1. **Learning Objectives:**

4. The candidate will understand how to evaluate the effectiveness of different provider reimbursement methods from both a cost and quality point of view.

**Learning Outcomes:**

(4b) Evaluate standard contracting methods from a cost-effective & quality perspective.

(4c) Understand contracts between providers and insurers.

**Sources:**

Essentials of Managed Health Care (Kongstvedt), Chapter 4 p62-64, 68
GHDP-119-18: Physician Remuneration Options, p 7-10
Design and Pricing of Tiered Network Health Plans, Health Watch

**Commentary on Question:**

*This question tested candidates’ ability to distinguish various types of providers in relation to contracting concerns. Overall, candidates who attempted the question received at least some credit.*

**Solution:**

(a) Describe contracting considerations for the following types of physicians:

(i) Primary and specialty care

(ii) Hospital-based

(iii) Non-physician practitioners of primary care
1. Continued

Commentary on Question:
Candidates often did not provide a complete enough description to earn full credit. Candidates also often wrote general contracting considerations which did not specifically address the indicated types of physicians. Many candidates also provided general operating considerations that do not pertain to contracting. These types of responses received partial credit.

(i) PCP/Spec: There are fewer General Practitioners graduating lately, it is tough to distinguish between PCP and Specialists, need to consider open access vs referrals, consider the admin burden of contracting with one provider vs a group of providers such as an IPA, method of reimbursement such as Fee For Service or Capitation

(ii) Hospital-based physician: Typically, less willing to negotiate since they are exclusive to the hospital, it is hard to exclude certain physicians within a hospital

(iii) Non-physician: There are varying laws for Nurse Practitioners and Physician Assistants related to what work they can perform, they can be cheaper than Physicians, they are more utilized lately, they spend more time with patients

(b) Compare and contrast financial considerations of salaried versus self-employed physicians.

Commentary on Question:
Candidates who knew the referenced reading were more efficient in their answers. Partial credit was given for relevant financial considerations.

Comparison: both require credentialing, both can practice at various sites of service

Differences:
Salaried
• Employer handles taxation
• Receive employee benefits (such as PTO, Health benefits)
• Pay is fixed

Self-Employed
• Have to file own taxes
• Pay is variable
1. Continued

(c) Critique the contract terms from the perspective of the:

(i) Physician

(ii) Insurer

Commentary on Question:
Candidates generally did well and typically provided insightful responses. For full credit, critiques required adequate justification, regardless of the stance taken.

The below chart shows examples of acceptable critiques. Candidates did not need to create a chart for full credit, and they did not need to critique every contract term.

<table>
<thead>
<tr>
<th>Contract Term</th>
<th>Physician Critique</th>
<th>Insurer Critique</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reimbursement/Member Cost</td>
<td>Being on tier 2 of 3 for member cost share may drive members away and reduce potential patient volume and revenue</td>
<td>102% of Medicare may be a high reimbursement rate to pay (depending on line of business)</td>
</tr>
<tr>
<td>Access</td>
<td>Requiring referrals could reduce patient utilization of this Specialist, which will reduce revenue</td>
<td>This requirement helps control specialist utilization</td>
</tr>
<tr>
<td>New Patient Bonus</td>
<td>May be difficult or impossible to earn this bonus when referrals are required. All patients will have already gone to the PCP in the insurer’s network.</td>
<td>May incentivize the Specialist to “churn” patients, which prevents long-term contact with the patient that can improve health outcomes</td>
</tr>
<tr>
<td>Renewal</td>
<td>Locked into long contract period while terms aren’t favorable</td>
<td>Less administrative burden to not re-contract every year</td>
</tr>
</tbody>
</table>
Learning Objectives:
5. The candidate will understand how to apply principles of pricing, risk assessment and funding to an underwriting situation.

Learning Outcomes:
(5b) Understand, evaluate and apply various risk adjustment mechanisms.

Sources:
Group Insurance, Chapter 33

Commentary on Question:
Commentary listed underneath question component.

Solution:
(a) Describe four risk classification schemes and the circumstances when each is used.

Commentary on Question:
The question asked candidates to describe risk classification schemes, and therefore a simple list was not enough to receive full credit. A variety of responses was accepted, with a few examples shown below, as long as each included a brief description of how the classification works and when it is used.

Some candidates listed various types of insurance risk. Others listed various types of risk adjustment models used in Medicare and other products, which was not relevant to this item.

1. Demographic schemes:
   - Classify individuals by age, gender, family status, or geographic location.
   - Age and gender are appropriate to use when combined with diagnosis-based risk assessment methods and are often used in rating of various products.

2. Utilization measures or claim expenditures:
   - Often used for risk assessment for rating of employer groups.
   - Generally viewed as inappropriate for health risk adjustment.

3. Diagnosis and Pharmacy Information:
   - Large employers use diagnosis-based methods to evaluate health insurers and administrators or to adjust employee contribution levels when choice is offered.
   - Health insurers use diagnosis-based risk assessment methods for provider payment, provider profiling, case management, and rating/underwriting.

4. Medical information or history:
   - Classify risks on the basis of biometric measurements or medical history questionnaires
   - Used by some insurers for underwriting in life insurance
2. Continued

(b) Calculate the relative risk factor for each insurer using:

(i) Method 1

(ii) Method 2

Show your work.

