

Risk Adjusters Included in Study

This study compares the performance of seven risk adjusters, including three diagnosis-based models, 3 pharmacy-based models, and one model based on both diagnosis and pharmacy data. The following models were evaluated:

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Type of Risk Adjuster	Risk Adjuster
Diagnosis	Adjusted Clinical Groups (ACGs)
Diagnosis	Chronic Illness and Disability Payment System (CDPS)
Diagnosis	Diagnostic Cost Groups (DCGs)
Pharmacy	Medicaid Rx
Pharmacy	RxGroups
Pharmacy	RxRisk
Diagnosis + Pharmacy	Episode Risk Groups (ERGs)

These risk adjusters are compared under three applications:

1. Prospective model with offered risk weights.
2. Prospective model with recalibrated risk weights.
3. Concurrent model with recalibrated risk weights.

A prospective application of a risk adjuster uses claims data from a prior period of time to project medical claim costs for a future period. A concurrent (sometimes called retrospective) application uses claims data from a period of time to project medical claim costs for that same period.

For each risk adjuster, there is a risk weight for each medical condition category. The risk weight reflects an estimate of the marginal cost for a given medical condition relative to the base cost for individuals with no medical conditions. The offered risk weights are the standard risk weights that are provided with the risk adjuster software. The recalibrated risk weights were developed as part of this study and are based on the data set used for this study.

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Results

The following provides a high level summary of the results for this study:

- For prospective applications, the pharmacy and diagnosis-based models perform at a similar level.
- For concurrent applications, the diagnosis-based models outperform the pharmacy-based models.
- The performance of the CDPS and Medicaid Rx models increase significantly when they are recalibrated for the commercial population included in this study. The performance of the other risk adjusters increases slightly when the risk weights are recalibrated.
- The performance of the diagnosis-based risk adjusters has increased significantly since the prior 1995 SOA study.
- A new measure of predictive accuracy was developed. We believe that this new measure has advantages over the existing commonly used measures.

The final report provides a thorough discussion of the results, including numerical measures for each risk adjuster under a variety of applications.

ASOP 6 and Medicare Payments Projections

by Wes Edwards

I welcome the ASOP 6 as an addition to the practice standards and the literature on valuing retiree group medical and life benefits. While I will not soon throw out the ACG 3, I recognize that it differed in form and content from an ASOP and that an ASOP was warranted for the sake of consistency in treatment by the standards.

One aspect of retiree medical that is addressed somewhat vaguely in the compliance guideline and is perhaps equally vaguely addressed by most practicing actuaries is the impact of Medicare, both in the valuation base year and to a greater extent in future years. The potential for understatement of the post-retirement benefit obligation from this source is large. For this reason, I hope to see a productive dialogue on projecting Medicare payments per beneficiary under the scenario prescribed by applicable accounting and actuarial standards.

Health actuaries are generally well versed on the historic impact of Medicare cost shifting. The sources of impact on private paid medical expenditures include decreases in Medicare reimbursements to providers and Medicare HMO plans, increasing part A deductible and the growth in cost of services not covered, including Rx, private duty nursing, skilled nursing facility in excess of $101.50 per day, custodial care, etc. The reimbursement decreases have led to an increase in providers refusing to accept Medicare assignment, providers seeking to increase billed charges for non-Medicare covered services and for non-Medicare eligible patients. A shrinking number of participating providers being compensated a smaller proportion of eligible charges by Medicare has meant that private paid trends per capita have been higher than overall trend. The degree of cost shift from Medicare covered services onto non-Medicare covered services for Medicare beneficiaries versus that shifted to services for other patients is difficult to measure. However, many providers, due to geography, specialty, existing patient base and contracted rates for private pay patients, have less opportunity to shift costs onto non-Medicare patients than their Medicare patients.

What do the standards say about the impact of Medicare?

ACG 3 section 5.5 quotes paragraph 35 of SFAS 106: "an employer's share of the expected future post-retirement health care cost for a plan participant is developed by reducing the assumed per capita claims costs at each age at which the plan participant is expected to receive benefits under the plan by (a) the effects of coverage by Medicare and other providers of health care benefits…" Section 5.6 addresses the health care cost trend rate (HCCTR) that is applied to the per capita claim costs (PCCC) described in 5.5. In 5.6.3, the compliance guideline states "The HCCTR is defined as the rise in gross eligible charges before Medicare reimbursement. Erosion or increase in relative Medicare reimbursements can leverage incurred claims costs faster or lower than the underlying HCCTR."

The new ASOP 6 clearly states in 3.8.1(a), "The actuary should consider separate trend rates for major cost components such as hospital, prescription drugs, other medical services, *Medicare integration* and administrative services."

