GH DP Model Solutions
Spring 2024

1. Learning Objectives:

1. The candidate will understand how to describe and evaluate plan provisions and government programs, including:
   - Group and Individual medical, dental and pharmacy plans.
   - Group and Individual long-term disability plans.
   - Group and Individual short-term disability plans.
   - Group and Individual long-term care insurance.
   - Group life insurance plans.
   - Supplementary plans, like Medicare Supplement.

Learning Outcomes:

(1d) Describe Medicare benefits and evaluate pricing and filing requirements.

(1g) Describe the Affordable Care Act and evaluate impacts on pricing and filing.

Sources:

GHDP-143-24: Medicare Part D Prescription Drug Benefits

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Calculate the member cost share and the amount applied to the out of pocket accumulator for Member A given the claims occur in:

(i) 2023

(ii) 2025

Show your work.

Commentary on Question:

The question requires the candidate to calculate the member cost share and the amount applied to the out of pocket accumulator. Most candidates calculated the member cost share correctly. There is an out of pocket maximum of $2,000 that will go into effect in 2025. Many candidates did not take this benefit provision into consideration and received partial credit only.

1. Continued

The model solution for this part is in the Excel spreadsheet.

(b) Calculate the following for 2025 based on the projected claims for Member B:

(i) Member cost share

(ii) Plan liability

(iii) Manufacturer liability

(iv) Government reinsurance

Show your work.

Commentary on Question:
Candidate performance was mixed. Many candidates received partial credit due to calculation errors. The calculation requires the candidates to determine when the member hits the different phases (deductible, ICL, and catastrophic) to apply the correct cost share percentages.

The model solution for this part is in the Excel spreadsheet.

(c) Evaluate the impact to:

(i) Member cost share

(ii) Manufacturer liability

(iii) Government reinsurance

Justify your response.

Commentary on Question:
Most candidates received full credit for this part of the question. Candidates who did not provide a justification to their answer received partial credit.

Member cost share will not change – in both scenarios, the member will pay up to the $2,000 out of pocket maximum.

The manufacturer liability will decrease – the manufacturer's liability for the generic drug is lower than the brand drug before and after the catastrophic phase.

1. Continued

The government reinsurance will decrease – the member will hit the catastrophic phase later in the year. Although the government reinsurance is 40% of the cost of the generic drug (vs. 20% for brand drug) in the catastrophic phase, the lower cost of the generic drug will translate to a lower liability for the government reinsurance.

2. Learning Objectives:

1. The candidate will understand how to describe and evaluate plan provisions and government programs, including:
   - Group and Individual medical, dental and pharmacy plans.
   - Group and Individual long-term disability plans.
   - Group and Individual short-term disability plans.
   - Group and Individual long-term care insurance.
   - Group life insurance plans.
   - Supplementary plans, like Medicare Supplement.

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

Learning Outcomes:

(1a) Describe typical organizations offering these coverages.

(1b) Describe each of the coverages listed above.

(2a) Identify and evaluate sources of data needed for pricing, including the quality, appropriateness and limitations of each data source.

(2c) Calculate and recommend assumptions.

(2d) Calculate and recommend a manual rate.

(2e) Identify critical metrics to evaluate actual vs. expected results.

(2f) Describe the product development process including risks and opportunities to be considered during the process.

(2g) Apply actuarial standard of practice in evaluating and projecting claim data.

Sources:

Critical Illness Turns 40! Borcan and Howard; ASOP 25

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a)

(i) Calculate the lifetime present value of claim costs. Show your work.

(ii) Create a sensitivity test for the lapse rate.

(iii) Explain the relationship between the lapse rate and the cost of providing coverage.

2. Continued

(iv) Describe considerations when setting lapse rate assumptions for policies sold at the employees' worksite.

Commentary on Question:
For part i, credit was awarded if candidates discounted from the middle of the year or if lapse was assumed at the end of the year rather than the beginning of the year as the solution assumes. The same commentary holds for part ii. Candidates performed well on part iii. For part iv, some candidates discussed setting lapse rate assumptions in general versus critical illness lapse assumptions for policies sold at a worksite.

The model solution for this part is in the Excel spreadsheet.

(b) Calculate the rate increase based on historical experience. State your assumptions. Show your work.

Commentary on Question:
Some candidates stated an assumed target loss ratio and received credit for calculating the rate increase in this manner.

