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Chairperson's Corner

by Bernie Rabinowitz

The time has come to say farewell. My term is up and this is my last column as the Health Section chairperson. I would like to touch on three subjects. These are volunteering, expanding the professional role of the healthcare actuary, and communications. In fact all three are interrelated.

Volunteering

I want to thank the many volunteers for the great effort and numerous

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The Art & Science of Pricing Small Group Medical Coverage

Initial Pricing Schemes

by William R. Lane

The Process Of Setting Rates

Setting rates for small employer medical coverage usually involves three specific tasks, as follows:

First, one needs to determine what the average cost will be for the products to be sold. This includes setting age/gender factors, determining the relative worth of various plan designs, determining the relative cost in various geographic areas, setting trend factors, determining the worth of differing networks, and determining the impact of industry on the relative cost. Most important it includes setting a base rate.

Setting base rates has been greatly complicated by the use of provider networks. The experience of other companies cannot be assumed to match your own. Purchased rate manuals need to be adjusted to reflect your network and your utilization management. As always, the best indicator of the needed base rate is your own experience adjusted

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for any changes in how you are managing your business. The actual experience needs to be analyzed using incurred claims and earned premium adjusted to a common basis such as a standard age/gender factor, a standard plan factor, a standard area factor, a common time period, and a standard industry factor. Adjusting out these factors and the impact of large claims, usually, a block as small as $10 to $20 million in annual claims is sufficiently stable enough to provide a reasonably good base rate.

Second, for both quotes and renewals, a company needs a process which will determine whether a specific case is better, worse, or about average in risk. Given that a company will usually have more data for renewals, the process for setting the relative risk of a renewal is usually different from the process used in initially quoting a case. For initial quotes, the best information available is often some form of individual medical questionnaire answered by each employee. For renewals, the best information available is often the actual claims experience of the case, both in total (i.e. the case's loss ratio) and in terms of specific large claims or serious medical conditions.

Companies have become increasingly sophisticated in their ability to set relative risk levels. Maintaining these skills is critical to long-term success in this market.

Third, unless the laws of a state only allow strict community rating, once you have set the allowable factors and the base rates, and you have a process for determining the relative risk of a given case, you still need a process which decreases or increases the rate for the specific case based on its perceived risk. This article focuses on how companies can set these factors for quotes.

For the purpose of comparing three approaches to setting risk adjustment factors, we need to know the distribution of cases within a market according to their relative risk level. The overall distribution of cases by risk class in a market depends on a number of variables including the size of the cases, the extent of managed care in the market, and the general medical practices in the area (such as the relative availability of high intensity, high cost procedures). For the purposes of this article, we will use the following distribution. It bases the definition of "low risk" or "high risk" on the most recent twelve months of claims experience within the case as compared to the "average" after taking into consideration such factors as age/gender, plan design, industry and geography.

Current Claim Level	Relative Number of Cases	Expected Claim Level Following Year
Under 50%	30.0%	44.8%
50 to 70%	15.0%	69.6%
70% to 100%	21.7%	89.6%
100% to 140%	18.3%	112.7%
140% to 200%	6.0%	145.3%
Over 200%	9.0%	303.7%

Initial Pricing Schemes

There are three basic pricing schemes for small group business with infinite gradations in between. The most prevalent is simply setting the mid-point of a pricing range at the average rate, pricing the lowest risk business at the lowest possible rate, pricing the highest risk business at the highest possible rate and then grading the rates in between as the perceived risk changes. This is such a self-evident approach that many actuaries are unaware that other schemes exist, much less have practical value. I will refer to this scheme as "Following The Curve."

The other two basic schemes are similar in appearance, but produce strikingly different results. One scheme is to set one rate level for all business that is above average in risk. As we will see below, this allows the pricing for the lowest risk class to be set at the lowest possible rate. I will refer to this scheme as "Lowest Best Rate." This is an approach that is sometimes favored by marketing-oriented organizations simply because it is most competitive for the "best risks." The assumption is that if you can attract mostly very low-risk groups, your experience will be excellent overall. This approach often occurs, not as a deliberate strategy, but as the by-product of setting "new business rates" according to competition rather than risk. These rates are intended only for the "lowest risk" cases and everything else is loaded up to the maximum allowed by law. Frequently, little attention is paid to whether or not the overall scheme will be profitable.

