

GH DP Model Solutions

Fall 2023

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

Learning Outcomes:

- (1b) Describe each of the coverages listed above.
- (2a) Identify and evaluate sources of data needed for pricing, including the quality, appropriateness and limitations of each data source.
- (2c) Calculate and recommend assumptions.
- (2g) Apply actuarial standard of practice in evaluating and projecting claim data.

Sources:

Insuring Long-Term Care, Chapters 2, 6, and 7; ASOP 18: Long-Term Care Insurance;

ASOP 23: Data Quality; ASOP 25: Credibility Procedures; ASOP 41: Actuarial Communications

Commentary on Question:

Candidates generally did well on this question. Successful candidates demonstrated an understanding of LTC industry experience and the expected relationships between the various assumptions.

Solution:

- (a) Describe the evolution of long-term care (LTC) products.

1. Continued

Commentary on Question:

This question asked candidates to describe, rather than list, the changes in the product over time. Successful candidates were able to describe at least 4 changes that have occurred over time within the LTC product design. Partial credit was given to candidates who were able to accurately describe at least one change in the product design.

- Home Health Care benefit restrictions were removed and Assisted Living Facility benefits were added.
- Benefit payments were revised from indemnity only to also include reimbursement and disability-style payments.
- Benefit pools were expanded to include unlimited payments.
- Benefit triggers were adjusted from medical necessity to be based on ADL or cognitive deficiencies.
- Issue age ranges were widened.
- Additional benefits were offered, including inflation protection, return of premium, shared care, restoration of benefits, survivorship, and limited pay.

- (b) List the Actuarial Standards of Practice an actuary should consider when performing an LTC experience study.

Commentary on Question:

This question asked candidates to list applicable ASOPs. Successful candidates were able to identify the appropriate ASOP by name and number, although credit was also given to candidates who listed the correct ASOP number along with a description of the ASOP. Partial credit was given to candidates who listed some, but not all, of the applicable ASOPs. Some candidates provided general commentary on best practices, rather than referencing any ASOPs, for which no credit was given.

- ASOP 18: Long-Term Care Insurance
- ASOP 23: Data Quality
- ASOP 25: Credibility Procedures
- ASOP 41: Actuarial Communications

- (c) Calculate for each calendar year the experience-based:

- (i) Voluntary lapse rate
- (ii) Active mortality rate
- (iii) Disabled mortality rate

1. Continued

(iv) Claim incidence rate

Show your work.

Commentary on Question:

Candidates generally did well on this question. Successful candidates were able to calculate the rates for each calendar year using the appropriate formulas. For part (i), credit was given for calculating lapse rates with either total exposure (active exposure + disabled exposure) or active exposure only.

- Voluntary Lapse Rate = Voluntary Lapse Count / (Active Exposure + Disabled Exposure)
- Active Mortality Rate = Active Death Count / Active Exposure
- Disabled Mortality Rate = Disabled Death Count / Disabled Exposure
- Claim Incidence Rate = New Claims Count / Active Exposure

Calendar Year	Total Exposure	Lapse Count	Lapse Rate
2018	14,918	149	1.00%
2019	14,010	154	1.10%
2020	13,121	131	1.00%
2021	12,295	111	0.90%
2022	11,513	138	1.20%

Calendar Year	Active Exposure	Active Death Count	Active Mortality Rate
2018	12,479	674	5.40%
2019	11,011	639	5.80%
2020	9,670	571	5.90%
2021	8,450	541	6.40%
2022	7,336	477	6.50%

Calendar Year	Disabled Exposure	Disabled Death Count	Disabled Mortality Rate
2018	2,439	85	3.49%
2019	2,999	96	3.20%
2020	3,451	124	3.59%

2021	3,845	131	3.41%
2022	4,177	155	3.71%

Calendar Year	Active Exposure	New Claims Count	Claim Incidence Rate
2018	12,479	649	5.20%
2019	11,011	551	5.00%
2020	9,670	522	5.40%
2021	8,450	465	5.50%
2022	7,336	425	5.79%

- (d) Evaluate whether the experience-based voluntary lapse and mortality rates are reasonable compared to LTC industry experience. Justify your response.

Commentary on Question:

Successful candidates provided an assessment of the reasonableness of the historical experience, along with a justification supporting their assessment. To receive full credit, candidates needed to provide both assessments and justifications for both voluntary lapse and mortality.

The lapse experience is reasonable. The industry has seen lapse rates close to 1% and the total lapse rates in the experience are very close to that level.

The mortality experience is not reasonable. Active mortality rates are almost twice as high as disabled mortality rates. Because disabled insureds are less healthy, on average, the disabled mortality rates should be higher than the active mortality rates.

- (e) Recommend a lapse assumption for LMN to use in projecting the 2023 experience for their LTC block. Justify your response.

Commentary on Question:

Successful candidates provided a numerical assumption, along with an appropriate justification, rather than only describing how an assumption could be developed. Partial credit was given to candidates who provided a reasonable numerical assumption based on the lapse rates they calculated in part (c).

I recommend using a lapse rate of 1.0%. This is very close to the lapse rate seen in the historical data across all calendar years combined, when calculated based on total exposures. Also, it is consistent with general industry experience that has seen ultimate lapse rates between 1% and 2%.

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:

- (1d) Describe Medicare benefits and evaluate pricing and filing requirements.
- (2a) Identify and evaluate sources of data needed for pricing, including the quality, appropriateness and limitations of each data source.
- (2g) Apply actuarial standard of practice in evaluating and projecting claim data.

Sources:

GHDP-144-23: Medicare Advantage: Eight Critical Considerations for Every Organization as ESRD Eligibility Expands in 2021

ASOP 23: Data Quality (excluding Appendices)

Medicare Advantage Experience Data: Pitfalls and Concerns Beyond ASOP #23, Health Watch, Feb 2019

Medicare Advantage Expanded Supplemental Benefits Over the Years, Health Watch, Special Edition, Mar 2021

Commentary on Question:

Candidates generally demonstrated knowledge of Medicare Advantage, but they often provided responses that were not sufficiently detailed to receive full credit.

Solution:

- (a) Explain how the Centers for Medicare and Medicaid Services' (CMS) redefinition of "primarily health related" expanded the offerings in the MA market.

Commentary on Question:

The candidate should demonstrate an understanding of the enhancements to the definition, including an understanding that the expansion provided a preventative benefit. The candidate needed to provide more details than merely stating that offerings were expanded.

2. Continued

Expanded the offerings in the MA market to services that are health benefits that:

- Treat, prevent, diagnose or prevent injury or illness
- Compensate for physical impairment
- Act to ameliorate the psychosocial and functional impacts of the illness or injury
- Reduce utilization and avoidable services

The services must be approved by a physician

Services cannot be added simply for the purposes of inducing enrollment

(b)

- (i) List effective End Stage Renal Disease (ESRD) care management program practices.
- (ii) Describe how each practice will reduce medical costs while improving the quality and effectiveness of care.

Commentary on Question:

Candidates should have addressed how the practice reduced medical costs.

1. Educate and encourage members on Home Dialysis services: by increasing utilization of home services as opposed to dialysis centers, costs may be reduced and it is easier for members to gain needed medical care
2. Schedule Regular sessions: Consistent checkups, monitoring and treatment ensure better health outcomes for the member which ultimately leads to lower costs in the long term
3. Identify and prevent complications: Complications in ESRD would lead to poor health outcomes for the member and higher costs for the insurer. Timely identification and prevention would prevent both of these downsides
4. Educate members on ESRD: By making members more aware of their health needs, we empower them to take better care of themselves and help health care providers in their job. This is a win for both the members and the insurer
5. Prevent the progression of ESRD: Worsening health conditions are negative outcomes for both member and insurer (higher costs). By ensuring the treatment is not just to manage symptoms but also monitor and prevent progression of the disease we prevent these negative outcomes.