Commentary on Question:
Most candidates correctly calculated the risk score for each insurer under each method, but some stopped there. In order to receive full credit, the overall market risk score had to be calculated to then obtain the relative risk factor for each insurer, as the question asked.

The question stated that the risk adjustment model was additive, and based on the risk weights given in the tables, it was logical that they must be additive rather than multiplicative. Candidates who combined the factors using a multiplicative method received only partial credit.

(i) Method 1
Average risk score for Insurer A = \[
\frac{0.59(100) + 1.83(200) + 2.26(100)}{400} = 1.628
\]
Average risk score for Insurer B = \[
\frac{0.65(100) + 0.98(50) + 2.18(50)}{200} = 1.115
\]
Average risk score for the market = \[
\frac{1.6275(400) + 1.115(200)}{600} = 1.457
\]
Relative risk factor for Insurer A = \[
\frac{1.628}{1.457} = 1.117
\]
Relative risk factor for Insurer B = \[
\frac{1.115}{1.457} = 0.765
\]

(ii) Method 2
Expected claim cost for Insurer A = \[
\frac{\$500(100) + \$1,000(300)}{400} = \$875 \text{ PMPM}
\]
Expected claim cost for Insurer B = \[
\frac{\$500(150) + \$1,000(50)}{200} = \$625 \text{ PMPM}
\]
Market’s expected claim cost = \[
\frac{\$875(400) + \$625(200)}{600} = \$791.67
\]
Relative risk factor for Insurer A = \[
\frac{875}{791.67} = 1.105
\]
Relative risk factor for Insurer B = \[
\frac{625}{791.67} = 0.789
\]
2. Continued

(c) Evaluate the challenges of allowing each insurer to choose its own approach. Justify your response.

Commentary on Question:

There were two main items that were important to identify as challenges to allowing each insurer to choose its own approach. Nearly all candidates correctly described that this would lead to anti-selection or gaming, in that each insurer would pick the approach that was most beneficial to itself. But some candidates failed to connect this to the overall financial purpose of risk adjustment and transfer payments between insurers to achieve an overall zero-sum or budget neutral program.

Each insurer is incentivized to choose the risk score model that will result in either the lowest amount that they would have to pay to the other insurer or the maximum payment that they would receive from the other insurer. Since risk adjustment models are being used to calculate payouts between insurers, this would not result in fair and equitable transfer payments between them. The overall risk adjustment pool would likely be underfunded in aggregate.
3. **Learning Objectives:**
5. The candidate will understand how to apply principles of pricing, risk assessment and funding to an underwriting situation.

**Learning Outcomes:**
(5a) Understand the risks and opportunities associated with a given coverage, eligibility requirement or funding mechanism.

(5c) Recommend strategies for minimizing or properly pricing for risks.

**Sources:**
Group Insurance, Ch. 21: Estimating Medical Claim Costs (pp. 356-361)
Group Insurance, Ch. 30: Group Insurance Underwriting

**Commentary on Question:**
*The question is testing knowledge of estimating medical claim costs. First by listing data sources, then by calculating the projected costs under current and proposed plans. The question then asks whether to recommend the proposal based on the calculated claim costs. Finally, candidates are asked to describe other considerations that are absent from the analysis.*

**Solution:**
(a) List the data sources available for estimating medical claim costs in each category:

(i) federal government publications

(ii) actuarial publications

(iii) other external sources

**Commentary on Question:**
*Candidates generally identified correct data sources. There are many possible data sources that could be listed, but only 3 per item (9 in total) were required for full credit.*

- **FEDERAL GOVERNMENT PUBLICATIONS**
  - Centers for Medicaid and Medicare Services (CMS)
  - Consumer Price Index (CPI)
  - Public Health Service Sources
    - Center for Disease Control and National Center for Health Statistics
  - Bureau of the Census
    - U.S. Census of Population
3. Continued

- ACTUARIAL PUBLICATIONS
  - Society of Actuaries (or other institutions such as American Academy of Actuaries, Kaiser foundation) Research, White Papers and Industry Tables

- OTHER EXTERNAL SOURCES
  - Rate filings, reinsurance, or third-party administrator
  - The National Committee for Quality Assurance
  - Actuarial Consulting and Analytics Firms

(b) Assess the impact on the claims cost of introducing the proposed flexible plan. Show your work.

**Commentary on Question:**

*Part b asked candidates to calculate and compare projected claim costs. Candidates needed to multiply prior year claims per employee by relativity factors, then weight the flexible options by the projected enrollment distribution. Most candidates set up formulas correctly and compared the options. Candidates needed to show their work, the answer can either be on an annual basis, PMPM basis or relativity % basis. To receive full credit, candidates needed to show a comparison of the cost difference between the existing plan versus proposed plan.*

Projected claims per employee = Prior year claims per employees\(\times\)Relative Benefit Value\(\times\)Provider Discount Savings\(\times\)Utilization Savings\(\times\)Trend\(\times\)Mix of Network Usage\(\times\)Projected enrollment %\(\times\)Selection and Antiselection factor

