CURATED PAST EXAM ITEMS
- Solutions -

GH 201-U – Valuation and Regulation, U.S.

Important Information:

- These curated past exam items are intended to allow candidates to focus on past SOA fellowship assessments. These items are organized by topic and learning objective with relevant learning outcomes, source materials, and candidate commentary identified. We have included items that are relevant in the new course structure, and where feasible we have made updates to questions to make them relevant.
- Where an item applies to multiple learning objectives, it has been placed under each applicable learning objective.
- Candidate solutions other than those presented in this material, if appropriate for the context, could receive full marks. For interpretation items, solutions presented in these documents are not necessarily the only valid solutions.
- Learning Outcome Statements and supporting syllabus materials may have changed since each exam was administered. New assessment items are developed from the current Learning Outcome Statements and syllabus materials. The inclusion in these curated past exam questions of material that is no longer current does not bring such material into scope for current assessments.
- Thus, while we have made our best effort and conducted multiple reviews, alignment with the current system or choice of classification may not be perfect. Candidates with questions or ideas for improvement may reach out to education@soa.org. We expect to make updates annually.

Group and Health Course GH 201-U
Curated Past Exam Solutions
Learning Objective #1: Reserving
Applicable SOA Questions: Fall 2020 to Fall 2024
Solutions

Contents

1. Fall 2020 FV-A #1

SOA Commentary on Question

The Question was testing the basis for short-term benefit reserves. The key to the question was identifying the information from the syllabus and applying the knowledge to parts (b) and (c).

Part a:

Source(s): Skwire 39 – Claim Reserves for Short-Term Benefits
Question: Describe considerations for establishing claim reserves for short-term benefits.

SOA Answer:

- Company's **internal practices**, which may cause lags to be faster or slower than normal which can be significant.
- Consider **External environmental influences**, such as epidemics, governmental mandates or new laws
- The types of benefits, utilization incentives or disincentives, claim sizes in general, and other **policy provisions**
- **Insurance characteristics** such as new insured difference in utilization or a complicated new benefit.
- Consider each **homogenous category of business**. The drawback of increasing the number or **reserve cells** is that the estimation error may be increased for cells that are too small (credibility of data for each cell)
- M**anaged care** initiatives or discounts including changes in utilization levels and impacts on larger sized claims.
- Claims may increase or decrease significantly at various times of the year (**seasonality**)
- Recessions (**economic conditions**) will affect claims for elective treatments, but cause an increase in incidences and durations of claim where people fear the loss of coverage
- Reserve bases, reconciliation, trends and claims administrative expense factors are also important

Part b:

Source(s): Skwire 39 – Claim Reserves for Short-Term Benefits
Question: Describe ways you can check the reasonability of your claim reserve calculation.

SOA Answer:

- Reserve comply with ASOPs?
- Does the final amount make sense?
- How does it compare with the prior year?
- How does it compare to the industry?

Part c

Source(s): Skwire 39 – Claim Reserves for Short-Term Benefits
Question: Explain the effects this change could have on your client's year-end claim reserves.

SOA Answer:

- Higher deductible plans have greater seasonality differences causing later quarter claim liabilities to be higher than earlier quarters. This could make their year-end liability greater despite the reduction in benefit.
- A new plan will likely impact utilization in the first year as employees get used to the new plan design.
- An announcement of a plan reduction could lead to increased utilization in the prior year in the form of a benefit rush.
- Changes in service mix (inpatient, outpatient, professional, drug)

Part d:

Source(s): Skwire 39 – Claim Reserves for Short-Term Benefits
Question: (i) List and describe four stochastic modeling techniques. (ii) List considerations for applying stochastic modeling to estimating reserves.

SOA Answer:

(i)

Monte Carlo Sampling and Simulation: Significant practical value when trying to combine results from any of the other stochastic models

Parametric Distribution –Works best when the process being modeled is stationary over time

Ordinary Least Squares Regression: Used when we want to investigate the effects of specific explanatory variables, such as time or seasonality.

