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# The Art & Science of Pricing Small Group Medical Coverage:

## From Debits to Risk Factors

by Bill Lane

### Rating Under Small Group Reform Laws

**T**he rules for pricing small employer medical coverage changed when Small Group Reform laws became prevalent in the market place. In essence, for many states, the rating process became a two step process. First, a carrier calculates a manual rate for a small employer based only on “case characteristics” such as age and gender of participants, area, benefit design, industry group size, network and so forth. Second, this manual rate is multiplied by a risk factor.

The intent of the laws was to limit a carrier’s ability to change premium rates based on observed or expected health status of the insureds. Some case characteristics such as age and gender of participants and industry clearly are intended to adjust for expected differences in overall health status, but even so they do not distinguish between healthier and less healthy individuals with the same characteristic.

Since manual rates have been used for many years prior to the enactment of Small Group Reform laws, this portion of the new two step process was not much changed. The development of risk factors, however, presented new challenges to carriers.

### Development of Debit Manuals

Carriers responded by creating so called “debit manuals” which assigned a relative expected cost to a particular medical condition. In many cases, these debit manuals were developed by adjusting existing underwriting manuals for individual medical insurance. These manuals assigned various rating loads to specific conditions and the translation of a rating load to a “debit” was relatively straight forward. Other conditions, however, have traditionally been viewed as “uninsurable” for individual medical coverage and the assignment of relative cost debits was more difficult for these conditions. The translation process was also made more difficult since relative cost under individual medical coverage is not necessarily equal to relative cost under small employer medical coverage.

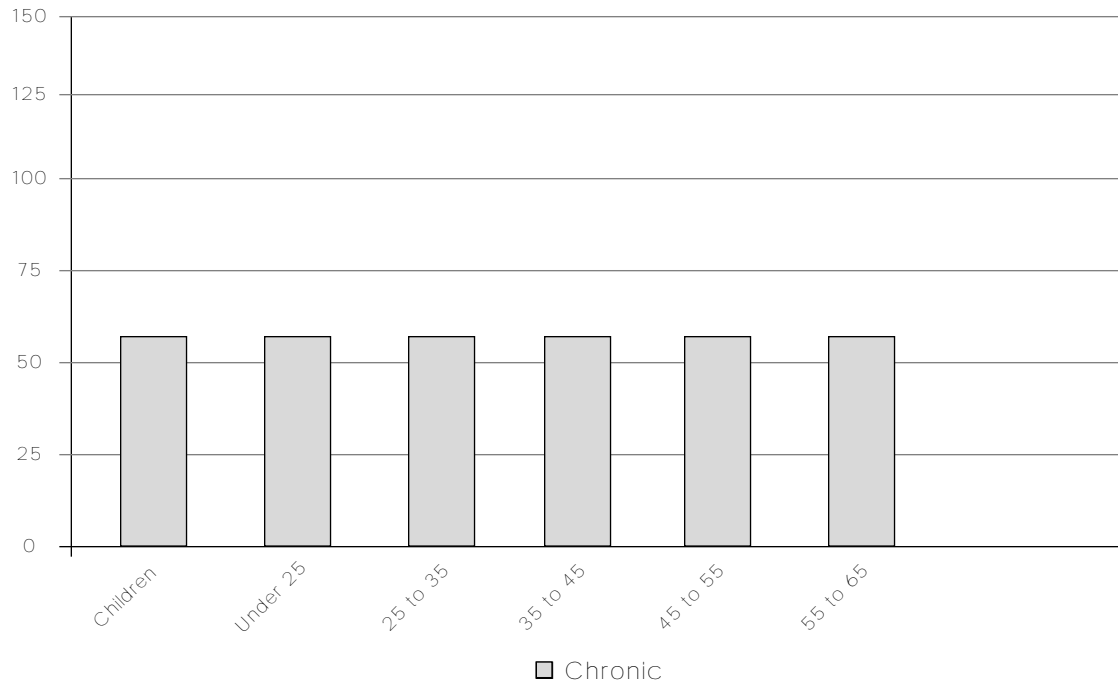
In any event, debit manuals were developed, both by large carriers using their own data and by consulting firms using the combined data of numerous carriers.