It is the author's observation that actuaries practicing in the retiree medical valuation area have frequently approached this issue in a cavalier fashion. That is, the practice has been the use of the simple assumption that Medicare will offset a constant percentage of the gross per capita claim amount. This assumption would seem to fly in the

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face of the general acceptance of Medicare cost shifting as a historical fact, a present condition and a significant future probability.

What can we expect of the future for Medicare?

Of course, the accounting standards as promulgated require that no future anticipated changes in Medicare programs should be recognized.[1] The state of existing Medicare as evidenced by the 2002 Medicare Trustee's Reports is such that Medicare Part A fund will bankrupt in 2030 under the intermediate economic assumptions.[2] Centers for Medicare & Medicaid Services (CMS) recently produced updated national health expenditure projections through 2011 when converted to per capita values and compared for each year from 2002 through 2001 (see Table 1). These projections include Medicare payments by type of service and expected Medicare beneficiaries.[3] They also, when converted to per capita values and compared for each year from 2002 through 2011, show a trend in Medicare per capita payments that is below the norm observed by the author for retiree medical select period trend assumptions. It is also below recently released CMS projections for increases in private insurance paid per capita personal health expenditures (PHE) net of dental and prescription drugs (services largely not covered by Medicare) through 2007 (see Table 2). After 2007, the CMS numbers show that Medicare payments per capita increase at a rate faster than private insurance payments per capita for PHE. This sounds like a "reverse cost shift" onto Medicare, which would be welcome news.

The "reverse cost shift" in 2002 CMS projections in years 2008-2011 is something most of us have not experienced. However, before we get too excited, we should look closely at the recent history of the CMS projections of national health expenditures. Both tables show a side-by-side comparison of the March 2002 and March 2001 projections where we can recognize that the date this reverse shift is to occur was pushed back from 2006 in the 2001 NHE projections to 2008 in the current 2001 NHE projections. Given the state of the Medicare HI Trust Fund, I find it hard to believe that Medicare will in the near future be in a position to increase per capita payments at a rate faster than private sources. At this point, I would invite any CMS actuary familiar with this data to help us better interpret these projections.

Perhaps there is an "out" in ASOP 6, section 3.8 where the standard reads, "With respect to any

Table 1: Personal Health Expenditure Per Capita Increase Forecasts 2001 & 2002

Year	March-02				March-01
	Paid PHE ($ billions)	Beneficiaries (thousands)	Paid Per Beneficiary	Increase per Beneficiary	
2000	$217.0	38,239	$5,675	4.7%	
2001	238.2	38,654	6,162	8.6%	6.2%
2002	251.4	39,013	6,444	4.6%	5.8%
2003	261.4	39,393	6,636	3.0%	5.6%
2004	277.7	39,847	6,969	5.0%	4.7%
2005	296.0	40,325	7,340	5.3%	5.7%
2006	314.9	40,874	7,704	5.0%	5.5%
2007	334.4	41,563	8,046	4.4%	5.2%
2008	357.2	42,404	8,424	4.7%	5.1%
2009	381.6	43,266	8,820	4.7%	5.1%
2010	407.8	44,084	9,251	4.9%	5.3%
2011	437.3	45,058	9,705	4.9%	-

Table 2

Year	Insurance Paid PHE Net Of Rx and Dental			
	March-02		March-01	
	per capita	Increase	per capita	Increase
2000	$1,085	4.6%	$1,094	6.8%
2001	$1,154	6.4%	$1,179	7.8%
2002	$1,244	7.8%	$1,279	8.5%
2003	$1,330	6.9%	$1,379	7.8%
2004	$1,421	6.8%	$1,476	7.0%
2005	$1,510	6.3%	$1,562	5.8%
2006	$1,596	5.7%	$1,637	4.8%
2007	$1,670	4.6%	$1,699	3.8%
2008	$1,741	4.3%	$1,757	3.4%
2009	$1,817	4.4%	$1,818	3.5%
2010	$1,890	4.0%	1,880	3.4%
2011	$1,963	3.9%	-	-

particular measurement, each economic assumption selected by the actuary should be consistent with every other economic assumption selected by the actuary to be used over the measurement period. The actuary should reflect the same general economic inflation component in each of the economic assumptions selected by the actuary. The relationships among economic assumptions should be reasonable relative to the underlying economic conditions expected throughout the projection period." NHE projections are based on demographic and macroeconomic assumptions from the intermediate scenario in Medicare trustees reports. Projected growth in Medicare spending reflects the assumption that there will be no alterations to current law (this assumption is required by law for the Medicare trustees report).[4]

There is latitude for projections using different economic scenarios. However, I believe an actuary should be able to defend and describe any alternative economic scenario and explain the impact of it on results produced. If the actuary chooses a scenario similar to the CMS "high cost" scenario, this will generally cause the post-Medicare age retiree medical liability to increase. To choose a scenario similar to the CMS "low cost" scenario might produce favorable results but must be defended. While CMS produces projections under three scenarios, shareholders and other audiences of retiree medical valuation reports generally expect a number rather than a range under various scenarios as the result. The constraint of a single expense estimate required under accounting standards would seem to require that the result must be defensible under a best estimate of future conditions.