Generalized Linear Models: Best to use when a dependent variable is either bounded or not normally distributed

Stochastic Time Series: Useful for handling situation where values are correlated across time

(ii)

- Availability of data
- Appropriateness of data
- Access to statistical software
- Validation of results
- Covariance between model inputs
- Advantages vs. disadvantages

2. Fall 2020 FV-A #3

SOA Commentary on Question:

In general, the question was testing a candidate's comprehensive knowledge of the development reserving method. The question was divided into three sections where candidates were asked to demonstrate the following:

***#3a** – Successful candidates were able to provide the correct characteristics for which the development method was appropriate and describe why the characteristic was appropriate. Full points were awarded when candidates provided the characteristic and description.*

***#3b** – Successful candidates were able to provide a clear recommendation and provide at least 2 supporting arguments for their recommendation. It was important for candidates not to contradict their arguments.*

***#3c** – Successful candidates were able to use the data provided and calculate the completion factors which were then used to calculate the total year end reserves. If an error was made in the first part of the problem, we did our best to follow the error through the entire problem*

Part a:

Source(s): GH201-100-25 – Health Reserves

Question: Describe characteristics of coverage for which the development method is appropriate.

SOA Commentary on Question:

Key words have been highlighted in bold along with the description.

SOA Answer:

1. Ability to systematically **record an incurred date and a payment date** as each claim is adjudicated and paid. The difference between these dates across policies in a valuation cell defines the lag pattern.

2. Fairly **consistent lag patterns** in the progression of claims from their incurred date to a date on which they are ultimately paid in full. Methods exist to smooth and adjust patterns for some disruptions, but the inherent payment pattern cannot be too erratic.
3. Incurred periods should have a **relatively short duration** relative to the ultimate run-out. Monthly periods typically are used for medical claims. Quarterly periods are often used for disability and may even work for large blocks of term life coverage. Annual periods are usually limited to some property/casualty coverages in which run-out may last for years. Longer incurral periods also create complications due to the impact of inflationary or operational changes.

4. A **sufficient volume of business** must be included in a given valuation cell to obtain reasonable stable results. This amount varies by the nature of the benefits and the frequency of claim. Combining blocks of business to achieve credibility therefore requires that they exhibit similar patterns in reporting and processing.

5. The technique also requires either **earned premiums or an exposed contract count** to assist in the calculations. These values help with certain volume adjustments and with the smoothing of statistical fluctuations described in more detail below.

Part b:

Source(s): GH201-100-25 – Health Reserves

Question: Recommend whether or not the development method is appropriate for each company. Justify your answer.

SOA Commentary on Question:

It was very important for successful candidates to provide support for their recommendation and not to contradict their arguments. Successful candidates completed some analysis in Excel to help determine the best recommendation.

Candidates were able to provide either a positive or negative recommendation for Stagecoach Healthcare, LLC as long as their arguments stayed true to the recommendation. This was likely the most challenging company to make this determination as either could be justified.

SOA Answer:

Skyline Health: No, the development method is not appropriate. The lag patterns are not consistent in the progression of claims from incurred date to ultimate date. The claim pattern can be considered to be too erratic to use the development method.

Canyon Inc.: Yes, the development method is appropriate. The lag patterns appear to be consistent with smaller amounts of paid claims in later lag periods. The duration appears to be within a 1-year timespan which is considered a shorter duration. Claim levels indicate that this is a large enough block of business to deem credible.

Stagecoach Healthcare, LLC:

- No, the development method is not appropriate. It is not clear when the ultimate date will be or what the ultimate claims amount will be in order to calculate the completion factors to be used in the development method

Or

- Yes, the development method is appropriate. The lag patterns appear to be consistent with smaller amounts of paid claims in later lag periods.

Part c:

Source(s): GH201-100-25 – Health Reserves

Question: (i) Calculate the completion factor for each lag using January's completion pattern. Show your work. (ii) Calculate the total year-end reserve using the completion factors developed in part (i). Show your work.

SOA Commentary on Question:

Successful candidates were able to use the given data and ultimately calculate the year-end reserve. In general, the parts of the question walk the successful candidate through the high-level steps to get the correct solution.

SOA Answer:

Calculate January cumulative claims for each lag – 1 point
Calculate completion factors – 1 point

Lag 0 cumulative claims = $2,000
Lag 1 cumulative claims = $2,000 + $2,900 =$4,900
Lag 2 cumulative claims = $4,900 + $1,100 = $6,000
Etc.

Lag	January Cumulative Claims
0	$2,000
1	$4,900
2	$6,000
3	$6,700
4	$6,830
5	$6,900
6	$6,940
7	$6,970
8	$6,990
9	$7,020
10	$7,025
11	-

Lag 0 CF = $2,000 / $7,025 = 28.5%
Lag 1 CF = $4,900 / $7,025 = 69.8%
Lag 2 CF = $6,000 / $7,025 = 85.4%
Etc.