2. Continued

- (c)
- (i) Critique the plan.
 - (ii) Propose two recommendations for improvement. Justify your response.

Commentary on Question:

The answer should be detailed enough to demonstrate a thoughtful review of the proposal, rather than just a response to each of the defined plan characteristics. The solution below would receive full credit but there were other acceptable solutions that received full credit as the candidate was being asked to evaluate the plan and offer their own insights. Often candidates would provide response to each item but did not include overall summary of critique.

- Overall, the plan seems to be somewhat deficient.
 - Performing the review annually is better than nothing, but continual review of our data is preferable.
 - Detailed analysis of the claims data should be performed regularly; reviewing claims paid with \$0 is good, but not enough.
 - RECOMMENDATION: Sample each type of claim to ensure appropriate copays are being charged, appropriate benefits being provided (consistent with PBP).
 - RECOMMENDATION: In addition, we should also review capitated provider experience or encounters to ensure that they were being paid correctly and that they are providing correct benefits and charging correct copays.
 - Vendor data should be audited annually; need to ensure that vendors are providing services consistent with PBP and that appropriate member copays are being charged.
 - Claims experience should also be compared to internal benchmarks.
 - External benchmarks should be adjusted to reflect the characteristics of our block.
 - Bid pricing and claims review should be linked; they are closely bound to each other.
- (d) Describe data quality considerations and disclosures needed when completing the MA bids.

Commentary on Question:

The question was asking the candidate to outline the data quality considerations from the standards of practice.

2. Continued

Per ASOP 23: Data Quality STU should include the following considerations and disclosures related to data quality

- Source – describe internal and vendor data sources
- Whether or not data was reviewed – data should be reviewed by the actuaries but is not required to be audited
- Unresolved concerns – describe any concerns the actuary has and include potential magnitude or impact on the results
- Material Adjustments/Assumptions Applied – such as completion factors or other adjustments
- Material Limitations of the Data due to Data Quality
- Limitations arising due to following laws or regulations
- Reliances – describe data that is relied on from other parties such as vendors providing data

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

Learning Outcomes:

- (2c) Calculate and recommend assumptions.
- (3d) Describe and apply approaches to claim credibility and pooling.

Sources:

Group Insurance, 8th Edition, Skwire, Ch. 26

Best Estimate Assumption for Expenses, CIA Educational Note, Nov 2006

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a)
 - (i) Contrast manual and experience rating.
 - (ii) Contrast prospective and retrospective rating.

Commentary on Question:

Most candidates did well on part (a). Full credit was given for a valid contrast provided for each of subparts (i) and (ii).

- (i) Manual rating does not use the policyholder's actual costs when developing premium. Instead, expected claims costs are based on a rating manual of assumptions or based on average rates over the insurer's portfolio.

Experience rating uses the policyholder's actual past claim costs to develop expected future claims. This is different from manual rating in that it uses the policyholder's actual claim costs, allowing to account for facts and circumstances that are not in manual rating formulas.

- (ii) Prospective rating seeks to establish gross premium for a future period. Experience of a given group is considered in the prospective rates.

3. Continued

Retrospective rating seeks to establish the cost of insurance for a past period. If experience is good, excess money is paid as an experience rating refund. If experience is bad, the group is held financially responsible. It depends on the arrangement, but the accounting mechanism of a surplus/refund is the main difference between the two rating approaches.

- (b) Outline the steps in completing an expense study.

Commentary on Question:

Most candidates did well on part (b). Full credit was given for outlining most or all expense study steps. Partial credit was given for outlining some of the steps.

Determine the scope of the expense study;
Collect the expense data;
Check the consistency of the expense data with internal and external reports;
Determine which expenses will be excluded from the determination of the best
Estimate assumption for expenses;
Determine the expense categories to be used;
Determine the unit expense bases to be used;
Classify expenses to the expense categories;
Allocate expenses to the expense categories;
Determine the unit expenses; and
Perform reasonability checks.

- (c) List examples of:
- (i) Policy maintenance expenses
 - (ii) Sales commissions
 - (iii) Distribution expenses
 - (iv) Property management expenses

Commentary on Question:

Most candidates did well on part (c). One example for each subpart was needed to obtain full credit.

- (i) Maintaining and updating policy, policyholder, and certificate information.
Performing billing operations.
Par fund administration and dividends.
Call center service relating to policyholder inquiries.

3. Continued

In force illustrations.
Policyholder statement mailings.

- (ii) Payments or financial benefits made directly or indirectly to an agent, broker, or sales representative.
 - (iii) Developing new or revised products for sale
Advertising products for sale
Maintaining the agency, brokerage, or other distribution IT systems, and related admin processes.
Overrides paid to managers of the distribution system.
 - (iv) Repairs, renovations, upgrades, maintenance, insurance and other expenses related to the general operation of all real estate properties for the company's use.
Expenses related to the rental of properties.
- (d) Calculate renewal rates for Groups 1, 2, and 3 on a composite per employee basis using the prospective rating method. Show your work.

Commentary on Question:

Candidate performance on part (d) was mixed. Successful candidates were able to demonstrate the concept of developing a renewal rate by calculating a manual and experience rate, blending them depending on credibility, and applying expenses and risk loads appropriately. Partial credit was given despite minor calculation errors as long as knowledge of the overall concept was demonstrated.

Group 1

Manual Claims

Base Claim Rate (includes pooling charge) = $(30 \times 175 + 10 \times 350) / 40 = 218.75$

Trend Factor for Manual Rate = 1.0000 (no trend, rate starts at the effective date)

Manual Claim Rate = Base Rate * Trend * Age/Sex * Plan Design * Region Factors
= $218.75 \times 1.000 \times 0.90 \times 0.70 \times 0.90 = 124.03$

Experience Claims

Claims < \$50,000 = 74,000

Starting PMPM = $74,000 / 40 / 12 = 154.17$

Trend = $(1.009)^{12} \times (1.015)^6 = 1.2176$

Experience Rate before pooling charge = $154.17 \times 1.2176 = 187.71$

Pooling Charge = \$40

Experience Claim Rate = $187.71 + 40 = 227.71$

3. Continued

Credibility

$$\text{Min}(40 \cdot 12 / 6000, 1) = 8\%$$

Blended Rate

$$227.71 \cdot 8\% + 124.03 \cdot (1 - 8\%) = 132.33$$

Gross Premium (Renewal Rate) Build

$$\begin{aligned} & (\text{Blended Claims} + \text{Admin Expenses}) / (1 - \text{Commission} - \text{Risk Load}) \\ & (132.33 + 18) / (1 - 10\% - 7\%) = \mathbf{181.11} \end{aligned}$$

Group 2

Manual Claims

Not Needed, 100% Credible group

Experience Claims

$$\text{Claims} < \$50,000 = 3,170,000$$

$$\text{Starting PMPM} = 3,170,000 / 1850 / 12 = 142.79$$

$$\text{Trend} = (1.009)^{12} \cdot (1.015)^6 = 1.2176$$

$$\text{Experience Rate before pooling charge} = 142.79 \cdot 1.2176 = 173.86$$

$$\text{Pooling Charge} = \$40$$

$$\text{Experience Claim Rate} = 173.86 + 40 = 213.86$$

Credibility

$$\text{Min}(1850 \cdot 12 / 6000, 1) = 100\%$$

Blended Rate

$$213.86 \cdot (100\%) = 213.86$$

Gross Premium (Renewal Rate) Build

$$\begin{aligned} & (\text{Blended Rate} + \text{Admin Expenses}) / (1 - \text{Commission} - \text{Risk Load}) \\ & (213.86 + 10) / (1 - 6\% - 4\%) = \mathbf{248.73} \end{aligned}$$