The model solution for this part is in the Excel spreadsheet.

(c) Identify criteria to consider when selecting or developing a credibility procedure.

Commentary on Question:
Many candidates discussed credibility principles in general rather than discussing a credibility procedure.

a. whether the procedure is expected to produce reasonable results;
b. whether the procedure is appropriate for the intended use and purpose; and
c. whether the procedure is practical to implement when taking into consideration both the cost and benefit of employing a procedure.

3. Learning Objectives:

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

Learning Outcomes:

(3c) Recommend strategies for properly pricing, underwriting and funding case specific risks.

Sources:

Group Insurance – Skwire – 8th Edition Chapter 30

Individual Health Insurance-2nd Edition – Chapter 4

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Describe:

(i) Reasons a benefits package costs more when individuals are given choices.

(ii) Four factors that influence employee choice.

Commentary on Question:

Candidates generally did well on Part A, to receive full points a candidate needed to 'describe' the reasons and factors rather than just 'listing' them. For part ii, additional responses beyond those in this solution were accepted.

(i) Individuals know more about their health than an insurance company, thus they will use this advantage to select a benefits package that is most advantageous for themselves at the cost of the insurer.
Additionally, communications with employees are more complex and administratively expensive and there is an impact to economies of scale within a product impacting negotiating leverage.

(ii)

a. Inertia – employees tend to stay with their existing plan selection unless new information becomes available or something significant changes to compel them to consider other options.
b. Plan provisions and costs – the services covered, employee cost sharing and premiums, and other provisions of the benefit package will influence and employee's choice as they determine the best value for themselves.

3. Continued

c. Provider network attributes – such as provider availability, access restrictions, pharmacy formularies, and other access related items will influence an employee's choice as they consider where they would like to receive care.
d. Insurer – Insurer reputation and administration issues may influence an employee's choice when choosing a benefit package.

(b) Calculate the effective premium change for the HSA in 20X2 using the following scenarios:

(i) 2-Choices insures both the PPO and the HSA

(ii) 2-Choices insures the HSA while the PPO is insured by a competitor

Show your work.

Commentary on Question:
Candidates generally did poorly on Part B. Candidates were required to evaluate the employer's contribution % in both years to determine enrollment mix and corresponding health statuses between products and calculate the impact of selection. Many candidates only did this for either 20X1 or 20X2 but not both as needed to calculate a trend, and many candidates failed to correctly identify that the selection load needed for Part Bi was the combined impact to both products. Candidates who correctly identified in Part Bii that Insurer 2-Choices did not have to consider the impacts of the PPO product in the pricing change of the HSA product received points regardless of their response to Part Bi.
Note due to the ambiguity in rounding candidates were given full points if they correctly calculated the trend without a change in enrollment mix between years.

The model solution for this part is in the Excel spreadsheet.

(c) Calculate the amount of buy-down effect per employee that occurs in 20X2. Show your work.

Commentary on Question:
Candidates generally did poorly on Part C. Candidates needed to demonstrate an understanding of the impact of member choice in generating the buy-down effect. Maximum points were also given to candidates who calculated the amount of the buy-down effect from an approach of first principles.

The model solution for this part is in the Excel spreadsheet.

4. Learning Objectives:

1. The candidate will understand how to describe and evaluate plan provisions and government programs, including:
   - Group and Individual medical, dental and pharmacy plans.
   - Group and Individual long-term disability plans.
   - Group and Individual short-term disability plans.
   - Group and Individual long-term care insurance.
   - Group life insurance plans.
   - Supplementary plans, like Medicare Supplement.

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

Learning Outcomes:

(1b) Describe each of the coverages listed above.

(2c) Calculate and recommend assumptions.

(2e) Identify critical metrics to evaluate actual vs. expected results.

(2g) Apply actuarial standard of practice in evaluating and projecting claim data.

Sources:

Insuring Long-Term Care, Eaton, Robert, et. al., 2022 Chapter 6: Long Term Care Experience Monitoring;
Chapter 7: Long Term Care Premium Rate Increases;
Group Insurance chapter 21 and 23;
Insuring LTC, Chapter 2;
ASOP 18: Long-Term Care Insurance (Excluding Appendices)

Commentary on Question:

The question evaluated the candidate's understanding of Experience Monitoring, performing A/E studies, and appropriateness of requesting rate increases for Long-term care insurance.