<table>
<thead>
<tr>
<th></th>
<th>Comprehensive Major Medical</th>
<th>HMO</th>
<th>Point-of-Service</th>
<th>High Deductible Indemnity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prior year claims per employees</td>
<td>9,500</td>
<td>9,500</td>
<td>9,500</td>
<td>9,500</td>
</tr>
<tr>
<td>Relative Benefit Value</td>
<td>1.00</td>
<td>1.15</td>
<td>1.05</td>
<td>0.95</td>
</tr>
<tr>
<td>Provider Discount Savings</td>
<td>1.00</td>
<td>0.75</td>
<td>0.82</td>
<td>1.00</td>
</tr>
<tr>
<td>Utilization Savings</td>
<td>1.00</td>
<td>0.91</td>
<td>0.96</td>
<td>1.00</td>
</tr>
<tr>
<td>Trend</td>
<td>1.15</td>
<td>1.11</td>
<td>1.12</td>
<td>1.15</td>
</tr>
<tr>
<td>Mix of Network Usage</td>
<td>N/A</td>
<td>N/A</td>
<td>80%</td>
<td>20%</td>
</tr>
<tr>
<td>“100% Enrollment” Claim Cost</td>
<td>10,925</td>
<td>8,277</td>
<td>9,111</td>
<td>7,225</td>
</tr>
<tr>
<td>Projected enrollment</td>
<td>N/A</td>
<td>35%</td>
<td>60%</td>
<td>5%</td>
</tr>
<tr>
<td>Selection and Antiselection</td>
<td>1.00</td>
<td>0.92</td>
<td>1.11</td>
<td>0.70</td>
</tr>
<tr>
<td>Projected claims per employee</td>
<td>10,925</td>
<td></td>
<td>8,986</td>
<td></td>
</tr>
<tr>
<td>Impact on cost</td>
<td></td>
<td></td>
<td>-17.7%</td>
<td></td>
</tr>
</tbody>
</table>

The proposed plan will reduce the average claims per employee by 17.7%.
3. Continued

(c) Recommend whether or not the proposed Flexible Plan should be implemented. Justify your answer.

**Commentary on Question:**
*Most candidates correctly recommended the proposed flexible plan be implemented due to lower claims costs.*

Yes, the proposed Flexible Plan should be implemented because medical costs will decrease by 17.7%.

(d) Your CEO challenges your recommendation as being overly simplistic.

Describe:

(i) the four major ways this situation is simplistic.

(ii) ways you can improve your evaluation.

**Commentary on Question:**
- Candidates struggled on this section as the question required knowledge utilization. Below find each way the situation is simplistic, followed by a way to improve the evaluation.

- First, it assumes that there is no existing managed care plan (and thus no average discount savings in the current plan), while most large employers are likely to offer one or more managed health care plans.
  - If such a plan is reflected in the prior year claim experience, the factors to adjust for the changes in plan benefits, provider discounts, and utilization savings would change for each of the proposed plan options.
- The second over-simplification is that our example does not contemplate the common scenario where an employer’s plan offers competing dual choice plans.
  - If we were to complicate our example by assuming two current insurers, with separate claim experience and demographic data available, then the underwriter might perform a separate claim cost projection for each of the two insurers’ members, and then calculate composite costs for each proposed plan option based on a best estimate of any enrollment changes.
3. Continued

- One key to projecting the selection impact on a plan is to understand the method used to calculate employee contributions, or conversely, the employer’s premium subsidization.
  - The third oversimplification in our example is our failure to include and consider this information in our analysis.
- The final major over-simplification in our example is our use of a simple high deductible indemnity plan.
  - The antiselection analysis is more complex with plans tied to employee accounts.
4. **Learning Objectives:**
5. The candidate will understand how to apply principles of pricing, risk assessment and funding to an underwriting situation.

**Learning Outcomes:**
(5a) Understand the risks and opportunities associated with a given coverage, eligibility requirement or funding mechanism.

(5b) Understand, evaluate and apply various risk adjustment mechanisms.

(5c) Recommend strategies for minimizing or properly pricing for risks.

**Sources:**
Group Insurance, Ch. 31
Individual Health Insurance, Ch. 4

**Commentary on Question:**
*Commentary listed underneath question component.*

**Solution:**
(a) Describe selection risks to the insurer for:

(i) multi-choice employer group environment

(ii) the individual market

**Commentary on Question:**
*Candidates in general did better on the Individual response than the group response.*

(i) In an employer group, the employees choose their benefits based on their own health status, with healthier employees choosing leaner plans and less healthy employees choosing richer benefits. Their decision will be based upon the employer contribution and the cost shares of the plans. Employees will also select plans based on providers and/or the pharmacy formulary. Internal selection will occur each year when employees can choose their plan for the next year.

(ii) In the Individual market:
- External antiselection occurs when someone seeks insurance after becoming ill
- Internal antiselection occurs when an individual’s premiums will increase and they choose their benefits based on their known conditions. This is the same as the employee above
- Cumulative antiselection occurs when the lower cost insureds drop their coverage in the face of a high premium increase.
4. Continued

(b) Describe antiselection models in the individual market.

Commentary on Question:
Many candidates confused the antiselection models with the 3R’s in the ACA Individual market or described the types of antiselection rather than the models. If candidates only listed antiselection models without a description, only partial credit was awarded.

