Underwriting

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Group Underwriting: Setting Renewal Rates

By Jeff Adams August 5, 2013

Sample Excel Underwriting Model

Determining rates for an experience-rated group of any size can be challenging. In addition to the overall environment in health care changing rapidly, there is an underlying randomness to the distribution of health care costs making it impossible to determine what a "normal" year of costs are. As a result, we just do our best and try to get as close as possible.

The general methodology in the calculation of group experience rates is to determine a base claims experience period and trend it forward to the renewal period, making adjustments for any known difference between the health care environment in the experience period and the health care environment during the renewal period. The actual rate calculation is made more complex by use of credibility factors due to lack of sufficient group size to make experience credible, uncertainty of future changes during the experience period such as changes in provider contracts, benefit adjustments, demographic adjustments, and other factors, some of which will be discussed below.

The narrative that follows, and the accompanying Excel model (see link above) containing a sample Underwriting Model with sample rate adjustment factors, is designed to assist the reader in understanding the nuances of an experience rate calculation. The rate calculation is not a number-crunching exercise, however. Significant analysis may need to be made before the rates are finalized. It is recommended that minimal rate adjustment be made to the rates once released by the underwriter or actuary as these subsequent adjustments are generally made in a downward direction causing budget shortfalls for the insurer.

Credibility Percent

The model determines the Credibility Percent of the group being rated based on the insurer's corporate philosophy as to how large a group needs to be in order to be fully credible. This Credibility Percent is the percent weighting to be given to the group's actual experience versus the weighting given a Manual Rate, which is designed to represent claims experience for an "average" experience-rated group with normal costs. The Credibility Percent for smaller groups will be lower since random fluctuation will cause claims levels to fluctuate substantially from year to year. As group size increases the fluctuations decrease as a percent of the overall claims, thus allowing more reliance on the claims experience of the group.

As with many of the topics we will discuss, there are several methods of determining the credibility. Generally the underwriting model uses a predetermined credibility table such as the one below:

Number of Employees	Experience Credibility

150	0%
750	100%

A group with 150 employees would have its rates based entirely on Manual Rates, in this example. A group of size 750 or more would have its rates based entirely on its own experience with the Manual Rate having no direct impact on the rate.

The Credibility Percent for a group with the number of employees being between 150 and 750 may be obtained by linear interpolation based on the table entries. For example, a group of size 450 would have a Credibility Percent of 50%, meaning that its own experience would be weighted at 50%.

Some insurers allow the Number of Employees used in the Credibility Percent table to be compounded based on more than one year of experience. This means that a group averaging 250 employees a month and deemed to have two credible years of experience would use 2x250=500 as its "Number of Employees" for purposes of determining the Credibility Percent. A variation of this would use reduced credibility for prior years. An example would be to use the 250 for the most recent experience period and 250 x 30% = 75 (under the assumption that the prior year costs are only 30% reliable as the most recent experience period costs) for a total of 325 to be used as the Number of Employees in the determination of the Credibility Percent.

There are many variations of the table above, with a similar concept but different levels of Number of Employees required to be fully credible and 0% credible. Other insurers use a credibility formula, several of which can be found on the Internet.

Manual Rates

The Manual Rates are probably the most overlooked component of an underwriting model. These Manual Rates are calculated on a periodic basis and are designed to represent claims cost for an "average" group. The Manual Rates are used directly in the rate calculation for all groups for whom the experience is deemed not to be 100% credible. For example, according to the sample table in the previous section groups with under 750 employees do not have sufficient size for the rates to be based entirely on its own experience. Manual Rates would, thus, be used in the rate calculation for all groups with under 750 employees. This could imply that 50% of the premium or more (depending on the distribution of group size within those groups under 750 employees) for groups under 750 employees is determined by the Manual Rates. Manual Rates that are too low or too high can have negative impacts on an insurer for years to come, either due to financial losses because rates are too low or to enrollment losses because rates are too high. Much attention should be made to ensure the sufficiency and appropriateness of the Manual Rates.

One method that may produce reasonable Manual Rates is to determine the rates that would have, if used as the Manual Rates for the most recent credible 12-month experience period, allowed the insurer to reach its financial targets for that period. This method would require

that the credible group experience portion of the rate be "accurate" as it would not be appropriate to adjust the Manual Rates for deficiencies in the claims experience analyses in the renewal rate-setting process. This method would be time-consuming because it would require sample rates to be calculated for each group using sample manual rates, all appropriate adjustment factors (age, area, industry for each group, benefit, etc.), and the experience portion of the rate to be calculated based on the actual experience for the rating period being analyzed. For example, Manual Rates for 2014 might be calculated in March 2013 based on experience for all experience-rated groups in calendar year 2012.

Another less accurate method of calculating Manual Rates would be to use experience for another block of business, such as using the small group rates, with adjustments. This can lead to issues if the underlying characteristics of the population differ from the characteristics for the groups for which the Manual Rates will be used.