Solution:

(a) Compare and contrast historical experience analysis for long-term care (LTC) and short-term medical products.

Commentary on Question:

Many candidates did well on this part. Reasonable responses - regardless of inclusion below – were given credit. Candidates did not need to address all of similarities and differences to earn full credit, but needed to provide at least one comparison and one contrast/difference.

4. Continued

Similarities:

• Experience analysis for both products includes the review of historical experience and compares it to internal benchmarks, industry studies, or other reference points to evaluate any necessary changes to the product structure and pricing.

• For both products, these analysis consider utilization and cost metrics, and should be normalized to account for differences in demographics, benefit mix, etc.

Key Differences:

LTC	Short-term medical
• Long duration (include interest rates concerns) • less data generally available • industry studies commonly used • Limited credibility • Lifetime premium and claims (loss ratio) analysis	• Short duration • More data generally available • Company specific data may be credible • Generally higher credibility • Annual loss ratio analysis

(b) Describe common LTC plan design characteristics that policyholders can choose at time of policy purchase.

Commentary on Question:
Many candidates did well on this part. Reasonable descriptions other than those listed below were given credit. No credit was given to candidates who listed the characteristics without appropriate descriptions.

- **Daily maximum benefit amount**: the value of benefits available for each day when services are received (e.g. up to $100/day)
- **Benefit period**: the amount of time for which benefits are received (e.g. up to 5 years)
- **Elimination period**: Period before benefits start being provided (e.g. a Policy with a 6-month elimination period will start paying for care 6 months after the policyholder satisfies the benefit trigger)
- **Inflation option**: growth in daily benefit amounts over time (e.g. annual increase equal to the change in CPI)

4. Continued

(c) Calculate the total utilization rates by care setting. Show your work.

Commentary on Question:
Candidates performed poorly on this part. The study material provided an example of how to calculate total utilization rates as the ratio between the actual (or expected) dollar value of benefits (product of days and dollars/day) and the maximum dollar benefit available (product of max days of coverage and max dollars reimbursed per day). Calculating actual rates are acceptable if a candidate demonstrated a clear understanding of what the actual utilization rates are and how they are used for A/E analysis. Alternative utilization bases that apply to other insurance products (e.g. days per 1,000 members) generally were not given credit.

The model solution for this part is in the Excel spreadsheet.

(d)

(i) Develop an actual to expected analysis for the utilization rates for 20X1 and 20X2 combined. Show your work.

(ii) Interpret the results of the actual to expected analysis.

Commentary on Question:
Candidates did not perform well on this part. To receive full credit, candidates needed to first compare the actual and expected utilization rates (consistent with the calculations in part C) to get an A/E result. Simply dividing actual paid claims by the maximum paid claims – which is the actual utilization rate – was not sufficient.
Candidates also need to provide an interpretation of the A/E results that demonstrated an understanding of the results of this exercise. This requires an explanation of how the results impact the business in addition to what the ratios by care setting mean.

The model solution for this part is in the Excel spreadsheet.

(e)

(i) Develop an actual to expected analysis for the claims termination rates. Show your work.

(ii) Interpret the results of the actual to expected analysis.

4. Continued

Commentary on Question:
Candidates did not perform well on this part. To receive full credit, the candidate needed to calculate the termination rate (not continuance rate) for each duration/period (not just cumulative termination rates). Candidates should then have explained how the A/E results impact the business in addition to what the ratios by duration mean. Many candidates also confused the concept of claims termination/continuance with policy lapsation.

The model solution for this part is in the Excel spreadsheet.

(f) Critique leadership's comments based on the actual to expected analyses.

Commentary on Question:
Candidate performance on this part was mixed. Strong responses discussed the actuary's responsibility regarding rate setting to ensure rate adequacy and compliance with regulatory requirements. Regulators' and members' perspectives need to be considered. Basing the opinion of whether to file a rate increase solely on termination rates did not receive credit.

The rate increase should be based on rate adequacy and regulatory approval considerations instead of shareholder preference.

While the actual to expected analyses indicate that actual utilization was generally unfavorable to expected and that later terminations emerge unfavorably compared to the industry norm, the analyses alone are unlikely to support the need for rate increase due to insufficient data. In addition, the actuary needs to consider all historical results as compared to the initial lifetime loss ratio expectations for the product.