A typical debit manual will list medical conditions by name or ICD-9 diagnosis code. It will then list various possible aspects of the conditions that can influence the relative cost. For example, a person with a presently active disease usually has a higher probability of future medical expense than a similar person who has recovered from the disease and been symptom-free for some time. Thus, for many conditions, the manual will distinguish between a person with a condition that is present, and a person who has recovered from the condition, as well as, the time frame since recovery. The manual may also distinguish between a condition that is not currently controlled and a condition that is currently controlled (and in some cases by whether or not the person must take prescription drugs to maintain control of the condition). Similar conditions with different risk expectations are shown separately such as for sickle cell anemia versus sickle cell trait.

When evaluating a prospective small employer, a carrier typically collects medical history data by using individual applications and reviews these applications for the medical conditions. In some cases, carriers are now beginning to use prescription drug histories collected from their own data or from PBM’s. Debit systems based on prescription drugs have been developed that appear to offer similar risk prediction capabilities when compared to debit systems based on medical conditions.

In either case, the carrier evaluates the small employer and notes the number of “debits” which have been observed for that employer. The carrier should already have a level of debits which are considered “normal” for an average case and compares the observed debits to the expected debits. In many cases, this is as simple as dividing the total number of observed debits by the total number of insureds and comparing the result with an expected value (for example 58 debits per person).

## Debits - All People Equal



### Debits Can't Predict All Expenses

The question then becomes, given a certain number of observed debits, what should the risk factor be for the group?

Clearly the risk factor is not simply the actual debits divided by the expected or average debits. This would lead you to the incorrect conclusion that a group with no known medical conditions and no drug usage deserves a zero premium since it has no risk.

Accidents happen and they cannot be predicted by prior medical diagnoses or drug use. The same can be said for most infections. Even chronic conditions, unless they were present and noted at birth, will have an initial onset and the cost for the first year cannot be predicted by looking at conditions and drug use in the prior year.

Numerically, this can be handled by determining what percentage of total medical cost can be predicted by the debit system and what percentage cannot be predicted by the debit system. In this article, I will refer to the costs associated with potentially predictable conditions as "chronic" and the costs associated with unpredictable conditions as "acute". Note different debit systems will predict more or less accurately and, therefore, the relative number of acute versus chronic debits varies by debit system.

### Risk Factors

Determining how much potential cost falls into the category of "acute" as opposed to "chronic" depends on both the debit manual itself and the aggressiveness of the underwriting process. It is possible to set a minimum percentage of acute costs, but how much chronic cost can be predicted must be established on an individual carrier basis in a process that I call "calibration".

For the moment, let us assume a debit system where the average insured is expected to have 58 debits for chronic conditions and 22 debits for acute conditions for a total expected debits of 80. This would be a very accurate debit system.