What is a best estimate for Medicare for the practicing actuary?

I believe a best estimate for every valuation of medical benefits covering a Medicare eligible population should have a Medicare trend that is less than the HCCTR, unless clear documentation is presented to defend the projection of Medicare payment increases at a rate equal to or greater than the HCCTR. The determination of the degree of difference between the HCCTR and Medicare trend rate at each year will be difficult. However, the magnitude of the difference is so large that ignoring the impact of this difference cannot be within accepted actuarial practice.

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Footnotes

1) SFAS 106, par. 40.

2) *www.hcfa.gov/pubforms/tr/2002/secib.htm*

3) *www.hcfa.gov/stats/NHE-Proj/proj2001/default.htm*

4) For more information on assumptions in the intermediate scenario see *www.hcfa.gov/pubforms/tr/2002/secic.htm.*

NAIC Health Update

by Rowen B. Bell

Editor's Note: This article focuses on items of interest to health actuaries from the recent NAIC meeting in Philadelphia (June 2002).

Health Insurance & Managed Care Committee

Experience Rating for Individual Medical

The Academy's Task Force on Health Insurance Rate Filing is in the middle of a multi-year project to make recommendations to the NAIC on how to reform the rating guidelines applicable to individual medical insurance in order to temper the "closed block" problem. The task force's initial report, which is expected to be provided to the Accident & Health Working Group within the next year, will present actuarial modeling on several alternatives for the NAIC's consideration.

One of the alternatives that the task force was starting to investigate was the notion of experience rating (also called "re-underwriting"), in which an insured's renewal premium would be adjusted upwards or downwards (e.g., "good health discounts") based on the individual's actual or perceived health status. The NAIC's 1996 Individual Health Insurance Portability Model Act forbids this rating practice. However, as that model was not widely enacted by the states, experience rating is currently used to varying degrees by certain carriers, although as of late the practice has garnered considerable negative press (most notably in the *Wall Street Journal*).

In recognition that experience rating for individual medical insurance is controversial from a public policy standpoint, the task force asked the NAIC to provide guidance as to whether or not this alternative should be modeled for inclusion in its report. The response from the NAIC's B Committee, the ultimate parent of the Accident & Health Working Group, was that it did not want experience rating included in the report, due to the committee's stated belief that basing renewal rates on an individual's own experience is "contrary to the public interest and should be prohibited."

The task force engaged in considerable internal debate over how it should react to the NAIC's pronouncement. One faction argued that since the task force was formed for the express purpose of providing technical support to the NAIC, it would be a waste of the task force's time to spend further resources on studying an option that the NAIC has indicated it will not entertain. Another faction argued that by not modeling the experience rating alternative, the task force would in effect be taking a partisan position on experience rating for individual health, and that consequently it was appropriate for the profession to continue modeling this option but exclude the results thereof from the report made to the NAIC. In the end, the former faction carried the day, and as a result the task force's flirtation with experience rating has ended.

Accident and Health Worki ng Group

Premium Deficiency Reserves

As mentioned previously, the working group is currently investigating areas of inconsistency between post-codification statutory accounting, existing model laws and regulations, and current actuarial practice with regard to actuarial reserves for health insurance.

One of the areas currently under discussion is the definition of premium deficiency reserves found in SSAP 54. In order to set the stage for future recommendations, the working group is in the process of articulating the regulatory objectives behind the premium deficiency reserve concept.

Health Actuarial Certification Changes

As mentioned previously, the working group is going to take a look at revising the type of actuarial certification requirement applicable to companies filing the health annual statement. In the meantime, however, the working group has made a number of minor refinements to the existing certification instructions.

First, the working group corrected an oversight regarding the scope paragraph. The annual

statement line for "aggregate claim reserves"—reserves as opposed to liabilities in the sense of SSAP 54, i.e., the unaccrued portion—had inadvertently been left out of the list of items required to be in the scope of the opinion.

Second, the working group voted to adopt a change to the required opinion language relating to the recent adoption of revisions to ASOP 5; references found in the existing language regarding the preparation of U&I Exhibit Part 2B no longer made sense in light of the new version of the standard of practice.

