

# GH DP Model Solutions

## Fall 2022

### 1. Learning Objectives:

3. The candidate will understand how to evaluate and recommend an employee benefit strategy.

### Learning Outcomes:

- (3a) Describe structure of employee benefit plans and products offered and the rationale for offering these structures.
- (3b) Describe elements of flexible benefit design and management.
- (3c) Recommend an employee benefit strategy in light of an employer's objectives

### Sources:

Consumers to the Rescue? A Primer on HDHPs and HSA, Rosenbloom Ch 2, Ch 32.

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a) Describe the need for a functional approach in designing an employee benefits plan.

### Commentary on Question:

*The question asked to describe the need for a functional approach. Many candidates focused on what the functional approach is and not the need. Successful candidates included several facets of needs, including but not limited to efficiency, cost, and talent management.*

Employee benefits are a significant portion of compensation and cost of labor. A functional approach ensures gaps and overlaps between benefits are identified, avoids waste, ensures benefits are current and compliant with laws. The approach also ensures benefits are competitive, tax efficient, and in alignment with the employer's benefit philosophy.

## 1. Continued

- (b)
- (i) Compare and contrast the features of Health Savings Accounts (HSA) and Health Reimbursement Accounts (HRA).
  - (ii) Describe the impact of these features on an employee.

### **Commentary on Question:**

*Most candidates answered part (i) correctly, recalling several key features that are similar or different between the two types of accounts. Most candidates then had difficulty with part (ii), either failing to identify significant impacts to employees, commenting on impacts to the employer, or discussing impacts from health plans without connecting it with the accounts themselves.*

- (i) Owner: HSA is the employee, HRA is the employer  
Contribution: HSA both the employer and employee can contribute, HRA only the employer can contribute  
Tax Deductibility: Contributions are tax deductible for both  
Contribution Limits: HSA has limits set the IRS, HRA has no limit  
Rollover of Funds: HSA – yes, HRA can rollover, but usually is forfeited  
Distributions: Both are tax free if used for qualified expenses  
HDHP: HSA – required to have HDHP, HRA is not required, but can be paired with one.
  - (ii) Since the funds in a HSA belong to the employee, they will behave as better health care consumers seeking out lower cost care, generic prescriptions. The HSA will enable consumers to save for future health expenditures since the funds can be rolled over and invested. Since an HRA is forfeited when you leave your employer or in many cases at the end of the year – this creates a use it or lose it scenario that employees will utilize more health care.
- (c) 'Company X is an employer of less than 50 white-collar employees, several of whom are very highly compensated. Predictable costs and cost containment are important to X. The CEO feels it is easier and cheaper to self-insure X's Short-Term Disability (STD) benefit. Given the cost of Long-Term Disability (LTD) insurance, X can only afford a minimum coverage amount.
- (i) Critique the CEO's approach.
  - (ii) Propose revisions to the CEO's approach. Justify your response.

## 1. Continued

### **Commentary on Question:**

*Most candidates focused on the STD being self-insured and did not address the LTD proposal. Successful candidates on part (i) commented on several considerations that company X would need to make beyond cost containment and price, including administrative burden, litigation, reputation, or other risks that they would carry if self-insured. Successful candidates on part (ii) included specific recommendations and justified their response related back to the goals of company X.*

- (i) With a small company of less than 50 employees, the claims will be volatile on the STD product which does not align with the goal of predictable costs. Additionally, administration of a self-insured STD plan would be onerous for a small company. The highly paid employees will not likely be covered adequately by minimal LTD coverage.
- (ii) Recommend insuring the STD plan which will reduce burden on the company for administration and produce predictable costs. Offer supplemental LTD insurance to highly paid employees.

## 2. Learning Objectives:

2. The candidate will understand how to calculate and recommend a manual rate for each of the coverages described in Learning Objective 1.
5. The candidate will understand how to apply principles of pricing, risk assessment and funding to an underwriting situation.

### Learning Outcomes:

- (2d) Calculate and recommend a manual rate.
- (5b) Understand, evaluate and apply various risk adjustment mechanisms.
- (5c) Recommend strategies for minimizing or properly pricing for risks.

### Sources:

Individual Health Insurance, Bluhm, William and Leida, Hans, 2nd Edition, 2015  
o Ch. 4: Managing Antiselection (pp. 109-148)

### Commentary on Question:

*The question was attempting to test the student's knowledge of techniques for managing anti-selection risk. Building on this, the question asks for specific tools used in the underwriting process. The numerical component requires the student to take multiple inputs and derive the specific cost for anti-selection, the "buydown effect".*

### Solution:

- (a) Describe ways insurers manage anti-selection.

### Commentary on Question:

*The graders were looking for the student's understanding of reasonable tools to manage anti-selection. The student was expected to provide 4 tools for full credit.*

Valid responses included:

- Individual (medical) underwriting before issue
- Policy provisions that exclude or limit coverage due to pre-existing conditions
- Implement minimum participation percentage
- Increase the size of the risk pool
- Add waiting periods
- Limit changes between plans
- Add anti-selection premium
- Limit changes to specific time windows
- Institute enrollment periods

## 2. Continued

- (b) Insurer M wants to reduce expenses for performing routine underwriting tasks.
- (i) Identify four types of underwriting tools that would best serve Insurer M's needs.
  - (ii) Identify four types of underwriting tools that would not address Insurer M's needs.

**Commentary on Question:**

*This portion of the question was looking for a demonstration of knowledge of underwriting tools and the relative costs of these tools. Candidates who provided logical support for their choice of tool received full credit. The student was expected to provide 8 tools for full credit.*

Valid underwriting tools included:

Individual application

- Health questionnaires
- Attending physician statements (APS)
- Internal data – relevant claims or application data
- Tax returns
- Pre-existing provisions
- Commercial databases – an example are prescription databases
- Telephone interviews
- Inspection reports – obtained through direct contact with the applicant or their family
- Lab testing – blood, saliva, or urine testing
- Medical exams
- Automated underwriting tools

- (c) Calculate the amount of buydown effect that occurs in 2021. Show your work.

**Commentary on Question:**

*This part of the question required the student to solve for the 2020 incurred claims and then parse these claims into high and low risk claims. From there, the 2021 claims for both plans and the buydown effect can be calculated. The example below shows the buydown effect for the entire block, but we also accepted the buydown effect for an average policy.*

## 2. Continued

This example calculates the buydown effect for the entire block.

| Step   | Formula  | Result                       |
|--|--|------------------------------|
| 2020 average incurred claims   | 9000 (average premium) x 0.9 (loss ratio)  | 8,100                        |
| Solve for average high risk claims, where H = high risk claims and L = low risk claims. We are given that $L = H \times 0.9$ | $8100 \times 1200$ (total claims) = $700H + 500L = 700H + 450H$  | H = 8,452.17<br>L = 7,606.96 |
| 2021 Plan A high and low risk claims   | 2020 high/low risk claims x (1+trend).<br>Trend given as 0.  | H = 8,452.17<br>L = 7,606.96 |
| 2021 Plan B high risk claims   | Plan A high risk claims x (1- high-risk benefit buydown)   | 6,761.74                     |
| 2021 Plan B low risk claims  | Plan A low risk claims x (1-low-risk benefit buydown)  | 7,226.61                     |
| Weighted average 2021 claims   |  | 7,874.61                     |
| Weighted average 2021 premium  | Weighted average 2021 claims/0.9   | 8,749.56                     |
| Buydown effect   | Total lost member premium dollars due to benefit buydowns = premium collected if no new plan options – premium collected with new plan options = 1200 (number of members) x (8,000-8,749.56) | (899,475)                    |

- (d) Evaluate the effectiveness that different ACA-prohibited techniques would have at addressing premium leakage.

### Commentary on Question:

*The student was expected to provide an example of ACA-prohibited techniques along with a rationale on how it addressed premium leakage. Many of the responses included only ACA allowed techniques. Full credit was given for four techniques that included explanations on how they addressed premium leakage.*

Typical ACA prohibited techniques would include using health status in rating formulas, using initial underwriting to decide on the coverage level to provide, using pre-existing condition exclusions, using marketing practices to discourage unhealthy members to enroll, and using rescissions (outside of where fraud or misrepresentation of material fact can be proven).

Mechanisms which deny coverage would be ineffective here since the population is the same from one year to the next with no lapse. If health risk status were allowed, or underwriting, this could have an impact on reducing the premium leakage seen as the plan premiums would more closely match the expected claims experience.

### 3. 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.
- (4c) Understand contracts between providers and insurers.
- (4d) Understand accountable care organizations and medical patient home models and their impact on quality, utilization and costs.

#### Sources:

GHDP-120-18: Avoiding Unintended Consequences in ACO Payment Model

#### Commentary on Question:

*Commentary listed underneath question component.*

#### Solution:

- (a) Calculate the shared savings or loss that Broad Medical receives or pays for each contract year. Show your work. State your assumptions.

#### Commentary on Question:

*Candidate performance was mixed, but most achieved some form of partial credit. The most common errors related to the manner in which the quality adjustment was applied (either in determining losses or in determining whether performance met the minimum thresholds).*

For each year, the following steps should be performed:

1. Subtract expenditures from the benchmark to determine savings and losses
  - a. For the renewal contract, the benchmark would need to be calculated as
$$10\% \times 96,000,000 + 30\% \times 96,000,000 + 60\% \times 96,000,000 = 96,000,000$$
2. Compare savings and losses against the minimum thresholds (2% x benchmark).
3. If the savings and losses do not meet the minimum thresholds, assign \$0 for shared savings or shared loss.
4. If the savings and losses meet the minimum thresholds, multiply those amounts by the year's applicable upside risk and downside risk factors and then multiply by the quality score (note that any losses would not be adjusted by the quality score).

### 3. Continued

| Year         | Shared Savings | Shared Losses  |
|--------------|----------------|----------------|
| 2016         | 1,800,000      | N/A            |
| 2017         | 1,800,000      | N/A            |
| 2018         | 1,800,000      | N/A            |
| 2019         | 960,000        | 0              |
| 2020         | 960,000        | 0              |
| 2021         | 0              | -<br>1,000,000 |
| <b>Total</b> |                |                |

- (b) Calculate the cumulative marginal revenue for 2016 – 2021 if the additional services are provided during:
- (i) 2016
  - (ii) 2017
  - (iii) 2018

Show your work. State your assumptions.

**Commentary on Question:**

*Candidate performance was mixed, but most achieved some form of partial credit. The most common errors related to only calculating changes in shared savings and not calculating the cumulative marginal revenue. When cumulative marginal revenue calculations were attempted, some candidates failed to incorporate the additional \$1M in spending for each scenario.*

For each year, the following steps should be performed:

1. Subtract expenditures from the benchmark to determine savings and losses
  - a. For the renewal contract, the benchmarks would be calculated as:
    - i. 2016 scenario:  $10\% \times 97,000,000 + 30\% \times 96,000,000 + 60\% \times 96,000,000 = 96,100,000$
    - ii. 2017 scenario:  $10\% \times 96,000,000 + 30\% \times 97,000,000 + 60\% \times 96,000,000 = 96,300,000$
    - iii. 2018 scenario:  $10\% \times 96,000,000 + 30\% \times 96,000,000 + 60\% \times 97,000,000 = 96,600,000$
2. Compare savings and losses against the minimum thresholds (2% x benchmark).
3. If the savings and losses do not meet the minimum thresholds, assign \$0 for shared savings or shared loss.



### 3. Continued

4. If the savings and losses meet the minimum thresholds, multiply those amounts by the year's applicable upside risk and downside risk factors and then multiply by the quality score (note that any losses would not be adjusted by the quality score).
5. Sum the total revenue (expenditures + savings or losses) across all contract years and subtract the expenditures, savings, and losses determined in part a).

(i)

| Year         | Cumulative Marginal Revenue |
|--------------|-----------------------------|
| 2016         | 550,000                     |
| 2017         | 0                           |
| 2018         | 0                           |
| 2019         | 48,000                      |
| 2020         | 48,000                      |
| 2021         | 1,000,000                   |
| <b>Total</b> | <b>1,646,000</b>            |

(ii)

| Year         | Cumulative Marginal Revenue |
|--------------|-----------------------------|
| 2016         | 0                           |
| 2017         | 550,000                     |
| 2018         | 0                           |
| 2019         | 144,000                     |
| 2020         | 144,000                     |
| 2021         | 1,000,000                   |
| <b>Total</b> | <b>1,838,000</b>            |

(iii)

| Year         | Cumulative Marginal Revenue |
|--------------|-----------------------------|
| 2016         | 0                           |
| 2017         | 0                           |
| 2018         | 550,000                     |
| 2019         | 288,000                     |
| 2020         | 288,000                     |
| 2021         | 1,000,000                   |
| <b>Total</b> | <b>2,126,000</b>            |

### 3. Continued

- (c) Describe two strategies for improving ACO incentives and the advantages and disadvantages of each strategy.