Group 3

Manual Claims

$$\text{Base Claim Rate (includes pooling charge)} = (125 \cdot 175 + 200 \cdot 350) / 325 = 282.69$$

$$\text{Trend Factor for Manual Rate} = (1.015)^3 = 1.0457 \text{ (3 months of trend needed)}$$

$$\text{Manual Claim Rate} = 282.69 \cdot 1.0457 \cdot 1.10 \cdot 0.75 \cdot 1.20 = 292.65$$

Experience Claims

$$\text{Claims} < \$50,000 = 667,000$$

$$\text{Starting PMPM} = 667,000 / 325 / 12 = 171.03$$

$$\text{Trend} = (1.009)^{12} \cdot (1.015)^9 = 1.2732$$

$$\text{Experience Rate before pooling charge} = 171.03 \cdot 1.2732 = 217.75$$

$$\text{Pooling Charge} = \$40 \cdot 1.015^3 = 41.83$$

3. Continued

$$\text{Experience Claim Rate} = 217.75 + 41.83 = 259.57$$

Credibility

$$\text{Min}(325 * 12 / 6000, 1) = 65\%$$

Blended Rate

$$259.57 * 65\% + 292.65 * (1 - 65\%) = 271.15$$

Gross Premium (Renewal Rate) Build

(Blended Rate + Admin Expenses) / (1 – Commission – Risk Load)

$$(271.15 + 12) / (1 - 7\% - 5\%) = \mathbf{321.76}$$

- (e) Calculate what the retrospective refund as of June 30, 20X3 would have been for Group 2 under a retrospective premium refunding arrangement. Show your work.

Commentary on Question:

Candidate performance on part (e) was mixed. Successful candidates were able to apply the formula and calculate the retrospective refund. Partial credit was given for correct formulas.

Since experience refund formula balances can be either rolled forward or refunded, full credit was given for either approach.

Formula Balance Item	Calculation	Value
Prior Formula Balance	Given	875,000
Premium	Given	4,152,000
Investment Earnings	Not Given, assume 0	0
(Claims charged)	Claims Less than \$50k + Pooling Charge (trended back to experience period) * Employees * 12 months	$(3,170,000 + 40 * (1.009^6 - 1) * 1850 * 12) = (4,011,523)$

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.
- (1c) Evaluate the potential moral hazard and financial and legal risks associated with each coverage.
- (1f) Describe Social Security disability income benefits.
- (2e) Identify critical metrics to evaluate actual vs. expected results.
- (2f) Describe the product development process including risks and opportunities to be considered during the process.

Sources:

Group Insurance Ch 11, 12, 24

Individual Health Insurance, Ch 2

2019 Group Long-Term Disability Experience Study Preliminary Report

Commentary on Question:

This question evaluated understanding of the disability content in the syllabus.

Solution:

- (a) Describe the advantages to employees and employers of PQR assisting employees in applying for Social Security disability benefits.

Commentary on Question:

Most candidates stated an advantage is the offset of the disability benefit, with some candidates connecting that to reduced premiums, which also earned credit. Other correct responses also received full credit. No credit was provided to listed disadvantages.

4. Continued

For the employer, the SSDI benefit offsets the benefit provided by the disability plan. For disabled employees qualifying for SSDI, they will get higher income replacement as SSDI is not fully taxed, continue to earn SS credits, and may qualify for Medicare.

- (b) List and describe the three major renewability clauses for individual disability products by completing the following table:

Financial Risk to Insurer	Renewability Clause	Description
Least	Conditionally renewable	There are situations in which this product does not need to be renewed by the insurer
Middle	Guaranteed renewable	Must renew policyholders, but can increase rates
Most	Non-cancellable	Guarantee renewal and premiums cannot change from initial offer

Commentary on Question:

Many candidates did well on this part of the question. Full credit was given if the descriptions were provided in the correct order, even if some of the names of the clauses were not recalled. Partial credit was given to those who did not recall the premium aspect of risk in non-cancellable versus guarantee renewable.

- (c) Explain adverse selection concerns for the following optional Group LTD benefit features:

- (i) Portability

Employees leaving an employer and paying to continue the group LTD benefit through the portability option tend to be sicker.

- (ii) Conversion Option

Like portability, employees leaving an employer and paying to continue LTD benefits through the insurer's individual line tend to be sicker and thus more costly. This is particularly more risky to the insurer than portability, since the individual products are individually underwritten (and healthier lives) and much of the long-term effect of conversion population cannot be continually assessed back to the employer in terms of premium rates.

4. Continued

Commentary on Question:

Few candidates cited the risk to PQR. Many candidates received partial credit for understanding that portability continues group coverage and sicker people tend to use this option. Some candidates did not recall that conversion is from group to individual.

(d)

- (i) List two observations on experience from the SOA's 2019 Group Long-Term Disability Experience Study Preliminary report.
- (ii) Explain how these observations can be used in LTD pricing. Justify your response.

Commentary on Question:

Many candidates recalled mortality improvement and correctly explained how that could increase disability claims. Some candidates discussed the recovery improvement findings in the study, and how that would work to decrease disability claims. Few candidates correctly cited the STD/LTD findings. Few candidates correctly cited the recovery by case size findings. Credit was not given for relevant findings of other disability studies or general industry knowledge not addressed in the study.

- (i) Mortality improvement versus [expected, 2016 study]
More recoveries in most conditions, other than maternity
- (ii) Mortality improvements suggest that disability rates may need to be increased because [people who are disabled are more likely to live longer / less lapse will occur and disability is a lapse-supported policy]
Reflecting improving recoveries implies that the disability rates can be reduced, which can help improve the competitiveness of the product.
Net effect of these two unknown, but PQR should study.

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.
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.
- (1c) Evaluate the potential moral hazard and financial and legal risks associated with each coverage.
- (1h) Compare social programs in Canada and the United States and evaluate the value of the different systems.
- (2b) Develop a medical cost trend experience analysis.
- (2f) Describe the product development process including risks and opportunities to be considered during the process.

Sources:

GHDP-105-17; Group Insurance Chapter 7;

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a) Compare and contrast prescription drug pricing considerations in the United States and Canada by completing the table:

Commentary on Question:

Candidates generally scored better on the US section than the Canadian section of the grid. The solution below is comprehensive and candidates were not required to list all bullet points to receive full credit.

5. Continued

	US	Canada
Pricing Benchmarks	Average Manufacturer Price (AMP)	Manufacturer List Price (MLP)
Government Involvement and Regulation	Federal and state government not involved in setting price limits or reasonableness	<ul style="list-style-type: none"> • MLP subject to review by Patented Medicine Prices Review Board (PMPRB) • PMPRB regulates price of brand names for reasonableness • Provincial government limited price for generic drugs and capped at % of brand
Rebates	Drug manufacturer rebates are payments from manufacturers to PBMs in exchange for preferred placement of the manufacturer's drugs on the PBM's formulary.	Private payers negotiate directly with manufacturers for rebates on brand name drugs. For generics, rebates are negotiated between manufacturers and retailers. Not passed on to consumer
Pricing arrangement with insurers, PBMs, and retailers	Common to negotiate pricing off the AWP benchmark price	<ul style="list-style-type: none"> • Maximum Allowable Cost for brand drugs is based on a mark up over MLP • Generics capped at % of corresponding brands price • Fee schedules show a maximum amount the insured will reimburse for each unit of drug

- (b) Calculate the change in QRS's cost from Year 1 to Year 2. Show your work.