Third, the working group voted to strengthen as follows the wording to be used by third parties in the data quality attestation statement accompanying the opinion:

> "I, [name], [title] of [organization], hereby affirm that the listings, and summaries, and analyses relating to of data prepared for and submitted to [actuary] in support of [his/her] actuarial opinion for [entity] as of [valuation date] were prepared under my direction and, to the best of my knowledge and belief, are substantially accurate and complete and are the same as, or derived from, the records and other data which form the basis of the annual statement for the year ended [valuation date]."

Reserves for Long-Term Care Insurance

Reversing course from its previous meeting, the working group agreed to form a subgroup, headed by Larry Gorski from Illinois, to study existing reserve standards for long-term-care insurance.

Long-Term Care Guidance Manual

The working group adopted the Guidance Manual for Rating Aspects of the Long-Term Care Insurance Model Regulation. This manual provides helpful guidance for actuaries involved in submitting LTC rate filings in those states that have adopted the 2000 NAIC model. The Life & Health Actuarial Task Force is expected to adopt the manual at the September NAIC meeting.

Statutory Accounting Principles Working Group

Cost Containment Expenses

As expected, SSAP 85 on cost containment expenses was approved in June (see the previous article in this series for further discussion). The

new guidance does not take effect until December 31, 2003. However, once it does take effect, any item falling under the cost containment expense definition will need to be included in the unpaid claims adjustment expense liability (as opposed to in the unpaid claims liability or in the liability for general unpaid expenses).

Annual Statement Instructions Working Group

Allocation of Premiums by State

A proposal was made to alter the way in which group insurance premiums are allocated by state in Schedule T of the annual statement.

Currently, there is no absolute guidance on this subject. However, most carriers appear to rely on a "500-life rule" to simplify the allocation process. There appear to be several different variants of the "500-life rule" in current use, including the following:

- Allocate all premiums by state according to the state of residence of the insureds, except that if the carrier has fewer than 500 insured members living in a particular state, allocate those insureds' premiums to the carrier's state of domicile.
- If a group has less than 500 lives, allocate all of its premiums to the state where the group is sitused. Otherwise, allocate the group's

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premiums according to the state of residence of the insureds.

- If a group has less than 500 lives, allocate all of its premiums to the state where the group is sitused. Otherwise, allocate the group's premiums according to the state of residence of the insureds, except that if less than 5 percent of the group's members live in a particular state, allocate those insureds' premiums to the state where the group is sitused.
- If a group has less than 500 lives, allocate all of its premiums to the state where the group is sitused. Otherwise, allocate the group's premiums according to the state of residence of the insureds, except that if fewer than 500 of the group's members live in a particular state, allocate those insureds' premiums to the state where the group is sitused.

Under the new proposal, all group insurance premiums would instead be allocated according to the "state in which the certificates are held," i.e. the state of residence of the insureds, regardless of the size of the group.

The regulatory intent behind this proposal appears to be two-fold: a desire by smaller states to increase premium tax revenues (since premium tax calculations are often based on Schedule T premium allocations); and a desire by states to obtain a better reckoning on how many of its residents are covered under group insurance contracts (particularly medical insurance) issued in other states.

Although this proposal was not moved forward to the agenda for the Blanks Task Force's annual meeting in October, it seems very likely that the issue will rise again in 2003.

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Health Risk-Based Capital Working Group

Treatment of Prescription Drug Benefits

In the health RBC formula, insurance products are classified into several different categories for purposes of determining the capital requirement. The most common of these categories is called "Comprehensive Medical & Hospital" and is meant to include any product that smells like a major medical product. There are separate categories for products having different risk characteristics, such as Dental and Medicare Supplement, as well as a catch-all "Other Health" category for products not otherwise classified, such as standalone vision coverage.

The intent of the formula has been that prescription drug benefits provided within the context of a major medical coverage should be included in the Comprehensive Medical & Hospital category, as opposed to prescription drug benefits provided on a truly standalone basis, which should be included in the Other Health category (where the RBC treatment is less favorable in most circumstances). However, due to an ambiguity in the instructional language, some carriers have instead been allocating all of their prescription drug benefits to the Other Health category for HRBC purposes.

In response to this situation, the Health RBC Working Group recently made a change to the instructional language for 2002 to clarify that prescription drug benefits are only to be included in Other Health if they are provided on a standalone basis (i.e., if the drug product is one that could be purchased independently of the medical/hospital coverage).

Health Entities Working Group

Health Financial Analysis Handbook

This working group, which was formed to provide a focal point for examination oversight activities relating to health insurers and HMOs, has recently launched a project to write a handbook for regulators to use in performing financial analysis of such companies. Chapters of the handbook are being written serially and exposed for comment during the second half of 2002. The first chapters released for comment cover actuarial reserves. For more information, see *www.naic.org/1finance/health_financial_analysis_hb/index.htm.*