**Commentary on Question:**

*Candidates generally performed well. Full credit was given for well-reasoned strategies that included at least one advantage and one disadvantage.*

One strategy would be modifying the benchmark weights to be equal across all years. An advantage of this strategy is reducing the incentives to increase spending in the last year before contract renewal. A disadvantage of this strategy is that it still does not address the perverse incentives that exist when first entering a contract.

Another strategy would be using 'yardstick competition' to base benchmarks on the performance of other providers. An advantage of this strategy is that it creates a stronger incentive for an ACO to achieve and maintain greater efficiency. A disadvantage is that less efficient providers may be less likely to participate due to expectations of a lower benchmark.

#### **4. Learning Objectives:**

3. The candidate will understand how to evaluate and recommend an employee benefit strategy.

#### **Learning Outcomes:**

- (3a) Describe structure of employee benefit plans and products offered and the rationale for offering these structures.
- (3c) Recommend an employee benefit strategy in light of an employer's objectives

#### **Sources:**

Rosenbloom Chapters 18, 24. GHDP-106-16

#### **Commentary on Question:**

*Commentary listed underneath question component.*

#### **Solution:**

- (a) Describe reasons why an employee benefit program is of strategic importance to ABC from the perspective of:
  - (i) Human resources
  - (ii) Risk management

#### **Commentary on Question:**

*Overall, candidates did well on Part A. The below represents an example answer, other reasons were considered and given credit.*

- (i) An employee benefit program is instrumental in attracting and retaining a skilled workforce, which allows company to be competitive with in its industry, as the designs of the retirement plan and health benefits can have a direct impact on the replenishment of the work force.
  - (ii) There are significant costs associated with employee benefit programs creating significant financial risk. Additionally, organizations that effectively manage their employee benefits program risks can have a competitive advantage in product and service pricing by reducing internal costs and having a healthier work force will create additional efficiencies.
- (b) List and describe factors ABC should consider when determining its level of contributions to employee benefit premiums.

## 4. Continued

**Commentary on Question:**

*Candidates were given points for both listing and describing the factors. While most candidates earned partial credit, some candidates limited their responses to different aspects of the overall compensation philosophy or focusing on factors to consider for developing rates as opposed to factors to consider when determining level of contributions.*

Overall compensation philosophy - How total compensation is divided between salary and benefits and what types of benefits are offered.

Benefits budget – If the employer cost to provide benefits does not keep pace with increases in cost of healthcare, employers must modify benefits program, including payroll contributions, to fit within budgetary constraints.

Desired level of benefit competitiveness - Consider total benefit structure compared to other employers with whom they compete for talent. Benefit levels and EE contributions may vary by region, job class (management vs. labor), employer size, industry, and even between EE-only and dependent coverage.

Collective bargaining - Collectively bargained groups negotiate both benefits covered and payroll contribution levels as part of union contracts with employers.

Regulatory impacts – Regulations can influence payroll contribution levels (e.g., PPACA affordability for large employers) and benefits offered (PPACA MEC, mandated benefits).

- (c) Calculate ABC's total monthly contribution to employees' premiums in 2022. Show your work.

**Commentary on Question:**

*Candidates did very well on part C, most earning full credit.*

#### 4. Continued

| Plan         | Coverage Tier | Salary Tier      | Employee Count | 2022 premium per EE | 2022 ABC contribution % | 2022 ABC contribution \$ |
|--------------|---------------|------------------|----------------|---------------------|-------------------------|--------------------------|
|              |               |                  | A              | B                   | C                       | D                        |
|              |               |                  |                | Provided            | Provided                | $D = A*B*C$              |
| PPO          | EE Only       | Less than \$50K  | 1              | \$605               | 80%                     | \$484                    |
| PPO          | EE Only       | \$50K to \$75K   | 1              | \$605               | 80%                     | \$484                    |
| PPO          | EE Only       | \$150K or more   | 1              | \$605               | 75%                     | \$454                    |
| PPO          | EE + Spouse   | \$50K to \$75K   | 2              | \$1,241             | 75%                     | \$1,862                  |
| PPO          | EE + Spouse   | \$75K to \$100K  | 1              | \$1,241             | 75%                     | \$931                    |
| PPO          | EE + Family   | Less than \$50K  | 1              | \$1,665             | 80%                     | \$1,332                  |
| PPO          | EE + Family   | \$50K to \$75K   | 2              | \$1,665             | 75%                     | \$2,497                  |
| PPO          | EE + Family   | \$75K to \$100K  | 2              | \$1,665             | 75%                     | \$2,497                  |
| PPO with HSA | EE Only       | Less than \$50K  | 3              | \$499               | 80%                     | \$1,197                  |
| PPO with HSA | EE Only       | \$50K to \$75K   | 2              | \$499               | 80%                     | \$798                    |
| PPO with HSA | EE Only       | \$75K to \$100K  | 7              | \$499               | 80%                     | \$2,792                  |
| PPO with HSA | EE Only       | \$100K to \$150K | 1              | \$499               | 75%                     | \$374                    |
| PPO with HSA | EE + Spouse   | Less than \$50K  | 4              | \$1,022             | 80%                     | \$3,270                  |
| PPO with HSA | EE + Spouse   | \$50K to \$75K   | 3              | \$1,022             | 75%                     | \$2,300                  |
| PPO with HSA | EE + Spouse   | \$75K to \$100K  | 1              | \$1,022             | 75%                     | \$767                    |
| PPO with HSA | EE + Family   | \$150K or more   | 1              | \$1,371             | 65%                     | \$891                    |
| Total        |               |                  |                |                     |                         | <b>\$22,929</b>          |

- (d) Calculate the percentage change in ABC's total contributions, compared to 2022, for each of the above scenarios. Show your work.

**Commentary on Question:**

*Candidates generally did well on parts of (d), with some misses on interpretations of scenarios. While partial credit was given, candidates who provided their answers leveraging Excel formulas and organized did better with not losing points to mathematical mistakes.*

#### 4. Continued

(i)

| Plan         | Coverage Tier | Salary Tier      | Employee Count | 2023 premium per EE | ABC contribution % | 2023 ABC contribution \$ |
|--------------|---------------|------------------|----------------|---------------------|--------------------|--------------------------|
|              |               |                  | A              | B                   | C                  | D                        |
|              |               |                  |                | Provided            | Provided           | D = A*B*C                |
| PPO          | EE Only       | Less than \$50K  | 1              | \$636               | 80%                | \$509                    |
| PPO          | EE Only       | \$50K to \$75K   | 1              | \$636               | 80%                | \$509                    |
| PPO          | EE Only       | \$150K or more   | 1              | \$636               | 75%                | \$477                    |
| PPO          | EE + Spouse   | \$50K to \$75K   | 2              | \$1,303             | 75%                | \$1,955                  |
| PPO          | EE + Spouse   | \$75K to \$100K  | 1              | \$1,303             | 75%                | \$977                    |
| PPO          | EE + Family   | Less than \$50K  | 1              | \$1,748             | 80%                | \$1,398                  |
| PPO          | EE + Family   | \$50K to \$75K   | 2              | \$1,748             | 75%                | \$2,622                  |
| PPO          | EE + Family   | \$75K to \$100K  | 2              | \$1,748             | 75%                | \$2,622                  |
| PPO with HSA | EE Only       | Less than \$50K  | 3              | \$531               | 80%                | \$1,274                  |
| PPO with HSA | EE Only       | \$50K to \$75K   | 2              | \$531               | 80%                | \$850                    |
| PPO with HSA | EE Only       | \$75K to \$100K  | 7              | \$531               | 80%                | \$2,973                  |
| PPO with HSA | EE Only       | \$100K to \$150K | 1              | \$531               | 75%                | \$398                    |
| PPO with HSA | EE + Spouse   | Less than \$50K  | 4              | \$1,088             | 80%                | \$3,483                  |
| PPO with HSA | EE + Spouse   | \$50K to \$75K   | 3              | \$1,088             | 75%                | \$2,449                  |
| PPO with HSA | EE + Spouse   | \$75K to \$100K  | 1              | \$1,088             | 75%                | \$816                    |
| PPO with HSA | EE + Family   | \$150K or more   | 1              | \$1,460             | 65%                | \$949                    |

Total

\$24,261 /  
\$22,929 =  
**5.8%**

#### 4. Continued

(ii)

| Plan         | Coverage Tier | Salary Tier      | Employee Count | 2023 premium per EE | 2023 EE Only Premium | 2023 Dependent Only Premium | 2023 ABC contribution \$ |
|--------------|---------------|------------------|----------------|---------------------|----------------------|-----------------------------|--------------------------|
|              |               |                  | A              | B                   | C                    | D                           | E                        |
|              |               |                  |                | Provided            | EE Only by Plan      | D = B - C                   | E = (85%*C+50%*D)*A      |
| PPO          | EE Only       | Less than \$50K  | 1              | \$636               | \$636                | \$0                         | \$509                    |
| PPO          | EE Only       | \$50K to \$75K   | 1              | \$636               | \$636                | \$0                         | \$509                    |
| PPO          | EE Only       | \$150K or more   | 1              | \$636               | \$636                | \$0                         | \$477                    |
| PPO          | EE + Spouse   | \$50K to \$75K   | 2              | \$1,303             | \$636                | \$667                       | \$1,955                  |
| PPO          | EE + Spouse   | \$75K to \$100K  | 1              | \$1,303             | \$636                | \$667                       | \$977                    |
| PPO          | EE + Family   | Less than \$50K  | 1              | \$1,748             | \$636                | \$1,112                     | \$1,398                  |
| PPO          | EE + Family   | \$50K to \$75K   | 2              | \$1,748             | \$636                | \$1,112                     | \$2,622                  |
| PPO          | EE + Family   | \$75K to \$100K  | 2              | \$1,748             | \$636                | \$1,112                     | \$2,622                  |
| PPO with HSA | EE Only       | Less than \$50K  | 3              | \$531               | \$531                | \$0                         | \$1,274                  |
| PPO with HSA | EE Only       | \$50K to \$75K   | 2              | \$531               | \$531                | \$0                         | \$850                    |
| PPO with HSA | EE Only       | \$75K to \$100K  | 7              | \$531               | \$531                | \$0                         | \$2,973                  |
| PPO with HSA | EE Only       | \$100K to \$150K | 1              | \$531               | \$531                | \$0                         | \$398                    |
| PPO with HSA | EE + Spouse   | Less than \$50K  | 4              | \$1,088             | \$531                | \$558                       | \$3,483                  |
| PPO with HSA | EE + Spouse   | \$50K to \$75K   | 3              | \$1,088             | \$531                | \$558                       | \$2,449                  |
| PPO with HSA | EE + Spouse   | \$75K to \$100K  | 1              | \$1,088             | \$531                | \$558                       | \$816                    |
| PPO with HSA | EE + Family   | \$150K or more   | 1              | \$1,460             | \$531                | \$929                       | \$949                    |

Total

\$22,349 / \$22,929 =  
-2.5%

#### 4. Continued

(iii)

| Plan         | Coverage Tier | Salary Tier      | Employee Count | Lowest Premium Plan Type | 2023 ABC contribution \$ |
|--------------|---------------|------------------|----------------|--------------------------|--------------------------|
|              |               |                  | A              | B                        | C                        |
|              |               |                  |                | Provided                 | $C = 80\% * B * A$       |
| PPO          | EE Only       | Less than \$50K  | 1              | \$531                    | \$425                    |
| PPO          | EE Only       | \$50K to \$75K   | 1              | \$531                    | \$425                    |
| PPO          | EE Only       | \$150K or more   | 1              | \$531                    | \$425                    |
| PPO          | EE + Spouse   | \$50K to \$75K   | 2              | \$1,088                  | \$1,742                  |
| PPO          | EE + Spouse   | \$75K to \$100K  | 1              | \$1,088                  | \$871                    |
| PPO          | EE + Family   | Less than \$50K  | 1              | \$1,460                  | \$1,168                  |
| PPO          | EE + Family   | \$50K to \$75K   | 2              | \$1,460                  | \$2,336                  |
| PPO          | EE + Family   | \$75K to \$100K  | 2              | \$1,460                  | \$2,336                  |
| PPO with HSA | EE Only       | Less than \$50K  | 3              | \$531                    | \$1,274                  |
| PPO with HSA | EE Only       | \$50K to \$75K   | 2              | \$531                    | \$850                    |
| PPO with HSA | EE Only       | \$75K to \$100K  | 7              | \$531                    | \$2,973                  |
| PPO with HSA | EE Only       | \$100K to \$150K | 1              | \$531                    | \$425                    |
| PPO with HSA | EE + Spouse   | Less than \$50K  | 4              | \$1,088                  | \$3,483                  |
| PPO with HSA | EE + Spouse   | \$50K to \$75K   | 3              | \$1,088                  | \$2,612                  |
| PPO with HSA | EE + Spouse   | \$75K to \$100K  | 1              | \$1,088                  | \$871                    |
| PPO with HSA | EE + Family   | \$150K or more   | 1              | \$1,460                  | \$1,168                  |