Based on ASOP 18, an actuary should review any material variations in experience and consider reflecting changes in expectations that would make changes in premium rates for in-force business advisable, subject to regulatory review.

5. Learning Objectives:

1. The candidate will understand how to describe and evaluate plan provisions and government programs, including:
   - Group and Individual medical, dental and pharmacy plans.
   - Group and Individual long-term disability plans.
   - Group and Individual short-term disability plans.
   - Group and Individual long-term care insurance.
   - Group life insurance plans.
   - Supplementary plans, like Medicare Supplement.

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

Learning Outcomes:

(1b) Describe each of the coverages listed above.

(3a) Understand the risks and opportunities associated with a given coverage, eligibility requirement or funding mechanism.

(3c) Recommend strategies for properly pricing, underwriting and funding case specific risks.

(3d) Describe and apply approaches to claim credibility and pooling.

Sources:

Group Ins-Skwire-8th Ed-Ch 12 Group Disability

GHDP-137-20 Short Term Disability Example

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Contrast Short-Term Disability (STD) and Long-Term Disability (LTD) insurance by completing the following table.

	STD	**LTD**
Elimination periods		
Incidence rates		
Claim causes		
Claim payment timing		
Claim volatility		
Benefit periods		
Maximum benefit amounts		
Exclusions		

5. Continued

Commentary on Question:
No commentary provided.

	STD	LTD
Elimination periods	Very short, 7-14 days. Sometimes 0	> STD. 90 - 180 days
Incidence rates	> LTD; 10 times higher	< STD
Claim causes	Mostly maternity/accidents	Mostly illnesses
Claim payment timing	Paid weekly	Paid monthly
Claim volatility	< LTD. Smaller groups can become credible more quickly than LTD	> STD; less likely to self-insure
Benefit periods	< LTD; 13-26 weeks	> STD
Maximum benefit amounts	< LTD; employees may have funds or sick leave from employer	Higher than STD
Exclusions	Very few; less time to investigate; include acts of war or self-inflicted injuries	Pre-existing condition exclusions much more common than STD

(b) Describe optional benefits commonly available on STD plans.

Commentary on Question:
No commentary provided.

• **24-Hour Coverage**: Basic STD benefits are payable for on-job, as well as off-job, injury and sickness. In this case, STD benefits are typically offset for worker's compensation payments received by the claimant.
• **First-Day Hospital Coverage**: The elimination period is waived, and benefits begin immediately, if the insured is confined in the hospital due to the disabling condition.
• **Survivor Benefit** – As with LTD plans, a lump sum benefit is payable to the insured's survivors upon the death of the insured.

Other, less common benefits, include portability (the right to continue coverage after leaving the group), and work incentive benefits.

5. Continued

(c)

(i) Calculate 20X1 profit. Show your work.

(ii) Create an actual to expected study for each assumption by completing the table provided in the Excel file. Show your work.

(iii) Interpret the results for each assumption.

Commentary on Question:
Interpreting involved more than just describing which assumptions were better or worse than pricing. Some candidates mentioned that the unfavorable loss ratio variance is driven by higher claims and admin costs. The loss ratio is simply claims over premium. The risk and profit miss was driven by both higher claims and admin costs. It is possible to have negative risk and profit.

The model solution for this part is in the Excel spreadsheet.

(d) You are pricing a renewal for a high-profile Northeast construction company. The same employees participate in the plan as the prior year.

In the Excel spreadsheet, you are given rating factors, experience, and guidance from Lead Actuary on setting 20X2 rates.

Calculate the renewal percentage increase. Show your work.

Commentary on Question:
This was the most difficult part of the question. Candidates usually missed the change in base rate and retention. Candidates also struggled with calculating the experience-based rating factors. The base rate change captures the overall miss from 70% Loss Ratio to 77.5% experience Loss Ratio. To update each rating factor requires comparing the experience for that rating factor relative to the overall experience of 77.5%.

The model solution for this part is in the Excel spreadsheet.

(e) Justify the rate increase with three supporting statements to the sales representative.

Commentary on Question:
Justification involved explaining the actuarial drivers that led to the increase. Using external factors such as market competitiveness was not an acceptable approach to justifying the increase.