Commentary on Question:

Candidates generally performed well although there were a few common mistakes. Candidates often assumed administrative fees needed to be removed from the total drug cost to arrive at Ingredient cost rather than keeping administrative fees outside of AWP. Some candidates treated the cost paid by member as either AWP or Total Drug cost. Some candidates did not remember to account for updated member cost sharing in Y2. Full credit was given for solutions on either a % or \$ difference basis. Partial credit was given whether it was on a total \$ basis or on a per script basis.

5. Continued

	Year 1	Year 2
Contracted Discounts		
Brands	AWP - 14%	AWP - 15%
Generics	AWP - 70%	AWP - 73%
Dispensing Fees		
Brands	\$1.00 per script	\$1.06 per script
Generics	\$0.50 per script	\$0.53 per script
Administrative Fee	\$0.10 per script	\$0.10 per script
Claims Experience Year 1		
	Scripts	Ave Paid by Consumer Per Script at the Retailer
Brands	80,000	60
Generics	400,000	7
Calculate total Rx Cost for Year 1		
	Cost per script = Cost paid per script / member cost share	Total Drug Cost = #Scripts * Cost Per Script
Brands	150	12,000,000
Generics	70	28,000,000
Calculate Insurers Drug Cost Year 1		
Brands	7,200,000	
Generics	25,200,000	
Calculate Dispensing Fee and Ingredient Cost		
	Dispensing Fee	Ingredient Cost = Drug Cost - Dispensing Fee
Brands	80,000	11,920,000
Generics	200,000	27,800,000

Calculate AWP for Year 1 = IC / (1 - discount)		
Brands	13,860,465	
Generics	92,666,667	
Trend AWP to Year 2 at 10%		
Brands	15,246,512	
Generics	101,933,333	
Ingredient Cost = AWP * Yr 2 discounts		
Brands	12,959,535	
Generics	27,522,000	
Year 2 Dispensing Fee = # scripts * dispensing fee Yr 2		
Brands	84,800	
Generics	212,000	
Year 2 Drug Cost before member cost share		
Brands	13,044,335	
Generics	27,734,000	
Year 2 Insurer Drug Cost after member cost share = drug cost * (1 - coins)		
Brands	7,826,601	
Generics	24,960,600	
Calculate Admin Fee	Year 1	Year 2
Brands	8,000	8,800
Generics	40,000	44,000
Insurance Company Total Cost	Year 1	Year 2

Brands	7,200,000	7,826,601
Generics	25,200,000	24,960,600
Admin	48,000	52,800
Total	32,448,000	32,840,001
	Cost Difference	392,001
	Trend	1.21%

- (c)
- (i) Describe how each change will address rising premium costs.
 - (ii) Identify circumstances when each change will be preferable for addressing rising claims costs.

Commentary on Question:

Candidate performance was mixed. Full credit was not given when candidates did not effectively distinguish the difference between formulary design and VBID, answering “what” are the changes instead of “how” these changes drive lower cost, or paraphrased (i) in part (ii) instead of articulating the specific circumstances to which the solutions in (i) apply.

(i)

Formulary Design:

Formulary design, such as which drugs to cover and formulary tier placements can be made with intention of using cost sharing differentials to steer members to certain drugs, such as low cost generics.

VBID:

Increasing out of pocket costs limit or discourage utilization of certain drugs that are important in controlling or preventing chronic diseases or other medical illnesses. By implementing value based insurance design, it will selectively reduce cost sharing on drugs and treatments identified as high value. This will reduce overall drug cost in the long run by avoiding unnecessary costs of treating conditions as they worsen without proper drug therapy.

(ii)

Formulary Design:

Formulary design may be more beneficial if data shows there are many members that are using brand name drugs when there are cheaper generic equivalents available.

VBID:

Value based insurance design would be preferable when you have a material population that is not adhering to drugs for chronic diseases, such as diabetes, high blood pressure and high cholesterol.

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 minimizing or properly pricing for risks.

Sources:

The Role of the Actuary in Self-insurance

Level Funding: An Alternative to ACA for Small Groups

Group Insurance, Chapter 26

Commentary on Question:

Overall, there were few candidates who did well on all parts of this question. There were many opportunities for partial credit. There were several sections where most candidates did poorly, and additional commentary is provided below.

Solution:

- (a) Describe the advantages and disadvantages of self-funding.

Commentary on Question:

Candidates generally did well. To receive full credit, candidates needed to describe at least 3 advantages and 3 disadvantages.

The solution below is not absolute and other appropriate answers were accepted.

Advantages:

- Reduce costs by avoiding premium taxes and ACA related fees
- Directly benefit from favorable claims experience
- Forgo paying insurance company risk charges
- Greater control over plan designs

Disadvantages

- Less predictable cash flows
- Bear financial responsibility for unfavorable claims experience
- Need advice of insurance professionals to help manage plans
- Involvement in claims denials and appeals

- (b) Describe drivers of cash-flow volatility when self-funding.

6. Continued

Commentary on Question:

Candidates did poorly on this section. Candidates generally focused on the nature of claims volatility, which is only one component of cash flow. Another common response was industry or macroeconomic factors that are not specific to self-funding. The question was looking beyond claims volatility to operational concerns – what is the life of a claim, and where can disruptions occur that a self-funded medical plan would feel?

The solution below is not a comprehensive list and other answers were accepted.

- Nature of claims: Acute claims tend to be more volatile, chronic conditions may be more stable month-to-month
- Hospital Contracts: Different contracts are resolved at different times (pay-as-you-go versus monthly) while certain types of service, like Rx, will be billed faster than others
- Third-party liability: Accident or other claims with a third-party liability require subrogation
- Network Access: Out-of-network claims can have longer processing times
- Choice of TPA: Administrative processes and claims adjudication systems can have impacts on timing

- (c) Explain cash flow considerations for newly self-funded groups focusing on the following areas:
- (i) Claims patterns in the first year
 - (ii) Claims seasonality
 - (iii) Establishing a claims reserve

Commentary on Question:

Candidate performance was mixed, with many opportunities for partial credit. Similar to part (b), this question was concerned with what a self-funded plan would experience relative to the first year of self-funding. Another way to think about this question: If a group is going to be self-funded for the first time, what would you tell them about how their cash flow will change? And what potential issues would you warn them about?

Again, partial credit could be awarded, typically for answers that were relevant to a self-funded group but didn't account for the concerns for a first-year group. This is an example answer, and a wide variety of answers received partial and full credit.

6. Continued

- (i) Since the plan is either new or was fully-insured, there are no claims incurred before the start of the plan year that are being reported and paid in the first few months. These will be much lower than the remainder of the year, and will be different from future years
 - (ii) Once claims experience is established, they'll start to show patterns over time. These patterns can be caused by benefit design decisions, such as higher utilization late in the year when members have satisfied their deductibles and out-of-pocket maximums
 - (iii) The plan sponsor will need to establish an IBNR or IBNP reserve to account for the lag between claims being incurred and paid. The low relative claims early in the year are a good time to put away excess funds to build this fund
- (d)
- (i) Sketch how specific stop loss and aggregate stop loss mitigate claims risk by completing the chart provided in the Excel spreadsheet.
 - (ii) Explain how each stop loss arrangement impacts the distribution of exposures.

Commentary on Question:

Candidates did poorly on this question. This question tested candidates on their understanding of risk transference mechanisms and how they will impact both volatility and results. Sketching and describing how those mechanics impact a risk distribution is expected to test a candidate's understanding of the topics beyond a basic description.