Total

\$23,383 / \$22,929 =  
**2.0%**



## 4. Continued

(iv)

| Plan         | Coverage Tier | Salary Tier      | Employee Count | Lowest Premium Plan Type | 2023 ABC contribution \$ |
|--------------|---------------|------------------|----------------|--------------------------|--------------------------|
|              |               |                  | A              | B                        | C                        |
|              |               |                  |                | Provided                 | $D = 80\% * C * A$       |
| PPO          | EE Only       | Less than \$50K  | 1              | \$531                    | \$425                    |
| PPO          | EE Only       | \$50K to \$75K   | 1              | \$531                    | \$425                    |
| PPO          | EE Only       | \$150K or more   | 1              | \$531                    | \$398                    |
| PPO          | EE + Spouse   | \$50K to \$75K   | 2              | \$1,088                  | \$1,633                  |
| PPO          | EE + Spouse   | \$75K to \$100K  | 1              | \$1,088                  | \$816                    |
| PPO          | EE + Family   | Less than \$50K  | 1              | \$1,460                  | \$1,168                  |
| PPO          | EE + Family   | \$50K to \$75K   | 2              | \$1,460                  | \$2,190                  |
| PPO          | EE + Family   | \$75K to \$100K  | 2              | \$1,460                  | \$2,190                  |
| PPO with HSA | EE Only       | Less than \$50K  | 3              | \$531                    | \$1,274                  |
| PPO with HSA | EE Only       | \$50K to \$75K   | 2              | \$531                    | \$850                    |
| PPO with HSA | EE Only       | \$75K to \$100K  | 7              | \$531                    | \$2,973                  |
| PPO with HSA | EE Only       | \$100K to \$150K | 1              | \$531                    | \$398                    |
| PPO with HSA | EE + Spouse   | Less than \$50K  | 4              | \$1,088                  | \$3,483                  |
| PPO with HSA | EE + Spouse   | \$50K to \$75K   | 3              | \$1,088                  | \$2,449                  |
| PPO with HSA | EE + Spouse   | \$75K to \$100K  | 1              | \$1,088                  | \$816                    |
| PPO with HSA | EE + Family   | \$150K or more   | 1              | \$1,460                  | \$949                    |

Total

\$22,438 / \$22,929 =  
-2.1%

- (e) Recommend a 2023 medical benefit contribution strategy for ABC. Justify your response.

### Commentary on Question:

*Candidates did well on Part (e). Any recommendation was accepted for full credit if sufficiently justified, with considerations for ABC's budget and impact on employees both from a cost and receptiveness perspective.*

I would recommend using the same strategy as in 2022. Although this represents a 5.8% increase to ABC, its EEs would also experience a 6% increase in their payroll deductions, so it is at least equitable and ABC could make a point to communicate this clearly. The other potential changes proposed would result in lower increases, or even a decrease, in ABC's costs, but doing so would shift even more of the cost increase to the EEs or remove employee choice in plans, which could hurt morale and increase retention risk.

## 5. Learning Objectives:

5. The candidate will understand how to apply principles of pricing, risk assessment and funding to an underwriting situation.

### Learning Outcomes:

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

### Sources:

Group Insurance, Skwire, 8th Edition, Ch. 30

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a) Calculate the selection load needed in Year 2 for PQR to break even under Strategy 1. Show your work.

### Commentary on Question:

*Candidates performed well on part (a). Candidates received full credit for calculating the correct selection load with work shown. Partial credit was given for candidate answers showing correct approaches with minor calculation errors. Candidates who performed poorly failed to use the morbidity factors, incorrectly applied member migration, or did not understand how to calculate a selection load.*

| Given      | Given          | Given                  | Given       | Given       |                               |                     |
|------------|----------------|------------------------|-------------|-------------|-------------------------------|---------------------|
| Risk Group | # of Employees | Relative Health Status | Year 1 Plan | Year 2 Plan | Monthly Insurer Premium Rates | Premium Calculation |
| 1          | 600            | 50%                    | A           | A           | \$525                         | =500*1.05           |
| 2          | 200            | 70%                    | B           | A           | \$525                         | =500*1.05           |
| 3          | 300            | 100%                   | B           | B           | \$630                         | =600*1.05           |
| 4          | 200            | 225%                   | C           | B           | \$630                         | =600*1.05           |
| 5          | 50             | 320%                   | C           | C           | \$735                         | =700*1.05           |

Monthly Insurer Premium, Year 2, Strategy 1

Plan A =  $525 \times 600 + 525 \times 200 = 420,000$

Plan B =  $630 \times 300 + 630 \times 200 = 315,000$

Plan C =  $735 \times 50 = 36,750$

Total Monthly Insurer Premium =  $420,000 + 315,000 + 36,750 = 771,750$

## 5. Continued

Monthly Insurer Cost (Pure Premium), Year 2, Strategy 1

$$\text{Plan A} = 525 * 600 * 0.5 + 525 * 200 * 0.7 = 231,000$$

$$\text{Plan B} = 630 * 300 * 1 + 630 * 200 * 2.25 = 472,500$$

$$\text{Plan C} = 735 * 50 * 3.2 = 117,600$$

$$\text{Total Insurer Cost} = 231,000 + 472,500 + 117,600 = 821,100$$

$$\text{Selection Load} = 821,100 / 771,750 - 1 = 6.4\%$$

- (b) Calculate the selection load needed in Year 2 for PQR to break even under Strategy 2. Show your work.

### Commentary on Question:

*Candidates did not perform as well on part (b) as on part (a). Candidates who performed well were able to correctly calculate the Premium and Insurer Cost under Strategy 2, which included the introduction of a new plan. Partial credit was given for candidate answers showing correct approaches with minor calculation errors. Candidates who performed poorly failed to use the morbidity factors, incorrectly applied member migration, or did not understand how to calculate a selection load.*

| Given      | Given          | Given                              | Given       | Given       |                               |                     |
|------------|----------------|------------------------------------|-------------|-------------|-------------------------------|---------------------|
| Risk Group | # of Employees | Relative Health Status (Morbidity) | Year 1 Plan | Year 2 Plan | Monthly Insurer Premium Rates | Premium Calculation |
| 1          | 300            | 50%                                | A           | A           | \$525                         | =500*1.05           |
| 1          | 300            | 50%                                | A           | NEW         | \$450                         | Given               |
| 2          | 200            | 70%                                | B           | NEW         | \$450                         | Given               |
| 3          | 300            | 100%                               | B           | B           | \$630                         | =600*1.05           |
| 4          | 200            | 225%                               | C           | C           | \$735                         | =700*1.05           |
| 5          | 50             | 320%                               | C           | C           | \$735                         | =700*1.05           |

Monthly Insurer Premium, Year 2, Strategy 2

$$\text{Plan A} = 525 * 300 = 157,500$$

$$\text{Plan B} = 630 * 300 = 189,000$$

$$\text{Plan C} = 735 * 200 + 735 * 50 = 187,500$$

$$\text{Plan D (New Plan)} = 450 * 300 + 450 * 200 = 225,000$$

$$\text{Total Monthly Insurer Premium} = 157,500 + 189,000 + 187,500 + 225,000 = 755,250$$

## 5. Continued

Monthly Insurer Cost (Pure Premium), Year 2, Strategy 2

Plan A =  $525 \times 300 \times 0.5 = 78,750$

Plan B =  $630 \times 300 \times 1 = 189,000$

Plan C =  $735 \times 200 \times 2.25 + 735 \times 50 \times 3.2 = 448,350$

Plan D (New Plan) =  $450 \times 300 \times 0.5 + 450 \times 200 \times 0.7 = 130,500$

Total Insurer Cost =  $78,750 + 189,000 + 448,350 + 130,500 = 846,600$

**Selection Load =  $846,600 / 755,250 - 1 = 12.1\%$**

- (c) Evaluate each strategy from the perspective of:
- (i) Employees at XYZ
  - (ii) PQR Insurance
  - (iii) XYZ Company's CEO

Justify your response.

### **Commentary on Question:**

*Candidates performed poorly on part (c). The verb 'Evaluate' calls for an opinion and may include making a conclusion from a given perspective. Candidates who performed well included an opinion about each strategy from each perspective. Candidates who did not perform well simply stated facts about each strategy but did not opine on which strategy would be preferred by the stakeholder.*

*Additional answers with appropriate justification were also accepted.*

- (i) Strategy 1 is unfavorable to Employees at XYZ since they must pay a higher contribution in addition to the premium increase. Strategy 2 is favorable since employer contributions do not decrease and employees have more choice which allows them to switch to a lower-cost plan. Employees at XYZ would prefer Strategy 1.
- (ii) PQR Insurance is protected against some risk of antiselection through the selection load. However, Strategy 2 results in a greater impact of member migration and necessitates a higher selection load. Strategy 1 is likely preferred by PQR Insurance since there is less plan migration and less choice, there is less risk of a future rate spiral.
- (iii) XYZ Company CEO is concerned about expenses, which are only reduced under Strategy 1 since XYZ pays a flat contribution towards premium. In Strategy 2, XYZ adds another plan but does not change its contribution. Strategy 1 is likely preferred by the CEO because it reduces direct costs.

## 6. Learning Objectives:

2. The candidate will understand how to calculate and recommend a manual rate for each of the coverages described in Learning Objective 1.

### Learning Outcomes:

- (2c) Calculate and recommend assumptions.
- (2d) Calculate and recommend a manual rate.
- (2e) Identify critical metrics to evaluate actual vs. expected results.

### Sources:

Mechanics and Basics of Long-Term Care Rate Increases, Long-Term Care News, Aug 2014

Group Insurance, 7th Edition, Ch. 26: Pricing Group Long-Term Care Insurance

Individual Health Insurance, 2nd Edition, Ch. 5: Setting Premium Rates

### Commentary on Question:

*This question was testing knowledge Long Term Care (LTC) insurance. Candidates needed to know about LTC pricing assumptions, rate increase requirements, and shock lapses.*

### Solution:

- (a) Explain how variances from the following pricing assumptions may result in the need for a rate increase on a block of long term care (LTC) policies:
  - (i) Morbidity
  - (ii) Persistency
  - (iii) Interest

### Commentary on Question:

*Most candidates provided enough to get partial grading points, but few wrote sufficient detail to receive full points on part a.*

- (i) Morbidity.
  - To maintain a consistent lifetime loss ratio, additional premiums are needed to cover increases in claims.
  - LTC policies are issue age rated.
  - Due to the difference in the average issue age and the average age at claim and the impact of underwriting selection, differences in morbidity may not be evident for several years. This makes it important to increase premiums as soon as this issue is identified.

## 6. Continued

- (ii) Persistency.
- LTC rates are intended to remain level and policies may persist for 50 years or more.
  - Because claims are much higher at old ages than young ages, more policies persisting results in more policies reaching older ages where claims are much higher than premiums.
  - LTC is lapse-supported and a portion of the premium for policies that terminate in early durations is used to help pay for claims on persisting policies in later durations. Higher persistency rates result in less premium from terminated policies being available to help pay for claims on persisting policies.
- (iii) Interest.
- Part of the excess premium collected in early years of an LTC policy, when premiums are higher than claims, is used to build up a reserve to fund future claims.
  - This pre-funding is partially dependent on interest to grow over time.
  - If interest rates are lower than expected, then the reserves will grow more slowly and may not be large enough to fund future claims at older ages.

- (b) Assess whether the block needs a rate increase. Justify your response.

**Commentary on Question:**

*Many candidates correctly identified that a rate increase was needed due to persistency being different than expected. Candidates needed to provide justification to receive full credit.*

- Yes, a rate increase is justified due to the difference in actual and expected persistency.
  - Many more policies than originally expected are still in force after 10 years, which means persistency is higher than expected.
  - LTC is lapse-supported, so premiums paid by policies that terminate without a claim are partially used to cover claims for policies that persist.
  - Higher persistency will result in more policies reaching older attained ages, where claims are higher than premiums, resulting in higher-than-expected lifetime loss ratios.
- (c) Calculate the maximum rate increase permitted under the 2014 NAIC LTC Model Regulations. Show your work.

## 6. Continued

### Commentary on Question:

*Candidates generally did poorly on this calculation. Few candidates provided and used the formula correct.*

#### 2014 (Updated Rate Stability Regulation)

Test:  $C \geq (\max(58\%, \text{pricing LR}) * D) + (85\% * E) + (\max(58\%, \text{pricing LR}) * F) + (85\% * G)$

|  |             |  |
|--|-------------|--|
| PV Historical Incurred                               | 69,500,000  | A  |
| PV Future Incurred                                   | 558,500,000 | B  |
| PV Total Incurred                                    | 628,000,000 | $C = A + B$  |
| PV Historical Original Earned                        | 384,500,000 | D  |
| PV Historical Rate Increase                          | 23,000,000  | E  |
| PV Future Original Earned                            | 263,000,000 | F  |
| PV Future Rate Increase                              | 52,500,000  | G  |
| Pricing LR   | 63%         | H  |
| Additional PV Future Rate Increase Premium Necessary | 183,411,765 | $I = C - [(63\% * D) + (85\% * E) + (63\% * F) + (85\% * G)] / 85\%$ |
| Justified Rate Increase                              | 58%         | $J = I / (F + G)$  |

(d)

- (i) Describe the impact of shock lapses from a rate increase.
- (ii) Explain the impact shock lapses have on projected future experience.