Even though this scheme is generally quite unprofitable, the scheme is sometimes hard to change simply because for the lowest risk cases, the low rates are adequate and the financial problems are

blamed on the "bad cases" causing the "shock" losses.

The third scheme is to set one rate level for all business which is below average in risk. As we will also see below, this allows the pricing for the highest risk class to be set at the highest possible rate. I will refer to this scheme as "Highest Worst Rate."

This not a particularly popular scheme because for the lowest risk class you are uncompetitive, and there are many cases that fall into the category of lowest risk. Financially, however, it can be the most productive approach of the three.

All of these schemes are dependent on the rating flexibility allowed by state law. The most common restriction is ±25% from index ("average") rates. Another common restriction is ±35% from index rates, and other ranges are also in place. The table below shows these schemes might be initially implemented for the ±35% rating variations, but the results are similar using other ranges.

Allowable Rating Variation ±35% - Initial Rate Levels

Current Claim Level	Lowest Best Rate	Following The Curve	Highest Worst Rate
Under 50%	0.50	0.65	1.00
50 to 70%	0.70	0.80	1.00
70% to 100%	0.90	0.95	1.20
100% to 140%	1.00	1.15	1.50
140% to 200%	1.00	1.35	2.07
Over 200%	1.00	1.35	2.07

The above factors are somewhat meaningless as is, since you also need to know the base rate which will be multiplied by these factors. If the base rates were "area average" and the above factors were used as shown, the "Lowest Best Rate" scheme as shown would produce rates which, on average, were well below the needed level and vice versa for the "Highest Worst Rate" scheme. In other words, the values as shown above need to be adjusted so that they produce an average rate equal to the average claims. Using our assumed distribution of claim levels for small groups, the rating schemes produce the following values.

Allowable Rating Variation ±35% - Normalized Rate Levels

Current Claim Level	Lowest Best Rate	Following The Curve	Highest Worst Rate
Under 50%	0.638	0.696	0.772
50 to 70%	0.894	0.856	0.772
70% to 100%	1.149	1.017	0.926
100% to 140%	1.277	1.231	1.158
140% to 200%	1.277	1.445	1.598
Over 200%	1.277	1.445	1.598

The "Lowest Best Rates" had to be increased by 27.7% to produce an average rate that matched the average claim level. The "Highest Worst Rates" could be lowered by 22.8% to achieve this result. What may surprise some actuaries who are not familiar with this type of business is that the "Following The Curve" scheme also had to be increased to make the rating structure produce sufficient premium to meet average claim levels. The reason is simple. The worst risk cases are fewer in number, but have very high claims levels. The best risk cases are far more frequent.

Thus raising rates on higher risk cases and lowering rates on better risk cases doesn't average out. You are lowering rates for many more cases than you are raising rates. Hence, the entire set of rates must be adjusted upward or you will automatically lose money on the block.

In this case, the "Following The Curve" factors had to be raised by 7.1% to make them sufficient.

Even after normalizing the rate levels, we see that the three schemes produce distinctly different patterns. The patterns are less distinct when the allowed rating variations are very narrow or very wide. The patterns are much more distinct when the allowed rating variations are in the ±20% to ±35% range, which are typical legal restrictions. Viewed in terms of competitiveness, the "Lowest Best Rates"

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are the lowest (and therefore most competitive) for the best risk cases and for the worst risk cases. The "Highest Worst Rates" are the most competitive for cases in between the two extremes. The "Following The Curve" rates are not "most competitive" for any of the expected claim levels. While theoretically this is an issue, the vast majority of the market prices in this manner, and therefore it is significantly less of an issue than it might otherwise be.

Even so, the factor of competitiveness is very important. Obviously, a company must have sales to exist. Just as important is understanding that a company can be competitive for one type of risk, and uncompetitive for others. This changes the mix of the resulting business and therefore, has a strong impact on the financial results.

As a whole, the market tends to use the "Following The Curve" pricing scheme. The scheme is so inherently obvious that few actuaries have spent much time considering alternatives. To a certain extent it almost seems like there aren't any other logical alternatives.

Hence we will consider the market to be only using the "Following The Curve" approach, even though we recognize it to be an oversimplification.