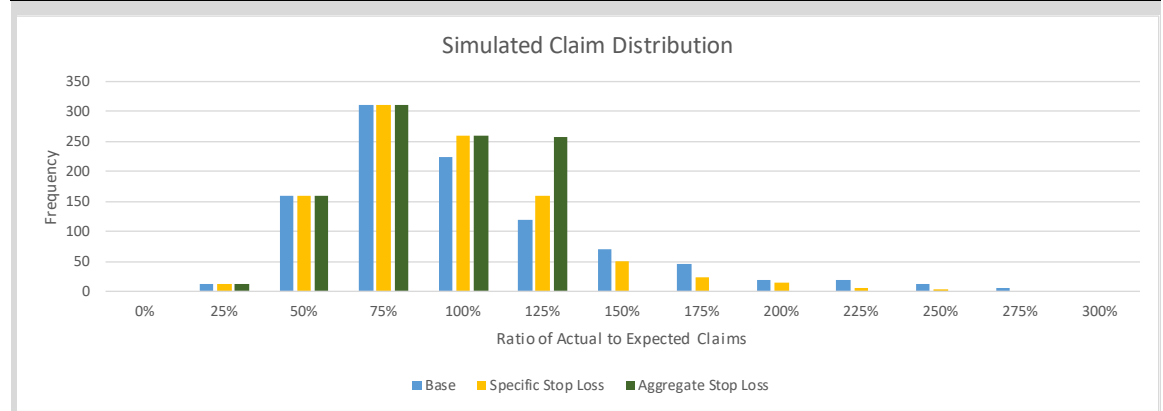
Common errors were: assuming that the distribution was for individual claims instead of groups; taking the perspective of the stop loss insurance carrier, separating the exposures instead of reweighting them; and confusing specific and aggregate stop loss.

One common concern was the lack of a specific stop loss attachment point. There is no way to incorporate a specific stop loss deductible or attachment point in this situation, nor is that precision necessary to complete the question. The assumption was excluded so as not to provide extraneous information in a problem already dense with numbers.

6. Continued

While the aggregate stop loss has a firm solution (capping exposures at 125%), full credit could be earned by using the base or specific stop loss distribution as a starting point. There is no exact answer for the specific stop loss distribution – if candidates showed a shift leftward in the distribution, they could receive full credit.

Ratio of Actual to Expected Claims	Exposure Frequency		
	Base	Specific Stop Loss	Aggregate Stop Loss
0%	0	0	0
25%	13	13	13
50%	160	160	160
75%	310	310	310
100%	225	260	260
125%	120	160	257
150%	70	50	0
175%	45	23	0
200%	20	14	0
225%	20	7	0
250%	12	3	0
275%	5	0	0
300%	0	0	0
Total Exposures	1,000	1,000	1,000



SSL: Specific stop loss places a cap on each specific claim size and hence pushes the distribution towards the left tail, decreasing the claim spread and volatility.

ASL: Aggregate stop loss places a cap on the total amount of possible claims covered by the self-funded employer, which also pushes the aggregate to the left, reducing overall volatility and spread of claims.

- (e)
- (i) Critique the CFO's plan to use the lowest attachment point.
 - (ii) Recommend an alternative attachment point. Justify your response.

6. Continued

Commentary on Question:

Candidate responses were mixed. The crux of the question is recognizing that there is a tradeoff between cost and risk. The CFO, by minimizing risk, is maximizing expected cost. Candidates that received full credit included a rigorous understanding of this tradeoff and attempted to balance both expected cost and claim volatility in their recommendations.

Candidates did not receive full credit if they only recommended a solution based on cost or failed to recognize the CFO's priority of controlling volatility. Candidates did not receive full credit if they failed to recognize the diminishing marginal cost/risk exchange of increasing the attachment points.

Candidates could recommend any of the stop loss levels so long as their recommendation incorporated the ideas outlined above. The solution below is just an example and many different solutions received credit.

- (i) The CFO is choosing the highest expected cost option of \$19.6M. While claims volatility is minimized, cost is not. As attachment points increase, premiums decrease faster than expected claims over the specific level. Selecting a higher attachment point would reduce costs without a significant increase in claims volatility. A degree of claims volatility is unavoidable and may be better managed by maintaining higher reserves or using an aggregate stop loss policy.
- (ii) A \$100,000 attachment point would reduce expected costs by \$2.4M, or 15% of expected retained claims. This would be a significant cushion to the overall plan budget and absorb a significant amount of claim volatility.

7. 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.
3. The candidate will understand how to apply principles of pricing, risk assessment and funding to an underwriting situation.

Learning Outcomes:

- (2g) Apply actuarial standard of practice in evaluating and projecting claim data.
- (3b) Understand, evaluate and apply various risk adjustment mechanisms.

Sources:

Bluhm Ch. 4, Skwire Ch. 19 and 34, ASOP 12

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a) Explain how the following ACA provisions mitigate antiselection:
 - (i) Specified open enrollment periods
 - (ii) Risk adjustment

Commentary on Question:

Candidates generally performed well.

- (i) Specified open enrollment periods require members to enroll in their coverage during a set time period each year. Once a plan has been selected, it generally cannot be changed until the next year's enrollment period and those that fail to sign up during open enrollment must wait until the next year to obtain coverage. This prevents individuals from purchasing insurance once they fall ill. If individuals only purchased insurance once needing care, the plans will not be able to collect enough premium to cover the costs of care. The plans need a risk pool including healthy individuals paying premiums in order to spread the costs over more individuals. Open enrollment periods allow for more individuals to contribute premiums before falling ill.

7. Continued

- (ii) Risk adjustment allows payments to move from organizations with lower than average risk to organizations with higher than average risk, in order to keep health plans from rating based on health status. By compensating health plans based on health risk, it mitigates the overall impact of antiselection (insurers acting in their own best interest). If an insurer operates effectively and efficiently, but their premiums are high because they have higher risks that are not compensated through risk adjustment, they may fail to attract healthier risks, causing them to have to raise rates even further. The risk adjustment program allows those differences in health mix to be compensated resulting in less antiselection impacting rates.
- (b) Describe considerations under ASOP 12 for:
- (i) Establishing risk classes
 - (ii) Testing the risk classification system

Commentary on Question:

Many candidates were able to describe considerations for establishing risk classes, however few candidates adequately described considerations for testing the risk classification system.

- (i) Intended Use – The actuary should select a risk classification system that is appropriate for the intended use. Different sets of risk classes may be appropriate for different purposes. For example, when setting reserves for an insurance coverage, the actuary may choose to subdivide or combine some of the risk classes used as a basis for rates.

Actuarial Considerations – When establishing risk classes, the actuary should consider the following, which are often interrelated:

- a. Adverse Selection
- b. Credibility
- c. Practicality

Other Considerations – When establishing risk classes, the actuary should (a) comply with applicable law; (b) consider industry practices for that type of financial or personal security system as known to the actuary; and (c) consider limitations created by business practices of the financial or personal security system as known to the actuary.

Reasonableness of Results – When establishing risk classes, the actuary should consider the reasonableness of the results that proceed from the intended use of the risk classes (for example, the consistency of the patterns of rates, values, or factors among risk classes).

7. Continued

- (ii) Testing the Risk Classification System – Upon the establishment of the risk classification system and upon subsequent review, the actuary should, if appropriate, test the long-term viability of the financial or personal security system.

Effect of Adverse Selection – Adverse selection can potentially threaten the long-term viability of a financial or personal security system. The actuary should assess the potential effects of adverse selection that may result or have resulted from the design or implementation of the risk classification system.