### Commentary on Question:

*Candidates generally had high level description of shock lapse but did not provide sufficient detail for full credit. Candidates struggled to connect shock lapses to LTC.*

- (i) Large rate increases have the potential to result in shock lapse and antiselection. Shock lapse occurs when policyholders reevaluate their need for a policy when required to pay the higher premium cost. It is expected that policies who decide to pay the increased premium expect to use benefits and have worse health, on average, than those who shock lapse. After the shock lapse, the average morbidity of the remaining policies is slightly higher than before the shock lapse because the healthier policies were more likely to shock lapse.

## 6. Continued

- (ii) As a result of shock lapse, we should expect a small decrease in persistency when the rate increase is implemented. This will result in decreases to both future premiums and future claims compared to a projection without any shock lapse. As a result of antiselection, we should expect slightly higher average incurred claims. This will result in slightly higher future claims, although this is an offsetting impact to the decrease in future claims as a result of the shock lapse.



## 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:

- (4b) Evaluate standard contracting methods from a cost-effective & quality perspective.
- (4c) Understand contracts between providers and insurers.

### Sources:

GHDP-122-19: Episode-Based Physician Profiling: A Guide to the Perplexing

Provider Payment Arrangements, Provider Risk, and Their Relationship with the Cost of Health Care

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a) Describe how health plans use episode-based profiling to improve quality of care and cost efficiency.

#### Commentary on Question:

*Many candidates often described how episode-based profiling is done rather than focusing on how it improves quality of care and cost efficiency.*

The data collected is shared with members so that members are steered towards higher quality / lower cost providers, Some plans further incent members to use higher quality / more efficient providers through network tier placement (lower out-of-pocket costs for members using these providers).

Providers receiving a fixed episode-based payment are incented to be more efficient since use of unnecessary services hurt their own finances.

Meeting minimum quality standards is often required in order for providers to receive a bonus.

- (b) Describe considerations when implementing an episode-based profiling program for physicians.

#### Commentary on Question:

*There are many considerations that earned points. Full credit was given for four or more reasonable considerations.*

## 7. Continued

One should consider how attribution to providers will work,  
 One should consider how to define the episode, such as trigger start end dates and follow-up services that will be included,  
 One should consider how to risk adjust the episode, as some providers treat unhealthier patients than average,  
 One should consider how the geographic costs (aka usual and customary costs) should be adjusted for,  
 One should consider how quality would be brought into the payments, as doctors might sacrifice quality in order to achieve cost efficiency.

- (c) Calculate the total expected bonus payment to these physicians. Show your work.

### Commentary on Question:

*Candidates generally did well on this part. Several candidates lost a little credit for not showing in intermediary values or for calculating an incorrect benchmark.*

Calculate benchmark to be \$687.30

| Physician | Per Episode Cost | Number of Episodes | Diff From BM | Bonus Payment Per Episode | Total Bonus Payment |
|-----------|------------------|--------------------|--------------|---------------------------|---------------------|
| A         | \$500            | 40                 | \$187.30     | \$9.37                    | \$374.60            |
| B         | \$600            | 30                 | \$87.30      | \$4.37                    | \$130.95            |
| C         | \$800            | 50                 | (\$112.70)   | \$0.00                    | \$0.00              |
| D         | \$700            | 100                | (\$12.70)    | \$0.00                    | \$0.00              |
| E         | \$550            | 100                | \$137.30     | \$6.87                    | \$686.51            |
| F         | \$700            | 60                 | (\$12.70)    | \$0.00                    | \$0.00              |
| G         | \$800            | 70                 | (\$112.70)   | \$0.00                    | \$0.00              |
| H         | \$600            | 80                 | \$87.30      | \$4.37                    | \$349.21            |
| I         | \$800            | 60                 | (\$112.70)   | \$0.00                    | \$0.00              |
| J         | \$900            | 40                 | (\$212.70)   | \$0.00                    | \$0.00              |
|           |                  |                    |              | Total                     | \$1,541.27          |

- (d) Recommend changes to the bonus program that would further incentivize cost efficiencies. Justify your response.

### Commentary on Question:

*Many candidates only made one recommendation, but there are many things that could be done to improve upon this example's simplistic method. Full credit was given for four reasonable improvements.*

Illustrative solution earning full credit:

They can increase the bonus % as the value right now is not meaningful to a typical provider,

## 7. Continued

They can implement a penalty for inefficient providers as right now these are not encouraged to change behavior (they are paid well right now),  
They can decrease the benchmark to a value below the market average,  
They could implement a [geographic adjustment / risk adjustment] to make more fair comparisons.

## 8. Learning Objectives:

1. The candidate will understand how to describe plan provisions typically offered under:
  - Group and Individual medical, dental and pharmacy plans.
  - Group and Individual long-term disability plans.
  - Group and Individual short-term disability plans.
  - Group and Individual long-term care insurance.
  - Group life insurance plans.
  - Supplementary plans, like Medicare Supplement.
2. The candidate will understand how to calculate and recommend a manual rate for each of the coverages described in Learning Objective 1.

### Learning Outcomes:

- (1b) Describe each of the coverages listed above.
- (2a) Identify and evaluate sources of data needed for pricing, including the quality, appropriateness and limitations of each data source.
- (2b) Develop a medical cost trend experience analysis.
- (2d) Calculate and recommend a manual rate.

### Sources:

GHDP-105-17 Pricing Considerations for Drugs Covered

Group Insurance Ch 7 Pharmacy Benefits in the United States

Group Insurance Ch 23 Estimating Pharmacy Claim Costs

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a) Describe the following layers of the pharmacy distribution channel and the typical payment mechanism used in each layer:

#### Commentary on Question:

*Candidates did well on this section, with most candidates get full credits if they described the distribution channel and mentioned the payment mechanism (AMP, AWP, WAC, AAC, U&C). Candidates will get partial credit if they don't give payment mechanism.*

## 8. Continued

(i) Manufacturer

Develops and manufactures drugs. They incur significant R&D costs in this process, and are rewarded with a 12 year brand patent protection period. They set the AMP (average manufacturer price), which is one price that they sell at. They also set the WAC (wholesale acquisition cost), which is a suggested price for sale to wholesalers. They typically sell to wholesalers, but may also sell directly to pharmacies or hospitals.

Negotiate rebates with PBMs to get brand drugs included on formularies.

Rebates are based on WAC.

(ii) Wholesaler

- Purchases drugs from the manufacturer at the WAC.
- Acts as a middleman between wholesalers and retailers (pharmacies)
- Typically sell based on WAC plus a markup or a discount off of AWP (average wholesale price).  $WAC = 83.33\% \text{ AMP}$ , per regulations

(iii) Retailer

Purchases drugs from wholesalers (or sometimes directly from manufacturer) and sells to consumers.

- The price they purchase at is called the AAC (actual acquisition cost). As discussed above, this could be the WAC plus a markup, discount off of AWP, or the AMP.
- They sell to consumers at a usual and customary price if they are uninsured. Insured members pay their copay or other defined cost sharing.
- The price charged to insurers is a discount off of AWP.

(iv) Consumer

- Purchases drugs from pharmacies/retailers that are prescribed to them by their physician.
- Pay a usual and customary (U&C) price if uninsured, or their copay if insured.

- (b) Describe ways the Affordable Care Act (ACA) impacted pharmacy benefits.

**Commentary on Question:**

*Candidate performance was mixed on this question. Most candidates mentioned Rx coverage being EHB but did not provide enough for full credit.*

- Coverage gap in Medicare Part D plans is phased out under ACA.
- Qualified Health Plans, as defined by the ACA, have mandatory out-of-pocket limits on combined medical and pharmacy spending.
- The ACA mandates 0% member cost sharing on preventative drugs as well as on contraceptives.

## 8. Continued

- Prescription drug coverage is additionally listed as an Essential Health Benefit (EHB) under the ACA, making it part of the set of health care service categories that must be covered by certain plans.

(c) Calculate the Year 4 average per-script:

- (i) Net plan liability
- (ii) Member liability

Show your work.

### **Commentary on Question:**

*Candidate performance was mixed. Candidates received partial credit if an error was made at some point of the calculation. Common mistakes candidates made on this part includes*

- *Most candidates did not apply x3 multiplier to Mail claims*
- *When calculating member liability, many candidates applied coinsurance % to Allowed minus Rebate. It should be applied to Allowed amount, as rebates are not shared with members and are not reflected in price of drugs at point of sale.*
- *In part d, most candidates did not calculate the claim frequencies correctly after 10% of retail scripts shifted to Mail.*
- *Some candidates did not apply \$0 dispensing fee for mail claims.*
- *Some candidates apply discount % to AWP instead of Allowed amount.*

## 8. Continued

| Year 4         |                     | Average AWP/Rx | Disp Fee/Rx | Avg discount | Ingredient Cost | Claim Frequency | Rebates as % of Allowed | Allowed Cost                                | Member Cost sharing Benefit | Member Liability                     | Rebates                  | Net Plan Liability                          |
|----------------|---------------------|----------------|-------------|--------------|-----------------|-----------------|-------------------------|---|-----------------------------|--------------------------------------|--------------------------|---|
| Claim type     | Drug Type           | (1)            | (2)         | (3)          | (4)             | (5)             | (6)                     | (7) = AWP x (1 - discount) + Dispensing Fee |                             | (8) = Allowed x Coinsurance or copay | (9) = Allowed x Rebates% | (10) = Allowed - Member Liability - Rebates |
| Retail 30 days | Generic             | \$55.00        | \$2.00      | 75%          | \$13.75         | 50%             | 0%                      | \$15.75                                     | \$5                         | 5.00                                 | \$0.00                   | \$10.75                                     |
| Retail 30 days | Preferred Brand     | \$205.00       | \$2.00      | 25%          | \$153.75        | 20%             | 20%                     | \$155.75                                    | 20                          | 20.00                                | \$31.15                  | \$104.60                                    |
| Retail 30 days | Non-Preferred Brand | \$250.00       | \$2.00      | 15%          | \$212.50        | 10%             | 0%                      | \$214.50                                    | 45%                         | 96.53                                | \$0.00                   | \$117.98                                    |
| Retail 30 days | Specialty           | \$2,700.00     | \$2.00      | 10%          | \$2,430.00      | 5%              | 10%                     | \$2,432.00                                  | 25%                         | 608.00                               | \$243.20                 | \$1,580.80                                  |
| Mail 90 Days   | Generic             | \$165.00       | \$0.00      | 75%          | \$41.25         | 10%             | 0%                      | \$41.25                                     | 10                          | 10.00                                | \$0.00                   | \$31.25                                     |
| Mail 90 Days   | Preferred Brand     | \$615.00       | \$0.00      | 25%          | \$461.25        | 3%              | 20%                     | \$461.25                                    | 40                          | 40.00                                | \$92.25                  | \$329.00                                    |
| Mail 90 Days   | Non-Preferred Brand | \$750.00       | \$0.00      | 15%          | \$637.50        | 2%              | 0%                      | \$637.50                                    | 45%                         | 286.88                               | \$0.00                   | \$350.63                                    |
| Total          |                     |                |             |              |                 |                 |                         | \$212.79                                    |                             | \$54.49                              | \$21.16                  | \$137.14                                    |

(d) Calculate the Year 5 average per-script:

- (i) Net plan liability
- (ii) Member liability

State your assumptions. Show your work.