5. Continued

- Our company overall missed its loss ratio target of 70% (77.5% actual). We cannot sustain current levels of claims without increases to premium.
- This group is a construction company which has the highest rating factors and worst loss ratio out of any industry last year. The change in the industry factor is the main reason for this increase.
- The raw rate increase was already reduced using a blend of experience and the prior factors using a 50%/50% weight. Applying only partial credibility to the experience reduced the required increase.
- We are also not increasing the area factor, even though the Northeast had extremely poor loss ratios last year.

6. Learning Objectives:

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

Learning Outcomes:

(3a) Understand the risks and opportunities associated with a given coverage, eligibility requirement or funding mechanism.

(3c) Recommend strategies for properly pricing, underwriting and funding case specific risks.

(3d) Describe and apply approaches to claim credibility and pooling.

(3e) Apply Total Risk Analysis (TRA) strategies to block and case specific pricing

Sources:

GHDP-136-20: Illustrative Examples on Experience Rating and Funding Methods

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Compare and contrast prospective experience rating and retrospective experience rating.

Commentary on Question:

Candidates generally did well on this part. Many candidates did not explicitly point out that groups are not financially liable for loss under prospective experience rating. Financial arrangement/retention agreement is the main difference between the two methods.

	Same	Difference
Prospective Exp Rating	Insurer uses past claims along with demographics and trend factors to estimate future claims and arrive at a premium Renewal rating process	Use manual rate/pooled experience for smaller group Groups are not financial liable for loss
Retrospective Exp Rating	Insurer uses past claims along with demographics and trend factors to estimate future claims and arrive at a premium Renewal rating process	Group has a financial arrangement (retention agreement) attached to its group contract

6. Continued

(b) List and describe the three retrospective experience rating methods.

Commentary on Question:
Candidates did well on this question. There are some candidates that were confused on whether insurer or insured (Group) are liable for profit/loss under unilateral and bilateral arrangement.

Deficit Recovery Method
At the end of the policy year, if costs exceed premiums, the deficit is recovered through a premium increase over a given number of years. The insurer risks being left with deficit if the policy is terminated.

Unilateral Arrangement
The insurer assumes all the shortfall in premiums if at the end of the policy year costs exceed premiums. In other words, the client receives the surpluses, but deficits are retained by the insurer.

Bilateral Arrangement
The client assumes the risk of the premium shortfall if at the end of the policy year costs exceed premiums. In that case, the client will have to reimburse the insurer the full amount at the end of the policy year. Client also receives the surplus if premiums exceed costs at the end of the policy year.

(c) Calculate the accumulated surplus or deficit as at June 30, 20X3 from the perspective of the:

(i) Client

(ii) Insurer

Show your work.

Commentary on Question:
Candidates generally did well on this question. Some common errors were:

- *Not subtracting retention requirements to calculate profit margin: administrative expenses, claim adjudication expenses, premium taxes, and risk and profit.*
- *Not incorporating pooled claims and premium paid for pooled claims*
- *Not accurately reflecting the change in reserves*
- *Many candidates did not lock cells correctly in calculating formulas.*

6. Continued

Candidates generally answered part (ii) correctly or did not answer it. Some common mistakes on this question:

- *In some instances, candidates only considered the most current year of experience when answering this portion.*
- *Candidates did not adjust for the net change in pooled claims, but rather, only considered either the Pooled Premium or Pooled Claims.*
- *Many candidates stated the insurer perspective is the negative of the Client perspective.*

The model solution for this part is in the Excel spreadsheet.

(d) Calculate the PMPM premium rate for July 1, 20X4 to June 30, 20X5 under the deficit recovery arrangement. Show your work.

Commentary on Question:
Overall, candidates struggled with this question. Candidates generally followed one of two viable methods to project premiums. Both methods are incorporated into the model solution.

Candidates did well trending forward claims and applying credibility weights. Common issues include:

- *Candidates incorrectly started with incurred claims instead of incurred claims + change in IBNR – Pooled claims.*
- *Candidates did not convert dollars to PMPMs before projecting claims forward. This is important, because the membership between time periods is different.*
- *Retention incorrectly applied to projected claims + pooling + deficit. Retention should instead apply to only projected claims*
- *Deficit recovery incorrectly recovered in one year instead of over two years.*
- *Incorrect years of trend applied*

7. Learning Objectives:

1. The candidate will understand how to describe and evaluate plan provisions and government programs, including:
   - Group and Individual medical, dental and pharmacy plans.
   - Group and Individual long-term disability plans.
   - Group and Individual short-term disability plans.
   - Group and Individual long-term care insurance.
   - Group life insurance plans.
   - Supplementary plans, like Medicare Supplement.