At first, it would seem that if two companies were using the same rating scheme and had normalized their rates to the same average, then there would be no difference between the two rates, and therefore, everyone would get an equivalent mix of business. In the real world, things can be more complicated.

On the one hand, companies have legitimate reasons for pricing higher or lower than their competition. Some companies have better networks, some have worse. Some companies have lower expenses, some have higher. Some companies get conservative in rating, some get aggressive. While the price level of other companies will certainly impact the ability of your company to sell, if the other companies are uniformly higher or lower in price, then your company should still sell a uniform distribution of business.

On the other hand, this is not true with regard to the pricing of your own company. Very few actuaries have working crystal balls. Hence, sometimes rates will be lower than appropriate and sometimes higher. While it might seem that this would average out, the net result is that your company will sell more business when its rates are lower than they should be and vice versa. The net result is an overall cost which must also be factored into the equation. Essentially, the better a company can assess risk, the lower the rate it can generally charge (or the higher its profit margin will be). For example, using the assumptions in this paper, if a company underprices its quotes by 5% on three out of ten quotes and overprices its quotes by 5% on three out of ten quotes, its loss ratio on sold business will rise by 1½% overall. Having the data to analyze and properly set the rate levels on a case-by-case basis is valuable, even if you can accurately set the "average" claim cost, and even more so when you can't.

What is more striking, however, is the result of using one of the two other rating schemes in a market that predominately prices by "Following The Curve."

Chart One illustrates a company using the "Following The Curve" approach and provides a comparison to the other two charts. These rates match the rates in the market place. This company sells business by risk class in proportion to the availability of such business. The result is beak-even financially and a closing ratio of 8% which has been set as the "normal" closing ratio.

Chart One: "Following The Curve"

Current Claim Level	Percent of Quotes	Price Quoted	Market Price	Closing Ratio	Percent of Sales
Under 50%	30.0%	69.6%	69.6%	8.0%	30.0%
50 to 70%	15.0%	85.6%	85.6%	8.0%	15.0%
70% to 100%	21.7%	101.7%	101.7%	8.0%	21.7%
100% to 140%	18.3%	123.1%	123.1%	8.0%	18.3%
140% to 200%	6.0%	144.5%	144.5%	8.0%	6.0%
Over 200%	9.0%	144.5%	144.5%	8.0%	9.0%
Average Premium: 100.0%, Average Claim Level: 100.0%, Underwriting Gain: 0.0%					

A couple of points should be noted. "Break-even" actually means that this company is achieving a gain or loss which is consistent with the market and the company's relative expenses and network prices. Overall, if the market is losing money, then this company is doing likewise and vice versa. Similarly, the 8% closing ratio simply means that the company is selling an "average" amount of business. We need these values to compare the results of the other approaches, but they shouldn't be taken as absolutes. They merely allow us to know what the model produces for "average" business.

As shown in Chart Two, when a company uses "Lowest Best Rate," it mostly attracts cases at the two extremes of risk. It has the lowest rate for the lowest risk groups and most of the cases it writes are in this category.

However, the rating restrictions force it to have the lowest rate on the highest risk groups as well. While there are relatively fewer of these cases, this rating scheme will be competitive for these cases as well. The net result is excellent sales and a financial disaster. The calculated closing ratio grows from 8% to 11.1%. Cases written in the lowest risk category goes from 30% to 54%. On the other hand, the underwriting loss goes from break-even to -21.9% of claims. The reason is simple: too many high risk cases. The percentage of cases sold in the highest risk category has gone from 9% to 20.2%.

Generally speaking, raising rates does not provide the relief the company might expect, because the low risk cases will become uncompetitive before the high risk cases do so.

It should be noted I am using a table (not shown) which grades the closing ratio up or down based on the companies' prices relative to the market price for that category of risk.