Group-Specific Claims Experience

The methodologies used in and components of the estimation of incurred claims for a group should be consistent with methodologies used in calculating incurred claims for the forecast, budget, and other reporting. Failure to do so may result in variances in actual financial results from budget or forecast. For example, if a retrospective hospital settlement of $2,000,000 was made and the forecast had $1,000,000 going to each of the community and experience-rated pools, if the $1,000,000 was not charged in the experience rates for the combination of all experience-rated groups then the forecast and budget would be inaccurate by $1,000,000, everything else being the same.

The experience period to be used as the predominant base claims experience period for the rate calculation should be the most recent 12-mont period for which the claims experience is credible. For example, if paid claims are only available through July 2013 then incurred July 2013 should not be used in the experience period since that particular month does not have enough months of claims payments to produce a credible incurred estimate for that month. Incurred June 2013 would only have two months of paid claims (June and July 2013) so it also may not be credible in most situations. Use of a non-credible incurred month in the base experience period adds volatility to the calculation without adding additional accuracy. In many cases the experience period will be the most recent 12-month period for which two additional months of payments are available after the end of the experience period. For example, if payments are only available through July 2013 then the experience period may be June 2012 through May 2013.

Some insurers allow for use of more than one year of claims experience in the calculation of the group-specific claims costs. This may be helpful in some situations but it is probably useful to use a higher weighting on the more recent year of experience than prior years' experience. As an example, an insurer may use a weight of 70% for the most recent year and 30% for the prior experience year.

Even if prior years of experience are not used directly in the rate calculation, it may be useful to analyze prior years of information. In my experience I have found that if a group has incurred claims higher than expected for the most recent two years then, everything else being the same, it is likely to have high claims in the next year also. Similarly, if a group has

incurred claims lower than expected for two years then it can be expected to have incurred claims slightly lower than expected in the next year also, everything else being the same. So, the prior years of experience may not be directly used in the rate calculation but more conservatism might be warranted if a group's claims have exceeded expected for the most recent two years.

Experience periods of less than 12 months should be avoided due to the substantial impacts of seasonality on claims by month, unless a detailed seasonality study has been performed by the insurer. For example, if an experience period is January through June 2013, then this six-month period would need to be converted to a 12-month period at some point in the renewal process. This cannot be done by trending forward or multiplying by two since claims are generally higher in the first half of the year than the second half of the year. For higher deductible plans the reverse may be true, however, as January (and to a lesser extent, subsequent months) claims are substantially affected by the members meeting their deductibles. The exact seasonality factors would be dependent on many factors including benefits, area, and other group characteristics. In a situation where a group is renewing for the first time and less than a year of claims experience is available, the predominant portion of the rate should be based on the current group premium rate, possibly adjusted by the current partial year of experience if it shows with reasonable certainty that the current rates were not appropriate for the current year.

Estimating Experience Period Incurred Claims

The incurred claims to be included in a group renewal may include not only claims costs that can be directly attributed to an individual in the group being rated but may also include adjustments that are amortized over multiple groups or blocks of business. A visit to the physician or a stay at a hospital may be paid on a fee-for-service basis and the insurer would have the patient name, group number, and a myriad of additional information about the claimant. Likewise, if a physician was being paid capitation then it could generally be tracked as a claim to the individual member and group. Attribution to a member for provider settlements or claims that are bulk-billed by a provider, vendor, rebates, refunds, or government entity may not be possible, however, and may need to be prorated over the member population to which these costs apply.

Attribution to an incurred date is usually straight-forward. Incurred dates for claims paid on a fee-for-service basis are the dates that the services are provided, with the exception of inpatient claims where the incurred date is the date of admission.. Claims such as capitation do not necessarily have an incurred day but an incurred month. A capitation payment generally covers a period of one month so a June 2013 capitation payment would cover an individual's claims for the month of June 2013.

Claims such as those paid on a fee-for-service basis would need to have an incurred but not paid or claims reserve component added to it. Data for an experience period of June 1, 2012 through May 31,2013 may be based on payments through July 2013 in an effort to more accurately estimate this claims reserve. Since an insurer who collects premiums for a given month needs to cover claims incurred in that month regardless of payment date, the experience period claims needs to be consistent with insurer responsibility and an estimate of claims incurred June 1, 2012 through May 31, 2013 but paid after July 31, 2013 needs to be

made and added to the paid claims. A detailed narrative on *calculating IBNP* has been previously written and will not be repeated here but the reader may review this article for more information.

Claims Above Stop Loss Level

Since a group having Stop Loss coverage is not responsible for claims above the Stop Loss level, these claims need to be backed out of both the Manual Rate and claims experience, if applicable. For example if the Specific Stop Loss level was $100,000 and the group had one claim above $100,000, that claim being $123,000, then the excess of that claim over $100,000, namely $23,000, would need to be backed out of the experience period incurred claims. It may also be necessary to reduce the IBNP or claims reserve for this claim since any reserve on this claim would be the responsibility of the stop loss carrier as it would only increase the excess of the claim over the Stop Loss level.