### Commentary on Question:

*In addition to the common mistakes mentioned in part (c),*

- *In part d, most candidates did not calculate the claim frequencies correctly after 10% of retail scripts shifted to Mail.*
- *Trends calculation in part d should be different by drug type (Generic/preferred Brand/non-preferred Brand/Specialty)*

## 8. Continued

| Year 5         |                     | Projected AWP/Rx In Year 5 | Disp Fee/Rx | Avg discount | Ingredient Cost | Shifting 10% of Retail to Mail 90 | Adjusted Claim Frequency | Allowed Cost                                | Member Cost sharing Benefit | Member Liability                     | New Rebates % | New Rebate \$                 | Net Plan Liability                          |
|----------------|---------------------|----------------------------|-------------|--------------|-----------------|-----------------------------------|--------------------------|---|-----------------------------|--------------------------------------|---------------|-------------------------------|---|
| Claim type     | Drug Type           | (1)                        | (2)         | (3)          | (4)             | (5)                               | (6)                      | (7) = AWP x (1 - discount) + Dispensing Fee |                             | (8) = Allowed x Coinsurance or copay |               | (9) = Allowed x New Rebates % | (10) = Allowed - Member Liability - Rebates |
| Retail 30 days | Generic             | \$60.80                    | \$2.00      | 75%          | \$15.20         | 45.0%                             | 47.5%                    | \$17.20                                     | \$5                         | 5.00                                 | 0%            | \$0.00                        | \$12.20                                     |
| Retail 30 days | Preferred Brand     | \$207.55                   | \$2.00      | 25%          | \$155.66        | 18.0%                             | 19.0%                    | \$157.66                                    | \$20                        | 20.00                                | 25%           | \$39.42                       | \$98.25                                     |
| Retail 30 days | Non-Preferred Brand | \$257.86                   | \$2.00      | 15%          | \$219.18        | 9.0%                              | 9.5%                     | \$221.18                                    | 45%                         | 99.53                                | 0%            | \$0.00                        | \$121.65                                    |
| Retail 30 days | Specialty           | \$2,759.40                 | \$2.00      | 10%          | \$2,483.46      | 5.0%                              | 5.3%                     | \$2,485.46                                  | 25%                         | 621.37                               | 10%           | \$248.55                      | \$1,615.55                                  |
| Mail 90 Days   | Generic             | \$182.41                   | \$0.00      | 75%          | \$45.60         | 11.7%                             | 12.3%                    | \$45.60                                     | \$10                        | 10.00                                | 0%            | \$0.00                        | \$35.60                                     |
| Mail 90 Days   | Preferred Brand     | \$622.64                   | \$0.00      | 25%          | \$466.98        | 3.7%                              | 3.9%                     | \$466.98                                    | \$40                        | 40.00                                | 25%           | \$116.75                      | \$310.24                                    |
| Mail 90 Days   | Non-Preferred Brand | \$773.57                   | \$0.00      | 15%          | \$657.53        | 2.3%                              | 2.5%                     | \$657.53                                    | 45%                         | 295.89                               | 0%            | \$0.00                        | \$361.64                                    |
| Total          |                     |                            |             |              |                 | 94.7%                             | 100.0%                   | \$230.37                                    |                             | <b>\$58.54</b>                       |               |                               | <b>\$146.69</b>                             |



## 9. Learning Objectives:

2. The candidate will understand how to calculate and recommend a manual rate for each of the coverages described in Learning Objective 1.
5. The candidate will understand how to apply principles of pricing, risk assessment and funding to an underwriting situation.

### Learning Outcomes:

- (2d) Calculate and recommend a manual rate.
- (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.
- (5d) Describe and apply approaches to claim credibility and pooling.
- (5e) Recommend retention (administrative expenses, claims expenses, profit margin, etc.) when underwriting a group.

### Sources:

Group Insurance Chapter 29

Level Funding: An Alternative to ACA for Small Groups, Health Watch, May 2016

The Role of the Actuary in Self-Insurance, May 2018, sections 4, 5 & Appendices (excluding 4.4, 4.6.1, 4.6.2 & 4.6.3)

A Practical Approach to Assigning Credibility for Group Medical Insurance Pricing

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a) Calculate the credibility of Company REF's experience. Show your work.

#### Commentary on Question:

*Multi-year credibility method needs to be used here.*

$$\text{Year 4: } (0.25 + (90 - 1) * 0.01) / (1 + (90 - 1) * 0.01) = 0.6032$$

$$\text{Year 3: Year 4 Credibility} * (1 - \text{Year 4 Credibility}) = 0.2394$$

## 9. Continued

- (b) Calculate the credibility-weighted claims costs for REF. State your assumptions. Show your work.

**Commentary on Question:**

*Partial credits are given for weighting only a single year of credibility with the manual experience.*

**Exhibit 7 – HMO Small Group**

| Calendar Month | Members | Premiums   | Incurred Claims |
|----------------|---------|------------|-----------------|
| 1-Year 3       | 3,268   | 876,334    | 804,913         |
| 2-Year 3       | 3,307   | 896,787    | 911,135         |
| 3-Year 3       | 3,355   | 919,265    | 849,861         |
| 4-Year 3       | 3,391   | 938,959    | 728,820         |
| 5-Year 3       | 3,482   | 965,700    | 785,693         |
| 6-Year 3       | 3,460   | 965,855    | 602,307         |
| 7-Year 3       | 3,511   | 983,688    | 747,308         |
| 8-Year 3       | 3,573   | 1,012,091  | 713,929         |
| 9-Year 3       | 3,601   | 1,031,222  | 873,342         |
| 10-Year 3      | 3,637   | 1,043,510  | 697,169         |
| 11-Year 3      | 3,652   | 1,053,702  | 749,077         |
| 12-Year 3      | 3,670   | 1,063,100  | 890,559         |
| 1-Year 4       | 3,709   | 1,077,568  | 1,039,701       |
| 2-Year 4       | 3,693   | 1,076,273  | 727,356         |
| 3-Year 4       | 3,817   | 1,118,398  | 833,351         |
| 4-Year 4       | 3,951   | 1,168,634  | 1,026,324       |
| 5-Year 4       | 4,080   | 1,216,416  | 912,189         |
| 6-Year 4       | 4,067   | 1,217,503  | 707,406         |
| 7-Year 4       | 4,198   | 1,270,169  | 927,410         |
| 8-Year 4       | 4,243   | 1,286,799  | 862,712         |
| 9-Year 4       | 4,313   | 1,316,683  | 888,239         |
| 10-Year 4      | 4,337   | 1,332,857  | 1,027,073       |
| 11-Year 4      | 4,392   | 1,358,787  | 1,233,459       |
| 12-Year 4      | 4,569   | 1,419,454  | 1,178,101       |
| Total          | 91,277  | 26,609,753 | 20,717,433      |

Year 3 average PMPM: \$223.21

Year 4 average PMPM: \$230.17

Year 3&4 average PMPM: \$226.97

## 9. Continued

Credibility Weighted Claims cost = Year 4 experience cost\* Year 4 credibility weight + Year 3 experience cost\*Year 3 credibility weight + (1-Year 4 weight - Year 3 weight) \*Manual claim cost

$$300*0.6032+350*0.2394+226.97*(1-0.6032-0.2394) = \$300.47$$

- (c) Describe the underwriting considerations applicable to a level funding product.

**Commentary on Question:**

*The list of considerations can come from Chapter 29 of Group Insurance or The Role of the Actuary in Self-Insurance reading. Applicable descriptions must accompany each item in order to get any points.*

Items from Group Insurance Chapter 29:

- Age and gender
- Location or area
- Type of Industry
- Financial strength
- Ease of administration
- Level of participation
- Prior persistency

Items from *Role of the Actuary in Self-Insurance*:

- Eligibility and enrollment information, including the location of the self-insured plan and its members' residences;
- Underlying health benefit plan design, which might consist of the benefit schedule, the SPD or, if available, the plan document;
- Competition, which might include current rates, proposed renewal rates and name of the incumbent;
- Past stop-loss experience, including both premiums and claims;
- Claimants with high claims costs, typically any member exceeding one-half the specific stop-loss deductible; and
- Claimants with diagnoses (trigger diagnoses) and/or prognoses that indicate a high likelihood of a large claim.

## 9. Continued

- (d) Describe ways that Quantum can mitigate the risk of high cost claims if the group selects a:
- (i) Fully insured small group HMO product
  - (ii) Level funding product
  - (iii) Self-funded product

**Commentary on Question:**

*Candidates should describe the risk mitigation method for Quantum, not the client group. Many candidates confused the stop-loss mechanism in level-funding product with risk mitigation methods for high cost claims.*

- (i) Reinsurance and renewal rate increase, otherwise carrier retain all risk.
  - (ii) Reinsurance and renewal rate increase, otherwise carrier retain all risk.
  - (iii) For ASO contracts, client retain all risks. If stop loss exists, lasering and aggregating specific stop loss deductible can help mitigate the risk.
- (e) Calculate the base premium for Company REF in their Year 5 renewal under:
- (i) Fully insured ACA small group HMO product
  - (ii) Level funding product

State your assumptions. Show your work.

**Commentary on Question:**

*Candidates generally performed better on fully insured ACA SG HMO product pricing. It is acceptable to start the fully insured calculation with SG HMO experience instead of candidate's answer from part (b).*

- (i)  
From part (b), base claim costs = \$300.47

Base premium = Incurred claims cost + All Administrative Expenses (Quality Improvement Expense and General) - Pharmacy Rebate + State Risk Adjustment Transfer Payment + Broker Commission + Premium Tax

$$\text{Base Premium} = (300.47 + 20 + 100 - 5 + 15) / (1 - 0.02 - 0.03) = \$453.12$$

## 9. Continued

(ii)

From part (b), base claim costs = \$300.47

Determine the paid claims fund/maximum liability PMPM:

Claims costs over the SSL threshold need to be deducted from the base claims cost

Year 3:

25000

5000

Year 4:

5000

25000

Total claims cost above SSL: 60,000

Total Member Month for 2 years:  $90 \times 24 = 2,160$

Total claims cost above SSL PMPM:  $60,000 / 2,160 = \$27.28$

Paid claims fund/Maximum liability PMPM =  $(300.47 - 27.28) \times 1.2 = \$327.23$

Base Premium = Paid Claims Fund + All Administrative Expenses (Quality Improvement Expense and General) - Pharmacy Rebate + Broker Commission

Base Premium =  $(327.23 + 20 + 100 - 5) / (1 - 0.02) = \$451.25$

\*Note that based on the reading, level funding products have 5 cost components; however, costs of stop loss coverages and reserve fund are not given in the question. It is not necessary to assume them in the calculations.

- (f) Recommend a product offering to Quantum. Justify your recommendation.

**Commentary on Question:**

*The recommendation must be made from Quantum's perspective.*

I recommend Quantum to offer fully insured ACA Small Group HMO product to the group.

The historical experience of the group indicates that they may have a few high costs members. Their overall annual claims are also much higher than the average fully insured small group HMO population. These are not the desired characteristics of the groups that Quantum wants in a level funding product.

## 9. Continued

The pricing outcomes indicate that the level funding premium is only marginally lower than the fully insured premium. In general, low risk groups get better deal on level funded product due to experience rating and no state premium tax. Quantum would offer level funded products as a retention tool to keep them on company's book of business rather than losing it to competitors. In this case however, the pricing difference would not make level funded products very attractive to the group.

## 10. Learning Objectives:

2. The candidate will understand how to calculate and recommend a manual rate for each of the coverages described in Learning Objective 1.

### Learning Outcomes:

- (2a) Identify and evaluate sources of data needed for pricing, including the quality, appropriateness and limitations of each data source.
- (2b) Develop a medical cost trend experience analysis.
- (2d) Calculate and recommend a manual rate.

### Sources:

Group Insurance, Skwire, Daniel D., 8th Edition, 2021

- o Ch. 21: Estimating Medical Claim Costs (exclude Appendix: Data Sources)

ASOP 25: Credibility Procedures (excluding Appendices)

### Commentary on Question:

*Candidates generally did well. There were many opportunities for partial credit and many candidates received high scores overall despite potentially poor performance on one section.*

*Candidates were expected to interpret the information available and use that information to respond to a specific question. The best performing candidates recognized that the question was not looking for opinion statements, but was looking for the candidate to identify important elements in the data and use them to respond to a specific scenario.*

### Solution:

- (a) Describe rating variables to consider when normalizing historical data to estimate medical claim costs.

### Commentary on Question:

*Candidates generally did well. Many answers were accepted so long as they included a reasonable description. Simply listing factors received no credit, and descriptions had to be more than a restatement of the item to receive credit.*

*The list of responses below is not exhaustive, and four acceptable items would receive full credit.*

Age and Gender – Older individuals tend to have higher medical costs.

Geographic Area - differences in costs by geography can vary by as much as +/- 50%

## 10. Continued

Benefit Plan - different plans can have different utilization patterns depending on the degree of cost sharing

Group Characteristics - claim experience can vary by group size or industry

Utilization Management Programs - changes in UM programs during or after the experience period. Impact can vary significantly between health plans

Provider Reimbursement Arrangements - adjust for changes or differences in provider compensation, such as removing capitation or entering into a risk-sharing arrangement with a provider

Other Risk Adjusters - risk adjustments based on claim, diagnosis, encounter or Rx claim data

- (b) Describe recommended practices for credibility procedures according to ASOP 25.

**Commentary on Question:**

*Candidate performance was mixed on this item. The items below are the general items graders were looking for while grading, but additional answers were accepted.*

Selection or development of credibility procedure - whether the procedure is expected to produce reasonable results, if it is appropriate for the intended use, and whether it is practical to implement

Selection of relevant experience - should have similar characteristics to subject, like demographics, coverages, frequency or severity.

Professional judgement -the use of credibility procedures is not always a precise process

Homogeneity of data - Consider the similarities and differences between the subject experience and relevant experience

- (c) Calculate the projected Year 6 PMPM cost for the PPO plan using the current credibility assumptions. Show your work.

