UCLA Bruin Actuarial Society 2017 Case Competition

Objectives

- Price individual health insurance premiums for 2018 utilizing data provided by BruinCare insurance company.
- **Round One -** Present your results and key assumptions in a Power Point presentation to executives.
- **Round Two –** Write an actuarial memorandum explaining your rating methodology and documenting your assumptions to submit to a regulatory agency for review and approval of your proposed premium.

Background

The Affordable Care Act (ACA), signed into effect in March 2010, placed regulations on the insurance market with the intent of reforming the healthcare industry, expanding access to healthcare coverage, and reducing healthcare spending. Under the ACA, health insurers are required to treat their entire market as a single risk pool based on total essential health benefit (EHB) claims experience and rate premiums based on factors of age, region, and smoking status.

Case Study

You are an actuary at BruinCare, a health insurance company, and need to price individual health insurance premiums for 2018. BruinCare has been a part of the ACA exchanges for the past three years, providing healthcare coverage and services in regions 1 through 3 in California. The state government intends to rebrand these rating regions in order to create renewed interest in healthcare enrollment. Please provide and refer to your new region names throughout the case study.

Your job will be to use historical 2016 data to project for 2018. You will need to use your company's 2016 base data to calculate a set of premiums by projecting 2018 membership and claims to generate a representative single claims PMPM (Per-Member-Per-Month). This value will be used to calculate the Index Rate, Market Adjusted Index Rate, and Plan Adjusted Index Rate. Once you have your Plan Adjusted Index Rate, you will apply area factors, age calibration, and the age curve to arrive at your final individual premiums by region.

The Excel workbook, *Assignment_Spreadsheet.xls*, is the pricing model in which you will complete all of your calculations.

Base Data

Using 2016 historical claims experience, prepare a summary of your base data in the "HIX Summary"

worksheet. This will used as a starting point for your claims projections. Group your data into the following gender and age groups:

M 0 - 19
F 0 - 19
M 20 - 34
F 20 - 34
M 35 - 49
F 35 - 49
M 50 +
F 50 +

Your base data should display the Utilization/Thousand (Util/K), Unit Cost, and Claims (PMPM) for the five service categories (IP, OP, PHY, Rx, Other) broken down by the different gender-age groups. Be sure to use total member months. Include summarization of the total utilization, unit cost, and cost PMPM. The total cost PMPM will be your starting point for pricing projections.

Note: When calculating total metrics, use a weighted average using member months.

Demographics Projections and Adjustment

Historically, BruinCare has maintained 1-4% of market share within each region. However, the state is redrawing region lines, effective in 2018, that will increase total census population in region 1 by 2%, in region 2 by 3%, and decrease total census population in region 3 by 5%. This revision has also resulted in U.S. Care, your largest competitor with 35% market share in region 3, to shift to other regions, leaving some of their members to potentially choose coverage with your company.

BruinCare has 5,000 total members in the three regions combined in 2016. Using member data, project 2018 membership for each age-gender group and region. Break down your projected membership into distribution percentages by the same age-gender groups mentioned above.

In your projection, consider the following:

- Do you expect the company's market share to increase or decrease?
- Will the company enroll new members? What demographics do you expect in 2018? Will new enrollees be healthier or sicker than the company's existing members?
- Do you expect the gender-age group distribution to change from 2016 to 2018? How does it compare to the Standard age curve provided in the Key table?
- Do you expect the company's existing members to renew their policies with your company? Does the company have a lapse rate?

You will use your projected membership to calculate an age calibration and a demographic adjustment factor to apply to the base data claims PMPM.

Trend Adjustments

Analyze the company's historical utilization and unit cost trends to determine an adjustment trend factor to project claims experience from 2016 to 2018. What basis should your factor use? Is it an annual adjustment? One-time adjustment? Remember you are pricing for 2018 using 2016 data, but it may be useful to examine trends for 2015 as well.

Area Factors

Regional factors are applied to allow for variation in premium by geographical regions. Every region in every state has a Geographic Cost Factor (GCF) associated with it that reflects medical cost in that region. Issuers are allowed to calibrate premiums for geography – however this factor should only reflect differences in cost and not in morbidity.

Generally, health insurance issuers have contracts with different hospitals and providers for the delivery of medical services. Once the hospital or provider has rendered a medical service for the issuer's member, the issuer will be billed and the provider will be reimbursed for the service provided. Reimbursement rates and contracts are dependent on specific issuers and providers, and can be on a Medicare percentage basis or Medicaid percentage basis. All of the contracts that BruinCare has with its providers are on a Medicare basis. Use the reimbursement factors provided in the '2018 Provider Network Unit Cost Adjustment' and projected claims to develop appropriate area factors reflective of cost.