Learning Outcomes:

(1a) Describe typical organizations offering these coverages.

(1h) Compare social programs in Canada and the United States and evaluate the value of the different systems.

Sources:

Group Insurance, Skwire, 8th Edition, Chapters 3 and 10

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) List and describe the steps in the group medical product development cycle.

Commentary on Question:

Candidates performed well on this part. Candidates had to describe steps and provide considerations that apply to medical product development cycle.

(i) Innovate - either develop a new product of evolve an existing product. Includes understanding the company's strategic perspective, idea generation, idea screening and market assessments.

(ii) Design - Determine the product structure, variables in plan design, contribution requirements and regulatory compliance, such ACA and mandated benefits.

(iii) Build - Project enrollment, price the product, perform financial assessments, implement necessary infrastructure, and receive approval from senior management. For an employer sponsored plan, additional considerations are whether the plan is fully insured or self funded and what employee contributions should be.

(iv) Sell - Before selling in all markets, many companies will offer in test markets to test the infrastructure, incorporate customer feedback, refine pricing assumptions and improve the product to ensure it will be successful. A group plan sponsor may have to negotiate with a union.

7. Continued

(v) Assess - As soon as results are available, a company can begin assessing the results. After preliminary enrollment, customer detail assumptions can be reviewed. After experience comes in, actual-to-expected results can be reviewed.

(vi) Revise - Could include changes to product features, plan design or pricing. Changing external forces and regulatory changes will require regular revisions to the product.

(b)

(i) Construct a private employer plan that meets the private plan requirements by proposing values for the annual deductible (X), annual out-of-pocket maximum (Y), and family monthly employee premium (Z). Show your work.

(ii) Verify the plan design meets the private plan requirements.

Commentary on Question:
Candidates struggled with this part. The question did not require specific knowledge of the Quebec prescription drug plan, but rather tested a candidate's ability to develop and propose a plan design given a set of parameters and expected claim distribution. Partial credit was awarded to candidates that completed or described components of the full analysis to determine plan parameters, including calculation of expected costs and calculation of net plan costs.

The model solution for this part is in the Excel spreadsheet.

8. Learning Objectives:

1. The candidate will understand how to describe and evaluate plan provisions and government programs, including:
   - Group and Individual medical, dental and pharmacy plans.
   - Group and Individual long-term disability plans.
   - Group and Individual short-term disability plans.
   - Group and Individual long-term care insurance.
   - Group life insurance plans.
   - Supplementary plans, like Medicare Supplement.

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

Learning Outcomes:

(1c) Evaluate the potential moral hazard and financial and legal risks associated with each coverage.

(3a) Understand the risks and opportunities associated with a given coverage, eligibility requirement or funding mechanism.

Sources:

Group Insurance, Skwire, 8th Edition, Chapters 12 and 25

Commentary on Question:

The question was testing the candidate's knowledge of group long term disability coverage. The different sections covered a breadth of understanding on the topic. Students generally did quite well, but occasionally did not provide detailed enough responses to earn full credit.

Solution:

(a) List and describe group characteristics that impact Long Term Disability (LTD) insurance rates.

Commentary on Question:

Most candidates did well on part (a). Full credit was given to the candidates who provided both the characteristics and descriptions.

1. Age – LTD claim costs typically increase with age as recovery rates decrease with age and incidence rates increase
2. Gender – the male-to-female split affects overall LTD claim costs
3. Industry – disability rates vary between blue-collar and white-collar industries, hazardous industries (e.g., mining) versus non-hazardous industries (e.g., desk job)
4. Occupation – certain occupations are more prone to disability due to the workplace environment or general lifestyle of people within the occupation

8. Continued

5. Income – individuals with higher incomes tend to have lower utilization
6. Group size – Smaller and larger groups tend to have less favorable experience
7. Area – regional access to medical care or to geographic health risks affects claim costs
8. Participation - More participation among groups creates more credibility and can help mitigate risk.

(b) Describe ways group disability insurance products limit moral hazards.

Commentary on Question:
Most candidates scored partial points on part (b). To answer this correctly, the candidates needed to know the definition of a moral hazard.

