

# DP-GH Complete Illustrative Solutions

## Fall 2011

### 1. Learning Objectives:

8. Evaluate the process and be able to develop a medical manual rate for government programs, ASO and insured business.

### Learning Outcomes:

- (8a) Identify and evaluate sources of data needed for pricing and underwriting including the quality, appropriateness, and limitations of each data source.

### Sources:

Bluhm, Group Insurance, 5th Edition, Estimating Claim Costs for Disability Benefits, Chapter 31

Bluhm, Group Insurance, 5th Edition, Data Sources and Structures, Chapter 39

### Commentary on Question:

Parts (a) and (b) are fairly straight-forward retrieval items. The key to demonstrating the required knowledge and maximizing earned points on these items is identifying in each part the high-level, important items that are identified in the text and providing sufficient detail supported by the text to show mastery of the concepts as opposed to rote memorization of the lists. Candidates had challenges identifying the correct source material in part (a) that directly related to LTD products. When candidates gave other information from a different source they received significantly fewer points than if they showed information specific to LTD.

Part (c) is a pricing exercise that encourages the candidate to demonstrate three important steps in any pricing/underwriting situation like those explained in the text:

- (1) Identify the general pricing methodology to use and the available data to implement it (in this case the LTD rating formula from the text and the information about Tome)
- (2) Adjust available data as needed and in the context of the pricing methodology to be appropriate for the business being priced
- (3) Apply general pricing concepts (in this case the load for retention and the need to quote for the overall group) to reach the final aggregate price.

Candidate challenges in part (c) stemmed primarily from not showing appropriate work to receive full credit. Candidates should keep in mind that while the answer is important on the exam, what's even more important is showing an understanding of the process to reach the answer.

# 1. Continued

## Solution:

- (a) Identify and describe the sources of data that may be used when pricing an LTD plan.

Insurer Studies

Loss ratio studies

- Calendar year loss ratio study computes the ratio of incurred claims to earned premium in calendar year
- Incurral year loss ratio study computes the ratio of incurred claims to earned premium for an incurral year

A/E Claim Incidence Rates

TSA Reports

- Claim incidence rates per thousand by various characteristics
- 1987 Commissioners Group Disability Table
- Has claim incidence rates by gender and elimination period
- SOA 2000 Basic Experience Table
- Several intercompany studies performed by the SOA.
- Users are advised to be careful in its application due to several concerns

- (b) Describe:

- (i) Data structures that may be employed to house experience information

Types of Data Structures

Sequential Files

- Each data record contains all elements needed to process

Indexed Sequential Files

Relational Databases

- Another direct access medium

Dimensional Databases

- Form of relational databases where each piece of data (or "fact") is aggregated by various attributes (or "dimensions")

- (ii) Factors that affect the choice of data structure to use in performing an actuarial analysis

Factors Affecting the Choice of Data Structure

Volume of Data

- When using small amounts of data the storage medium does not matter much

Dynamic Nature and Frequency of Use

- Data regularly updated and queried will need to be placed on-line

# 1. Continued

## Retrieval Time

- Magnetic tape stores data sequentially, takes time to access
- Online storage allows direct access, allowing faster and easier retrieval
- Near-line is a compromise between the two
- Ease of Programming
- When results are required immediately, an easy-to-program but longer retrieval time may be used

- (c) Calculate Listening's total monthly premium. Show your work.

The formula utilized to determine disability claim costs is as follows:

Incidence Rate x Sum over all time periods (Benefit(t) x Continuance (t) x Interest Discount of (t)

Given Tome's monthly claim cost is \$800 PMPM, it needs to be adjusted to the same basis as Listening.

Given that Tome's Continuance and Interest Rate assumptions are the same, the only factors in the formula that change are the incidence rate and value of the benefit.

The Tome incidence rate needs to be adjusted for the factors given to be on the same basis as Listening

Listening Factor:  $(110 \times 1.00 + 50 \times 1.05 + 10 \times 1.08) / (110 + 50 + 10) = 1.0194$

Tome Factor:  $(200 \times 1.00 + 1750 \times 1.05 + 940 \times 1.08) / (200 + 1750 + 940) = 1.0563$

Adjustment Factor = Listening Age Factor / Tome Age Factor =  $1.0194 / 1.0563 = 0.9651$

Industry Adjustment Factor = Manufacturing Factor / Professional Services Factor =  $1.10 / 0.95 = 1.1579$

Employee Participation Factor = 100% Participation Factor / 80% Participation Factor =  $1.00 / 1.03 = 0.9709$

Listening's Monthly Claim Cost = Tome's Monthly Claim Cost x Listening Incidence Rate / Tome Incidence Rate x Listening Benefit / Tome Benefit

Listening's Monthly Plan Premium per employee = Listening's Monthly Claim Cost / (1 - Admin and Profit Load) =  $\$510.49 / (100\% - 17\%) = \$615.05$

Listening's Total Monthly Premium = Listening's Monthly Plan Premium per Employee x Number of Listening's Employees =  $\$615.05 \times (110 + 50 + 10) = \$104,560$

## 2. Learning Objectives:

1. Understand and evaluate the effectiveness of the various types of Single Employer group coverage typically offered under:
  - Group health plan, including Consumer driven plans, etc.
  - Prescription Drug
  - Group dental plan
  - STD or LTD plan (incl. mention of coverage within other plans)
  - Group life plan
  - Other miscellaneous benefits
  - Multi-employer groups (Taft-Hartley, etc)
  
3. Evaluates employer strategies for designing and funding benefit plans for:
  - (i) Active employees
  - (ii) Dependents
  - (iii) Pre-65 retirees
  - (iv) Post-65 retirees
  - (v) Disabled (short and long-term)
  
9. Applies principles of pricing, benefit design and funding to an underwriting situation.

### Learning Outcomes:

- (1a) Describe the various coverages, including typical benefit provisions, eligibility requirements, cost-sharing provisions, limits and funding mechanisms.
- (3b) Evaluate potential financial, legal, moral risks associated with each strategy.
- (9c) Recommends strategies for minimizing or properly pricing for risks.

### Sources:

AAA Issue Brief, Value-Based Insurance Design

Yamamoto, Fundamentals of Retiree Group Benefits, Retiree Benefit Design, Chapter 4

McKay Canadian Handbook of Flexible Benefits, 3rd Edition, Adverse Selection, Chapter 16

### Commentary on Question:

Commentary listed underneath question component.

### Solution:

- (a) Describe criteria that constitute a value-based insurance design and evaluate the 2010 benefit plan according to each criterion.

## 2. Continued

### **Commentary on Question:**

We expected the candidates to expand the answer beyond just listing points. We were looking for each of the criteria to be commented on with respect to the specific plan designs in the question.

#### Criteria

- Flex plan structure to tailor benefits to a members medical condition to encourage appropriate medical utilization
- Copays and coinsurance are set at different levels for different procedures and conditions
- Focus is largely on a few high cost conditions like diabetes
- Evidence based medicine is used
- Benefit plans are customizable

#### Evaluate

- The current plan is not a very good VBID plan
    - The current benefits apply to all members regardless of condition
    - Certain brand drugs may justify a lower than \$35 copay if there is evidence that they reduce costs elsewhere
    - Anti-selection is an issue with VBID because of reduced copays and it was not included in pricing
- (b) Calculate the actual impact of adverse selection in 2010 on each of the plan options and for the group in total.

### **Commentary on Question:**

Candidates tended to miss the total calculation. There were numerous different approaches to calculating the anti-selection and points were given for any of these (PMPY, PMPM or actual cost differences).

#### Actual Costs

##### Plan A

For all employees = (generic prescriptions x generic cost + brand prescriptions x brand cost) x (1- employee cost)  
= (216x25+184x100)(1-.3)  
=16,660

Cost per employee = 16660/65=256

##### Plan B

For all employees = (generic prescriptions x (generic cost-copay) + brand prescriptions x (brand cost-brand copay))  
= 384x(25-0) + 216x(100-35) = 23,640

Cost per employee = 23,640/35=675.4

## 2. Continued

$$\text{Actual Total Cost} = (16,660 + 23,640) / 100 = 403$$

Expected Costs

Same calculation as Actual but with pricing assumptions

$$\text{Plan A} = (240(25) + 160(100))(1 - .3) = 15,400$$

$$\text{Plan B} = (360(25 - 0) + 240(100 - 35)) = 24,600$$

Cost per employee

$$\text{Plan A} = 15,400 / 65 = 236.92$$

$$\text{Plan B} = 24,600 / 35 = 702.85$$

$$\text{Expected Total Cost} = (15,400 + 24,600) / 100 = 400$$

Anti-selection

$$\text{Plan A} = 256 / 236.9 - 1 = 8\%$$

$$\text{Plan B} = 675.43 / 702.86 - 1 = -4\%$$

$$\text{Total} = 403 / 400 - 1 = 1\%$$

- (c) Calculate the expected effect of leveraging for each option in 2011 and recommend methods for mitigating its impact.

### **Commentary on Question:**

Most candidates only completed the calculation. Those that gave a recommendation did not provide very many details.

Plan A has no leveraging as the copay is fixed cost sharing.

Cost for Plan B – from part b 31,200, 7,560, 23,640 (total, member, plan costs)

Projected Costs for Plan B

Generic Cost

$$\text{Total} = 384 \times 27.5 = 10560$$

$$\text{Member Sharing} = 0$$

$$\text{Plan Cost} = 10560$$

Brand Cost

$$\text{Total} = 216 \times 110 = 23760$$

$$\text{Member Sharing} = 216 \times 35 = 7560$$

$$\text{Plan Cost} = 26,760$$

Trends

$$\text{Total} = 34,320 / 31,200 - 1 = 10\%$$

$$\text{Member Cost} = 7,560 / 7,560 - 1 = 0$$

## 2. Continued

Plan Cost =  $26,760/23640-1=13.2\%$

Recommend cost sharing that increases at same rate as overall  
Coinsurance benefit  
Periodically raise copays (index)

- (d) Recommend design and pricing actions your client could take to better meet its goals.

**Commentary on Question:**

Candidates generally only provided design options.

Change design to allow greater cost sharing  
Increase copay or change coinsurance type or percentage  
Price for anti-selection  
Subsidize employer contributions to even out difference

Encourage more use of generics through member education  
Implement formulary  
Use step therapy to lower drug costs  
Implement drug utilization management

### **3. Learning Objectives:**

1. Understand and evaluate the effectiveness of the various types of Single Employer group coverage typically offered under:
  - Group health plan, including Consumer driven plans, etc.
  - Prescription Drug
  - Group dental plan
  - STD or LTD plan (incl. mention of coverage within other plans)
  - Group life plan
  - Other miscellaneous benefits
  - Multi-employer groups (Taft-Hartley, etc)
  
8. Evaluate the process and be able to develop a medical manual rate for government programs, ASO and insured business.

### **Learning Outcomes:**

- (1a) Describe the various coverages, including typical benefit provisions, eligibility requirements, cost-sharing provisions, limits and funding mechanisms.
  
- (8a) Identify and evaluate sources of data needed for pricing and underwriting including the quality, appropriateness, and limitations of each data source.
  
- (8b) Identify and evaluate the rating parameters needed to evaluate and manage a book-of-business.
  
- (8c) Develop experience analysis (claims cost and expenses):
  - (i) Construct the appropriate models
  - (ii) Develop the appropriate assumptions, including trend, anti-selection, etc.
  
- (8d) Recommend appropriate actions following the study including:
  - (i) Areas for further study
  - (ii) Changes in coverage, eligibility requirements or funding strategy

### **Sources:**

GH-D103-07 Pricing Long-Term Care, Bluhm, Group Insurance, 5th Edition, Estimating Claim Costs for Disability Benefits, Chapter 31; Bluhm

### **Commentary on Question:**

Part (a) tested candidates' ability to recall information related to the types of care covered under a typical long term care policy. In order to maximize points under this question, the candidate would have to supplement the key points with some relevant information about each type of long term care setting. Most candidates touched on the key points of this question.