**Commentary on Question:**

*Candidates generally did well. Candidates received partial credit even if errors were made. Common errors included pulling data from the wrong table, using the wrong number of trend years, and dropping a factor for normalization.*



## 10. Continued

The solution below assumes the normalization factors are applied multiplicatively, which is consistent with the source material. Full credit was given to candidates who divided by the factors.

|                        | PPO           |        |
|------------------------|---------------|--------|
|                        | Year 3        | Year 4 |
| Trend                  | 4.5% per year |        |
| Age/Gender             | 0.99          | 0.98   |
| Area                   | 0.99          | 1.00   |
| Plan                   | 1.00          | 1.00   |
| Provider Reimbursement | 1.00          | 1.00   |
| Current Credibility    | 40%           | 60%    |

|                       |           |           |   |
|-----------------------|-----------|-----------|---|
| Claims PMPM           | \$ 232.18 | \$ 249.05 | Taken from PPO Small Group table                    |
| Trend Factor          | 1.141     | 1.092     | = 1.045 ^3 for Year 3, 1.045^2 for Year 2           |
| Normalization Factor  | 0.980     | 0.980     | = Age/Gender x Area x Plan x Provider Reimbursement |
| Projected Claims PMPM | \$ 259.68 | \$ 266.53 | = Claims PMPM x Trend Factor x Normalization Factor |

|                                       |           |                               |
|---------------------------------------|-----------|-------------------------------|
| Composite Projected Claims (PPO Only) | \$ 263.79 | = 259.68 x 40% + 266.53 x 60% |
|---------------------------------------|-----------|-------------------------------|

- (d) Calculate the projected Year 6 PMPM cost for the PPO plan using the proposed credibility assumptions. Show your work.

### Commentary on Question:

Candidates generally did well here, and the commentary for part c is applicable,

## 10. Continued

|                        | PPO           |        | HMO    |        |
|------------------------|---------------|--------|--------|--------|
|                        | Year 3        | Year 4 | Year 3 | Year 4 |
| Trend                  | 4.5% per year |        |        |        |
| Age/Gender             | 0.99          | 0.98   | 1.03   | 1.03   |
| Area                   | 0.99          | 1.00   | 0.98   | 0.99   |
| Plan                   | 1.00          | 1.00   | 0.98   | 0.99   |
| Provider Reimbursement |               |        |        |        |
| Proposed Credibility   | 1.00          | 1.00   | 1.05   | 1.05   |
|                        | 30%           | 40%    | 15%    | 15%    |

|                       |           |           |           |           |  |
|-----------------------|-----------|-----------|-----------|-----------|--|
| Claims PMPM           |           |           | \$ 223.21 | \$ 230.17 | Taken from HMO Small Group table = 1.045 ^3 for Year 3, 1.045^2 for Year 2 |
| Trend Factor          |           |           | 1.141     | 1.092     | = Age/Gender x Area x Plan x Provider Reimbursement                        |
| Normalization Factor  |           |           | 1.039     | 1.060     | = Claims PMPM x Trend Factor x Normalization Factor                        |
| Projected Claims PMPM | \$ 259.68 | \$ 266.53 | \$ 264.57 | \$ 266.43 |  |

|  |  |  |           |  |   |
|--|--|--|-----------|--|---|
| Composite Projected Claims (PPO and HMO) |  |  | \$ 264.16 |  | = 259.68 x 30% + 266.53 x 40% + 264.57 x 15% + 266.43 x 15% |
|--|--|--|-----------|--|---|

- (e) Evaluate the CEO's proposal. Justify your response.

### Commentary on Question:

*Many candidates received at least partial credit on this section. Full credit was awarded to a candidate who commented on the impact of proposal, incorporated the results of parts c and d in their response and relied on details from part c and d to highlight or illustrate other concerns.*

*The response below would receive full credit, but a wide range of responses were accepted for full credit.*

The CEO's proposal is not correct because the membership bases that were combined had very different risk profiles. This negated any gains from increased membership attempting to increase the credibility. The HMO product had a more expensive demographic and provider reimbursement factor which offset the lower PMPM.

## 11. 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:

GHDP-123-19: Physician Cost Profiling – Reliability and Risk of Misclassification

GHDP-102-13: Evaluating Bundled Payment Contracting

Group Insurance, Skwire, Daniel D., 8<sup>th</sup> Edition, 2021 – Chapter 45: Management of Provider Networks

### Commentary on Question:

*Commentary listed underneath question component.*

### Solution:

- (a) List methods used by health plans to control physician medical costs.

### Commentary on Question:

*Candidates generally did well on this part. This question was fairly opened ended with many acceptable answers.*

The following is a sample list of answers that received credit. This list is not comprehensive as there are dozens of possibilities. Credit was awarded to other answers not shown below if they helped to control physician medical costs.

- Limiting the number of physicians who receive in-network contracts
- Offering patients differential copayments to encourage them to visit high-performance physicians
- Paying bonuses to physicians whose pattern of resource use are lower than average (P4P arrangements also acceptable)
- Publicly reporting the relative costs of physicians' services
- Enlisting various contracting methods (fee-for-service, bundled payments, shared savings arrangements, capitation, etc)
- Limiting what services are reimbursable and requiring medical necessity for services performed
- Tying reimbursement to quality outcomes and using value based care arrangements over traditional fee-for-service.

## 11. Continued

- Creating a tiered physician network that focuses members toward highly efficient providers
  - Requiring prior authorization for services and performing utilization management techniques
- (b) List and describe the key considerations in bundled payment contracting.

### **Commentary on Question:**

*Candidates did well on this part. Full credit was awarded to candidates who were able to both list and describe at least half of the items below. Candidates who simply listed the items below were not awarded full credit. Some candidates only listed and described items that defined an episode. They did not receive full credit for their response.*

This solution comes from GHDP-102-13: Evaluating Bundled Payment Contracting. Candidates needed to describe the items below in order to receive full credit.

1. Defining the episode - The "bundled" episode must be clearly defined because it defines contractual obligations. What is the "trigger" or "index date" and when does the case end? Which services are included?
2. Evaluating catastrophic risk - The bundled payment generally reflects the average per-patient cost for a set of services. An outlier risk analysis that includes a classical stop loss analysis can evaluate the financial risk to the sponsoring organization
3. Financial stability for low case loads - Financial risk that is due to random fluctuations may be greater for provider groups with low case loads.
4. Determining provider allocation of funds - The bundled rate negotiated between providers and payors is typically lower than the total the payor would have spent piecemeal. Physicians' financial incentives can help promote more cost-efficient care
5. The more severe the case, the higher the costs and reimbursement, but also the higher the outlier risk. One strategy to limit the risk is to contractually remove higher-severity patients.
6. Quality outcome requirements - Minimum quality outcomes and patient satisfaction thresholds may be incorporated into the bundled payment contract with specified rewards/penalties for meeting/not meeting quality outcome standards.
7. Administrative complexity - All parties will compare the benefits of the contract to the administrative costs of supporting the contract.
8. Risk-sharing alternatives - Risk-sharing contracts may be more viable than "pure" bundled payments. For example, the provider and payor could set a price target and agree to a risk-sharing arrangement where the provider is at risk for only a specified portion of the loss or gain of each patient.

## 11. Continued

9. Potential for increased utilization - Individual providers' contracts and the details of a funds flow model may create incentives to increase utilization with a bundle. Also, bundled payments may create an incentive for providers to produce more bundles
- (c) Calculate Quantum's combined unit cost trend for Hospitals A, B, and C. Show your work.

### Commentary on Question:

*On this part of the question, most candidates were able to calculate Quantum's trend between Year 5 and Year 6. Some common mistakes made by candidates were calculating Quantum's total spend based on billed charges instead of allowed charges, not accounting for the number of admits for each of the procedures, and only calculating the unit cost trend by hospital instead of in total for Quantum. Strong candidates made comments that all the trend was unit cost trend because utilization was assumed to remain constant between Year 5 and Year 6.*

**Step 1:** Calculate the Year 5 cost per admit (or cost per visit for colonoscopies) for each of the procedures by hospital.

Year 5 Cost per admit = Avg Allowed per Day \* Avg Length of Stay

| Year 5 Allowed per Admit |            |            |            |
|--------------------------|------------|------------|------------|
|                          | Hospital A | Hospital B | Hospital C |
| <b>Knee Replacement</b>  | \$17,097   | \$19,600   | \$18,416   |
| <b>Hip Replacement</b>   | \$14,260   | \$14,700   | \$14,520   |
| <b>Cesarean Section</b>  | \$7,680    | \$7,750    | \$6,800    |
| <b>Colonoscopy</b>       | \$1,200    | \$900      | \$1,100    |
| <b>Appendectomy</b>      | \$6,150    | \$8,360    | \$9,180    |
| <b>Cardiac Stent</b>     | \$12,250   | \$11,310   | \$11,840   |

**Step 2:** Calculate the Year 6 cost per admit (or cost per visit for colonoscopies) for each of the procedures by hospital.

## 11. Continued

Year 6 Cost per admit = Year 5 Cost per Admit \* (1 + Allowed per Day Trend)

### Year 6 Allowed per Admit

|                         | Hospital A | Hospital B | Hospital C |
|-------------------------|------------|------------|------------|
| <b>Knee Replacement</b> | \$17,438   | \$19,992   | \$19,153   |
| <b>Hip Replacement</b>  | \$14,973   | \$15,435   | \$15,972   |
| <b>Cesarean Section</b> | \$8,218    | \$8,293    | \$7,480    |
| <b>Colonoscopy</b>      | \$1,236    | \$927      | \$1,166    |
| <b>Appendectomy</b>     | \$6,396    | \$8,694    | \$9,914    |
| <b>Cardiac Stent</b>    | \$12,373   | \$11,423   | \$12,077   |

**Step 3:** Calculate the total allowed amounts for Year 5 and Year 6.

Total Allowed Amount by procedure = Allowed per Admit \* Number of Admits

Total Allowed Across all procedures = Sum of Allowed for all six procedures

### Year 5 Total Allowed Amt

|                         | Hospital A  | Hospital B  | Hospital C  |
|-------------------------|-------------|-------------|-------------|
| <b>Knee Replacement</b> | \$222,255   | \$313,600   | \$423,568   |
| <b>Hip Replacement</b>  | \$213,900   | \$294,000   | \$145,200   |
| <b>Cesarean Section</b> | \$384,000   | \$271,250   | \$272,000   |
| <b>Colonoscopy</b>      | \$96,000    | \$81,000    | \$110,000   |
| <b>Appendectomy</b>     | \$295,200   | \$518,320   | \$459,000   |
| <b>Cardiac Stent</b>    | \$245,000   | \$180,960   | \$213,120   |
| <b>Total Allowed</b>    | \$1,456,355 | \$1,659,130 | \$1,622,888 |

**Sum of Hospital A, B, and C: \$4,738,373**

### Year 6 Total Allowed Amt

|                         | Hospital A  | Hospital B  | Hospital C  |
|-------------------------|-------------|-------------|-------------|
| <b>Knee Replacement</b> | \$226,700   | \$319,872   | \$440,511   |
| <b>Hip Replacement</b>  | \$224,595   | \$308,700   | \$159,720   |
| <b>Cesarean Section</b> | \$410,880   | \$290,238   | \$299,200   |
| <b>Colonoscopy</b>      | \$98,880    | \$83,430    | \$116,600   |
| <b>Appendectomy</b>     | \$307,008   | \$539,053   | \$495,720   |
| <b>Cardiac Stent</b>    | \$247,450   | \$182,770   | \$217,382   |
| <b>Total Allowed</b>    | \$1,515,513 | \$1,724,062 | \$1,729,133 |

**Sum of Hospital A, B, and C: \$4,968,708**

**Step 4:** Calculate overall cost per admit for Year 5 and Year 6 for Quantum.

## 11. Continued

Cost per Admit = Sum of Hospital A, B, and C / Total Admits

|                         | Number of Admits (Visits)           |            |            |
|-------------------------|-------------------------------------|------------|------------|
|                         | Hospital A                          | Hospital B | Hospital C |
| <b>Knee Replacement</b> | 13                                  | 16         | 23         |
| <b>Hip Replacement</b>  | 15                                  | 20         | 10         |
| <b>Cesarean Section</b> | 50                                  | 35         | 40         |
| <b>Colonoscopy</b>      | 80                                  | 90         | 100        |
| <b>Appendectomy</b>     | 48                                  | 62         | 50         |
| <b>Cardiac Stent</b>    | 20                                  | 16         | 18         |
|                         | <b>Sum of Hospital A, B, and C:</b> |            |            |
|                         |                                     |            | <b>706</b> |

|               | Formula           | Result   |
|---------------|-------------------|----------|
| <b>Year 5</b> | \$4,738,373 / 706 | \$ 6,712 |
| <b>Year 6</b> | \$4,968,708 / 706 | \$ 7,038 |

**Step 5:** Calculate overall unit cost trend for Quantum.

Unit Cost Trend = (Year 6 Unit Cost / Year 5 Unit Cost) – 1

Unit Cost Trend = (\$7,038 / \$6,712) – 1 = **4.86%**

- (d) Calculate the impact of the change on Quantum's unit cost trend. Show your work.

**Commentary on Question:**

*Candidates struggled on this part of the question with many candidates leaving their answer blank. Some mistakes were more common than others. Some candidates applied the case rates across all three of the hospitals instead of only to Hospital A. Other candidates attempted to use CS-Quantum Exhibit 9 of the case study to break the bundle between facility, medical supplies, and professional.*

The solution for Part (d) is similar to Part (c), however candidates needed to recognize that the allowed per admit for Year 6 is different for Hospital A due to the bundled payments.