Partition models split the population into unhealthy and healthy insureds. CAST model draws the line between healthy and unhealthy at a multiple like 5 to 10. MNAM Model was developed to find boundary conditions on the antiselection which might occur in a specific situation. Internal antiselection, is a modified CAST model. Deterministic Models take past history, and project into the future which provides an expected value. Stochastic models develop distributions of potential values. Markov Chains can be used when there is a need to partition the population into more than two subsets.

(c) Calculate the antiselection risk. Show your work.

Commentary on Question:
Most candidates answered this question. Partial credit was given to candidates who showed appropriate work but did not get the correct final answer.

<table>
<thead>
<tr>
<th>Plan</th>
<th>Total Monthly Premium</th>
<th>Monthly Cost</th>
<th>Antiselection Risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>40 * 400 = 16,000</td>
<td>40%<em>400</em>40</td>
<td>6,400</td>
</tr>
<tr>
<td>B</td>
<td>35* 500 = 17,500</td>
<td>100%<em>500</em>35</td>
<td>17,500</td>
</tr>
<tr>
<td>C</td>
<td>25 * 600 = 15,000</td>
<td>250%<em>600</em>25</td>
<td>37,500</td>
</tr>
<tr>
<td>Total</td>
<td>48,500</td>
<td>61,400</td>
<td><strong>26.6%</strong></td>
</tr>
</tbody>
</table>

(61400/48500)
4. Continued

(d) Propose employer contribution amounts to reduce the antiselection risk. Justify your answer.

Commentary on Question:
Candidates often struggled with this question part. There are many recommendations that are acceptable; one of these is shown below. However, many candidates either did not justify the recommendation, or provided a recommendation that is not reasonable in the context of this question.

The current employer contribution is $400*100 = $40,000 per month. I recommend changing the employer contribution so that all employees pay the same amount $(48,500 – 40,000)/100 = $85$. The employer would contribute $315 to plan A, $415 to plan B and $515 to Plan C.
5. Learning Objectives:
4. The candidate will understand how to evaluate the effectiveness of different provider reimbursement methods from both a cost and quality point of view.

Learning Outcomes:
(4b) Evaluate standard contracting methods from a cost-effective & quality perspective.

Sources:
Design and Pricing of Tiered Network Health Plans, Health Watch

Commentary on Question:
Commentary listed underneath question component.

Solution:
(a) Define TNHP.

Commentary on Question:
Most candidates received partial credit for part (a). Well-prepared candidates differentiated themselves by explaining that a TNHP is a mechanism for controlling costs without having to increase members’ liability.

TNHP:
• Subdivides network providers based on cost effectiveness and quality rankings to identify preferred providers
• Helps keep total cost down, and members are able to maintain existing benefit levels

(b) Describe the process of designing a TNHP.

Commentary on Question:
The majority of candidates received full credit for part (b).

Process for designing a TNHP:
• Start with an existing plan and select a provider category to tier
• Tier providers in the chosen category on cost and quality measures
• Add additional cost share to providers not meeting desired standards

(c) Calculate the savings resulting from implementing the TNHP. State your assumptions. Show your work.
5. Continued

Commentary on Question:
Although most candidates identified the formula used for calculating TNHP savings, very few were able to successfully calculate the associated inputs. Several candidates relied upon the stated 50% shift assumption without recognizing that members using Provider E did not have a preferred provider in Rating Area 3 to whom they could switch.

Full credit was given to candidates who successfully implemented the TNHP savings formula as well as to candidates who took a first-principles approach to calculating savings.

This solution requires:
- Calculating the unit cost for each provider:

<table>
<thead>
<tr>
<th>Provider</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preferred?</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Rating Area</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Total Utilization</td>
<td>4,800</td>
<td>3,600</td>
<td>1,200</td>
<td>4,800</td>
<td>3,600</td>
</tr>
<tr>
<td>Allowed Claims</td>
<td>$960,000</td>
<td>$900,000</td>
<td>$240,000</td>
<td>$1,200,000</td>
<td>$900,000</td>
</tr>
<tr>
<td>Unit Cost</td>
<td>$200.00</td>
<td>$250.00</td>
<td>$200.00</td>
<td>$250.00</td>
<td>$250.00</td>
</tr>
<tr>
<td>MMs</td>
<td>2,400</td>
<td>1,800</td>
<td>600</td>
<td>2,400</td>
<td>1,800</td>
</tr>
<tr>
<td>Allowed PMPM</td>
<td>$400.00</td>
<td>$500.00</td>
<td>$400.00</td>
<td>$500.00</td>
<td>$500.00</td>
</tr>
<tr>
<td>Coinsurance</td>
<td>75%</td>
<td>75%</td>
<td>75%</td>
<td>75%</td>
<td>75%</td>
</tr>
<tr>
<td>Paid PMPM</td>
<td>$300.00</td>
<td>$375.00</td>
<td>$300.00</td>
<td>$375.00</td>
<td>$375.00</td>
</tr>
</tbody>
</table>

- Shifting utilization, allowed claims, and membership from non-preferred providers to preferred providers
- Calculating paid claims PMPMs under the initial and proposed plan designs:

<table>
<thead>
<tr>
<th>Provider</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preferred?</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Rating Area</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Total Utilization</td>
<td>6,600</td>
<td>1,800</td>
<td>3,600</td>
<td>2,400</td>
<td>3,600</td>
</tr>
<tr>
<td>Allowed Claims</td>
<td>$1,320,000</td>
<td>$450,000</td>
<td>$720,000</td>
<td>$600,000</td>
<td>$900,000</td>
</tr>
<tr>
<td>Unit Cost</td>
<td>$200.00</td>
<td>$250.00</td>
<td>$200.00</td>
<td>$250.00</td>
<td>$250.00</td>
</tr>
<tr>
<td>MMs</td>
<td>3,300</td>
<td>900</td>
<td>1,800</td>
<td>1,200</td>
<td>1,800</td>
</tr>
<tr>
<td>Allowed PMPM</td>
<td>$400.00</td>
<td>$500.00</td>
<td>$400.00</td>
<td>$500.00</td>
<td>$500.00</td>
</tr>
<tr>
<td>Coinsurance</td>
<td>75%</td>
<td>60%</td>
<td>75%</td>
<td>60%</td>
<td>60%</td>
</tr>
<tr>
<td>Paid PMPM</td>
<td>$300.00</td>
<td>$300.00</td>
<td>$300.00</td>
<td>$300.00</td>
<td>$300.00</td>
</tr>
</tbody>
</table>
5. Continued

- Calculating the savings from the proposed TNHP as the difference between initial paid claims PMPM and proposed paid claims PMPM
  
i. \[1 - \left(\frac{\$300.00}{\$350.00}\right) = 14.29\%\]

Alternatively, the TNHP savings formula from the syllabus item can be used:

\[
\text{TNHP savings formula} = N\% \times [M\% + \text{Shift} \times (P\% - M\%)], \text{ where}
\]
- \[N = \frac{\$3,000,000}{\$4,200,000} = 71.4\%\]
- \[P = 1 - \left(\frac{\$200.00}{\$250.00}\right) = 20.0\%\]
- \[M = 1 - \left(\frac{60\%}{75}\right) = 20.0\%\]
- \[\text{Shift} = 1 - \left(\frac{\$1,950,000}{\$3,000,000}\right) = 35.0\%\]

Savings formula = \[71.4\% \times [20.0\% + 35.0\% \times (20\% - 20\%)] = 14.29\%\]

(d) Critique the proposed TNHP design.

Commentary on Question:

While many candidates provided reasonable critiques, several candidates received only partial credit due to the brevity of their responses. A well-prepared candidate would critique at least two aspects of the proposal. The responses below were common responses, but not the only ones that received credit. Additionally, many candidates misunderstood the implications of M\% and P\% being in equilibrium.

Critique of the proposed TNHP design:
- There are no preferred providers in rating area 3 – members in that rating area will pay increased coinsurance with no option to utilize providers that would allow them to maintain existing benefit levels
- There may be backlash from providers categorized as non-preferred
- There is no consideration of quality in determining non-preferred providers – this could lead to member dissatisfaction
6. **Learning Objectives:**
5. The candidate will understand how to apply principles of pricing, risk assessment and funding to an underwriting situation.

**Learning Outcomes:**
(5d) Describe and apply approaches to claim credibility and pooling.

**Sources:**
A Practical Approach to Assigning Credibility for Group Medical Insurance Pricing
Issues In Applying Credibility to Group Long-Term Disability Insurance

**Commentary on Question:**
*Commentary listed underneath question component.*

**Solution:**
(a) Describe considerations for determining credibility levels for:

(i) Health Insurance
(ii) Specific Stop Loss
(iii) LTD

**Commentary on Question:**
*Candidates often failed to describe and support their statements; no credit was given for lists of items. Candidates did fairly well on the health insurance section. Most candidates recognized that varying the pooling/attachment point on the stop loss coverage impacted credibility as well as non-independence of claims for LTD.*

(i) Health Insurance
- Health claims are high frequency as most individuals have claims.
- Credibility is usually determined by the number of members in a group.
- The market is competitive. Insurers using inappropriate credibility might overprice less expensive groups and underprice more expensive groups.
- Individuals with high claims in one year tend to have high claims in the following year.
- Stable population, and less turnover will result in greater credibility.
6. Continued

(ii) Specific Stop Loss

- As the pooling point increases, the credibility of the claims decreases.
- Most groups will not have sufficient large claims to be fully credible.
- Tabular rate tables that take into account age, sex, industry, and specific level are typically used with no credibility given to the group’s actual experience.

(iii) LTD

- LTD claims within a group are not completely independent since industry/work conditions can trigger onset of disability for several employees of the same group.
- Economic factors such as a downturn can cause more people to file LTD claims.
- LTD claims have long tails depending on diagnosis, definition of disability, and limitations leading to variations in claim patterns.
- Outlier claims can complicate the credibility if the formula is based on claims amounts.
- States may adopt credibility requirements.

(b) Describe considerations in establishing selected variance factors for LTD claim credibility.

Commentary on Question:
Candidates struggled with section b, with many describing only non-independence and early duration volatility.

- LTD claim terminations are not independent; this non-independence increases the volatility which reduces the credibility of claims experience.
- Selected Variance Factors decrease with increasing claim duration because LTD terminations tend to be more volatile in early durations of claims.
- Early durations are dominated by recoveries which can be highly correlated with the cause of disability. Whereas, LTD claim terminations at the tail tend to be more stable and dominated by deaths as opposed to recoveries.
- Benefits from other sources and changes in the definition of disability usually occur during early durations.