### 3. Continued

Part (b) was a straight-forward retrieval question. The key to demonstrating the required knowledge and maximizing earned points on these items is identifying in each part the high-level, important items that are identified in the text and providing some detail supported by the text to show mastery of the concept. Most candidates demonstrated familiarity with considerations for morbidity, but responses to the considerations for expenses were not answered as well as expected.

Part (c) required the candidate to perform a calculation and provide a recommendation based on the results of the calculation. Candidates were required to develop incurred loss ratios for each period and in aggregate using past claims experience and paid premiums. The loss ratios are then compared to the target loss ratio to determine the appropriate rate adjustment for the following year. Candidates should be careful to use correct interest rate as well as correct claims and premiums when they show their work in the calculations.

Many candidates demonstrated an understanding of the calculation of incurred loss ratios, but did not look at both loss ratios for each year individually (to understand year over year variability) and in aggregate (to calculate the required change for 2011). A good response for the calculation of required change would have projected claims and premiums to 2011 for calculation of an aggregate loss ratio, prior to comparing against the target loss ratio. Most candidates provided a sound recommendation based on the calculation results.

#### **Solution:**

- (a) Describe benefits available under LTC policies.
- Nursing Home Facility
    - Skilled nursing care
      - Nursing and rehabilitative services that require skilled medical personnel
      - Such are provided on a 24-hour basis with professional nursing methods/procedures daily
    - Intermediate nursing care
      - Skilled procedures and/or professional medical personnel
    - Custodial care
      - Care provided to assist an individual carrying out daily living activities
  - Assisted living facilities
    - Assistance by qualified staff, may include nursing care and supervision
  - Home healthcare
    - Covered services can include only skilled services such as rehabilitative and nursing services

### 3. Continued

- Most policies require caregiver to be from a licensed agency or be a licensed healthcare worker
  - Adult day care/Community care
    - Cover adult day care centers, often staffed by nurses and aides
  - Other benefits can include:
    - Durable medical equipment, home modifications, respite care, caregiver training
- (b) Describe LTC pricing considerations related to morbidity and expenses.
- Morbidity
    - Data sources or what table used
      - Population-based vs. insured data
    - Integration of coverages
      - Reinstatements and restoration of coverages
    - Transfers
      - Coordination with other coverages
    - Coordination with Medicare
    - Pre-existing requirement
    - Level of care/charge levels/type of care
      - Charges can vary by area and level of services provided
    - Area/Geography/Location
      - Utilization and charges for nursing homes/home healthcare services vary significantly by region
    - Policy options and benefit triggers
      - The richer the plan design/policy options, the great potential for adverse selection
    - Gender/Sex
      - Female claims are higher than men
    - Age
      - Costs increase by age
    - Marital status
      - Morbidity lower at younger ages for married people/spouse takes care of PH
    - Morbidity improvement
    - Underwriting
    - Marketing
    - Claim administration
    - Reinsurance
    - Regulatory considerations

### 3. Continued

- Expenses
  - Underwriting
  - Claim Administration
  - Policy Administration
  - Compliance
  - Actuarial
  - Marketing/Distribution channel
  - Premium Tax
  - Overhead

- (c) Explain whether you would support a rate decrease for 2011 using an incurral year loss ratio analysis. Show your work and justify your recommendation.

Assume claims paid in middle of year and premiums paid at beginning of year. Equivalent points have been given to candidates if they assumed beginning or end of year claims and premiums payment.

**2006 Incurred Year Loss Ratio** = PV (Claims incurred in 2006) / PV (2006 premiums)

$$\text{PV (Claims incurred in 2006)} = 9,000/(1.045^{0.5}) + 6,000/(1.045^{1.5}) + 1,000/(1.045^{2.5}) = \$ 15,317$$

$$\text{PV 2006 Premiums} = \$24,000$$

$$\text{2006 Incurred Year Loss Ratio} = 15,317 / 24,000 = \mathbf{63.8\%}$$

**2007 Incurred Year Loss ratio:**

$$\text{PV (Claims incurred in 2007)} = 20,000 / (1.045^{0.5}) + 10,000/(1.045^{1.5}) + 5,000/(1.045^{2.5}) + 1,500/(1.045^{3.5}) = \$34,691$$

$$\text{2007 Incurred Year Loss Ratio} = 34,691 / 39,000 = \mathbf{89\%}$$

$$\mathbf{2008 Incurred Year Loss ratio} = 26,033 / 35,000 = \mathbf{74.4\%}$$

Total Incurred Claims (on 2008 basis) = 2006 Claims x (1.045<sup>2</sup>) + 2007 Claims x (1.045) + 2008 Claims

$$= 15,317 \times (1.045^2) + 34,691 \times (1.045) + 26,033 = \$79,011$$

Total Incurred Prem (2008 Basis) = 06 Prem x (1.045<sup>2</sup>) + 07 Prem x (1.045) + 08 Prem

$$= 24,000 \times (1.045^2) + 39,000 \times (1.045) + 35,000 = \$101,964$$

### 3. Continued

**Total Incurred Year Loss Ratio** =  $79,011 / 101,964 = 77.5\%$

*Note: candidates who accumulated total loss ratio as of 2009, 2010, 2011 have received equivalent points.*

Total Loss Ratio (77.5%) is slightly lower than Target Loss Ratio of 80%.

We see that results vary from year to year with 2007 LR of 89% being higher than Target Loss Ratio.

In addition, data may not be fully credible.

I would not recommend a rate decrease for 2011 for these reasons.

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

8. Evaluate the process and be able to develop a medical manual rate for government programs, ASO and insured business.

#### **Learning Outcomes:**

- (8b) Identify and evaluate the rating parameters needed to evaluate and manage a book-of-business.
- (8c) Develop experience analysis (claims cost and expenses):
- (i) Construct the appropriate models
  - (ii) Develop the appropriate assumptions, including trend, anti-selection, etc.
- (8e) Evaluate the impact of changing economic conditions on pricing.

#### **Sources:**

Case Study

*Group Insurance* Ch. 35

Critical Issues In Health Reform, State Level Impacts

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

The question was designed to test the candidate's understanding of experience and manual rating, their uses and effects.

Additionally, this question was designed to test the comprehension of the impacts of health care reform on the group market.

#### **Solution:**

- (a) Describe reasons for experience rating from the perspective of (i) the policyholder, (ii) the insurer

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

Most candidates were able to describe solid reasoning from each party's perspective. It was important to include an explanation for each reason.

#### **The policyholder**

Group policyholders often prefer to pay a premium based on the unique experience of their own group, rather than having their experience pooled with other groups, because most groups believe they are an above average group in terms of health.

#### **The insurer**

The insurer prefers to experience rate in part to be able to charge premiums as competitive as possible while still meeting profit objectives.

## 4. Continued

Anti-selection is also a concern for the insurer, so experience rating helps to mitigate this by charging a rate that better reflects the true costs of the group. Therefore, low cost groups are less likely to leave, which helps to keep the risk pool from spiraling.

When establishing rates, the insurer would prefer to rate based on as much information as available. Experience rating based on prior year's experience assists in developing an appropriate rate.

- (b) Calculate the required revenue per covered person for Joe's Garage. Show your work.

The required revenue is the sum product of the group's census and the 4-Tier Rates from Exhibit 4.a.

$$(1 \times \$301.61) + (1 \times \$603.23) + (1 \times \$965.17) = \$1,870.01$$

Per covered person is required revenue divided by 7.

$$\$1,870.01/7 = \$267.14$$

Explain why the required revenue per covered person does not match the credibility-weighted PMPM

From exhibit 4.a., the credibility-weighted PMPM is \$247.85. The disconnect between the required revenue per covered person and the credibility-weighted PMPM is caused by GEIC using a standard employee distribution in determining rates, instead of a group specific distribution.

- (c) Evaluate Mr. Cly's assertion that GEIC is overcharging the entire block

### **Commentary on Question:**

This section was testing the candidate's general understanding of group business. Good scores were given for candidates who were able to assess the block of business instead of focusing solely on Joe's Garage.

While it is true that the rates charged for this group do not match the final PMPM, I would be hesitant to conclude GEIC is overcharging the entire block based on one group's experience. Group rating is primary intended to charge the appropriate rate for the block of business. The specific rate for each group may be over-rated or under-rated, but that doesn't necessarily mean every group is.

## 4. Continued

- (d) Mr. Cly wants to offer two-tier rates. Calculate two-tier rates based on the same rating factors used to determine the four tier rates. Show your work.

**Commentary on Question:**

There were multiple acceptable methods in determining these rates.

Assume single rate \$301.61 will remain unchanged.

Calculate family tier factor based on standard employee distribution and applicable tiers

$$\text{Revised Family Tier Factor} = (10\% * 2.0 + 30\% * 1.8 + 25\% * 3.2) / 65\% = 2.37$$

$$\text{Family Rate} = \text{Single Rate} * \text{Revised Family Tier Factor} = \$301.61 * 2.37 = \$714.60$$

- (e) The owner of Joe's Garage (Joseph Dropsy) is concerned that his rates are going to increase significantly under rating limitations enacted by health care reform. Assess the validity of these concerns.

**Commentary on Question:**

This comprehension question required candidates to sort through the potential impacts and select the ones that would most likely impact Joe's Garage. Some candidates merely listed the new regulation without explaining the impact to this group.

Health Care Reform will limit the rating flexibility in the group market. Rating variation will be based only on age (limited to 3:1), area, family composition, and tobacco use (limited to 1.5:1) in the small group market. Due to the rating limits on age, the members on the lower end of the age slope will likely see an increase in their rates and conversely, members on the upper end will likely see a decrease. According to the census, there is an employee on the low end who will likely be impacted. The new minimum loss ratio (80%) may impact the rates for Joe's Garage, since the current loss ratio for the business is below minimum. Also, depending on how markets will merge (SG and Individual) and the resulting risk pool, Joe's rates will likely be impacted.

## 5. Learning Objectives:

5. Apply U.S. and Canadian nation-specific regulation to product design and pricing.
9. Applies principles of pricing, benefit design and funding to an underwriting situation.

### Learning Outcomes:

- (5b) Describe key provisions of major legislation.
- (5c) Evaluate the potential financial and moral risk associated with the legislation.
- (9a) Understand the risks and opportunities associated with a given coverage, eligibility requirement or funding mechanism.

### Sources:

Case Study

*Individual Health Insurance*, Bluhm, Chapters 3 and 4; *Critical Issues in Health Reform—Individual Mandate*

### Commentary on Question:

This question tested a candidate's understanding of issues in the Individual market, and the ability to defend a recommendation about this market. The cognitive levels of this question include retrieval, analysis and knowledge utilization.

### Solution:

- (a) List elements other than benefit design that should be considered when designing an individual health insurance product.

### Commentary on Question:

This is a retrieval portion. Many candidates provided details of rating factors and while these are important to ensure that profit goals are met, rating factors were not the focus of this problem.

- A marketing plan, including peripheral (sales) material
- Sales and commission plan
- Special underwriting rules (if necessary)
- Rate structure, relativities (by rating characteristic), level, and rate increase philosophy
- Modifications to claims systems needed to administer the new plan
- Identification of state rules and regulations
- Financial forecast for new product
  - Need to balance profit goal against providing competitive rate



## 5. Continued

- (b) Describe internal anti-selection issues specific to the individual marketplace

**Commentary on Question:**

This is a retrieval portion. Successful candidates focused on the aspect of currently healthy individuals selecting against an issuer.