Chart Two: "Lowest Best Rate"

Current Claim Level	Percent of Quotes	Price Quoted	Market Price	Closing Ratio	Percent of Sales
Under 50%	30.0%	63.8%	69.6%	20.0%	54.0%
50 to 70%	15.0%	89.4%	85.6%	3.0%	4.0%
70% to 100%	21.7%	114.9%	101.7%	0.0%	0.0%
100% to 140%	18.3%	127.7%	123.1%	5.0%	8.2%
140% to 200%	6.0%	127.7%	144.5%	25.0%	13.5%
Over 200%	9.0%	127.7%	144.5%	25.0%	20.2%
Average Premium: 92.7%, Average Claim Level: 117.4%, Underwriting Gain: -21.9%					

As shown in Chart Three on page 8, using a "Highest Worst Rate" scheme produces a different picture. The rates for the lowest risk category are now essentially uncompetitive. This means very few of these cases will be written. The good news, however, is that a maximum loaded case in the highest risk categories is also uncompetitive and very few of these cases will be written as well. In essence, a company using this approach has abandoned both the lowest risk cases and the highest risk cases. On the other hand, it should be very competitive in essentially all other cases. The closing ratio stays the same or rises (by these calculations to 10.1% from 8%). The underwriting gain goes from break-even to +4.9%. The reason again is simple essentially no high risk cases were written.

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Chart Three: "Highest Worst Rate"

Current Claim Level	Percent of Quotes	Price Quoted	Market Price	Closing Ratio	Percent of Sales
Under 50%	30.0%	77.2%	69.6%	0.0%	0.0%
50 to 70%	15.0%	77.2%	85.6%	20.0%	29.7%
70% to 100%	21.7%	92.6%	101.7%	20.0%	43.0%
100% to 140%	18.3%	115.8%	123.1%	15.0%	27.2%
140% to 200%	6.0%	159.8%	144.5%	0.0%	0.0%
Over 200%	9.0%	159.8%	144.5%	0.0%	0.0%
Average Premium: 94.3%, Average Claim Level: 89.9%, Underwriting Gain: 4.9%					

The results shown above set sales based on relative price alone. While price is a very strong indicator of sales, many other factors influence the final result. Hence, actual results from the use of one of these schemes will probably not be as extreme as shown above.

The formula-driven results shown above generally illustrate the impact of using the three basic pricing schemes. Other factors are also very important. The ability to properly establish the risk class for a specific case is critical.

A company which can underwrite better than its competition will generally thrive, and vice versa. Expense levels are, of course, very important. It should also be noted that no pricing scheme in and of itself will cure the problem of inadequate provider discounts or below average utilization management.

Renewals

This article isn't long enough to thoroughly discuss the impact of rating structures on renewals, but a few simple points are worth considering.

The expected loss ratio for a small employer group increases by trend every year, but it also has a tendency to move toward "average" over time. This regression toward the mean shows that a group of cases which are all low risk today will be relatively low risk next year, but not as low risk as they were this year. In other words, their trend will be higher than average. The trend on very low risk business can be quite high. Many actuaries refer to this phenomenon as the "wearing off of underwriting." The reverse is also true. A group of cases which are all high risk today, will still be relatively high risk next year, but not as bad as they were this year. Their trend will be lower than average. This phenomenon, however, is sometimes masked by the ability of the case to select against the carrier. When one insured in a small employer has been very ill, the employer will typically know long before the carrier if that individual is leaving the group. Hence, a significant proportion of those groups which are high risk today, but will be lower risk next year, are aware that this is the case and will seek lower rates as soon as they can "pass underwriting" elsewhere. Thus, the high risk cases that remain with their current carrier might not exhibit the moderation in trend. This is more prominent in the smallest cases and, in the extreme, is referred to as an "assessment spiral," where no amount of rate action seems able to reduce the loss ratio of a block of business.

Thus, the distribution of business by risk class will have an impact on the expected trend for the whole block. It might not be much, perhaps 1% or 2% at most, but those percentages are significant in comparison to most profit margins.

The distribution of business by risk class will also have a strong impact on the ability of a carrier to renew the business at adequate rates. Blocks of business with a disproportionate number of high risk cases face serious challenges in raising rates to an adequate level without driving off large numbers of low risk cases. Blocks of business with a disproportionate number of very low risk cases face serious challenges, since the trend needed to overcome the "wearing off of underwriting" is difficult to anticipate and equally difficult to sell to cases with good loss ratios. Hence, renewing a block which was sold on the basis of "Lowest Best Rate," can be quite difficult.

One of the side benefits of using a "Highest Worst Rate" scheme is that it tends to attract cases whose claims will tend to increase in a more moderate fashion, and is, therefore, easier to manage at renewal.

Rating small employer medical coverage has never been easy, but with the advent of rating laws, the challenge has certainly increased, and actuaries need more information than ever before to adequately set prices.

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