(c) Calculate the credibility factor for this group. Show your work.

Commentary on Question:
Candidates generally did well with this calculation. Many candidates did not use the adjusted group size calculation and some candidates did not use the turnover-adjusted credibility formula. Partial credit was given to candidates who used the population variance instead of the r^2 variation.
6. Continued

First, assign the age-sex factors to each of Group A’s five employees:

<table>
<thead>
<tr>
<th>Employee No.</th>
<th>Gender</th>
<th>Age</th>
<th>Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>F</td>
<td>27</td>
<td>0.9</td>
</tr>
<tr>
<td>2</td>
<td>M</td>
<td>35</td>
<td>0.8</td>
</tr>
<tr>
<td>3</td>
<td>F</td>
<td>59</td>
<td>1.25</td>
</tr>
<tr>
<td>4</td>
<td>F</td>
<td>40</td>
<td>1</td>
</tr>
<tr>
<td>5</td>
<td>M</td>
<td>66</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Calculate Mean and variance of age-sex factors
\[
\mu = 1.07 \\
\sigma^2 = 0.062
\]

Calculate adjusted group size, \( n' = n \times \frac{\mu^2}{\mu^2 + \sigma^2} = 5 \times \frac{1.07^2}{1.07^2 + 0.062} = 4.74 \)

\( p = \text{Retention rate} = 1 - \text{Turnover rate} = 1 - 0.2 = 0.8 \)
\( k_1 = 0.25, k_2 = k_3 = 0.01 \)

Adjusted credibility = \[
\frac{p \times k_1 + (n' - p) \times k_2}{1 + (n' - 1) \times k_3} = \frac{0.8 \times 0.25 + (4.74 - 0.8) \times 0.01}{1 + (4.74 - 1) \times 0.01} = 0.231
\]

(d) Describe reasons why LTD claim experience tends to be more volatile in early durations.

Commentary on Question:
Candidates generally did very well on this section.

- LTD claim terminations in early durations are dominated by recoveries. There is a strong correlation between recoveries and cause of disability in early durations of claim, resulting in recovery patterns in early durations that can vary significantly by cause of disability.
- Benefits from other sources are typically awarded within the first few years of claim, creating irregular payment streams in early durations.
- The change in definition from an “own occupation” to an “any gainful occupation” definition usually occurs within the first few years of claim, resulting in a spike in recoveries at the change in definition.
- The maximum benefit period for mental & nervous claims is usually limited to 24 months.

(e) Determine if this block of business is fully credible for valuation purposes. Show your work.
6. Continued

**Commentary on Question:**
*Candidates generally did very well on this section. Some candidates did not explain whether the group was credible or not; listing the percent of credibility was awarded full points in lieu of a statement indicating fully credible or not.*

Number of Terminations for full credibility = \(\frac{\text{Selected Variance Factor}}{\left(\frac{0.05}{1.44}\right)^2}\) = 3,318

Since ABC only expects to have 750 terminations within 2 years (selected variance factor = 4.0), the block of business is not fully credible

(f) Calculate the minimum number of claims needed to be considered fully credible for manual ratemaking. Show your work.

**Commentary on Question:**
*Candidates did well on this section. Some candidates inverted the standard deviation and mean in the formula. Some candidates used the wrong z value.*

The minimum number of claims required for the experience to be considered credible for manual rate development:

\[
\lambda = \left(\frac{1.96}{0.05}\right)^2 \times \left(1 + \left(\frac{\sigma}{\mu}\right)^2\right) = \left(\frac{1.96}{0.05}\right)^2 \times \left(1 + \left(\frac{25,000}{50,000}\right)^2\right) = 1,921
\]

(g) Explain why the credibility level is different in (e) versus (f).

**Commentary on Question:**
* Candidates were generally able to identify a couple differences between these two credibility approaches.

- The credibility level differs because they are applied for different purposes. One is for valuation and setting reserves, and the other is for manual rate development.
- Credibility for rate-making uses number of claims, but valuation uses number of terminations.
- Confidence interval for valuation is 85%, vs 95% for manual rating.
- The theoretical basis differs: GLDT for valuation and limited fluctuation for manual rating.
7. Learning Objectives:
4. The candidate will understand how to evaluate the effectiveness of different provider reimbursement methods from both a cost and quality point of view.

Learning Outcomes:
(4a) Calculate provider payments under various reimbursement methods.

(4b) Evaluate standard contracting methods from a cost-effective & quality perspective.

(4c) Understand contracts between providers and insurers.

Sources:
Essentials of Managed Health Care, Kongstvedt, Ch. 4, p. 61

Provider Payment Arrangements, Provider Risk, and Their Relationship with Cost of Healthcare

GHDP-102-13: Evaluating Bundled Payment Contracting

Design and Pricing of Tiered Network Health Plans, Health Watch

Commentary on Question:
This question was designed to test the understanding of network access, provider payment models and calculation of bundled payment arrangements on behalf of the insurer. In addition, candidates were asked to provide recommendations and strategies to remediate the contract stalemate with a hospital. Most candidates were able to elaborate on different types of payment models and calculate the bundled payment. Some candidates received partial credit because they calculated the bundled payment based on “paid amounts” rather than “allowed amounts”. However, most candidates struggled to recommend pro/cons of each of the “remediation” alternatives and most candidates struggled to calculate the per member per admit financial impact of each alternative relative to the bundled payment proposal.