- Definition: occurs within existing policies as they choose to renew
- Premium leakage is one type
  - Occurs at rate increase time
  - Insurers generally allow member to choose less rich plan without underwriting
  - But healthy members more likely to select down in benefits
  - Thus, total expected premium decreases more than expected claims, so there is a gap
- Benefit buy-down effect is another type
  - Existing members who buy a less rich plan to save premium
  - Most common with coverage that has high or frequent rate increases

- (c) Calculate the monthly premium rate for an individual male age 45 in Area 2 for the \$100 deductible plan.

**Commentary on Question:**

This portion is analysis. Generally candidates scored well in this section. Appropriate alternate solutions assuming different time periods or starting experience points also earned credit.

- Base/manual rate for PPO = \$370.73
- Age/sex factor for 45 year old male is 1.123
- Area factor for Area 2 is .96
- Group size factor for a group of 1 is 1.2074
- Wear off factor is .67
- Rate calculation is ...manual rate X age-sex X area X group size X wear-off)  
= \$370.73 X 1.123 X .96 X 1.2074 X .67) = \$323.32

- (d) Recommend whether GEIC should enter the individual market:

**Commentary on Question:**

This portion is testing knowledge utilization. The question is designed such that the exam taker can choose either a “yes” or “no” recommendation. The question is testing whether the exam taker can appropriately defend the position taken. This model solution demonstrates a “no” recommendation for both parts. It was important that a clear recommendation be made for both components below.

## 5. Continued

- (i) Based only on the calculated premium rate.
  - I would not recommend GEIC enter the individual market based on:
    - The individual market is highly price sensitive, so at a price differential of 29+% ( $\$323.32/\$250 = 1.293$ ), GEIC will have a difficult time selling against the competition
    - GEIC's rate was based off a small group calculation, which may not be a good proxy for Individual, so I don't have much confidence in the calculated rate
  
- (ii) Considering challenges in the current individual market and future health care reform requirements.
  - I would not recommend GEIC enter the individual market based on:
    - Closed block issue difficult to deal with
    - Combined with rigorous rate regulation by states, most major commercial companies have left the market
    - Health care reform creates additional uncertainty for the market:
      - Minimum loss ratio requirement challenges
      - Guaranteed issue required
      - Co-ops/exchanges bring uncertainty to market

## 6. Learning Objectives:

1. Understand and evaluate the effectiveness of the various types of Single Employer group coverage typically offered under:
  - Group health plan, including Consumer driven plans, etc.
  - Prescription Drug
  - Group dental plan
  - STD or LTD plan (incl. mention of coverage within other plans)
  - Group life plan
  - Other miscellaneous benefits
  - Multi-employer groups (Taft-Hartley, etc)

### Learning Outcomes:

- (1d) Assess the advantages and disadvantages to an sponsor of offering a given coverage/benefit.
- (1e) Evaluate potential financial, legal and moral risks associated with each coverage.

### Sources:

Case Study

### Commentary on Question:

Parts (a) and (b) of this question needed to be answered from a chapter that was not on the final syllabus for this exam. In grading the candidate papers for this exam, the graders factored in this syllabus omission when they finalized exam scores. Therefore, those parts have no “model solution.”

This question required an understanding of how to calculate a cost benefit analysis and making a recommendation based on the analysis.

The cognitive levels of this question varied from retrieval to knowledge utilization.

An important part of receiving maximum points in the cost benefit analysis was to take the calculated costs and savings and then make a recommendation with a justification as to whether the program should be implemented.

Candidates typically had trouble in the following ways:

1. Understanding how to perform the cost benefit calculation.
2. Missing key data elements from the question and case study (e.g., incorrect employee count).
3. Incorrectly assuming the \$15 PEPM cost applied only to targeted employee groups who decided to participate instead of applying to the entire employee count.
4. Incorrectly assuming that to omit the “vigorously healthy” category meant to remove them from the count of employees for calculating monthly costs.

### Solution:

- (a) Describe considerations when researching issues associated with:
  - i. Organizational motives and goals
  - ii. Management and employee support
  - iii. Organizational capabilities

## 6. Continued

This part contains no “model solution” because it was not on the final syllabus for this exam. Therefore, we have left this section blank.

- (b) Describe steps for conducting a cost benefit analysis.

This part contains no “model solution” because it was not on the final syllabus for this exam. Therefore, we have left this section blank.

- (c) Construct a cost benefit analysis, and recommend whether GEIC should proceed with the pilot wellness program. Show your work and justify your recommendation.

### Commentary on Question:

The model solution below is done on a monthly basis for the entire company. It could have been carried out on a PEPM basis ( $\div 5,000$  EEs) or an annual basis ( $\times 12$  months).

Program cost is \$15 PEPM. Monthly cost is calculated as the total number of employees times the monthly PEPM program cost:  $5,000 \text{ EEs} \times 15 \text{ PEPM} =$   
**\$75,000**

Savings calculations:

# of Employees in the program by category = Number of Employees  $\times$  Prevalence by category  $\times$  Program Uptake by category

$$\text{Chronically Ill} = 5,000 \times 0.016 \times 0.15 = 45$$

$$\text{Unhealthy Habits} = 5,000 \times 0.016 \times 0.15 = 100$$

$$\text{Mean Well} = 5,000 \times 0.016 \times 0.15 = 395$$

The monthly savings is the sum of the savings for each category of employees in the program, which are for each category equal to:

# of Employees  $\times \sum_i [\text{Monthly Cost}_i * \text{Cost Relativity}_i \times \text{Savings}_i]$ ,  
where the summation (i) runs through the three cost categories,  
Medical Care (\$500), Absenteeism (\$200), and Disability (\$100).

$$\begin{aligned} \text{Chronically Ill Savings} &= 45 \times (500 \times 2.2 \times 0.08 + 200 \times 2 \times 0.1 + 100 \times 4 \times 0.2) \\ &= \$9,360 \end{aligned}$$

$$\begin{aligned} \text{Unhealthy Habits Savings} &= 100 \times (500 \times 1.1 \times 0.15 + 200 \times 1.2 \times 0.15 + 100 \times \\ &1.1 \times 0.2) = \$14,050 \end{aligned}$$

## 6. Continued

$$\text{Mean Well Savings} = 395 \times (500 \times 1.02 \times 0.12 + 200 \times 1.1 \times 0.2 + 100 \times 1.1 \times 0.1) = \$45,899$$

$$\text{Total Monthly Savings} = \$9,360 + \$14,050 + \$45,899 = \mathbf{\$69,309}$$

Because the costs of the program exceed the expected savings, I do not recommend proceeding with the pilot.

- (d) Identify reasons why absenteeism is insufficient for measuring the impact of wellness programs on productivity.

### **Commentary on Question:**

This was a basic reading comprehension and information retrieval question from the syllabus.

Absenteeism is only one component of productivity. Productivity at work is heavily influenced by “presentism”, which refers to people who are at work but who are physically or emotionally unable to perform to a desired level, and by the organizational climate, morale, and co-worker relationships. Moreover, wellness programs targets medical illness, yet that is not the only reason why people are absent. For example, they may be taking time off for relaxation, vacation, taking care of a sick family member, and other reasons.

## 7. Learning Objectives:

1. Understand and evaluate the effectiveness of the various types of Single Employer group coverage typically offered under:
  - Group health plan, including Consumer driven plans, etc.
  - Prescription Drug
  - Group dental plan
  - STD or LTD plan (incl. mention of coverage within other plans)
  - Group life plan
  - Other miscellaneous benefits
  - Multi-employer groups (Taft-Hartley, etc)
  
3. Evaluates employer strategies for designing and funding benefit plans for:
  - (i) Active employees
  - (ii) Dependents
  - (iii) Pre-65 retirees
  - (iv) Post-65 retirees
  - (v) Disabled (short and long-term)
  
8. Evaluate the process and be able to develop a medical manual rate for government programs, ASO and insured business.

### Learning Outcomes:

- (1a) Describe the various coverages, including typical benefit provisions, eligibility requirements, cost-sharing provisions, limits and funding mechanisms.
  
- (3a) Describe typical strategies used by employers to fund and design benefit plans, including contribution strategies.
  
- (8a) Identify and evaluate sources of data needed for pricing and underwriting including the quality, appropriateness, and limitations of each data source.
  
- (8c) Develop experience analysis (claims cost and expenses):
  - (i) Construct the appropriate models
  - (ii) Develop the appropriate assumptions, including trend, anti-selection, etc.
  
- (8g) Integrate utilization management data into pricing.

### Sources:

Case Study

*Employee Handbook of Employee Benefits*, Ch. 7 and 10

*Group Insurance* Ch. 34

*GH-114-07 Actuarial Issues in FFS/Prepaid Medical Groups*

## 7. Continued

### **Commentary on Question:**

This is an integrated question that tested candidates' understanding of cost and utilization data for pricing along with the impact of medical management.

The cognitive levels of this question varied from retrieval to synthesis/analysis.

To receive maximum points on this question, it was important to "explain" when an explanation was requested (rather than just "listing"), and it was very important to make a recommendation.

### **Solution:**

- (a) Discuss alternative pharmacy benefit plans and cost management practices that GEIC could implement.

### **Commentary on Question:**

This was a comprehension question, which required candidates to understand and describe the items. Most candidates were able to list the main points. A discussion of those points was required for more than minimal credit.

### **Alternative benefit plans**

- Referenced based pricing
  - Set a ceiling price for medications that exhibit similar therapeutic benefits
- Reverse copays
  - Plan pays set amount for prescription and member pays remaining amount
- Coinsurance
  - Members pay a percentage of the prescription cost, often after meeting a deductible
- Consumer directed health care
  - Requiring members to use FSAs, MSAs, HRAs, and HSAs to pay for prescription drugs
- Over-the-counter drug coverage
  - Covering OTC drugs for items like allergy meds, pain relievers and non-steroid anti-inflammatories that provide valuable therapeutic benefits at much lower costs

## 7. Continued

### **Cost management practices**

- Generics
  - Annually save consumers billions of dollars
  - Savings must be balanced against clinical value of the branded drug
- Copay approaches
  - One of the most common PBM cost management strategies
- Customized pharmacy benefit
  - Allows plan sponsors to develop a benefit focused on achieving best outcomes at the most affordable costs
- An effective approach should include:
  - Claims analysis
    - Analyzing medical and lab data
  - Formularies
    - Helps combat an "anything you want" strategy of prescribing drugs
  - Prior authorization
    - Process used to approve drugs where plan needs to exert control or restrictions
  - Targeted disease interventions
    - Integration of pharmacy and medical claims data to I.D. areas that involve high cost, highly utilized drugs

- (b) Describe primary and expanded utilization management programs that GEIC could implement to decrease hospital inpatient and outpatient utilization.

### **Commentary on Question:**

This too was a comprehension question requiring candidates to understand and describe items. Similar to (a), most candidates were able to list the main points. Good papers contained descriptions and earned the most credit.

### **Primary u/m programs:**

- Precertification reviews
  - Reviews medical necessity of IP care
  - Identifies potential c/m opportunities prior to admission
- Concurrent review
  - Monitors patient care in hospital
- Discharge planning
  - Assesses whether additional services are needed following discharge



## 7. Continued

### Expanded u/m programs:

- Referral management
  - Requires members to access care via their PCPs, who manage referrals by eliminating unnecessary and inappropriate care
  - Ensures that high quality care is delivered in most cost effective manner by eliminating unnecessary and inappropriate care
- Outpatient precertification
  - Prior authorization for certain OP procedures
- Managed second surgical opinion
  - Member contacts managed care company who evaluates necessity of surgery and if appropriate, recommends less invasive procedure
- On-site concurrent review
  - Reviews necessity of continued confinements, proposed tests, and procedures
- Centers of excellence
  - Network of designated, nationally recognized medical facilities
- Prenatal advisory services
  - Identify women who may be at risk for delivering low-birth weight, preterm babies, etc.

- (c) Calculate GEIC's 2010 allowed claims cost. Show your work.