The Manual Rates would have an assumed Stop Loss level. If a group's Stop Loss were different than the assumed Stop Loss then an adjustment would need to be made to the Manual Rates to reflect this difference.

Adjustment Factors

The Manual Rates and experience period claims costs have several inherent population characteristics assumed in them, such as age, area, industry, benefits, and other characteristics. In bringing these claims cost estimates forward into the renewal period, adjustments need to be made to reflect changes in these characteristics. For example, if the age factor of the group during the experience period was 1.014 and the most recent census reflected a group with an age factor of 1.024 than the claims costs for the experience period would need to be increased by approximately 1% to reflect the worsening age characteristic of the group. If the benefits change during the experience period then the benefit adjustment factor used to adjust the claims to the renewal period should reflect that. For example, if there is a 5% reduction in benefits mid-way through the experience period then half of the impact is already built into the claims experience. The net benefit adjustment from the experience period to the renewal period is, thus, 2.5%.

The insurer needs to ensure that all rating factors are normalized on an annual basis. This would imply that the age, area, and industry factors in the Manual Rates are 1.000 unless there is a different assumption for the Manual Rates, such as distinct Manual Rates by area. The assumption that the adjustment factors included in the Manual rates for age, area, industry, etc. are 1.000 implies that the adjustment from the Manual Rates to the Renewal Period equals the appropriate Renewal Period adjustment factor. For example, if the group's age factor for the renewal period is 1.025 based on the most recent census then the Manual Rates are adjusted upwards by this 2.5% to represent the increase in the age factor from the assumed Manual Rate age factor of 1.000 to the Renewal Period age factor of 1.025.

Adjustments would also be made for any other known change that would affect costs, such as a change in utilization management procedures or enrollment restrictions, etc.,

Claims Trend

Claims costs from the experience period would need to be trended forward to the Renewal

Period. If the experience period were June 1, 2012 through May 31, 2013 and the Renewal Period was January 1, 2014 to December 31, 2014, then the claims costs would need to be trended 19 months. This is determined by determining the difference in time between mid-points of the two 12-month periods, December 1, 2012 and July 1, 2014 in this case. If a Unit Cost Index, reflecting provider fee schedule increases, is available then this should be used for the Cost Unit portion of the trend and the utilization and mix-of-services portion can be determined based on trending from midpoint to midpoint of the experience and Renewal Periods.

A detailed narrative on *claims trend analysis* is not given here as it has appeared in a previous article. Generally individuals who do claims trend analysis on a corporate level have set trends and give trend tables to individuals responsible for underwriting and setting group rates. These trends should vary by benefit if benefits vary significantly. For example, due to deductible leveraging trends for higher deductible plans are greater than trends for lower deductible plans. For example, assume a group has an average allowed amount per member of $7,000 per year and this trends 10% to $7,700 for the next year. If the deductible is $2,000 then the group payment average increases from $5,000 to $5,700, or a 14% increase. Trends for deductibles between $0 and $2,000 would, thus, have trends between 10% and 14%.

Applying Credibility Percentages

Once estimates using Manual Rates and group claims from the experience periods are trended into the Renewal Period and adjusted for different group characteristics, these claims costs are composited based on the credibility weightings determined by the Credibility Percent calculations discussed at the beginning of this narrative to produce the actual estimated incurred claims for the Renewal Period.

Administrative and Retention Costs

Administrative costs may be obtained through several methods. Claims Administration Expenses per contract may be multiplied by the estimated number of contracts and added to the Claims Administration Expense times the estimated claims to produce total estimated administrative costs. Another method is to use a simple percent that is based on the number contracts in a group or the amount of premium in a group. Another method is to use a flat dollar amount, possibly varying by group size. The administrative costs generally are lower on a per policy basis as the group size increases since fixed costs are spread over a larger base.

Retention amounts are generally percent of premium charges. These may vary by group size. For example, it may be determined that an insurer has more risk insuring smaller groups due to the volatility in claims so it might have a 3% risk charge for groups with 100 to 300 employees, a risk charge of 2% for any group with 301 to 500 employees, and a charge of 1% for groups with more than 500 contracts.

Other charges, such as premium taxes, may have a flat percent across all group sizes.

Summary

The Excel model may help give a visual context to the narrative above. Note that the Excel spreadsheet is just a sample underwriting model with sample factors. For example, area

factors are based on Medicare information and should not be used with group experience.

Note also that the Number of Employees is used to distinguish the different group sizes. Insurers may use number of persons choosing insurance as the factor used to determine group size for Credibility Percent and Retention calculations. Since groups with greater than 100 employees, thus qualifying for large group coverage and underwriting, may have less than 100 employees or retirees choosing coverage, it is possible for the tables above to have categories with less than 100 individuals and still be compliant with state and federal law. Underwriters calculating rates must make sure that they follow state and federal law.

If you have any questions or comments, please feel free to contact me at jeff.adams@health-actuary.com.