Solution:
(a) Describe the importance of network access.

Commentary on Question:
Candidates received credit for providing a description of the items listed below. Most candidates didn’t get full credit on this part of the question.

Network access is important for the following reasons:
1. Satisfies regulatory requirements at the state level and CMS (for Medicare products)
2. Allows members to access care which impacts plan quality
3. Allows health plan to attract and gain membership in service area
4. Allows health plan to compete with other insurers
5. Allows health plan to negotiate with providers for better discounts
7. Continued

(b) Describe various provider payment models.

**Commentary on Question:**
Candidates were expected to provide a description for each of the items listed below to earn full credit.

Provider payment models include the following:
1. Bundled payment – one payment per procedure / admission – typically including all services associated with that procedure
2. Fee for Service – contracted fixed amount for each specific service / fee schedule
3. Shared Savings – provider shares in gain / loss based on provider’s performance and quality against a benchmark
4. Global Capitation – pay one rate per member (regardless of utilization)
5. Pay for Performance – payment based on quality of hospital / provider
6. Diagnosis Related Group (DRG) – similar to bundled payment, pays per admission to hospital that is reflective of underlying diagnosis
7. Per Diem – pays for each day of an admission
8. Reference Pricing – set a maximum reimbursement rate that will be paid regardless of the provider

(c)

(i) Calculate a bundled payment. Show your work.

(ii) Recommend which hospital(s), if any, should be re-contracted for this procedure. Justify your answer.

**Commentary on Question:**
Candidates who showed their work and arrived at the answer below received full credit. The reimbursement rate is based on allowed amounts and not paid amounts (allowed amount less member’s out-of-pocket costs). Candidates who calculated the paid amount received partial credit.

Candidates who recommended re-contracting with Hospital C with an explanation received full credit. The majority of candidates received full credit for this part of the question.

First, we calculate the cost per admission: Cost Per Admission = ALOS * (Average Cost Per Day)

Hospital A = 3.5 * $4,000 = $14,000
Hospital B = 2.4 * $4,500 = $10,800
Hospital C = 3.1 * $6,000 = $18,600
7. Continued

Then we calculate the bundle payment using the weighted average (by admissions) of the hospital costs per admission

Bundle Payment = (Average cost per admit by hospital) * (# of admits by hospital) / (Total admits)

= ($14,000 * 20 + $10,800 * 40 + $18,600 * 30) / (20 + 40 + 30) = $14,111

An alternative acceptable answer is the average cost per admission by hospital (not weighted by the number of admits by hospital)

= ($14,000 + $10,800 + $18,600) / 3 = $14,467

The calculated bundle payment is higher than the average cost per admission for Hospitals A and B. However, the calculated bundle payment is lower than the average cost per admission for Hospital C. Therefore, from the perspective of the health insurer, Hospital C should be re-contracted in hopes of securing a lower reimbursement rate.

(d) Describe how each strategy could remediate the issue, including pros and cons.

**Rental Network – get access to Hospital C through a rental network**

**Pros**
- Easy to implement
- Don’t have to give up bundle rate

**Cons**
- Likely more expensive and cost prohibitive

**Considerations**
- Allows hospital C to leave the network but meet adequacy requirements through rental network

**Tiered Payment System – steer members to more efficient providers through lower member cost sharing**

**Commentary on Question:**

*Candidates who described the strategy including pros and cons listed below received full credit (other pros and cons not listed below are also acceptable). The majority of candidates received partial credit for this part of the question.*
7. Continued

Pros
• Provider continues to be in-network
• Members are steered to high-quality hospitals through lower member cost share

Cons
• Provider may not like being evaluated on quality
• Provider may not be receptive to being classified in a non-preferred tier

Considerations
• If hospital is placed on a “preferred tier”, more members will be steered there
• May encourage hospital to accept lower reimbursement as a tradeoff for increased volume

Shared Savings Arrangement – Provider gets a bundled rate and shares in savings and deficit

Pros
• Retain the savings but reimburse provider more for being efficient

Cons
• Provider may not be willing to take on risk
• Administratively complex to administer

Considerations
• Set the benchmark at the bundle rate and share savings with the provider
• Encourages provider to work towards being more efficient

(e) Calculate the per member per admit financial impact to the insurer of each alternative relative to the bundled payment proposal. Show your work.

Commentary on Question:
Candidates who showed their work and arrived at the answer below received full credit. The question requires the use of the answer from part c) and candidates were not penalized for carryforward of an incorrect answer from part c. Many candidates did not adjust for the paid to allowed ratio and received partial credit for the question. The question asks specifically for the financial impact of Hospital C and some candidates calculated the financial impact as the average across all hospitals.