### Commentary on Question:

This question tests candidates understanding of allowed costs, which is the sum of member cost sharing and plan net paid amount. Candidates must use the co-payments provided in the benefit grid to calculate member cost sharing and the provided net claims cost for the health plan. This is a basic, but important, calculation to understand and apply. Candidates who knew the definition of allowed claims costs did well on this question.

$$\begin{aligned}\text{Allowed claim cost} &= \text{Member cost sharing} + \text{Net paid amount} \\ &= \text{Utilization} \times \text{copay} + \text{Net paid amount}\end{aligned}$$

$$\begin{aligned}\text{For Hosp IP, member cost sharing} &= 57,600 \text{ admits} \times \$500 \\ &= \$28,800,000\end{aligned}$$

$$\text{Thus, Hosp IP allowed} = \$28,800,000 + \$133,880,000 = \$162,680,000$$

Similarly, for the other service categories:

$$\text{Hosp OP} = \$38,400,000 + \$192,362,000$$

$$\text{Physican} = \$11,520,000 + \$279,280,000$$

$$\text{Rx} = \$15,360,000 + \$129,149,000$$

$$\text{Total allowed} = \text{sum of the above} = \mathbf{\$763,471,000}$$

## 7. Continued

- (d) Calculate the premium (PMPM) that GEIC should charge in 2012. Show your work.

### Commentary on Question:

Candidates were asked to apply health insurance pricing principles to a typical experience rating scenario. Some candidates struggled with this portion of the question. Most candidates knew how to calculate a gross premium, but made various mistakes in calculating the 2012 projected net claims cost to GEIC.

1. Get utilization on a PTPMY basis.

Hosp IP = 57,600 admits/200 (thousand mbrs) = 288 admits PTPMY  
Similarly, for the other service categories:  
Hosp OP = 960 services PTPMY  
Physician = 2,880 visits PTPMY  
Rx = 3,840 scripts PTPMY

2. Trend utilization by 2 years. Unit basis same as above.

Hosp IP =  $288 * (1 + 2\%)^2 = 300$   
Similarly, for the other service categories:  
Hosp OP = @ 3% per year = 1,018  
Physician = @ 1% per year = 2,938  
Rx = @ 7% per year = 4,396

3. Calculate plan net claim cost.

Hosp IP = Cost/unit x Utilization (PTMPY) / 12 x 1,000  
=  $\$4,600 \times 300 / 12,000 = \$114.86$   
Similarly, for the other service categories:  
Hosp OP = \$101.85  
Physician = \$30.60  
Rx = \$36.64  
Total net claim cost = sum = \$283.95

4. Premium PMPM = (Net claims + Capitation + Fixed Expenses) / (1 – Variable Admin – Profit Margin)

$$= (\$283.95 + \$30 + \$11) / (1 - 5.5\% - 4.4\%) = \mathbf{\$361 \text{ PMPM}}$$

- (e) Calculate the hospital inpatient utilization needed to meet the targeted premium increase for 2012, given all other assumptions remain fixed. Assess the reasonability of the calculated inpatient utilization. Show your work.

## 7. Continued

### Commentary on Question:

This analysis question required candidates to calculate the necessary hospital admissions in 2012 needed to meet the assumptions set in initial pricing. Appearing discouraged with (d), some candidates didn't attempt this question even though it was independent. Good scores were obtained by those who calculated the necessary admissions to meet pricing and assessed the results, even if they made an error in its calculation.

The 2010 premium was \$315. While the pricing results say that a \$361 premium is required in 2011, the question details require that the premium increases no more than \$10. Thus, \$325 will be charged.

We need to solve for the necessary hospital admissions required to cover costs and profit margin. Set up equation given in (e) and solve for required net claims costs.

$$\$325 = (\text{Net claims cost} + \$30 + \$11) / (1 - 5.5\% - 4.4\%)$$

$$\text{Net claims cost} = \$251.83 \text{ PMPM}$$

Now, we need the hospital IP portion of that total, assuming the costs for all other categories are exactly as priced for. Manette is being asked to manage IP costs to cover the premium shortfall.

$$\begin{aligned} \$251.83 &= \text{Hosp IP} + \text{Hosp OP} + \text{Physician} + \text{Rx} \\ &= \text{Hosp IP} + \$101.85 + \$30.60 + \$36.64 \text{ (from (e))} \end{aligned}$$

$$\text{Therefore, Hosp IP claims cost} = \$82.74 \text{ PMPM}$$

Finally, we need the number of admissions implied by this claims cost.

$$\begin{aligned} \$82.74 &= \text{Cost Per Admit} \times \text{Admits PTMPY} / 12 \times 1,000 \\ &= \$4,600 \times \text{Admits PTMPY} / 12,000 \end{aligned}$$

Therefore, required admits PTMPY to meet the pricing objective is **216**.

Historical experience and projected utilization trend indicate that GEIC is expecting 300 admissions in this plan. The required reduction in admissions is  $300 - 216 = 84$ , a 28% decrease. In light of positive utilization trends for hospital IP, this large of a decrease is unreasonable. GEIC can expect to be well underpriced, even with strong medical management.

## 8. Learning Objectives:

1. Understand and evaluate the effectiveness of the various types of Single Employer group coverage typically offered under:
  - Group health plan, including Consumer driven plans, etc.
  - Prescription Drug
  - Group dental plan
  - STD or LTD plan (incl. mention of coverage within other plans)
  - Group life plan
  - Other miscellaneous benefits
  - Multi-employer groups (Taft-Hartley, etc)

### Learning Outcomes:

- (1a) Describe the various coverages, including typical benefit provisions, eligibility requirements, cost-sharing provisions, limits and funding mechanisms.
- (1g) Assess the advantages and disadvantages to a participant of offering a given coverage/benefit.

### Sources:

Health Watch, February 2010, Effective Contracting with PBMs

Rosenbloom, Handbook of Employee Benefits, 6th Edition, Alternative Prescription Drug Plans and Their Impact on Employers, Chapter 11

### Commentary on Question:

Candidate is expected to demonstrate an understanding of the financial arrangements offered by a PBM. First the candidate is asked to recall considerations when selecting a PBM, then the candidate is asked to compare two different potential PBM arrangements. The cognitive level of this question is retrieval and analysis.

### Solution:

- (a) Determine the PBM with the lowest expected cost.

### Commentary on Question:

A number of candidates recognized the need to use the Tale Scripts discounts in Email 16. Other candidates produced alternate solutions using other information available in Email 17 (e.g. plan design, union / non-union split). Full credit was given to sound alternate solutions that answered the question.

First, calculate expect cost under Two Cities

1. Total AWP subject to brand guarantee = brand + generic A =  $550 * 110 + 3,000 * 267 = 861,500$
2. Apply discount of 15%:  $861,500 * (1 - .15) = 732,275$
3. Total AWP subject to generic guarantee = generic B =  $4950 * 99 = 490,050$
4. Apply discount of 80%:  $98,010 * (1 - .8) = 98,010$
5. Total expected payment under PBM 1 =  $732,275 + 98,010 = 830,285$

## 8. Continued

Then calculate expected cost under Tale Scripts

1. Need to adjust 75% of brand scripts' AWP to 125% of WAC (25% unadjusted)
2. Adjusted AWP for the 75% of brand scripts is  $\$267 \times (125 / 120) = \$278.13$
3. Average brand AWP =  $\$275.35$
4. Apply discount of 20%:  $3000 \times 275.35 \times (1 - .20) = 660,834$
5. Total AWP subject to generic AWP = generic A + generic B =  $550 \times 110 + 4950 \times 99 = 550,550$
6. Apply discount of 70%:  $550,550 \times (1 - .70) = 165,165$
7. Total expected payment under PBM 2 =  $660,834 + 165,165 = 825,999$

(b)

(i) List benefits of contracting with a PBM

- Network of pharmacies
- Negotiate prices and rebates
- Develop and manage formularies
- Process claims, maintain compliance programs, utilization review, DM programs

(ii) List arrangements to be included in a PBM contract

- Lesser of pricing
- Pricing guarantees for brand and generic drugs
  - Spread pricing or pass through
- Minimum rebate guarantees
- Formulary programs

(iii) List questions to ask in evaluating a PBM

- Does the PBM meet organization needs in terms of:
  - Cost
  - Customer service
  - Range of drugs available
- Are you getting the best possible financial arrangement?
- Is the PBM willing to acceptable contract terms:
  - Auditable
  - Sustainable
- Is the organization ready to change PBMs?

## 9. Learning Objectives:

- (8) Evaluate the process and be able to develop a medical manual rate for government programs, ASO and insured business.

### Learning Outcomes:

- (8f) Evaluate provider compensation model, including capitation, and its impact on projected claim costs.

### Sources:

Bluhm, Group Insurance, 5th Edition, Management of Provider Networks, Chapter 46

GH-D114-07, Actuarial Issues in FFS/Prepaid Medical Group (Sutton)

### Commentary on Question:

The purpose of this question was to test a candidate's understanding of several important elements of a prepaid contracting relationship.

The question contained elements of retrieval, analysis, and comprehension.

Specific comments for each part are included below.

### Solution:

- (a) Define the tasks that North Star should perform to evaluate this group for inclusion in its HMO network.

#### Commentary on question:

Candidates generally did well on this question. The most successful candidates discussed several parts of credentialing as opposed to just writing "credentialing," specifically discussed a visit to do an office evaluation and reviewing medical records.

#### Credentialing

- Reviewing and verifying the credentials of the physician.
- Includes: training, licensure, specialty certification, hospital privileges, and malpractice insurance history.

#### Office evaluations

- Involves a visit to the physician's office to evaluate the ambiance, accessibility for patients, and in-office service capabilities.
- Can also involve reviewing current capacity to verify that the physician can take on more patients in a timely manner.

#### Medical record review

- Involves a review of the physician's practice patterns with respect to quality and cost –efficiency.

## 9. Continued

### **Analysis of utilization or cost data**

- Credibility issues due to low volume of claim data as well as controversy regarding "economic credentialing" may cause limitations.
- Health plans tend to put a minor importance on utilization and cost data review during the initial selection process.

- (b) Identify four types of mechanisms North Star could use to compensate physicians, and compare and contrast the level of risk transferred to the physician group under each.

### **Commentary on question:**

The most successful candidates discussed several areas of risk (i.e., utilization risk, severity risk, payment risk) as opposed to generally discussing the risk in terms of low, medium, or high. The exception is for "Salary," where the text does not detail the specific differences. Note that the source material describes risks pertaining to both physician and hospital risks, but candidates only needed to include those risks pertaining to physician services.

### **Fee-For-Service:**

- Primary risk is service cost reimbursement or collection risk – the uncertain collection times from patient and insurer due to claim processing times and insurer review. Patient accounts receivable are often large and subject to bad debt write-offs.
- High Frequency of Visits: No risk - all claims are reimbursed by the carrier.
- Expensive mix of services: No risk, though carrier may impose reasonable and customary limits.
- Referrals (physician or patient directed): No risk - carrier will pay regardless of physician.
- Relative health of individuals enrolled: No risk to carrier.

### **Primary Care Capitation:**

- Service cost reimbursement or collection risk: Minimal - cost is paid prior to rendering services.
- High Frequency of Visits: If high volume of services is for primary care, physician group net income may be reduced. Minimal to no risk for high volume of specialist referrals as carrier reimburses all claims.
- Expensive mix of services: Minimal risk - Group will retain risk of expensive mix of primary care services, though primary care services are not generally subject to significant mix. All risk of expensive referral mix is transferred to the carrier.

## 9. Continued

- Referrals (physician or patient directed): Carrier may impose a wide range of restrictions to control referrals such as prior authorizations, limits on range of services and volume, or prohibiting secondary referrals.
- Relative health of individuals enrolled: Carrier is at risk.