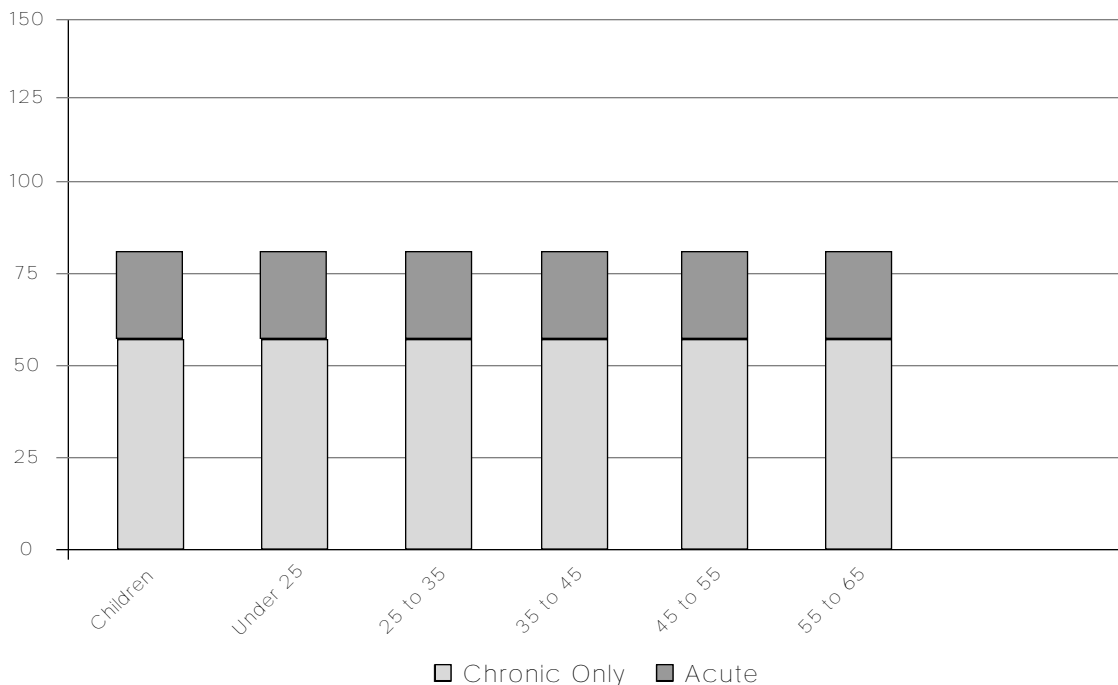
If the average number of observed debits is 58, then the risk factor should be 1.000 (since the expected number of chronic debits for an average case is 58).

If the average number of observed debits is 38, then the risk factor should be 0.75.

The risk factor of 0.75 is calculated by dividing (38 plus 22) by (58 plus 22). The denominator is the expected number of acute and chronic debits while the numerator is the observed number of chronic debits plus the expected number of acute debits. Note we use the expected number of acute debits in both the numerator and the denominator since these are the costs we cannot predict and must price on an expected basis alone.

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## Debits - Both Acute And Chronic



If the average number of observed debits is 78, then the risk factor is 1.25 and so on.

A typical range of allowed risk factors is 0.75 to 1.25. Many carriers, however, prefer to express this range as 1.000 to 1.667 (1.667 is equal to 1.25 divided by 0.75). Assume for the moment that when using the 0.75 to 1.25 range, the carrier is multiplying it by a manual rate of \$100. This allows an actual premium of \$75 to \$125. When the carrier uses 1.000 to 1.667, it reduces the base premium to \$75. The actual premium still fluctuates from \$75 to \$125. Hence the two approaches produce the same range of actual premiums.

Under this approach, an observed debit of 38 or less is then assigned the minimum factor of 1.000, an observed debit of 78 or greater is assigned the maximum factor of 1.667, and an observed debit of 58 is assigned the average risk factor of 1.3333.

### Age Gender Adjustments

Anyone who has been pricing small employer medical coverage should be aware that, on average, the expected cost of a 25-year-old male is significantly less than the expected cost of a 63-year-old male. Most companies use age gender factors that adjust the premium to reflect the

differences in cost based on the age and gender of the insured.

Since debits are merely another way of expressing the expected cost of an insured, expected debits also vary by age and gender. This means that the expected chronic debits of a 25-year-old male are significantly less than the expected chronic debits of a 63-year-old male. It is not just the total number of expected debits that change by age and gender. The ratio of acute to chronic debits is different for different age gender cells as well.