Risk Classes Used for Testing – The actuary should consider using a different set of risk classes for testing long-term viability than was used as the basis for determining the assigned values if this is likely to improve the meaningfulness of the tests.

Reliance on Data or Other Information Supplied by Others – When relying on data or other information supplied by others, the actuary should refer to ASOP No. 23, Data Quality, for guidance.

Effect of Changes – If the risk classification system has changed, or if business or industry practices have changed, the actuary should consider testing the effects of such changes in accordance with the guidance of this standard.

Quantitative Analyses – Depending on the purpose, nature, and scope of the assignment, the actuary should consider performing quantitative analyses of the impact of the following to the extent they are generally known and reasonably available to the actuary.

Documentation – The actuary should document the assumptions and methodologies used in designing, reviewing, or changing a risk classification system in compliance with the requirements of ASOP No. 41, Actuarial Communications.

- (c) Calculate each insurer's relative risk factor. Show your work.

Commentary on Question:

Many candidates received full credit. Candidates receiving partial credit tended to miscalculate the market average.

7. Continued

Weighted average claim cost = ([Low Risk Member Count] x \$150 + [Average Risk Member Count] x \$300 + [High Risk Member Count] x \$600) / ([Low Risk Member Count] + [Average Risk Member Count] + [High Risk Member Count])

Relative Risk Factor = Insurer weighted average claim cost / Market weighted average claim cost

Insurer	Low Risk Members	Average Risk Members	High Risk Members	Weighted Average Claim Cost	Relative Risk Factor
Insurer A	500	700	50	\$252.00	0.850
Insurer B	100	300	150	\$354.55	1.195
Insurer C	700	200	400	\$311.54	1.050
Insurer D	800	100	400	\$300.00	1.011
Market	2,100	1,300	1,000	\$296.59	1.000

- (d) Insurers were informed of their relative risk scores. The insurers' CEOs made the following statements:

Statement #1, CEO of Insurer A: Since our risk factor was above 1.0, we will be forced to raise rates. This contradicts the goals of the ACA.

Statement #2, CEO of Insurer B: Our plans are transitional policies that were grandmothered in. Our plans should not to be subject to ACA risk adjustment.

Statement #3, CEO of Insurer C: To help reduce antiselection and lower costs, we plan on cutting "fringe" benefits such as fertility and behavioral health.

Statement #4, CEO of Insurer D: Our plans are only offered off-exchange. Our plans should not to be subject to ACA risk adjustment if we do not participate in the exchange.

Critique each statement. Justify your response.

- (i) Statement #1
- (ii) Statement #2
- (iii) Statement #3
- (iv) Statement #4

7. Continued

Commentary on Question:

For part i, full credit was only received for candidates discussing how risk adjustment transfer payments, either a receivable or payable, can potentially impact rates. For part ii, many candidates referenced grandfathered plans as opposed to the grandmothereed plans discussed by the CEO. For part iii, many candidates did not draw distinction between EHB and non-EHB coverage options and instead assumed that all benefits discussed by the CEO were EHBs. Candidates performed well with part iv.

- (i) We note that our actual risk factor is below 1.000, however if the risk factor was above 1.000, this signifies that Insurer A's plan contains an unhealthier mix of enrollees than the market average. An unhealthier mix does not mean premium rates need to be increased as Insurer A would receive a risk adjustment payment. The risk adjustment payment will allow Insurer A to stay competitive on rates despite having a higher risk factor. This is consistent with the goals of the Affordable Care Act.
- (ii) This statement is correct. Transitional policies do not participate in the risk adjustment program.
- (iii) Behavioral health treatment is an essential health benefit, which must be covered on all individual plans unless it is a grandfathered plan. Fertility may not be an essential health benefit and could potentially be cut, but we would strongly urge you to perform a market comparison of the benefit to determine the likelihood of antiselection. We will also review our benchmark plan to determine if fertility benefits can be cut.
- (iv) This statement is incorrect. Off-exchange, ACA compliant plans are subject to risk adjustment.

8. 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:

- (2b) Develop a medical cost trend experience analysis.
- (2c) Calculate and recommend assumptions.
- (2f) Describe the product development process including risks and opportunities to be considered during the process.

Sources:

Group Insurance Chapter 35; Timing's Everything: The Impact of Benefit Rush

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a) Describe the major purposes of trend analyses.

Commentary on Question:

Most candidates did well on part a. Full credit was not given for listing rather than describing the major purposes of trend analyses.

Analysis of past trends allow for a thorough inflection of an insurer's current benefit and rate structure, identifying emerging areas of concern to allow for appropriate corrective action.

Analysis of past trends allow for future projections to be utilized in pricing, budgeting, and forecasting.

- (b) Describe the advantages and disadvantages of using the component method approach to developing pricing trends.

Commentary on Question:

Candidates did well on part b. To receive full credit candidates needed to describe both an advantage and a disadvantage of the component method. Points were given for additional correct responses.

Advantage: The component method is straightforward in explaining the specific drivers of trend.

Disadvantage: Requires considerable resources in terms of both time and data, to break down claims and to analyze each component.

8. Continued

- (c) Define:
- (i) Unit cost trend
 - (ii) Severity
 - (iii) Mix of services

Commentary on Question:

Candidates did well on part c. To earn full credit, candidates needed to demonstrate an understanding of the terms in their definition; while not necessary to earn full credit many candidates achieved this through examples.

- (i) Unit cost is the change due to contracting changes all else being equal.
- (ii) Severity is the change due to the change in the intensity of the treatment.
- (iii) Mix of services may refer to high level changes such as the overall distribution between inpatient, outpatient and professional fees; or it may refer to something more specific like a change in the mix of providers, such as specialist care replacing primary care. Because of the complexity involved in analyzing all possible changes due to mix of service, it is often thought of a balancing item and determined by examining historical trends.

- (d) Calculate:
- (i) Unit cost trend
 - (ii) Change in severity
 - (iii) Change in mix of services

State your assumptions. Show your work.

Commentary on Question:

Candidates generally did not perform well on part d. Many candidates mixed up the calculations solving for mix of services and labeling as severity, identifying the total trend as the unit cost, etc.. To receive full credit assumptions needed to be made and stated to account for the lack of utilization on CPT codes 3 and 5. Example assumptions included assuming CPT code 5 replaced CPT code 3 or a 0% unit cost trend was applied for these codes. Full credit was given for multiple approaches given the approach was in alignment with the assumptions stated.

8. Continued

Assuming CPT code 3 is replaced by CPT code 5 in the fee schedule.

Unit Cost:

Description	2021 Weight	2021 Fee Schedule	2022 Fee Schedule
CPT Code 1	45%	\$95	\$105
CPT Code 2	22%	\$145	\$140
CPT Code 3/5	8%	\$1,750	\$1,900
CPT Code 4	20%	\$230	\$265
CPT Code 6	5%	\$3,500	\$2,800
		=sumproduct(2021 Weights 2021 Fee Schedule)	=sumproduct(2021 Weights 2022 Fee Schedule)
Unit Cost		\$435.65	\$423.05

$$\text{Unit Cost} = 423.05/435.65 - 1 = -2.9\%$$

Severity:

Description	2021 Weight	2022 Weight	2022 Fee Schedule
CPT Code 1	45%	40%	\$105
CPT Code 2	22%	18%	\$140
CPT Code 3/5	8%	12%	\$1,900
CPT Code 4	20%	25%	\$265
CPT Code 6	5%	5%	\$2,800
		=sumproduct(2022 Fee Schedule 2021 Weights)	=sumproduct(2022 Fee Schedule 2021 Weights)
Severity		\$423.05	\$501.45

$$\text{Severity} = 501.45/423.05 - 1 = 18.5\%$$

8. Continued

Mix in Services

Description	2021 Weight	2022 Weight	2021 Fee Schedule	2022 Fee Schedule
CPT Code 1	45%	40%	\$95	\$105
CPT Code 2	22%	18%	\$145	\$140
CPT Code 3	8%	0%	\$1,750	\$1,750
CPT Code 4	20%	25%	\$230	\$265
CPT Code 5	0%	12%	\$1,900	\$1,900
CPT Code 6	5%	5%	\$3,500	\$2,800
			=sumproduct(2021 weights 2021 Fee Schedule)	=sumproduct(2022 weights 2022 Fee Schedule)
Total			\$435.65	\$501.45

Total Trend = $501.45/435.65 - 1 = 15.1\%$

Mix in Services = $(1.151)/(1.185*0.971) = 0.0\%$

- (e) Identify four additional trend components ABC should consider when developing prospective pricing trends.