### **Medical Group Capitation including Specialist Services:**

- Service cost reimbursement or collection: Minimal risk - service cost is paid prior to rendering services.
- High Frequency of Visits: Since capitation includes all specialty services, the physician group retains all frequency risk for professional services, and likely has some risk for facility use frequency.
- Expensive mix of services: Physician group retains all mix of services risk, which is higher than just Primary Care cap since it includes specialist services too.
- Referrals (physician or patient directed): Physician group holds financial risk for cost of referrals, although carrier may impose a wide range of restrictions to control referrals such as prior authorizations, limits on range of services and volume, or prohibiting secondary referrals.

### **Salary:**

- Service cost reimbursement or collection: No risk - service costs are paid by the carrier.
- High Frequency of Visits: No risk.
- Expensive mix of services: No risk.
- Referrals (physician or patient directed): No risk though carrier may impose guidelines limiting referrals.

- (c) Outline each of the two major methods North Star could use to calculate service costs.

### **Commentary on question:**

Candidates generally did well on this part of the question. In addition to the descriptions below, a successful candidate could have also provided a numerical example as shown in the text as long as the candidate provided evidence of thorough understanding of the formula.

### **Fee-For-Service Method**

- The fee-for-service method projects the cost of prepaid services using a schedule of service fees and an estimate of the frequency of services rendered per prepaid member in the contract period.



## 9. Continued

- For each service covered under the prepaid contract, the actuary must project the number of units for each service type covered during the contract period. The actuary must also develop a schedule of reasonable unit costs for each covered service.
- Sources physician utilization and unit cost data include: medical group prepaid utilization and charge data, utilization and charge assumptions for referrals to physicians outside of the medical group, HMO/prepaid plan industry utilization and cost data, data vendors or Actuarial consultant firms.
- The combination of projected utilization per member and unit costs will provide a basis for estimating a per-member prepaid fee. The final prepaid fee will need to include an administrative and profit load.

A numerical example similar to what is found on p 49-52 of GH-D114-07 would be sufficient as long as a thorough understanding is evident.

### **Budgetary or Cost method**

- The budgetary method projects prepaid costs by analyzing the demand for services and translating this into a required number of full-time physicians.
- The cost of compensation (including base compensation, benefits, malpractice insurance, etc) for the required physicians will determine the prepaid cost per member per month.
- Additional provisions must be made for the cost of referral services under the primary care capitation contract using a procedure similar to the fee-for-service method.
- Administrative costs such as building rental, miscellaneous overhead, profit, etc. must also be added on a per member per month basis.

A numerical example similar to what is found on p 29 of GH-D114-07 would be sufficient as long as a thorough understanding is evident.

- (d) Suggest techniques that could help the physician group manage the overall risk of medical costs.

### **Commentary on question:**

The most successful candidates listed techniques from multiple categories below (i.e., some contractual approaches, some procedural approaches, hospital risk sharing, and some form of reinsurance).

### **Sharing Management of Referral Services**

#### Contractual Approaches

- Negotiate with a single-specialty group
- Negotiate discounted fee levels with referral physicians under the expectation of future growth in member base

## 9. Continued

- Purchase specialist time on a retainer basis
- Contract all services with one large multispecialty group on a discounted basis
- Reinsure referral services

### Procedural Approaches

- Use a gatekeeper to direct referral services
- Require written authorizations for referral services
- Place restrictions on the requested range or number of services allowed based on diagnosis
- Require all tests to be done within the medical group, if possible
- Limit the time within which a consult must be completed
- Prohibit the use of secondary referrals
- Require a written report from the specialist on the final status of the case

### **Sharing Risk for Hospital Costs**

- HMO and physician group share risk to control utilization and cost of inpatient and outpatient services
- Use a per diem or DRG charge with the hospital
- Pay for services at a percentage of billed charges
- Fund the physician group with a percentage of premium
- Share costs between the medical group and the hospital

### **Use of a Reinsurance Program**

- Usually cover catastrophic inpatient hospital risks
- May also have separate catastrophic reinsurance for professional medical services

## 10. Learning Objectives:

5. Apply U.S. and Canadian nation-specific regulation to product design and pricing.
8. Evaluate the process and be able to develop a medical manual rate for government programs, ASO and insured business.

### Learning Outcomes:

- (5d) Determine the potential impact on the cost of complying with the regulation.
- (8i) Construct a rating model to be used for rating individual customers or plan designs.

### Sources:

Bluhm, Individual Health Insurance, 5, Setting Premium Rates

American Academy of Actuaries, Critical Issues In Health Reform, Actuarial Equivalence

### Commentary on Question:

This question attempted to assess the candidates' ability to develop expected claim cost and confirming that assumptions meet the minimum requirements of health care reform. In general, candidates did well on this question.

### Solution:

- (a) Calculate the annual net benefit value under each cost sharing arrangement by applying the cost sharing provision to the average allowed cost.

<b>Calculate Annual Net Benefit Value Under Cost Sharing Arrangements.</b>			
<b>First calculate Annual Allowed Value:</b>			
	Annual Util/k	Average Charge	Annual Allowed Value
Hospital Inpatient:			
Medical/Surgical	300	\$8,170	\$2,451.00
MHSUD	8	\$9,250	\$74.00
SNF	10.5	\$10,925	\$114.71
			<hr/>
			\$2639.71
Hospital Outpatient (visits):			
ER	300	\$750	\$225.00
Surgery	110	\$1,950	\$214.50
Diagnostic	748	\$385	\$287.98
			<hr/>
			\$727.48

## 10. Continued

	Annual Util/k	Average Charge	Annual Allowed Value
Physician (visits):			
Primary Care	1450	\$160	\$23200
Specialist	2050	\$285	\$584.25
			\$816.25
		Annual Allowed Cost	\$4,183.44

**Second, calculate Cost Share & Net Value under Arrangement A:**

Cost sharing =  $\$1500 + (\$4183.44 - 1500) \cdot .15$  (or calc Net value first & subtract from Allowed to get cost sharing)

= \$1902.52

"Cost sharing is below OOP max threshold"

Net Value =  $(\$4183.44 - \$1500) \cdot .85$  OR  $(\$4183.44 - \$1902.52)$

= \$2280.93

"Annual Net Value for Arrangement A = \$2280.93"

**Third, calculate Cost Share & Net Value under Arrangement B:**

"Hospital and Physician services must be calculated separately"

Hospital Allowed Value =  $\$2639.71 + \$727.48 = \$3367.19$

Hospital Net Value =  $(\$3367.19 - \$800) \cdot .85$

= \$2182.12

Hospital Cost Sharing =  $\$800 + (\$3367.19 - \$800) \cdot .15$  OR  $(\$3367.19 - \$2182.12)$

= \$1185.08

"Facility cost sharing is below OOP max threshold"

Physician Allowed Value = \$816.25

Physician Net Value =  $\$816.25 - 3500 \cdot \$40 / 1000$

= \$676.25

Physician Cost Sharing =  $3500 \cdot \$40 / 1000$

= \$140

Total Net Value =  $\$2182.12 + \$676.25$

= \$2858.37

"Annual Net Value for Arrangement B = \$2858.37"

## 10. Continued

- (b) Actuarial benefit factor must be 0.7 to meet the “silver” benefit category under the new health reform legislation. Suggest changes to either benefit design to meet this requirement using the method in (a).

### Commentary on Question:

There were multiple ways to answer the second part of section (b). Two examples are listed below. Credit was also given for other solutions. Candidates received full credit if they were able to derive by formula the revised cost sharing necessary to meet the 70% actuarial benefit factor. Candidates received partial credit if they were able to describe cost sharing changes that would result in the plan meeting the 70% requirement.

$$\begin{aligned}\text{Arrangement A:} \\ &= \$2280.93 / \$4183.44 \\ &= 54.5\%\end{aligned}$$

$$\begin{aligned}\text{Arrangement B:} \\ &= \$2858.37 / \$4183.44 \\ &= 68.3\%\end{aligned}$$

$$\begin{aligned}\text{Required Net Value to meet 70\% Ratio:} \\ &= \$4183.44 * .70 \\ &= \$2928.41\end{aligned}$$

Arrangement B is closest to the required ratio, we need to increase the cost sharing amount by:

$$\begin{aligned}&= \$2928.41 - \$2858.36 \\ &= \$70.05\end{aligned}$$

Could change coinsurance amount by solving for x:

$$\begin{aligned}\$2182.11 + \$70.05 &= (\$3367.19 - \$800) * x \\ x &= (\$2182.11 + \$70.05) / (3367.19 - 800) \\ x &= 87.7\% \\ \text{Revised Coinsurance \%} &= 12.3\%\end{aligned}$$

**OR**

Could change copay amount to: *(recommended approach because is most straightforward--use for model solution)*

$$\begin{aligned}&= \$70.05 / (3500/1000) \\ &= \$20\end{aligned}$$

Revised Physician Copay for Arrangement B = \$20 per visit.

## 10. Continued

- (c) Assess whether calculating net benefit value by applying cost sharing provisions directly to average allowed costs will produce appropriate actuarial benefit factors. Justify your response.

**Commentary on Question:**

Candidates had the most difficulty on this part of the exam. The key was in understanding that the deductible and OOP max require a cumulative distribution function to adequately determine the net benefit value.

- Using the "buildup" approach, the product of claim frequency times the average cost per service, should be only used for cost sharing benefits that are applicable to specific services.
- To estimate the impact of deductibles and out of pocket limit, which are applicable to a member's comprehensive claims in a year, a continuance method must be used.
- Applying cost sharing to a particular member/claim is appropriate, but application to the average doesn't take the distribution of claim sizes into account.

- (d) Comment on factors that may cause XYZ to charge different premiums than competitors for otherwise actuarially equivalent plan designs.

**Commentary on Question:**

Actuarial equivalence in plan designs is based on a comparison of the benefit features. However, the final premium is based on the benefit features, the underlying claim costs and the retention loads. While the benefit features may be the same between two companies, the underlying claim costs and retention could be significantly different resulting in different premium rates.

Expected Selection

- Some plan designs will attract higher risk members, leading to higher average premiums while other plan designs will attract lower risks, leading to lower average premiums.

Negotiated Payments

- Some plans will have negotiated larger provider discounts than other plans.

Utilization Management Techniques

- Different plans will have different utilization management programs or provider network breadth which will impact cost and utilization patterns.

Administrative Costs/Reserve Margin/Profit

- Will vary by company leading to different premiums.

## 11. Learning Objectives:

1. Understand and evaluate the effectiveness of the various types of Single Employer group coverage typically offered under:
  - Group health plan, including Consumer driven plans, etc.
  - Prescription Drug
  - Group dental plan
  - STD or LTD plan (incl. mention of coverage within other plans)
  - Group life plan
  - Other miscellaneous benefits
  - Multi-employer groups (Taft-Hartley, etc)
  
8. Evaluate the process and be able to develop a medical manual rate for government programs, ASO and insured business.

### Learning Outcomes:

- (1a) Describe the various coverages, including typical benefit provisions, eligibility requirements, cost-sharing provisions, limits and funding mechanisms.
- (1h) Evaluates several coverage scenarios as alternatives to a given scenario.
- (8c) Develop experience analysis (claims cost and expenses):
  - (iii) Construct the appropriate models
  - (iv) Develop the appropriate assumptions, including trend, anti-selection, etc.
- (8d) Recommend appropriate actions following the study including:
  - (iii) Areas for further study
  - (iv) Changes in coverage, eligibility requirements or funding strategy
- (8h) Modify manual rates to reflect specific plan values including benefits for which little or no data is available.