**Step 1:** Calculate the Year 5 cost per admit (or cost per visit for colonoscopies) for each of the procedures by hospital.

Year 5 Cost per admit = Avg Allowed per Day \* Avg Length of Stay

## 11. Continued

### Year 5 Allowed per Admit

|                         | Hospital A | Hospital B | Hospital C |
|-------------------------|------------|------------|------------|
| <b>Knee Replacement</b> | \$17,097   | \$19,600   | \$18,416   |
| <b>Hip Replacement</b>  | \$14,260   | \$14,700   | \$14,520   |
| <b>Cesarean Section</b> | \$7,680    | \$7,750    | \$6,800    |
| <b>Colonoscopy</b>      | \$1,200    | \$900      | \$1,100    |
| <b>Appendectomy</b>     | \$6,150    | \$8,360    | \$9,180    |
| <b>Cardiac Stent</b>    | \$12,250   | \$11,310   | \$11,840   |

**Step 2:** Calculate the Year 6 cost per admit (or cost per visit for colonoscopies) for each of the procedures by hospital.

Year 6 Cost per admit = Year 5 Cost per Admit \* (1 + Allowed per Day Trend)

### Year 6 Allowed per Admit

|                         | Hospital A | Hospital B | Hospital C |
|-------------------------|------------|------------|------------|
| <b>Knee Replacement</b> | \$38,200   | \$19,992   | \$19,153   |
| <b>Hip Replacement</b>  | \$31,000   | \$15,435   | \$15,972   |
| <b>Cesarean Section</b> | \$15,000   | \$8,293    | \$7,480    |
| <b>Colonoscopy</b>      | \$2,100    | \$927      | \$1,166    |
| <b>Appendectomy</b>     | \$11,000   | \$8,694    | \$9,914    |
| <b>Cardiac Stent</b>    | \$23,000   | \$11,423   | \$12,077   |

**Step 3:** Calculate the total allowed amounts for Year 5 and Year 6.

Total Allowed Amount by procedure = Allowed per Admit \* Number of Admits

Total Allowed Across all procedures = Sum of Allowed for all six procedures

### Year 5 Total Allowed Amt

|                         | Hospital A  | Hospital B  | Hospital C  |
|-------------------------|-------------|-------------|-------------|
| <b>Knee Replacement</b> | \$222,255   | \$313,600   | \$423,568   |
| <b>Hip Replacement</b>  | \$213,900   | \$294,000   | \$145,200   |
| <b>Cesarean Section</b> | \$384,000   | \$271,250   | \$272,000   |
| <b>Colonoscopy</b>      | \$96,000    | \$81,000    | \$110,000   |
| <b>Appendectomy</b>     | \$295,200   | \$518,320   | \$459,000   |
| <b>Cardiac Stent</b>    | \$245,000   | \$180,960   | \$213,120   |
| <b>Total Allowed</b>    | \$1,456,355 | \$1,659,130 | \$1,622,888 |

**Sum of Hospital A, B, and C: \$4,738,373**



## 11. Continued

|                         | Year 6 Total Allowed Amt            |             |                    |
|-------------------------|-------------------------------------|-------------|--------------------|
|                         | Hospital A                          | Hospital B  | Hospital C         |
| <b>Knee Replacement</b> | \$496,600                           | \$319,872   | \$440,511          |
| <b>Hip Replacement</b>  | \$465,000                           | \$308,700   | \$159,720          |
| <b>Cesarean Section</b> | \$750,000                           | \$290,238   | \$299,200          |
| <b>Colonoscopy</b>      | \$168,000                           | \$83,430    | \$116,600          |
| <b>Appendectomy</b>     | \$528,000                           | \$539,053   | \$495,720          |
| <b>Cardiac Stent</b>    | \$460,000                           | \$182,770   | \$217,382          |
| <b>Total Allowed</b>    | \$2,867,600                         | \$1,724,062 | \$1,729,133        |
|                         | <b>Sum of Hospital A, B, and C:</b> |             | <b>\$6,320,795</b> |

**Step 4:** Calculate overall cost per admit for Year 5 and Year 6 for Quantum.

Cost per Admit = Sum of Hospital A, B, and C / Total Admits

|                         | Number of Admits (Visits)           |            |            |
|-------------------------|-------------------------------------|------------|------------|
|                         | Hospital A                          | Hospital B | Hospital C |
| <b>Knee Replacement</b> | 13                                  | 16         | 23         |
| <b>Hip Replacement</b>  | 15                                  | 20         | 10         |
| <b>Cesarean Section</b> | 50                                  | 35         | 40         |
| <b>Colonoscopy</b>      | 80                                  | 90         | 100        |
| <b>Appendectomy</b>     | 48                                  | 62         | 50         |
| <b>Cardiac Stent</b>    | 20                                  | 16         | 18         |
|                         | <b>Sum of Hospital A, B, and C:</b> |            | <b>706</b> |

|               | Formula           | Result   |
|---------------|-------------------|----------|
| <b>Year 5</b> | \$4,738,373 / 706 | \$ 6,712 |
| <b>Year 6</b> | \$6,320,795 / 706 | \$ 8,953 |

**Step 5:** Calculate overall unit cost trend for Quantum.

Unit Cost Trend = (Year 6 Unit Cost / Year 5 Unit Cost) – 1

Unit Cost Trend = (\$8,953 / \$6,712) – 1 = **33.40%**

**Moving Hospital A to bundled payments caused Quantum's unit cost trend to increase from 4.86% to 33.40% - an increase of 28.5%.**

## 11. Continued

- (e) Assess the implications and options for Quantum to mitigate the effects of this change.

**Commentary on Question:**

*More than half the candidates left this part of the question blank. Strong candidates were able to take their result from Part (D), explain the impact to Quantum's trend, and provide multiple options to mitigate the effects of the change. Responses to this question from the viewpoint of Hospital B were not awarded full credit.*

Implication to Quantum – In Part (D), the implication of Hospital A moving to a bundled payment arrangement was an increase in Hospital A's unit cost trend from 4.1% to 96.9% which increased Quantum's overall unit cost trend to 33.4%. Since Hospital A and Hospital B had similar overall costs in Year 5, moving Hospital B to the proposed bundled payment arrangement will further increase Quantum's overall unit cost trend.

The following items can be proposed to help mitigate the effects of moving Hospital B to a bundled payment arrangement (note: this is not a comprehensive list)

- Move Hospital B to bundled payments, but lower the bundle amounts to be more in line with Year 5 costs
- Refuse Hospital B's offer and keep them on their current reimbursement methodology
- Only move procedures with a wide fluctuation in unit costs to the bundled payment methodology to help reduce Quantum's risk
- Remove Hospital B from the network altogether
- Consider the adoption of other risk-sharing alternatives such as value-based care models

## 12. Learning Objectives:

1. The candidate will understand how to describe plan provisions typically offered under:
  - Group and Individual medical, dental and pharmacy plans.
  - Group and Individual long-term disability plans.
  - Group and Individual short-term disability plans.
  - Group and Individual long-term care insurance.
  - Group life insurance plans.
  - Supplementary plans, like Medicare Supplement.
2. The candidate will understand how to calculate and recommend a manual rate for each of the coverages described in Learning Objective 1.

### Learning Outcomes:

- (1b) Describe each of the coverages listed above.
- (2c) Calculate and recommend assumptions.
- (2d) Calculate and recommend a manual rate.

### Sources:

Group Health Ch. 6: Dental Benefits in the United States

Group Health Ch. 22: Estimating Dental Claim Costs

### Commentary on Question:

*In general, candidates who provided a response to each section performed well. A fair number of candidates either skipped the calculation part of the question or skipped the question in its entirety.*

### Solution:

- (a) Describe cost share and benefit plan provisions used to limit financial and selection risk in dental plans.

### Commentary on Question:

*Majority of Candidates scored well on this section and were able to identify and explain both cost share and benefit provisions that would limit the financial and/or selection risk. The question asked candidates to describe so candidates who only provided a list received partial credit. Full credit does not require the list / description of **all** the items listed below.*

## 12. Continued

Cost share provisions used to limit the financial and selection risk in dental plan may include:

- Deductible: Usually ranging from \$50, \$75 or \$100, will deter members from using highly discretionary procedures.
- Coinsurance and Copay: class III should have higher coinsurance than Class II than Class I. Level of coverage for one class significantly affect the utilization of other class.
- Maximum / Annual Limits: Annual Maximum is common for Class II and III services. Lifetime maximum applies to orthodontics.
- Interactions with Medical plans: Dental can have integrated deductible and out of pocket maximum limit with Medical plans.

Benefit plan provisions used to limit the financial and selection risk in dental plan may include:

- Care management enable members receive appropriate treatment at a reasonable cost, including Preauthorization and Self-management under capitation
- Preauthorization requires insured to submit a treatment plan to the plan for review before services are delivered.
- Self-management under Capitation, if well designed, will cost 15-40% less than FFS. Providers under capitation arrangement have no incentives to performance more services or elect less expensive treatment.
- Waiting Period: it discourages prospects from enrolling with the intention of having significant dental problems treated in the first year, and then drop coverage.
- Frequency limits: For example, two cleanings per year and one set of diagnostic images per year are common provisions.

- (b) Calculate the Year 4 member cost and plan liability. Show your work.

### **Commentary on Question:**

*Candidates generally were able to calculate the member and plan liability before applying annual maximums. The deductible generally applies to all services incurred by the member unless noted otherwise. Many candidates applied the deductible for each service incurred by Member #3. Only a few candidates applied the annual maximum correctly – the annual benefit maximum applies to the plan liability and not the member liability.*

*Candidates who mapped the procedure codes to different dental classes than the ones noted below credit if the calculations were correct and assumptions were stated.*

## 12. Continued

*Candidates who correctly expressed the plan liability on a PMPM basis also received full credit.*

### Solution on Question:

Allowed = Billed x (1-Discout)

Plan Liability = (Allowed – Deductible) x (1-Coinsurance)

Member Liability = Allowed – Plan Liability

Plan Liability is capped at Annual maximum per member

| Mem | Network       | Prov  | Procedure          | Billed  | Class     | Disc | Allow   | Ded  | Coins | ML      | PL      |
|-----|---------------|-------|--------------------|---------|-----------|------|---------|------|-------|---------|---------|
| 1   | Preferred     | Tight | Oral Evaluation    | \$80    | Class I   | 35%  | \$52    | \$0  | 0%    | \$0     | \$52    |
| 1   | Preferred     | Tight | Extraction         | \$600   | Class II  | 35%  | \$390   | \$50 | 10%   | \$84    | \$306   |
| 2   | Preferred     | Broad | Fluoride Treatment | \$50    | Class I   | 20%  | \$40    | \$0  | 0%    | \$0     | \$40    |
| 3   | Preferred     | Broad | Periodontics       | \$750   | Class II  | 20%  | \$600   | \$50 | 10%   | \$105   | \$495   |
| 3   | Preferred     | Broad | Root Canal         | \$1,000 | Class III | 20%  | \$800   | \$0  | 40%   | \$320   | \$480   |
| 3   | Preferred     | Broad | Crown              | \$1,400 | Class III | 20%  | \$1,120 | \$0  | 40%   | \$448   | \$672   |
| 3   | Preferred     | Broad | Bridges            | \$1,600 | Class III | 20%  | \$1,280 | \$0  | 40%   | \$512   | \$768   |
| 4   | Non-Preferred | 90th  | Fluoride Treatment | \$50    | Class I   | 5%   | \$48    | \$20 | 20%   | \$26    | \$22    |
| 4   | Non-Preferred | 90th  | Restoration        | \$250   | Class II  | 5%   | \$238   | \$75 | 40%   | \$140   | \$98    |
| 5   | Preferred     | Broad | Oral Surgery       | \$800   | Class II  | 20%  | \$640   | \$50 | 10%   | \$109   | \$531   |
| 6   | Preferred     | Broad | Fluoride Treatment | \$50    | Class I   | 20%  | \$40    | \$0  | 0%    | \$0     | \$40    |
| 7   | Preferred     | Tight | Orthodontic Care   | \$5,000 | Class III | 35%  | \$3,250 | \$50 | 40%   | \$1,330 | \$1,920 |
| 8   | Preferred     | Broad | Oral Surgery       | \$150   | Class II  | 20%  | \$120   | \$50 | 10%   | \$57    | \$63    |
| 8   | Preferred     | Broad | Anesthesia         | \$300   | Class II  | 20%  | \$240   | \$0  | 10%   | \$24    | \$216   |
| 8   | Preferred     | Broad | Denture Repair     | \$1,000 | Class III | 20%  | \$800   | \$0  | 40%   | \$320   | \$480   |
| 9   | Preferred     | Broad | Onlays             | \$1,100 | Class III | 20%  | \$880   | \$50 | 40%   | \$382   | \$498   |

## 12. Continued

| Member       | Total Member Liability Before Annual Max | Total Plan Liability before Annual Max | Total Member Liability After Annual Max | Total Plan Liability After Annual Max |
|--------------|--|--|---|---------------------------------------|
| 1            | \$84.00                                  | \$358.00                               | \$84.00                                 | \$358.00                              |
| 2            | \$0.00                                   | \$40.00                                | \$0.00                                  | \$40.00                               |
| 3            | \$1,385.00                               | \$2,415.00                             | \$2,300.00                              | \$1,500.00                            |
| 4            | \$165.50                                 | \$119.50                               | \$165.50                                | \$119.50                              |
| 5            | \$109.00                                 | \$531.00                               | \$109.00                                | \$531.00                              |
| 6            | \$0.00                                   | \$40.00                                | \$0.00                                  | \$40.00                               |
| 7            | \$1,330.00                               | \$1,920.00                             | \$1,750.00                              | \$1,500.00                            |
| 8            | \$401.00                                 | \$759.00                               | \$401.00                                | \$759.00                              |
| 9            | \$382.00                                 | \$498.00                               | \$382.00                                | \$498.00                              |
| <b>Total</b> | <b>\$3,856.50</b>                        | <b>\$6,680.50</b>                      | <b>\$5,191.50</b>                       | <b>\$5,345.50</b>                     |

The year 4 member cost and plan liability was \$5,191.50 and \$5,345.50 respectively.