Commentary on Question:

Candidates generally did well on part e. Only four components were needed to be listed, other correct responses were given full credit.

Utilization

One-time

Population shifts

Leveraging

- (f) Recommend whether DEF should pursue APMs. Justify your response.

Commentary on Question:

Candidates generally did not perform well on Part f. To receive credit candidates need to provide a clear recommendation with a supporting justification. Full points were given for a recommendation to support or not to support if sufficient justification was provided.

No, DEF should not pursue APMs. APMs require a sufficient amount of time to implement and reductions in cost might be offset by provider payment incentives. Additionally, the trend is driven by severity which is not addressed in APM structures.

8. Continued

- (g) Describe the impact behavioral changes arising from this announcement may have on trends.

Commentary on Question:

On part g, candidates generally did well recognizing the rush-hush-crush pattern and describing the impacts from the announcement.

The announcement of the change to a HDHP will result a 'rush-hush-crush' cycle. The rush is the result of members rushing to receive preference-sensitive services before the change. This leads to higher trends in the period preceding the TPA change.

The hush is the result of rushed optional services occurring before the change not occurring after the change. It is also due to members holding off on receiving services until they know more about the new plan. This, compounded with any expected savings from changing plans and TPAs, leads to lower trends following the TPA change.

The crush is the result of utilization returning to normal levels, but because of the lower basis during the "hush" period, the "crush" trends will be higher.

9. 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:

- (1d) Describe Medicare benefits and evaluate pricing and filing requirements.
- (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.
- (2g) Apply actuarial standard of practice in evaluating and projecting claim data.

Sources:

Group Insurance, Skwire, Daniel D., 8th Edition, 2021 chapter 9

GHDP-128-21: Pricing Medicare Supplement Benefits, 2020, sections IV & V

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a) List and describe types of Medicare Supplement reserves.

Commentary on Question:

Candidates generally performed well on this part of the question. The question asks for a list and description of the types of Medicare Supplement reserves. Candidates that only provided a list with a description received partial credit.

1. Claim Reserves – an estimate of the liability for claims incurred but not yet reported / paid as of the valuation date.

9. Continued

2. Active Life Reserves – reserves for non-cancellable or guaranteed renewable policies where there is pre-funding of the premiums in the early years of the policies. All standard Medicare Supplement policies are guaranteed renewable.
 3. Premium Deficiency Reserves: A reserve to account for inadequate premiums to cover the cost of claims. Premium adequacy should be tested to determine the need for premium deficiency reserves. If premiums are inadequate, premium deficiency reserves should be established and rate increases should be sought when possible.
- (b) Calculate the annual premium for an 80 year-old non-smoker male. State your assumptions. Show your work.

Commentary on Question:

Few candidates received full credit for this question. Most candidates received partial credit for correctly performing parts of the calculations – calculating the decrease in the covered population to reflect the mortality rate / lapse rate, calculating the present value of the claims cost, calculating the adjusted claims cost to reflect gender and non-smoker status, and accounting for the desired 65% loss ratio.

The calculation can be broken down into the following seven steps – there are alternative calculation methods to arrive at the correct answer.

- Step 1. Calculate the membership to reflect mortality and lapse rate
- Step 2. Calculate the adjusted claim cost to account for gender and non-smoker status
- Step 3. Multiply adjusted claims cost by membership
- Step 4. Calculate present value of claims cost
- Step 5. Calculate required premium using desired loss ratio
- Step 6. Calculate PV of premium
- Step 7. Calculate the required premium

9. Continued

Policy Year	Attained Age	Mortality Rate per 1000	Plan Lapse Rate	Unadjusted Claim Cost	Gender Factor Adjustment for Male	Non-Smoker Adjustment Factor
1	80	56.24	23.0%	1,809	7.7%	-2.9%
2	81	62.36	20.0%	1,833	8.0%	-2.9%
3	82	69.23	20.0%	1,856	8.2%	-2.9%
4	83	76.88	20.0%	1,878	8.4%	-2.9%
5	84	85.45	20.0%	1,899	8.6%	-2.9%
6	85	95.06	15.0%	1,920	8.9%	-2.9%
7	86	105.83	15.0%	1,940	9.1%	-2.9%
8	87	117.84	15.0%	1,961	9.3%	-2.9%
9	88	131.14	15.0%	1,981	9.6%	-2.9%
10	89	145.75	15.0%	2,002	9.6%	-2.9%
11	90	161.68	12.0%	2,024	9.6%	-2.9%
12	91	178.91	12.0%	2,045	9.6%	-2.9%
13	92	197.41	12.0%	2,067	9.6%	-2.9%
14	93	217.15	12.0%	2,090	9.6%	-2.9%
15	94	238.08	12.0%	2,113	9.6%	-2.9%
16	95	258.82	9.0%	2,137	9.6%	-2.9%
17	96	278.97	9.0%	2,162	9.6%	-2.9%
18	97	298.09	9.0%	2,186	9.6%	-2.9%
19	98	315.76	9.0%	2,212	9.6%	-2.9%
20	99	1000.00	9.0%	2,238	9.6%	-2.9%

9. Continued

	Step 1	Step 2	Step 3	Step 4	Step 5	Step 6	Step 7
Membership	Adjusted Claims Cost	Total Claims Cost	PV of Total Claims Cost	Required Premium	Premium Unit	Premium	
1,000.00	\$1,892	\$1,891,793	\$1,846,200		1,000.00		
726.70	\$1,922	\$1,396,880	\$1,298,300		692.09		
545.10	\$1,950	\$1,062,929	\$940,873		494.43		
405.90	\$1,977	\$802,339	\$676,387		350.63		
299.75	\$2,003	\$600,253	\$481,928		246.61		
219.31	\$2,030	\$445,251	\$340,458		171.83		
168.69	\$2,055	\$346,689	\$252,470		125.88		
128.21	\$2,081	\$266,840	\$185,068		91.12		
96.14	\$2,108	\$202,682	\$133,877		65.07		
71.00	\$2,131	\$151,274	\$95,163		45.77		
51.56	\$2,154	\$111,049	\$66,531		31.65		
38.03	\$2,176	\$82,773	\$47,230		22.24		
27.48	\$2,200	\$60,453	\$32,851		15.30		
19.41	\$2,224	\$43,172	\$22,343		10.29		
13.37	\$2,249	\$30,069	\$14,821		6.75		
8.97	\$2,274	\$20,390	\$9,571		4.31		
6.05	\$2,301	\$13,913	\$6,220		2.77		
3.97	\$2,326	\$9,230	\$3,930		1.73		
2.53	\$2,354	\$5,966	\$2,419		1.05		
1.58	\$2,382	\$3,758	\$1,451		0.62		
3,833.75	\$42,789	\$7,547,703	\$6,458,094	\$9,935,529	3,380.15	\$2,939.37	

Step 1: $726.70 = 1,000 \times (1 - 56.24/1,000) \times (1 - 23.0\%)$

$545.10 = 726.70 \times (1 - 62.36/1,000) \times (1 - 20.0\%)$

Calculations for subsequent cells follow a similar approach.