### Sources:

Bluhm Chapter 8 – Pages 141-154, Pages 145 – 147, Pages 152 – 157 (likely center solution around chart on page 154)

Bluhm Chapter 32 – Pages 658 – 662 (not explicitly shown as an example, should show that candidate knows what various components of plan are)

Bluhm Chapter 32 – Pages 665 – 669 (should show how to manipulate calcs of plan to determine deductible that reduces costs to the 2010 level – needs to calculate 2010 costs under current benefit plan first)

## 11. Continued

Bluhm Chapter 32, Pages 665-669 (focus on having candidate take relativities of utilization and cost differences in DPPOs and DHMOs compared to Indemnity plans, and apply both relativities to the claim experience given to calculate rates for managed care plans, suggestion should be the plan type and reasoning, like keep indemnity to avoid disruption, DPPO to reduce costs and limit disruption, DHMO to greatly reduce costs but have more disruption).

### **Commentary on Question:**

Commentary listed underneath question component.

### **Solution:**

- (a) Compare the key differences of indemnity, PPO and HMO dental plans.
- Premiums are high for an indemnity plan, medium for a PPO, and low for a DHMO.
  - Patient access is highest in an indemnity plan, fair for a PPO, and limited for a DHMO.
  - Benefits are generally least rich for an indemnity plan, fairly rich for a PPO, and richest for a DHMO.
  - Providers are reimbursed via UCR or a fee schedule for an indemnity plan, via a fee schedule for a PPO, and via capitation for a DHMO.
  - Cost management is least for an indemnity plan, fair for a PPO, and most for a DHMO.
  - Utilization is generally high for an indemnity plan or PPO plan and low for a DHMO.
  - Quality assurance levels are least for an indemnity plan, fair for a PPO, and highest for a DHMO.
  - Fraud potential is high for an indemnity plan, moderate for a PPO, and low for a DHMO.
  - A PPO and a DHMO will both contract with providers, while an indemnity plan will not.
- (b) List the procedures usually included within each Type.

Classes of benefit and procedures covered under each are:

Preventive

Prophalaxes, or cleanings

Flouride treatments

Sealants

Space maintainers



## 11. Continued

### Diagnostic

- Oral exams
- X-rays
- Diagnostic tests
- Laboratory exams

### Basic

- Fillings
- Endodontics, or root canals
- Periodontics, or gum treatment
- Prosthodontic repairs
- Oral surgery, including extractions
- Adjunctive general services, including general anesthesia

### Major

- Restorative services including inlays, onlays, crowns, and posts/implants,
- Prosthodontic – bridges, dentures

- (c) Calculate the 2010 PMPY net claims cost and expected 2012 PMPY net claims cost for each BTI dental plan under the current benefit designs. State your assumptions and show your work

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

The candidates are expected to know how to adjust the deductible for utilization. Many candidates inappropriately applied trend to net amounts and did not demonstrate basic knowledge of fixed cost leveraging. Although the question requested to be expressed PMPY, equivalent responses were considered (PMPM, or total dollars).

First, assume that the annual utilization for Type 1 services outlined in the 2010 Dental Plan Manual Rates table applies to the BTI group as well.

2010 PMPY net claims cost =

For the Employee Group:

$$\begin{aligned} &\underline{\text{Type 1:}} \\ &(\$120 \times 1,700/1,000 - \$0) \times 100\% \\ &= \mathbf{\$204} \end{aligned}$$

Since this is the only benefit covered, \$204 = total net cost.

For the Management Group:

$$\begin{aligned} &\underline{\text{Type 1:}} \\ &(\$100 \times 1,700/1,000 - \$0) \times 100\% \\ &= \$170 \end{aligned}$$

## 11. Continued

Type 2:  
 $(\$600 \times 0.185 - \$25 \times 15\%) \times 80\%$   
 $= \$85.80$

Type 3:  
 $(\$1100 \times 0.14 - \$50 \times 10\%) \times 50\%$   
 $= \$74.50$

Combined total PMPY:  
 $= \$170 + \$85.80 + \$74.50 = \mathbf{\$330.30}$

2012 PMPY net claims cost =

For the Employee Group:

Type 1:  
 $(\$120 \times (1 + 5\%)^2 \times (1,700/1,000) - \$0) \times 100\%$   
 $= \mathbf{\$224.91}$

Since this is the only benefit covered, \$204 is the total net cost.

For the Management Group:

Type 1:  
 $(\$100 \times (1 + 5\%)^2 \times (1,700/1,000) - \$0) \times 100\%$   
 $= \$187.43$

Type 2:  
 $(\$600 \times (1 + 5\%)^2 \times 0.185 - \$25 \times 15\%) \times 80\%$   
 $= \$94.90$

Type 3:  
 $(\$1100 \times (1 + 5\%)^2 \times 0.15 - \$50 \times 10\%) \times 50\%$   
 $= \$82.39$

Combined total PMPY:  
 $= \$187.43 + \$94.90 + \$82.39 = \mathbf{\$364.72}$

- (d) BTI wants to maintain its 2012 PMPY cost at 2010 levels for each employee group by adjusting only Type 2 and Type 3 deductibles while maintaining their current ratio.
- (i) Calculate the revised deductibles that meet BTI's goal based on your results from (c). Show your work.

### **Commentary on Question:**

The candidates are expected to relate the 2010 cost levels (not 2012, or not the change between 2010 and 2012) and the revised deductibles, and to establish the relationship between the two deductibles.

## 11. Continued

Since BTI wants to maintain cost at 2010 levels for each group, the Employee group will have to have a deductible added for Type 1. It is assumed that for the Management group no deductible will be added for Type 1.

For the Employee Group:

No changing deductibles

For the Management Group:

Assume Type 2 deductible = X, Type 3 = 2X

$$\begin{aligned}
 & \$330.30 = \$187.43 + (\$122.38 - X * 0.15) \times 80\% + \\
 & (\$169.78 - 2X * 0.10) \times 50\% \\
 & \$330.30 = \$187.43 + (\$122.38 \times 80\%) - (X \times 0.15 \times 80\%) \\
 & + (\$169.78 \times 50\%) - (2X \times 0.10 \times 50\%) \\
 & \$330.30 - \$187.43 - (\$122.38 \times 80\%) - (\$169.78 \times 50\%) = \\
 & - (X \times 0.15 \times 80\%) - (2X \times 0.10 \times 50\%) \\
 & -\$39.92 = -.22X \\
 & \$181.47 = X \\
 & \$362.94 = 2X
 \end{aligned}$$

- (ii) Comment on whether this alternative meets corporate goals for employees and management

The revised deductibles are being increased significantly from the original \$25 and \$50 deductibles. Although these revisions will meet the corporate objectives, these will cause disruption amongst the employees

- (e) As an alternative to changing deductibles, BTI wants to explore the possibility of moving all employees into a DHMO and maintaining their current plan designs.
- (i) Calculate the cost difference to BTI for the 2012 plan year if all employees and management are moved to a DHMO. Show your work.

PMPY manual rates for each benefit:

For the Employee Group:

Indemnity:

$$\$120 \times 1.7 = \$204$$

DHMO:

$$\$80 \times 1.8 \times (1 + 5\%)^2 = \$158.76 < \$204$$

For the Management Group:

PPO:

$$\$330.30$$

## 11. Continued

DHMO:

$$\begin{aligned} & \$80 \times (1 + 5\%)^2 \times 1.8 + (\$550 \times 0.16 \times (1 + 5\%)^2 - \$25 \\ & \times 0.15) \times 80\% + (\$1,050 \times 0.135 (1 + 5\%)^2 - \$50 \times 0.10) \times 50\% = \\ & \$309.01 < \$330.30 \end{aligned}$$

- (ii) Comment on whether this alternative meets corporate goals for employees and management.

Moving to a DHMO will meet the company's goals, but may cause some employee disruption.

## **12. Learning Objectives:**

3. Evaluates employer strategies for designing and funding benefit plans for:
  - (i) Active employees
  - (ii) Dependents
  - (iii) Pre-65 retirees
  - (iv) Post-65 retirees
  - (v) Disabled (short and long-term)
  
4. Evaluate the various types of coverages typically offered under a government health plan (e.g., Medicare, Medicaid, Canadian health plan, Social Security Disability Income, states' Temporary Disability Income programs, Workers Compensation, etc.).
  
6. Apply U.S. and Canadian taxation rules to employer and individual health plan.

### **Learning Outcomes:**

- (3a) Describe typical strategies used by employers to fund and design benefit plans, including contribution strategies.
  
- (3b) Evaluate potential financial, legal, moral risks associated with each strategy.
  
- (4a) Describe the various coverages, including typical qualifications for benefits, coverage eligibility, cost-sharing provisions, limits, taxation and funding mechanisms.
  
- (6a) Recommend strategy for legally minimizing taxes for both employer and employee.

### **Sources:**

McKay Canadian Handbook of Flexible Benefits, 3rd Edition, Plan Structure and Eligibility, Chapter 4

McKay Canadian Handbook of Flexible Benefits, 3rd Edition, Flexible Expense Accounts - Health Spending, Personal and Perquisite, Chapter 7

McKay Canadian Handbook of Flexible Benefits, 3rd Edition, Taxation of Flexible Benefits, Chapter 12

McKay Canadian Handbook of Flexible Benefits, 3rd Edition, Case Studies, Chapter 23

McKay Canadian Handbook of Flexible Benefits, 3rd Edition, Elements of Flex Plans, Chapter 2

## 12. Continued

### **Commentary on Question:**

The question is testing a candidate's knowledge of flexible benefits in Canada and encouraging the candidate to think like the plan sponsor to make an appropriate recommendation for their business. The candidate is expected to recall the various alternatives available for flex plans and strategically apply them to a real world scenario. It is important for candidates to illustrate their ability to understand the client's needs and ensure the proposed plan design fits within the criteria.

### **Solution:**

- (a) Describe flexible benefit design structures and the advantages and disadvantages of each for an employer.

### **Commentary on Question:**

Candidates performed quite well on this part. It is important for candidates to illustrate a few key details on each option as opposed to just providing the main headings.

- Provide a simplified flex plan by including an HSA, modular benefit plan or health care coverage only
  - Appealing to small organizations given the reduced complexity and administration requirements
  - Can act as an entry point to flexible benefits with further additions coming at a later time
- Provide a full flex plan by offering a range of choices in several benefits areas (i.e. core plus credits or cafeteria plans)
  - Appealing for larger organizations as the level of flexibility is increased but so is the administration requirements
  - Can allow a balance between cost management and providing a rich benefit plan to aid in attraction and retention
- Provide a financial security plan by combining a full flex plan with a flexible pension arrangement or group savings plan
  - Similar implications to a full flex plan
  - Added flexibility for retirement planning for employees
- Provide a total compensation plan by allowing employees to fully elect where their compensation is utilized, salary and benefits are interchangeable
  - Similar implications to financial security plan
  - Additional planning is required to ensure tax effectiveness
  - Most flexible for employees

## 12. Continued

- (b) Describe ways to structure the pricing and allocate credits under a flexible benefit plan.

**Commentary on Question:**

Candidates should be sure to provide some key points for each pricing option and not just list the main headings.

- Pricing structure may be communicated by the explicit use of price tags and credits or the use of net employee cost
  - Allocation can be flat dollar per employee, flat dollar based on family status or percentage of pay
    - Flat dollar most appropriate for health and dental
    - Percentage most appropriate for life and LTD
  - Flat credit structure
    - Allocate equal amounts to all employees
  - Family credit structure
    - Credit equal to cost for family coverage
  - Average credit structure
    - Average cost of current plan per employee
  - Single credit structure
    - Credits equal to cost for single coverage
  - Buy back pricing structure
    - Credits based on average cost of program prior to flex implementation
  - Election based pricing structure
    - Use same price tags and credits as buy back but gives less credits by option to get same net cost per employee
- (c) Outline the tax implications for the employees and employer for the current plan design.

**Commentary on Question:**

Candidates should be careful to provide commentary that reflects the appropriate geography. Also it is important to consider both the impact on the employer and the employees plus differentiate between the premium costs and benefit payments.