- (c) Compare and contrast dental preferred provider organizations (PPO) and dental health maintenance organizations (DHMO) by completing the chart below:

|                      | PPO | DHMO |
|----------------------|-----|------|
| Cost Management      |     |      |
| Fraud Potential      |     |      |
| Provider Contracting |     |      |
| Benefit Richness     |     |      |
| Utilization          |     |      |

**Commentary on Question:**

*Many candidates were able to compare and contrast the differences between a PPO and DHMO. Candidates who received full credit explained the differences and similarities; candidates that provided terse responses without an explanation received partial credit only.*

## 12. Continued

|                      | PPO  | DHMO  |
|----------------------|--|---|
| Cost Management      | PPO plans use UCR limits, clinical logic and predetermination of necessity to help control costs   | DHMO plans use a primary care gatekeeper with a referral process  |
| Fraud Potential      | PPO plans are more susceptible to fraud as dentist may up code for services. Insurers can employ methods of tracking provider claim submissions and comparing to industry norms to identify outliers | Dental HMOs and their capitation approach minimize many of the incentives to commit fraud from either the dentist or insured. |
| Provider Contracting | Use contracts to arrange for services at agreed-upon rates   | DHMO contracts can be capitated and spell out specialty referral guidelines   |
| Benefit Richness     | Tend to utilize deductibles and coinsurance for covered services.  | DHMOs typically have copays for covered services  |
| Utilization          | PPOs use a fee-for-service approach that may encourage overutilization of services by providers.   | DHMO models, using a capitated model, restrict these incentives.  |

- (d)
- (i) Calculate the expected difference in plan liability. Show your work.
  - (ii) Assess whether Your Eyes will be able to achieve its benefit expense reduction target. Justify your response.

**Commentary on Question:**

*Most candidates who responded to this question performed similar calculations as in part b. Many candidates recognized and incorporated the zero-dollar deductible, the tight network with a 35% discount and that member 4 would be treated at a preferred provider. However, many candidates failed to apply the annual maximum limits correctly – annual benefit maximum limits the plan liability and not the member liability. Candidates who had an incorrect response in part b) were still able to get full credit if the calculations for part d were done correctly..*

## 12. Continued

| Mem | Network   | Prov  | Procedure          | Billed  | Class     | Disc | Allow   | Ded | Coins | ML      | PL      |
|-----|-----------|-------|--------------------|---------|-----------|------|---------|-----|-------|---------|---------|
| 1   | Preferred | Tight | Oral Evaluation    | \$80    | Class I   | 35%  | \$52    | \$0 | 0%    | \$0     | \$52    |
| 1   | Preferred | Tight | Extraction         | \$600   | Class II  | 35%  | \$390   | \$0 | 10%   | \$39    | \$351   |
| 2   | Preferred | Tight | Fluoride Treatment | \$50    | Class I   | 35%  | \$33    | \$0 | 0%    | \$0     | \$33    |
| 3   | Preferred | Tight | Periodontics       | \$750   | Class II  | 35%  | \$488   | \$0 | 10%   | \$49    | \$439   |
| 3   | Preferred | Tight | Root Canal         | \$1,000 | Class III | 35%  | \$650   | \$0 | 40%   | \$260   | \$390   |
| 3   | Preferred | Tight | Crown              | \$1,400 | Class III | 35%  | \$910   | \$0 | 40%   | \$364   | \$546   |
| 3   | Preferred | Tight | Bridges            | \$1,600 | Class III | 35%  | \$1,040 | \$0 | 40%   | \$416   | \$624   |
| 4   | Preferred | Tight | Fluoride Treatment | \$50    | Class I   | 35%  | \$33    | \$0 | 0%    | \$0     | \$33    |
| 4   | Preferred | Tight | Restoration        | \$250   | Class II  | 35%  | \$163   | \$0 | 10%   | \$16    | \$146   |
| 5   | Preferred | Tight | Oral Surgery       | \$800   | Class II  | 35%  | \$520   | \$0 | 10%   | \$52    | \$468   |
| 6   | Preferred | Tight | Fluoride Treatment | \$50    | Class I   | 35%  | \$33    | \$0 | 0%    | \$0     | \$33    |
| 7   | Preferred | Tight | Orthodontic Care   | \$5,000 | Class III | 35%  | \$3,250 | \$0 | 40%   | \$1,300 | \$1,950 |
| 8   | Preferred | Tight | Oral Surgery       | \$150   | Class II  | 35%  | \$98    | \$0 | 10%   | \$10    | \$88    |
| 8   | Preferred | Tight | Anesthesia         | \$300   | Class II  | 35%  | \$195   | \$0 | 10%   | \$20    | \$176   |
| 8   | Preferred | Tight | Denture Repair     | \$1,000 | Class III | 35%  | \$650   | \$0 | 40%   | \$260   | \$390   |
| 9   | Preferred | Tight | Onlays             | \$1,100 | Class III | 35%  | \$715   | \$0 | 40%   | \$286   | \$429   |

| Member       | Total Member Liability Before Annual Max | Total Plan Liability before Annual Max | Total Member Liability After Annual Max | Total Plan Liability After Annual Max |
|--------------|--|--|---|---------------------------------------|
| 1            | \$39.00                                  | \$403.00                               | \$39.00                                 | \$403.00                              |
| 2            | \$0.00                                   | \$32.50                                | \$0.00                                  | \$32.50                               |
| 3            | \$1,088.75                               | \$1,998.75                             | \$1,587.50                              | \$1,500.00                            |
| 4            | \$16.25                                  | \$178.75                               | \$16.25                                 | \$178.75                              |
| 5            | \$52.00                                  | \$468.00                               | \$52.00                                 | \$468.00                              |
| 6            | \$0.00                                   | \$32.50                                | \$0.00                                  | \$32.50                               |
| 7            | \$1,300.00                               | \$1,950.00                             | \$1,750.00                              | \$1,500.00                            |
| 8            | \$289.25                                 | \$653.25                               | \$289.25                                | \$653.25                              |
| 9            | \$286.00                                 | \$429.00                               | \$286.00                                | \$429.00                              |
| <b>Total</b> | <b>\$3,071.25</b>                        | <b>\$6,145.75</b>                      | <b>\$4,020.00</b>                       | <b>\$5,197.00</b>                     |

Difference in Plan Liability is:  $\$5,197 - \$5,345.50 = -\$148.50$

Savings:  $148.50 / 5,345.50 = 2.8\%$

No Yours Eyes is only expected to save about 2.8%, which is short of the 10% desired target.



### 13. Learning Objectives:

2. The candidate will understand how to calculate and recommend a manual rate for each of the coverages described in Learning Objective 1.

#### Learning Outcomes:

- (2a) Identify and evaluate sources of data needed for pricing, including the quality, appropriateness and limitations of each data source.
- (2b) Develop a medical cost trend experience analysis.
- (2e) Identify critical metrics to evaluate actual vs. expected results.
- (2f) Describe the product development process including risks and opportunities to be considered during the process.

#### Sources:

GHDP 101-13  
GHDP-127-19  
Group Insurance (Skwire) Chapter 25  
GHDP-107-17

#### Commentary on Question:

*Commentary listed underneath question component.*

#### Solution:

- (a) List and describe the steps of the disability claim process.

#### Commentary on Question:

*Some candidates described the steps from a member's perspective, which missed steps from a carrier's perspective.*

1. Eligibility for coverage: Class of employees eligible for coverage, is the plan in force? Meet actively at work requirements?
2. Disability determination: Compare disabling limitations with physical requirements of job.
3. Payment Calculation: Pre-disability income x benefit % limited to maximum, less offsets. Pre-disability income is based on plan's earning definition.
4. Offsets: Directly reduce the group disability liability, such as STD or Social Security.
5. Ongoing proof of disability: STD benefits approved for specific time. LTD benefits reevaluated minimum of once per year. Any changes in claimants medical condition or treatment typically triggers and a re-evaluation.

## 13. Continued

- (b) Describe tools used in the disability claim process to reduce risk for the insurer.

**Commentary on Question:**

*Some candidates provided plan and benefit design considerations rather than tools that reduce risk after the claim process has started.*

1. Medical review: attending physician statements, independent medical exams, function capacity exemptions.
2. Rehabilitation plans: vocational rehabilitation, which provides training for new career or geared towards re-gaining some specific physical limitation.
3. Financial evaluation: involves verification of both pre-disability and current earnings. Also helpful for proposing settlements for managing claims.
4. Fraud review: review of documentation submitted with claims, including inconsistencies in the information, alterations to previously provided info, etc.

- (c) Describe the two significant reserves in disability income insurance.

**Commentary on Question:**

*Partial credit was awarded if candidates used incorrect reserve names with accurate descriptions.*

1. Active life reserve. Excess premium set aside to offset the greater morbidity at the older ages when the premium will be inadequate. Include interest earnings.
2. Disabled life reserve. Reflects each disability claim and its projected length.

- (d) Describe risks and considerations when reviewing group long term disability insurance industry morbidity data.

**Commentary on Question:**

*Many candidates failed to discuss insurance industry data but rather discussed general underwriting principals.*

1. Lack of substantial and reliable data.
2. Reliability and updated morbidity tables based on sex, occupation class, benefit period, elimination period and size of indemnity are required by actuary for pricing.
3. Overutilized of industry studies by carriers.
4. Size of the studies and the effort required to conduct data are so great they are done infrequently and do not serve well to track recent claim trend.
5. Impact of economic cycle on claim studies (during good economic times, claims experience and profits will be more favorable than during poor economic times).

### 13. Continued

6. Few industry studies tend to lose credibility and value as they attempt to break down the data into smaller cells.
  7. ASOP 23 and selection of data, whether it's appropriate, sufficient and any limitations.
- (e) Evaluate the experience for Years 3 - 7 using:
- (i) Calendar year loss ratio study
  - (ii) Incurral year loss ratio study
  - (iii) Actual-to-expected claim incident rate study

Show your work.

**Commentary on Question:** *Candidate performance varied and partial credit was awarded when applicable.*

| Calendar Year | CY LR = (Paid Claims + Change in Reserves for all Incurral Years Combined) / Earned Premium | IY LR = (PV Claims to Date + PV Current Claim Reserve) / Earned Premium | Rated Incident Rate (from Exhibit 1) | Actual-to-Expected Claim Incident = Actual Incident Rate less Rated Incident Rate |
|---------------|---|---|--------------------------------------|---|
| Year 3        | 57.6%   | 76.6%   | 2.1                                  | (1.0)   |
| Year 4        | 79.6%   | 76.5%   | 2.1                                  | 0.2   |
| Year 5        | 96.4%   | 77.8%   | 2.1                                  | 0.7   |
| Year 6        | 69.2%   | 76.1%   | 2.1                                  | 1.3   |
| Year 7        | 77.1%   | 77.6%   | 2.1                                  | 1.5   |

- (f) Recommend one of the study approaches from part (e) to share with management. Justify your response.

**Commentary on Question:**

*Points were awarded for recommending other study approaches with adequate justification.*

I recommend using the incurred year loss ratio. While this won't correspond to financial statements, it does provide a better historical trend by attributing the full cost of a claim to the year in which the claim occurred.

### 13. Continued

- (g) Thunderball management is concerned about the emerging experience compared to the incident rate pricing assumptions. The CEO recommends using the latest Canadian LTD study instead of company experience for rate development.

Critique the CEO's recommendation. Justify your response.

**Commentary on Question:**

*Some candidates simply agreed with the CEO recommendation without adequate critique. Full credit was awarded when candidates provided well thought out critique and justification.*

Thunderball is a company operates in the United States and Canada. The CIA study will only include Canadian experience. There are differences between US and Canadian experience, such as Canadian plans cannot use the cause of disability to differentiate between plan provisions. There are differences in workforce demographics and other workplace factors.

Given the length of time for claims disability experience to emerge, I would not switch to different underlying study based on different experience after five years. I'd recommend adjusting the current experience for economic cycle and other factors that may be in underlying data before switching to an entire new study.