- Assure that the policyowner is incented to return to work through:
  - a reduction in benefits, i.e., 60% benefit,
  - their benefits are offset (e.g., 50/50, work incentive, proportionate loss).
  - Policy provision change from "own occ" to "any occ"
- Elimination period: there is a period of time where no claims are paid. The elimination period should be long enough to assure it doesn't overlap with any short-term disability coverage.
- Limitations/exclusions: self-inflicted injuries are often excluded, the length of mental disability periods is often capped at 24 months
- Group participation limits to manage anti-selection
- Managing disability: implementing rehabilitation and monitoring for disabilities to encourage members return to work.

(c)

(i) Critique the plan design.

(ii) Propose 4 plan design changes.

(iii) Evaluate the premium impact for each plan design change.

Commentary on Question:
The most successful candidates used the plan design specifics and offered commentary on each provision. Several candidates confused the definitions of "own occ" and "any occ"

8. Continued

(i) Critique the plan design

1. The definition of disability, covered employees, and payer of premiums are consistent with industry standards for LTD insurance. These plan design components would decrease anti-selection costs (due to 100% contribution) and encourage members to return to work to the extent that can (based on the definition of disability)
2. The benefit amount and elimination period are not in line with industry standards. The benefit amount is higher than industry standards, the elimination period is lower than industry standards. If this plan design were implemented, both the insurer and the group would incur far larger claim costs that what is typical, which may lead to insolvency.
3. Benefit offsets are applicable (e.g., an individual may become eligible for Social Security or Medicare disability payments. In this case, their benefit payments should be offset by these alternative sources)
4. Overall, I believe this proposed plan design would incur significant costs to both the insurer and group and should be revised.
5. Other reasonable answers are accepted, e.g.
    a. Elimination period is typically 13-week, 26-week or aligning with STD programs.
    b. A fixed 6% COLA is not common.
    c. The non-taxable status is not aligned with an employer paid benefit.

(ii) Propose 4 plan design changes

1. Reduce the benefit amount to 60% of pre-disability monthly earnings
2. Include the use of benefit offsets by using the proportionate loss methodology, or 2-to-1 offset.
3. Increase the waiting period to 13-26 weeks – or whatever the benefit period is for the corresponding group STD coverage – to avoid overlap with disability coverage.
4. Reduce the COLA benefit to a lower percentage (e.g., 2-3%) or to match year-over-year regional inflation to prevent losses if the actual COLA increase is lower than 6% year-over-year.
5. Other reasonable answers are accepted, e.g.
    a. Definition of disability: Own occupation during the first 24 months and any occupation after
    b. Change the tax status to be taxable as it's employer paid.
    c. Change the payer of premiums to be employee as the benefit is not taxable.

8. Continued

(iii) Evaluated the premium impact for each plan design change.

1. Reducing the replacement ratio to 60% would decrease the overall claim costs (and thus premium) needed to cover the group.
2. Including the use of benefit offsets would reduce the overall claim costs (and thus premium) needed to cover the group.
3. Extending the waiting period would decrease the number of claims and overall claim costs (and thus premium) needed to cover the group
4. Lowering the COLA benefit would decrease the overall premium needed to cover the group.
5. Other reasonable answers are accepted, e.g.
    a. Definition of disability: increase premiums as more claims will be covered during the first 24 months.
    b. Change the tax status: no change to premiums.
    c. Change the payer of premiums: no change to premiums.

(d) Calculate the change in the 20X2 company cost for:

(i) Drivers

(ii) Non-drivers

Show your work and state your assumptions.

The model solution for this part is in the Excel spreadsheet.

(e) Explain why the changes in company cost may differ between drivers and non-drivers.

Commentary on Question:
Candidates frequently provided answers without providing numerical support from the actual case. Some candidates incorrectly interpret the underlying risk between drivers and non-drivers.

For drivers, LTD and EHC/dental premiums account for 35% and 61%, respectively, of the total premiums.
For non-drivers, LTD and EHC/dental premiums account for 23% and 74%, respectively, of the total premiums.
Since the employee premium cost sharing is increasing dramatically for LTD and decreasing modestly for EHC/dental, drivers will experience an increase in premiums while non-drivers experience a decrease.

8. Continued

(f) Critique the changes to employee contributions in 20X2.