- Extended health premium and benefits are not considered taxable income to employees and are not taxable to the employer; however, if premiums are insured through an insurance provider premium tax applies in most provinces.
- Dental care is equivalent to extended health.

## 12. Continued

- Long term disability premiums are not taxable if the employer pays the premium; however, the benefits would be taxed. If the employee pays the full cost of long term disability premium after tax the benefit would be received tax free.
  - Life insurance premiums paid by the employer are considered taxable income for the employee but benefit payments made to an eligible beneficiary are tax free.
- (d) List additional benefits that could be added within the proposed flexible benefit program.

### **Commentary on Question:**

Candidates often included many benefits that are not offered in Canada or are extremely rare within Canada. It is important to ensure your comments tie back to the specific employer situation.

- Vision
  - Accidental death & dismemberment
  - Dependent life
  - Optional life
  - Cash
  - Vacation
  - Critical illness
  - Short term disability
  - Contribution to pension plan
- (e) Draft the main points for a memo your client can send to senior management to support a move to flexible benefits, as well as a recommendation regarding the flexible benefit plan and credit structure. Justify your recommendation.

### **Commentary on Question:**

While a formal memo was not required many candidates answered this question by simply writing the advantages and disadvantages of flex and not taking the next step of applying this knowledge. An ideal solution will summarize the need for change and make recommendation on the type of flex recommendation, plan design and pricing strategy. It is important to think like the decision maker and ensure he/she would understand your position and why you made that recommendation.



## 12. Continued

To: Senior Management of Company XYZ

From: Actuarial Candidate

Subject: Proposal to Move to Flexible Benefits

Company XYZ employs individuals with diverse needs with respect to our benefits program. We currently offer a traditional benefits arrangement that does not allow different generations of employees to select a program that suits their needs. At the same time, our costs continue to rise and the plan may become unsustainable if we do not include some cost control mechanisms within the design.

I propose we implement a full flexible benefits plan to replace our current life insurance, long term disability, extended health and dental plans. We have estimated our current cost for these programs is approximately 7% of annual payroll. To allow employees additional flexibility we will add optional life insurance, critical illness insurance and a health spending account to the program.

Under my proposed arrangement employees will be granted credits equal to 2% of their annual salary plus \$1,000 for single employees and \$2,500 for families. Based on our analysis this will keep our current cost under the new flexible arrangement equal to that under our current traditional plan.

We will provide the following levels of coverage for employees to select from. Please note the middle option for each benefit is equivalent to current coverage levels to ensure employees have the opportunity to replicate their current plan.

- Life Insurance
  - 1 times annual salary
  - 2 times annual salary
  - 3 times annual salary
- Long Term Disability
  - 50% monthly salary
  - 60% monthly salary
  - 60% monthly salary with up to 2% COLA
- Extended Health
  - 70% reimbursement
  - 80% reimbursement
  - 90% reimbursement
- Dental
  - 80%/50%/50% reimbursement
  - 90%/60%/50% reimbursement
  - 100%/65%/50% reimbursement

## 12. Continued

- Optional Life
  - Units of \$10,000 to a maximum of \$500,000
- Critical Illness
  - Units of \$10,000 to a maximum of \$250,000
- Health Spending Account
  - Funded by excess credits or payroll deductions

The above plan will allow us to offer a more flexible arrangement to our employees to help attract and retain key talent. The plan has been designed to be cost neutral but it also provides us the ability to alter the pricing of the various options over time to reduce the inflationary pressure on the employer.

### **13. Learning Objectives:**

5. Apply U.S. and Canadian nation-specific regulation to product design and pricing.

#### **Learning Outcomes:**

- (5a) Determine if given policy provision is compliant with the regulation.
- (5b) Describe key provisions of major legislation.
- (5c) Evaluate the potential financial and moral risk associated with the legislation.
- (5d) Determine the potential impact on the cost of complying with the regulation.

#### **Sources:**

Critical Issues In Health Reform, Actuarial Equivalence

Critical Issues In Health Reform, Individual Mandate

Critical Issues In Health Reform, Minimum Loss Ratios

Health Reform in the 21st Century

GH-D118-11: National Healthcare Reform: Strategic Considerations for Large Employers, Milliman

Milliman Healthcare Reform Briefing Paper, Should Your State Establish a Health Insurance Exchange?

RWJF, Health Insurance Exchanges: Implementation and Data Considerations for States and Existing Models for Comparison

CSP-D122-11: Summary of New Health Reform Law, Kaiser Family Foundation

Milliman Healthcare Reform Briefing Paper, What Kind of Risk Adjustment Systems Are Necessary for Health Insurance Exchanges?

Milliman Healthcare Reform Briefing Paper, Operation of a Health Exchange Within the PPACA

Milliman Healthcare Reform Briefing Paper, Should Your State Establish a Health Insurance Exchange?

RWJF, Health Insurance Exchanges: Implementation and Data Considerations for States and Existing Models for Comparison

Critical Issues In Health Reform, State Level Impacts

## 13. Continued

### Commentary on Question:

Question was intended to address a candidates understanding the risks and opportunities of key provisions related to healthcare reform. We understand there were several risks and opportunities presented in the syllabus, leading to a variety of potential responses. The model solution is intended to be a broad representation of items presented in the syllabus.

As actuaries, we are responsible for analyzing risks and opportunities in changing environments and this question effectively assesses that understanding. Some candidates expressed a clear understanding of the topic, while many were only able to display a basic knowledge of the subject.

Many candidates defined key provisions within healthcare reform, but were not able to effectively analyze the risks and opportunities. Additionally, the question referred to a multi-line insurer's perspective, which some candidates did not consider.

### Solution:

- (a) Summarize the issues in the pre-reform health care landscape that each of these topics intended to address

Minimum Loss Ratio –  $MLR = \text{Incurred Claims} / \text{Earned Premium}$ . The minimum loss ratio requirements address affordability by limiting the amount that insurers can charge for margin / profit. It also increases value to policyholders by ensuring that a high percentage of premiums go towards benefits.

Individual Mandate – This provision is geared to address anti-selection and increase participation in health insurance creating a better cross section of risk. Healthy risks may not have coverage because they feel they don't need it while poor risks may not have insurance because it may be too costly.

Actuarial Equivalence – Provides a means for plans to compare to one another on a relative basis which is lacking in a pre-reform environment. It also creates a level playing field for insurers as a result.

Health Insurance Exchanges – There are several pre-reform issues that health benefit exchanges serve to address:

- Provide access to health insurance for the small group and individual markets.
- Facilitate the purchase of health insurance between buyers and sellers.
- Levels the playing field to facility fair competition.
- Improves transparency by connecting consumers to information needed to compare and evaluate plans.
- Facilitate enrollment and access to federal subsidies.

## 13. Continued

### Employer-sponsored Retiree Benefits –

- Early retiree costs are significantly higher than active employees and are expensive to offer.
- As such, employers were limiting or discontinuing coverage to these retirees.
- In an attempt to keep employer-sponsored retiree benefits viable and affordable, health reform created the early retiree reinsurance pool, which reimburses employers 80% of expenses between \$15,000 and \$90,000 for early retirees.

- (b) Analyze the risks and opportunities presented by the individual mandate and health insurance exchanges from the perspective of a multi-line health insurance company.

### *Risks*

- Anti-selection could still occur due to variations within plan design and rating limitations, even with the individual mandate.
- The penalty may not be strong enough to encourage enrollment which would result in anti-selection.
- Impact of individual mandate will vary by state depending on the State's current underwriting practices.
  - Those with guaranteed issue likely have uninsured that are lower risks, potentially decreasing costs.
  - Those allowing underwriting likely have uninsured that are higher risks, potentially increasing costs.
- Impact of individual mandate will vary by state depending on the State's current underwriting practices.
- Individual mandate should be implemented in conjunction with guaranteed issue or stricter rating requirements.

### *Opportunities*

- Addition of low risk individuals to the risk pool will reduce anti-selection.
- May expand the viability of the individual market.

## **Health Insurance Exchange**

### *Risks*

- Selection issues will exist, but can be mitigated through risk adjustment mechanisms.
- Risk adjustment may not be accurate because key characteristics of the uninsured population are unknown, inconsistent data and current models may not be appropriate.

## 13. Continued

- Each state could have its own process for administering the exchange, which can result in multiple exchanges, use of federal default or the formation of regional exchanges.
- Identifying subsidy level on exchange may be challenging.
- Educating members from a wide range of backgrounds and cultures will be difficult.
- Performance and regulatory requirements must be met in order to participate in exchange.
- Exchange will require standardized plans, including one gold and one silver option, which may lead to selection concerns.
- How exchanges would be funded once federal funding is eliminated.

### *Opportunities*

- Brokers will not be used, reducing the cost of commissions and marketing.
- An opportunity for insurers to attract uninsured customers to healthcare and additional products.
- Educate consumers on choices.
- Improve transparency due to standardized coverage options.

## 14. Learning Objectives:

5. Apply U.S. and Canadian nation-specific regulation to product design and pricing.
9. Applies principles of pricing, benefit design and funding to an underwriting situation.

### Learning Outcomes:

- (5d) Determine the potential impact on the cost of complying with the regulation.
- (9a) Understand the risks and opportunities associated with a given coverage, eligibility requirement or funding mechanism.
- (9d) Describe basic approaches to credibility theory.

### Sources:

Group Insurance, Chapter 35 – Experience Rating and Funding Methods

CSP-D122-11: Summary of New Health Reform Law, Kaiser Family Foundation

### Commentary on Question:

Commentary listed underneath question component.

### Solution:

- (a) Outline the characteristics, advantages and disadvantages of the funding arrangements available to YYZ.

#### Fully-Insured Plans

All cash paid out by the policyholder is paid to the insurer, and treated as premium.

Advantages:

- Insurer bears the risk of adverse experience

Disadvantages

- Premiums are subject to a premium tax
- Plans are subjected to state coverage mandates

#### Self-Insured Plans

Employer takes on the role of primary risk-taker. Most self insured plans will contract with an insurance company or independent administrator to administer the plan.

Advantages:

- No premium tax
- State coverage mandates do not apply
- Investment income on fund assets is directly earned and the plan has increased latitude on the choice of fund investment vehicles

## 14. Continued

### Disadvantages

- The plan becomes the sole bearer of the insurance risk in the absence of stop-loss insurance or a capitation arrangement with providers

Retrospective Premium, Reserveless, and Minimum Premium are somewhere in between and have some upside potential for employer with also some potential downside.

Stoploss is often used in conjunction with other methods to reduce catastrophic risk.

- (b) Explain the pros and cons of experience rating.

### Pros:

- Groups with good experience often prefer to pay a premium based on their own experience since it would be lower than one based on Pooled experience.
- Allows the insurer to charge competitive rates and still remain profitable by minimizing anti-selection.

### Cons:

- Groups with poor experience would prefer to have their premium based on the experience of a pool.
- Future Claims may not be independent of those in prior periods.

- (c) Explain what each component of the renewal rate represents and why it is included in the calculation.

### Large Claims above Pooling Threshold

- Removing the portion of paid or incurred claims due to individual claims beyond a certain limit
- In exchange average charge is made to all groups, regardless of whether a particular group had a catastrophic claim

### Experience Period Incurred Non-Pooled Claims

- Starting point for prospective experience rating is the past claim experience for the group on an incurred basis
- = Paid Claims +  $\Delta$  Reserves - Large Claims above Pooling Threshold

### Credibility (C)

- Need to establish size categories and the degree to which we assign credibility to the group's own experience
- Blended =  $(1 - C) \times$  Expected Incurred Claims after Pooling +  $C \times$  Experience Period Incurred Non-Pooled Claims



## 14. Continued

Translation of Historical Experience to Effective Period to determine the Projected Incurred Claims PMPM

- Involves trending of experience, to account for changes in claim cost due to time
- Some are group specific and some are environmental

Effective Period Retention PMPM

- Gross premiums must account for retention
- Admin -- insurer's expenses
- Profit charge: amount that insurer chooses to include in its pricing formula (to the extent all other retention items reflect true cost); often excludes profit from investment income
- Premium tax: these are levied by the states
- Pooling charge: sometimes included in development of expected claims, if not, this reflects average costs above the pooling level

Effective Period Projected Renewal Premium PMPM

- = Projected Incurred Claims PMPM + Projected Retention PMPM

(d) Calculate the proposed renewal rate. Show your work.