Area Calibration

Use the regional membership projection for 2018 and the calculated area factors to develop a weighted average area factor. The inverse of this factor will be applied to the Plan Adjusted Index Rate as part of the adjustment to arrive at the Consumer Adjusted Premium Rate.

Age curve

The variation between the amount of premium charged to an adult age 64 or older and an adult age 21 is limited to a 3:1 ratio. The standard age curve provided in the exhibits ensures adult premiums are within a 3:1 ratio. Children between the ages of 0 and 20 have the same premium ratio, adults age 64 have a premium ratio of 3.000 while adults age 21 have a ratio of 1.000. Older adults age 64 and greater all have the same premium ratio.

Age Calibration

Use the projected 2018 membership by percentages and the standard age curve to calculate a weighted average premium ratio for your population. The inverse of this factor will be applied to the Plan Adjusted Index Rate as part of the adjustment to arrive at the Consumer Adjusted Premium Rate.

Tobacco Factor

A 1.5:1 ratio is allowed for tobacco users with the exception of California, where health insurance issuers are not allowed to rate for tobacco in the individual market.

Risk Transfer Adjustment

The purpose of risk transfer is to eliminate some of the variations amongst health insurance issuers due to risk selection. Risk transfer occurs on a market level and are dependent on an issuer's risk compared to the market's overall risk. Issuers with lower average risk score than the market will be expected to pay out transfer at the end of the year to issuers with higher average risk score than the market. Overall, the total transfer amounts in a market should net out to zero.

If the company is expected to pay out a transfer amount at the end of the year, then this should have an increasing impact on your premium. Conversely, expected receivables in transfer would have a decreasing impact on your premium.

In the past, your company has had some of the healthier members in the population, with a risk adjustment transfer payable of 10% of premium in 2016.

Index Rate Projection

Your index rate should be a derivative of your single risk pool claims experience that reflects any adjustments made regarding demographics, trend, etc.

Market Adjusted index Rate

Market Adjusted Index Rate reflects your index rate adjusted for risk transfer.

Administrative Costs

A part of the premium revenue is used to cover costs such as broker commissions, exchange fees, and other administrative expenses. Administrative expenses are provided in the exhibits.

Paid to Allowed Factor

Paid to allowed factor is the expected percentage of incurred allowed claims that are paid by the health insurer. On average, a member would pay the remaining percentage with deductibles and co-payments. This factor is also called actuarial value or benefit richness. Your company's paid-to-allowed factor is provided in the exhibits.

Plan Adjusted Index Rate

The Plan Adjusted Index Rate should reflect the market adjusted index rate adjusted for administrative costs and any other plan-specific modifications. Are there any other adjustments you should be considering?

Consumer Adjusted Premium Rate

Final premiums that will be charged to individuals and families. These premiums are derived from the Plan Adjusted Index Rate, calibrated for age, area, and with the age curve applied.

Terms and Definitions

Consumer Adjusted Premium Rate – Final premium rate that is charged to an individual or family.

Essential Health Benefit (EHB) – items and services that are under ambulatory patient services, emergency services, hospitalization, maternity and newborn care, mental health and behavioral health, prescription drugs, rehabilitative and habilitative services and devices, laboratory services, preventive care, and pediatric services.

Geographic Cost Factor (GCF) – a regional factor by state that reflects medical cost in that region.

HIX – Health Insurer Exchanges.

Index Rate – claims adjusted for demographics, utilization, etc.

IP – Inpatient service category.

Lapse Rate – rate at which health insurance membership terminates due to failure to pay premiums.

Market Adjusted Index Rate – Index Rate adjusted for Risk Adjustment.

MCR (Medical Care Ratio) – Ratio of medical costs to premium revenue. Also referred to as medical loss ratio (MLR) or medical benefit ratio.

Member Months – Total months a member was enrolled.

OP – Outpatient service category.

Paid to allowed factor – Percentage of incurred allowed claims paid by health insurer.

PHY – Professional service category.

Plan Adjusted Index Rate – Market Adjusted Index Rate adjusted for plan specific factors, such as administrative costs.

PMPM – Per Member Per Month. Claims PMPM will be the sum of total claims divided by total member months.

Relative Risk – Rel. Risk is a company's average risk score relative to the statewide average risk score.

Rx – Pharmacy.

Single Risk Pool (SRP) – Health insurers are required to treat their entire individual market population as

a single risk population– issuers are not allowed to price rates based on factors such as gender, medical history, or health status. However, final consumer adjusted premium rates can have variation by age calibration, geographic calibration, and tobacco calibration.

Utilization/Thousand – A measure of utilization on an annual basis per year per thousand lives covered. For example, if the total pharmacy script count in 2016 was 100, then Scripts/Thousand will be 100 * 12000 / Total Member Months.

Unit Cost – Cost per unit of utilization.

Weighted Average – average calculated by putting more weight on categories with higher membership instead of using a straight sum.

YearMo – Year and month.