The reimbursement rate under the alternate strategy is compared to the bundle rate derived from part c) to calculate the financial impact to the insurer.
Rental Network
New Allowed Amount = Allowed Amount * 1.05 * ALOS = $6,000 * 1.05 * 3.1 = $19,530
7. **Continued**

Bundle Rate = $14,111

Impact = (19,530 – $14,111) * (Paid / Allowed) = $5,419 * 0.85 = $4,606

Tiered Payment

Allowed Amount = $6,000 * 3.1 = $18,600

Bundle Rate = $14,111

Impact = $18,600 * (Paid / Allowed)_{\text{new}} – $14,111 (Paid / Allowed)_{\text{old}} = $18,600 * 0.9 – $14,111 * 0.85 = $4,746

Shared Savings

Allowed Amount = $6,000 * 3.1 = $18,600

Bundle Rate = $14,111

Assume the provider is paid based on their current allowed amount. The insurer will receive a payment from the provider of 50% of the difference between the allowed amount and the bundle rate – but member cost sharing will still be based on the original allowed amount.

Impact = (Allowed Amount – Bundle Rate) * (Paid / Allowed) – 50% * (Allowed Amount – Bundle Rate) = ($18,600 - $14,111) * 85% - 50% * ($18,600 - $14,111) = $4,489 * 85% - 50% * $4,489 = $1,571
8. Learning Objectives:
4. The candidate will understand how to evaluate the effectiveness of different provider reimbursement methods from both a cost and quality point of view.

Learning Outcomes:
(4d) Understand accountable care organizations and medical patient home models and their impact on quality, utilization and costs.

Sources:
GHDP-110-15: Commonwealth Fund Paper - The Final Rule for the Medicare Shared Savings Program
GHDP-120-18: Avoiding Unintended Consequences in ACO Payment Model

Commentary on Question:
Commentary listed underneath question component.

Solution:
(a) Describe the legal requirements for an ACO to be established.

Commentary on Question:
Candidates generally performed well on part (a).

- Must be able to receive and distribute shared savings
- Must be able to repay shared losses
- Confirm that all its participating providers comply with program requirements, including quality performance standards
- Establish a governing body, such as board of directors or board of managers where providers control 75% of governing body
- Establish a compliance plan that addresses how ACO will meet legal requirements
- Required to have at least 5,000 Medicare beneficiaries

(b) Explain differences between one-sided and two-sided ACO shared savings models.

Commentary on Question:
Candidates generally performed well on part (b). Credit was also given when candidates explained tracks 1, 2, and 3.

One-sided model:
- No shared losses
- ACOs can receive up to 50% of the shared savings
- Savings capped at 10 percent of benchmark
8. Continued

Two-sided model:
- ACOs share up to 60% of savings or losses
- Savings are capped at 15 percent of benchmark
- Shared losses capped at 5% in first year, 7.5% in year 2, 10% in year 3

(c) Describe strategies for an ACO to optimize its financial outcomes when entering the MSSP.

Commentary on Question:
Candidates who performed well generally commented in some way on the motivation to increase spending during the benchmark period. Candidates who did not perform as well only mentioned things like managing costs.

- A large weight (60%) is given to the third year of the benchmark calculation
- Due to this large weight, ACOs will often push spending to the year before an ACO contract begins or is renewed.
- Elective procedures may also get pushed to the beginning of Years 2 and 3, if originally scheduled for end of year.
- This push in spending increases the benchmark that is to be applied for the ACO contract.
- ACOs will also engage in a one-sided approach to avoid the shared losses of excessive spending.
- In the one-sided program, shared savings from deferred spending is realized over three years of a higher benchmark.
- Since the number of Medicare beneficiaries impacts the minimum savings rate in a one-sided contract, shared savings are limited based on the population.
- Existing ACOs in two-sided programs must consider impact of elective procedures in Year 3 of their contract, as losses are realized in first contract, but may become savings in second contract.

(d) Describe strategies the government could employ to reduce unintended incentives in the MSSP.

Commentary on Question:
Candidates generally performed well on part (d).

- CMS could change the weights used to calculate the benchmark, employing equal weighting or giving more weight to earlier years.
- CMS could use more years in the calculation period to spread weighting across more years.
- Employ a “yardstick competition” that calculates benchmarks based on all ACO providers, as opposed to just the organization’s spending, akin to the Medicare Advantage benchmark rates.
8. Continued

- Benchmarks could also be aggregated based on whether a contract is a current or new ACO provider.

(e) Calculate the ACO benchmark for 2020. Show your work.

**Commentary on Question:**
Some candidates performed very well on part (e) and some needed to review the formula to perform the calculation. A common mistake was not realizing the 3 cohorts started at different times and had to be blended based on the correct year. Some candidates gave equal weighting to the three years in the final step of creating the benchmark and credit was given because equal weighting is also within the syllabus.

**NOTE:** The question states trend is 0% and there are no changes in demographics or case-mix. Consequently, no adjustment is required in this scenario and these adjustments are omitted from the solution below.

2017 Spending PMPM = $900
2018 Spending PMPM = Weighted Costs: Year 2 Costs of Group A + Year 1 Costs of Group B = (1000*500+300*1050)/800 = $1018.75
2019 Spending PMPM = Weighted Costs: Year 3 Costs of Group A + Year 2 Costs of Group B + Year 1 Costs of Group C = (1100*500+1100*300+1200*200)/1000 = $1120
**Benchmark** = 60% * Spending 2019 + 30% * Spending 2018 + 10% * Spending 2017 = 0.6*1120 + 0.3*1018.75 + 0.1*900 = $1,067.63