### **Commentary on Question:**

Given there was some ambiguity in the way the data was presented, credit was also given for alternative calculations such as:

- Converting the 1,000,000 pool claims to a PMPM by dividing by 432 x 12 member months before blending with the experience rate on a PMPM basis
- Trending the pooling charge

### **Large Claims above Pooling Threshold**

$$\begin{aligned} &= (175,000 - 100,000) + (113,000 - 100,000) + (190,000 - 100,000) + \\ &\quad (225,000 - 100,000) + (129,000 - 100,000) \\ &= 332,000 \end{aligned}$$

### **Experience Period Incurred Non-Pooled Claims**

$$\begin{aligned} &= \text{Paid Claims} + \Delta \text{ Reserves} - \text{Large Claims above Pooling Threshold} \\ &= 1,330,500 + (269,500 - 250,000) - 332,000 \\ &= 1,018,000 \end{aligned}$$

## 14. Continued

### **Credibility (C)**

$$\begin{aligned} &= \text{Min} (\text{Member Months}/6000, 1) \\ &= \text{Min} (450 \times 12 / 6000, 1) \\ &= \text{Min} (5400/6000, 1) \\ &= 0.90 \end{aligned}$$

### **Credibility Weighted Claims**

$$\begin{aligned} &= (1 - C) \times \text{Expected Incurred Claims after Pooling} + \\ &\quad C \times \text{Experience Period Incurred Non-Pooled Claims} \\ &= 0.1 \times 1,000,000 + 0.9 \times 1,018,000 \\ &= 1,016,200 \end{aligned}$$

### **Credibility Weighted Experience Period Incurred Claims PMPM**

$$\begin{aligned} &= 1,016,200 / (450 \times 12) \\ &= 1,016,200 / 5400 \\ &= 188.19 \end{aligned}$$

**Midpoint of Experience Period** = 7/1/10

**Midpoint of Effective Period** = 7/1/12

**Months of Trend** = 24

### **Projected Incurred Claims PMPM**

$$\begin{aligned} &= 188.19 \times (1.078)^{(2)} \\ &= 218.69 \end{aligned}$$

### **Effective Period Retention PMPM**

$$\begin{aligned} &= \text{Admin PMPM} + \text{Profit Charge PMPM} + \text{Premium Tax PMPM} + \\ &\quad \text{Pooling Charge PMPM} \\ &= (28.25 + 31.50 + 218.69) / (1 - 0.02 - 0.02) - 218.69 \\ &= 290.04 - 218.69 \\ &= 71.35 \end{aligned}$$

### **Effective Period Projected Renewal Premium PMPM**

$$\begin{aligned} &= \text{Projected Incurred Claims PMPM} + \text{Projected Retention PMPM} \\ &= 218.69 + 71.35 \\ &= 290.04 \end{aligned}$$

- (e) YYZ is considering a retrospective premium refunding arrangement. Calculate what the retrospective refund as of 12/31/2010 would have been, using the experience period information and the following additional information:

## 14. Continued

### **Retrospective Experience Rating Refund**

$$\begin{aligned} &= \text{Prior Period Balance} + \text{Premium} + \text{Investment Income} - \text{Claims Charged} - \\ &\text{Expenses Charged} - \text{Risk Charged} - \text{Addition to Rate Stabilization Reserve} - \\ &\text{Profit Charge} \\ &= 127,500 + 1,500,000 - 27,167 - (1,018,000 + 29 \times 450 \times 12) - 25.75 \times 450 \times 12 \\ &- 1,500,000 \times 0.01 - 0 - 1,500,000 \times 0.02 \\ &= 127,500 + 1,500,000 - 27,167 - 1,174,600 - 139,050 - 15,000 - 30,000 \\ &= 241,683 \end{aligned}$$

- (f) Assume that in 2011, YYZ was representative of the insurer's large group block in terms of size, expected claims cost and earned monthly premium. Under PPACA, estimate the expected amount of rebate owed to the block, assuming a block size of 1,500,000 member months. Show your work.

### **Commentary on Question:**

Many candidates missed the fact that the question needed a projected 2011 loss ratio which required using information from part (b) and trending one year less to get the numerator and denominator for the loss ratio test.

### **PPACA Minimum Loss Ratio**

$$\begin{aligned} &= \text{PPACA MLR} \\ &= 85\% \end{aligned}$$

### **Large Group Loss Ratio Under PPACA**

= Projected Incurred Claims PMPM / Projected Premium PMPM  
PPACA loss ratio has adjustments for quality and taxes but that information isn't available

### **2011 Projected Incurred Claims PMPM**

$$\begin{aligned} &= 188.19 \times (1.078) \\ &= \$202.86 \end{aligned}$$

### **2011 Projected Premium PMPM**

$$\begin{aligned} &= (202.86 + 28.25 + 31.50) \div (1 - 0.02 - 0.02) \\ &= 262.61 \div 0.96 \\ &= \$273.55 \end{aligned}$$

### **Large Group Loss Ratio Under PPACA**

$$\begin{aligned} &= 202.86 / 273.55 \\ &= 74.16\% \end{aligned}$$

## 14. Continued

### **Projected Rebate PMPM**

= Projected Premium PMPM x (PPACA MLR – Expected LR)

= 273.55 x (85% - 74.16%)

= 273.55 x 10.84%

= 29.66

### **Aggregate BIC Large Group 2011 Projected Rebate**

= Projected Rebate PMPM x Projected Large Group Block Member Months

= 29.66 x 1,500,000

= 44,490,000

## 15. Learning Objectives:

1. Understand and evaluate the effectiveness of the various types of Single Employer group coverage typically offered under:
  - Group health plan, including Consumer driven plans, etc.
  - Prescription Drug
  - Group dental plan
  - STD or LTD plan (incl. mention of coverage within other plans)
  - Group life plan
  - Other miscellaneous benefits
  - Multi-employer groups (Taft-Hartley, etc)
  
8. Evaluate the process and be able to develop a medical manual rate for government programs, ASO and insured business.

### Learning Outcomes:

- (1a) Describe the various coverages, including typical benefit provisions, eligibility requirements, cost-sharing provisions, limits and funding mechanisms.
- (1c) Identify which participants would find each coverage a valued benefit and why.
- (8c) Develop experience analysis (claims cost and expenses):
  - (i) Construct the appropriate models
  - (ii) Develop the appropriate assumptions, including trend, anti-selection, etc.
- (8d) Recommend appropriate actions following the study including:
  - (i) Areas for further study
  - (ii) Changes in coverage, eligibility requirements or funding strategy
- (8g) Integrate utilization management data into pricing.

### Sources:

Duncan, Managing and Evaluating Healthcare Intervention Programs, Comparative Analysis of Chronic and Non-Chronic Insured Commercial Member Cost Trends, Chapter 11

Duncan, Managing and Evaluating Healthcare Intervention Programs, Introduction to Wellness and Integrated Programs, Chapter 13

### Commentary on Question:

Commentary listed underneath question component.

### Solution:

- (a) Compare and contrast the three main types of wellness programs.

## 15. Continued

### Commentary on Question:

Partial credit was given for good descriptions of the programs even though the names were not correct.

Program	Focus	Savings	Programs consist of:
Quality of life the lightest touch version	Fun and workplace cohesion	Not important	Health fairs, lunch and learn, celebrity events, some biometric
Traditional most common	Clinical health risk, tobacco use, nutrition, exercise, weight management, stress management	Modes Return: reducing absenteeism, presenteeism, sick leave, workers comp costs, health plan savings	HRA, biometric testing, fitness clubs, web-based information, healthy cafeterias, self-care literature, newsletters
Health and Productivity the most intense program	High risk	Significant savings, sick leave, disability, workers comp, health care costs	Regular HRAs, risk stratification and interventions, telephonic coaching, medical self-care, consumer workshops, injury prevention, benefit-linked incentives, wellness achievement measures

- (b) Identify concerns with implementing a wellness program for this situation.

### Commentary on Question:

Points were given for all responses, but there was a maximum point allowance for this question. Often we found that answers were why to add a wellness program at all without noting any special characteristics of the population.

- The members are under stress so they may have trouble seeing the value.
- They work for a call center so there will be a lot of sitting – not an active work force.
- This is a call center so there is lots of turnover.
- There is chronic disease already in the population so it will be important to focus on prevention.
- There is obesity in the population.

## 15. Continued

- There is a disease management program in place so there will need to be some sort of integration between the two programs.
- Call centers need to have prompt response, so absenteeism is a problem – programs could not take people away from work.
- Costs for the program will need to be reasonable with the population characteristics.
- Hard to/can't offer focused incentives.

(c) Recommend a type of wellness program. Justify your recommendation.

### **Commentary on Question:**

Many students wrote excellent well thought-out responses. We gave credit to questions that noted the particular attributes of this population. There were many students that had disease management programs confused with wellness programs. They are not the same.

A good sample answer:

- The traditional program would be a good choice because it focuses on nutrition, exercise weight loss and stress management.
- Targets absenteeism and presenteeism and that is important to a call center.
- HRAs and biometric testing could find people who are developing chronic disease.

(d) Evaluate the DM vendor's method for calculating cost savings.

### **Commentary on Question:**

Most people who did well on the calculation portion did well on this part. Very few students noticed that the numbers were not correct in the report, even when they noticed that the method was incorrect.

A good sample answer:

- The method does not account for the change in disease burden/risk score.
- The method uses the costs for the whole population rather than just those members in the DM program.
- The method does not project expected costs for the comparison to actual costs.
- The report has incorrect numbers for total baseline member, costs and pmpm savings.

(e) Calculate a better estimate of the disease management program savings. Show your work.

## 15. Continued

### Commentary on Question:

There were several methods to follow to make a better calculation than that provided by the dm vendor. In order to receive credit any method had to address the issues discussed in part (d), including adjusting for the change in risk score, applying an appropriate trend estimate, restricting the calculation to the DM population, correctly calculating the difference between expected and actual costs and finally multiplying by the correct number of members. Note that the question does not ask for an ROI, but rather a savings estimation.

	Baseline	Intervention	Trend
Non-DM Cost	\$ 500.00	\$ 550.00	10.00%
Non-DM Risk Score	1.10	1.11	0.91%
Non-DM Cost, Adjusted for Risk			
Trend		\$ 545.05	
Risk-adjusted Non-DM	\$ 500.00	\$ 545.05	9.01%
DM Cost	\$12,000.00	\$12,400.00	3.33%
DM Risk Score	3.00	2.75	-8.33%
Estimated Savings (wrong way)		<b>\$ 1,081.08</b>	
Baseline DM Cost	\$12,000.00		
Risk-Adjusted Trend (non-DM)	1.0901		
Trended Baseline Chronic Cost	\$13,081.08		based on risk score of 3.00
Actual Cost	\$12,400.00		
Risk-Adjusted Actual Cost	\$13,527.27		based on risk score of 3.00
Estimated Savings Per Member	\$ (446.19)		
Total Savings	(80,760.69)		
Third Method -- make #'s appropriate for risk score of:		2.75	
Projected costs w/ no intervention:		\$11,990.99	
Actual Cost:		\$12,400.00	
Savings from intervention:		<b>(409.01)</b>	
Total Savings From Intervention		(74,030.63)	