Commentary on Question:
Candidates generally didn't perform well on this part.

The changes impact the two classes of employees differently with the drivers experiencing an increase in their premium contributions. These changes could also generate tax consequences for the employees.
The change in employer contribution on LTD premiums from 100% to 0% could cause significant anti-selection and generate future rate increases.

9. Learning Objectives:

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

Learning Outcomes:

(2a) Identify and evaluate sources of data needed for pricing, including the quality, appropriateness and limitations of each data source.

(2b) Develop a medical cost trend experience analysis.

(2e) Identify critical metrics to evaluate actual vs. expected results.

(2g) Apply actuarial standard of practice in evaluating and projecting claim data.

Sources:

Group Insurance Chapter 5

ASOP 23

Group Insurance Chapters 21 and 35

Timing's everything: the impact of Benefit Rush, Health Watch May 2008

ASOP 41

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Describe how consumer-directed health plans (CDHP) lower costs compared to non-CDHP plans.

Commentary on Question:

This question asked how CDHP lowered costs compared to non-CDHP. Many candidates explained the differences between the 2 types of plans but didn't explain the "how" part, which dealt with consumer behavior.

CDHPs have high deductibles and the members will be paying more for services. This will lead to wiser consumption of resources possibly with consumers looking for more cost-effective providers, or consumers choosing to forego discretionary medical services.

9. Continued

(b) Describe data quality considerations and disclosures needed when using claims experience provided by the employer group.

Commentary on Question:
Most candidates performed well and received full credit.

The actuary should rely on guidance from ASOP 23.

Actuary should review the data for accuracy, sufficiency and reasonableness
Consider possible alternative data elements
Consider if reasonable given relevant external information
The actuary should consider taking further steps, when practical, to improve the quality of the data
The actuary should disclose reliance on data supplied by others
The actuary is not required to perform an audit of the data

(c)

(i) Calculate the annual and quarterly year-over-year claims PMPM trends. Show your work.

(ii) Explain the patterns in both annual and quarterly year-over-year claims PMPM trends.

Commentary on Question:
Many candidates received full credit for arriving at the correct answer but had difficulty using the quarterly data that was provided to calculate PMPM values.

The model solution for part (c) (i) is in the Excel spreadsheet.

- An observed actuarial phenomenon when a significant plan design is adopted (e.g. total replacement CDHP) is "rush, hush, crush"
- A benefit rush may occur when there is a noticeable change in the benefit package
- The "benefit rush" not only impacts the year before a change is implemented but also has an impact for two years following implementation
- In the year following the implementation, there is a "benefit hush" - claims are lower than they would be on a steady state because of the services that would have been incurred in that time period were incurred during the rush
- In the second year, there is a "trend crush" as claims go back to a more normal level and consumers become more used to the new plan design. The trend, however is higher than it would have been because it is coming off a lower base

9. Continued

(d) Recommend adjustments when using the experience data. Justify your response.

Commentary on Question:
Candidates generally did poorly on this part. Most candidates were only able to recommend 1 or 2 adjustments.

- One time change represents a response to a specific, identifiable situation, in this case, the change in benefit plans. This will result in a significant increase or decrease in the claim levels during the period, followed by return to normal levels in following period.
- Additionally, the following adjustments may be made:
  - Demographics Change
  - Blending Experience
  - Evaluate outliner claims

(e) Describe considerations for setting reserves when there is a material change in plan design.

Commentary on Question:
Similar to 9d, candidates generally did poorly on this part. Most candidates were only able to recommend 1 or 2 adjustments. While some candidates actually zoomed in to the case provided, some of the points required for full credit are more general than what the specific case would have indicated

- Adjust for benefit design changes
- Adjust for change in utilization patterns
- Adjust for seasonality of claims
  - If the block is stable, then the actuary can rely on seasonal patterns to develop the claims estimates.
- Add a margin

(f) Identify disclosures required when issuing an actuarial report to the group.

Commentary on Question:
Many candidates were able to identify at least 4 disclosures required by ASOP 41. However, some candidates confused ASOP 23 and 41.

9. Continued

The actuary should rely on guidance from ASOP 41 (Disclosures in Actuarial Reports)

- Intended users of the actuarial report
- Acknowledgement of qualification
- Any info on which the actuary relied that has a material impact on findings that the actuary does not assume responsibility
- Material assumptions/methods prescribed by law