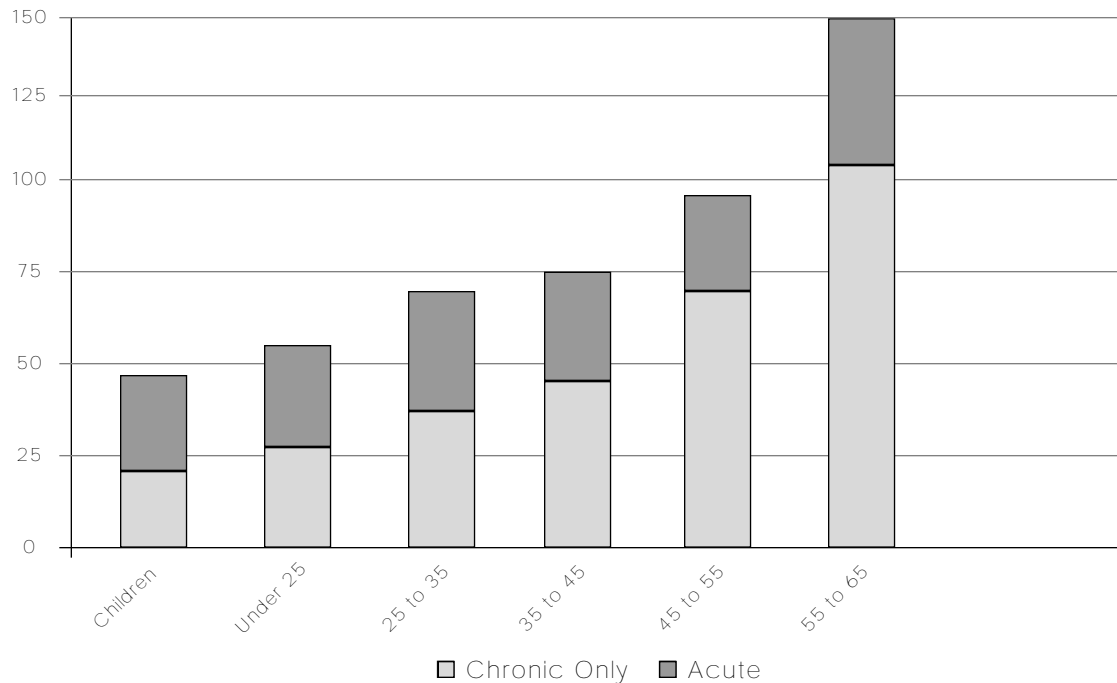
If the debits are adjusted by age and gender, then the average expected debits, both acute and chronic, should still be the same. However, the values by age and gender will now vary up or down based on risk for the specific age and gender under consideration.

The calculation of the risk factor remains the same as before. The risk factor equals the sum of the observed debits plus the expected acute debits divided by the sum of the expected chronic debits and the expected acute debits.

### Other Considerations

Other case characteristics such as industry might also cause the relative proportion of debits to vary,

## Debits - Age Adjusted



but the calculations are significantly more difficult. Some industries are given loads because their typical employment base presents a higher avocational health risk. In other words, they tend to hire people who are more likely to practice such sports as motorcycle racing and hang gliding. In such a case the relative number of acute debits should increase. Other industries receive a load because of their relative exposure to conditions that can cause a chronic health problem. Coal mining and the prevalence of black lung disease in its employment base is an example of this. In such a case, it would be the chronic debits that would need to be increased. Calibrating acute and chronic debits by industry is not an easy task and is beyond the scope of this paper.

Another factor that affects the relative distribution of acute and chronic debits is the amount of provider risk. This usually applies only to HMO and some POS contracts. When a provider is paid a flat amount on a per head basis, the cost to the carrier will not vary as much between insureds, and the experience of the carrier will look as if there were relatively more "acute" debits and relatively less "chronic" debits. How a carrier should handle this situation in pricing, especially if the carrier uses risk adjustment in its provider compensation, is also well beyond the scope of this paper. Even so, it should be

noted by the pricing actuary and probably should be discussed with the providers.

For years, hospitals have been negotiating their PPO reimbursement in a manner that tends to overprice large claims and underprice small claims. This practice makes the hospital's "per diems" look good on paper while the outlier provision brings in the needed income. The net result is that the expensive conditions become even more expensive and vice versa. This practice has strongly impacted stop loss carriers whose insurance focuses on large claims. For the last year or two, some stop loss carriers have been attempting to restructure hospital reimbursement in a revenue neutral manner that removes this cost shifting. If these "stop loss friendly" reimbursement schemes become prevalent, then they will have a strong impact on debits and risk factors since the cost for the currently lower cost groups will rise while the cost for the very expensive groups will drop.

Given the legal environment for pricing small employer medical coverage in most states, accurately setting the risk factor by employer is a critical pricing function. Having a sound debit manual or other similar prospective risk adjustment process is important, but equally important is having an accurate methodology for translating from debits to risk factors. 📌



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