Step 2: $\$1,892 = \$1,809 \times (1 + 7.7\%) \times (1 - 2.9\%)$

$\$1,922 = \$1,833 \times (1 + 8.0\%) \times (1 - 2.9\%)$

Calculations for subsequent cells follow a similar approach.

Step 3: Multiply the membership (from Step 1) with the adjusted claim cost (from Step 2)

Step 4: $\$1,846,200 = \$1,891,793 / (1.05)^{0.5}$

$\$1,298,300 = \$1,396,880 / (1.05)^{1.5}$

Calculations for subsequent cells follow a similar approach – discount for an additional year for subsequent cell.

9. Continued

Step 5: Sum up the PV of the Total Claims Cost and divide by the desired loss ratio of 65%

$$\$9,935,529 = \$6,458,095 / 65\%$$

Step 6: $1,000 = 1,000$ (no discounting needed)

$$692.09 = 726.70 / 1.05$$

$$494.43 = 545.10 / 1.05^2$$

Calculations for subsequent cells follow a similar approach – discount for an additional year for subsequent cell.

Step 7: The premium is calculated by dividing the answer from Step 5 by the answer from Step 6

$$\$2,939.37 = \$9,935,529 / 3,380.15$$

(c)

- (i) Interpret the impact of the revised experience study on the future expected life-time loss ratio projections.

Commentary on Question:

Most candidates performed well on this part of the question and received full credit. Candidates that only observed how the lapse rate and the claims cost emerged and how that compares to the original pricing assumption without commenting on the impact to the expected life-time loss ratio projections received partial credit.

The revised experience study shows the lapse rate is lower than the original pricing assumption. The premiums will not increase; therefore, this will increase claims cost and the expected life-time loss ratio in later policy years.

The revised experience study shows the projected claims (after accounting for trend) are much higher than the original pricing assumption. This will increase overall claims cost and increase the expected life-time loss ratio.

- (ii) Assess the impact of the revised experience study on the different types of reserves.

Commentary on Question:

Most candidates received partial credit for this part of the question – candidates noted the need to increase the claim reserves and the active life reserves. Few candidates noted the need to increase the premium deficiency reserves.

9. Continued

Claim Reserves – the revised experience study shows the claim cost coming in higher. This will require an increase to the claim reserves.

Active Life Reserves – the lapse rate emerged lower than the original pricing assumption. This will require an increase to the active life reserves.

Premium Deficiency Reserves – the policy is an issue-age policy with no rate increase in subsequent years. The observed increase in claim cost and lower lapse from the revised experience study increases the likelihood that future premiums will not be sufficient to cover future claim cost. Therefore, this will require an increase to the premium deficiency reserves.

10. 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.
- (1c) Evaluate the potential moral hazard and financial and legal risks associated with each coverage.
- (1g) Describe the Affordable Care Act and evaluate impacts on pricing and filing.
- (2c) Calculate and recommend assumptions.
- (2f) Describe the product development process including risks and opportunities to be considered during the process.

Sources:

Group Insurance 8th Edition, Chapters 3, 5 & 19; Individual Health 2nd Edition Chapters 2 & 5.

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a) Compare and contrast pricing considerations between a medical stop loss product and a small group fully insured ACA product in the following areas:
 - (i) Risk selection and acceptance
 - (ii) Covered services and plan designs
 - (iii) Rating variables and structure
 - (iv) Compliance, regulatory, and operational expenses

10. Continued

Commentary on Question:

This section assesses the candidates understanding of two prevalent medical products/funding mechanism. The candidate needed to integrate different components of the source material to offer comprehensive compare and contrast of the two products. Full credit was given for other reasonable responses for each area.

(i) Risk selection and acceptance

The insurer must account for the cost of the guaranteed issue risk in the fully insured market. It has limited or no ability to exclude known or potential claims.

Policy acceptance

The insurer would have to accept all fully insured applicants, whether the expected claim costs are acceptable or not.

The insurer could decline to quote any self-funded groups if it deems the risk is not acceptable.

Pre-Existing and Known conditions

The insurer cannot exclude any individuals from coverage and cannot set a different premium rate for anyone with a pre-existing condition.

The insurer can exclude or set a separate deductible for individuals with pre-existing condition or known potential stop loss claim.

(ii) Covered services and plan designs

Covered Services

The insurer must price to include all required ACA covered benefits.

Fully insured policies are subject to benchmark plans and essential health benefits requirements.

While the underlying plans of the stop loss policies often cover most of the services, they are not required.

Plan Design

The insurer could only offer fully insured plans that meet an Actuarial Value metal level (platinum, gold, silver and bronze).

The underlying coverage of the stop loss policies are not subject to the metal level plan offerings. Stop Loss Coverage has Individual Stop Loss and Aggregate Stop Loss.

10. Continued

ACA places a limit on the maximum allowable out-of-pocket limit (in 2022, the maximum limit is \$8,700 for in-network covered services). While the limit is generally high enough, the insurer needs to consider, if it plans to use reference-based pricing for the fully insured, that claim costs above the reference-based benchmark could fall on the insured to pay.

(iii) Rating variables and structure

There are regulatory limitations on matching premium (revenue) to expected claims at the policy level.

Fully insured small group and individual premium rates are set at block level, not policy level.

The insurer could only vary Fully Insured rates by regulatory approved rating variables. Rating limitations include age with a 3:1 rate band, geographic area as destined by the states and tobacco use with a 1.5:1 ratio. There is no gender recognition in premium rates though gender is a key claims driver.

While stop loss premium rates are expressed at composite tier rates, the insurer could consider at the policy level and could vary rates by age, gender, area, overall and individual policy experience, prospective individual costs without regulatory limitations.

(iv) Compliance, regulatory, and operational expenses

Compliance expenses

The insurer needs to account for the added compliance expenses in the fully insured ACA pricing. The added compliance includes annual rate filings, Actuarial Value certifications, medical loss ratio (MLR) reporting, MLR rebates administration and differing statutory benefit requirements. The added compliance and related expenses are not required in stop loss.

Regulatory expenses

The insurer will not have full power to set the premium rates as appropriate for the fully insured products. Fully insured premium rates are subject to regulatory approval both at the initial filing and renewal filing. The insurer can set stop loss premium rates as it sees appropriate.

10. Continued

Operational expenses

The insurer will have added operation expenses for the fully insured product. It likely needs to set up a separate business or a dedicated unit for the fully insured products. Fully insured and stop loss must be tracked separately as the product development, distribution, claims management, experience monitoring, capital requirements, and legal matters are different. Fully insured premiums are much higher than stop loss premium, providing administrative margin for the expenses. The insurer needs to consider the operation expenses accordingly.

- (b) Recommend whether or not to proceed with the proposal. Justify your response.

Commentary on Question:

The question is to assess the implication or utilization of the knowledge in question (a) in the context of the questions. Two key points in the questions “small” regional insurance company in (a) and to quickly grow the company’s profitability. Full credit was given for other reasonable responses that included a fully supported justification.

I do not recommend they proceed with the proposal.

Entering a new line of business will require high capital expenses and as a new entrant, there is a risk they will not capture adequate membership to offset capital needs and fully recover administrative costs in the first year.

XYZ does not have an infrastructure to handle the operations, regulatory and compliance required for a fully insurance product. It needs a provider network that works for fully insured products.