Lag	CF
0	28.5%
1	69.8%
2	85.4%
3	95.4%
4	97.2%
5	98.2%
6	98.8%
7	99.2%
8	99.5%
9	99.9%
10	100.0%

Ultimate Claims = Cumulative Claims / CF

Cumulative Claims are given in the chart
December ultimate claims = $1,800 / 28.5% = $6.323
November ultimate claims = $4,300 / 69.8% = $6,165
October ultimate claims = $7,200 / 85.4% = $8,430
Etc.

Reserve = Ultimate Claims – Cumulative Claims
December reserve = $6.323 - $1,800 = $4,523
November reserve = $6,165 - $4,300 = $1,865
October reserve = $8,430 - $7,200 = $1,230
Etc.

The total year-end reserve should be set at $8,529,000.

Month	Lag	CF	Cumulative Claims	Ultimate Claims	Reserve
January	11	100.0%	$7,025	$7,025	$0
February	10	100.0%	$8,026	$8,026	$0
March	9	99.9%	$8,220	$8,226	$6
April	8	99.5%	$7,320	$7,357	$37
May	7	99.2%	$7,510	$7,569	$59
June	6	98.8%	$7,430	$7,521	$91
July	5	98.2%	$7,480	$7,616	$136
August	4	97.2%	$7,530	$7,745	$215
September	3	95.4%	$7,600	$7,969	$369
October	2	85.4%	$7,200	$8,430	$1,230
November	1	69.8%	$4,300	$6,165	$1,865
December	0	28.5%	$1,800	$6,323	$4,523
				Total Reserve (000's)	**$8,529**

3. Fall 2020 FV-A #5

Part a:

Source(s): PDR Discussion Paper

Question: (i) Compare and contrast the purpose of premium deficiency reserves (PDRs) for statutory accounting and for Generally Accepted Accounting Principles (GAAP) accounting (ii) Explain how PDRs may impact statutory and GAAP accounting differently.

SOA Commentary on Question:

Generally, candidates did better on part i. For part ii, candidates got points for explaining impacts on the balance sheet and income statement.

SOA Answer:

(i) For both Stat and GAAP, the PDR establishes a reserve for projected future shortfall that has been contractually assumed.
For Stat, the PDR helps identify a risk of insolvency.
For GAAP, assuming the entity will continue as a going concern, the PDR helps more accurately assess the current and future value of the operations.

(ii) Stat is focused on current insolvency risk rather than future results, so recognizing future losses on only a portion of the entity's business via a PDR could be misleading (because corresponding future gains on other business aren't reflected).
GAAP is more focused on expected future results, so PDRs are less misleading. They reduce current profitability, but improve the representation of future earnings. They remove noise from the recognition of future earnings (as the PDR is released).

The balance sheet impact of a PDR in GAAP may be less significant than in Stat.

- For example, there is no GAAP equivalent of RBC (risk-based capital) impacted by including a PDR.
- However, a PDR in GAAP could negatively impact debt covenants or other contractual commitments

And, applying a PDR in GAAP could fail to meet shareholder expectations for the current financial results.

Part b:

Source(s): PDR Discussion Paper

Question: Calculate the total net gain/loss for 2020 using the above information. Show your work.

SOA Commentary on Question:

Candidates were given full marks if they applied the correct grouping by line of business, calculated the correct PDR per group and in total, and calculated the correct net result including the change in PDR. A common mistake was incorrect or no grouping.

SOA Answer:

HRGM Grouping	2020	2021	2022	PDR
Comprehensive Major Medical				
Group Dental	3	2	2	
Group Major Medical	1	1	1	
Individual Major Medical	-4	-2	1	
Comprehensive Major Medical	0	1	4	0
Income Protection Insurance				
Group Long-term Disability	2	3	4	
Group Short-term Disability	-5	-4	-3	
Income Protection Insurance	-3	-1	1	-4
Limited Benefit Plans				
Individual Critical Illness	-1	-1	1	
Limited Benefit Plans	-1	-1	1	2
Total PDR at 2019-12-31				6

2020 Results Before PDR = Earned Premium – Incurred Claims – Expenses = 50-42-10=-2

Total PDR at 2019-12-31	6
Total PDR at 2020-12-31 (Given)	3
Change in PDR	- 3
Net Gain/Loss for 2020 = -2 – (-3)=	1

Part c:

Source(s): ASOP #42 – Determining Health and Disability Liabilities

Question: List and describe ASOP 42 considerations for estimating premium deficiency reserves.

SOA Commentary on Question:

To earn full marks, the candidate needed to give some meaningful description of the consideration – a list of items was not sufficient.

SOA Answer:

Blocks of Business - The actuary should consider blocks of business in a manner consistent with applicable financial reporting requirements.

Time Period - The actuary should use the valuation date as the beginning of the time period used to project losses from a block of business.

Exposure - The actuary should consider reasonable increases and decreases in exposure units over the time period

Premium Rate Changes - When using a premium rate change assumption, the actuary should use an assumption that is reasonable in relation to the projected claims costs and the risk-bearing entity's expectations.

Claim Trend - The actuary should consider factors that may materially affect future claim payments

Risk-Sharing Arrangements/Provider Arrangements - The actuary should consider risk-sharing arrangements between the risk-bearing entity and other entities

Interest Rates - When using an interest rate assumption to reflect the time value of money in a present value calculation, the actuary should consider items such as the projection period

Reinsurance - The actuary should consider the expected effects of reinsurance
Taxes - The actuary should consider the effect of losses assumed in the calculation of the premium deficiency reserve on the risk-bearing entity's taxes

Non-Claim Expenses - The actuary should consider total expenses of the risk bearing entity in estimating a premium deficiency reserve and should consider whether the expenses allocated to the block of business are reasonable

Applicable Authority - The actuary should consider any applicable law, regulation, or other binding authority

4. Spring 2021 FV-A #5

SOA Commentary on Question:

This question tested the candidates' knowledge of how to calculation completion factors and incurred but not paid (IBNP) reserves. Most candidates did well on the calculations required for parts (a) and (b). Part (c) required candidates to analyze data and to provide relevant questions to investigate.

Part a:

Source(s): GH201-100-25 – Health Reserves

Question: Recommend completion factors for use in reserving. Show your work.

SOA Commentary on Question:

Most candidates did well on this part, a straightforward calculation of completion factors. To receive full credit, the candidate must have stated a recommendation in addition to completing the calculations.

SOA Answer:

First, calculate total incurred claims for each year. Based on information provided in question, claims are complete within five months of incurral.

Inc. Year	Months Between Incurral and Payment					
	0	1	2	3	4	Total
	Number of Claims Paid					
2018	792	396	264	132	72	1,658
2019	912	455	302	154	84	1,907

Next, calculate completion factors. The completion factor at duration *n* is the sum of claims paid through duration *n* divided by the ultimate number of paid claims.

Inc. Year	Completion Factors (number of claims)				
Duration	0	1	2	3	4
2018	47.8%	71.7%	87.7%	95.7%	100.0%
2019	47.8%	71.7%	87.5%	95.6%	100.0%

Because the completion factors are nearly identical in both years, recommend using 2019 factors (or an average of 2018 and 2019 factors).

Part b:

Source(s): GH201-100-25 – Health Reserves

Question: Calculate the number of incurred but not paid (IBNP) claims and the IBNP dollar amount for incurral months Oct 2020 to Dec 2020 using the completion factor method. Show your work.

SOA Commentary on Question:

Some candidates forgot to include the number of IBNP claims and went directly to IBNP dollar amounts, missing half of the possible credit. Many candidates used 2018/2019 claims experience to calculate the average claim amounts, even though 2020 experience is markedly different. Many candidates also applied the completion factors derived in part (a), which were calculated on claim counts, directly to the incurred claims dollars, instead of to the incurred claims counts.

SOA Answer:

First, calculate number of claims paid to date, use incurral factors from part (a) to estimate ultimate expected number of claims, and subtract expected claims from claims paid to date to arrive at incurred but not paid claims count.

Inc. Month	Number of Claims by Paid Month			Claims Paid to Date	Duration	Completion Factor	Expected Claims	Claim Count IBNP
	Oct-2020	Nov-2020	Dec-2020					
Oct-2020	38	23	12	73	2	87.5%	83.4	10.4
Nov-2020		46	23	69	1	71.7%	96.3	27.3
Dec-2020			38	38	0	47.8%	79.5	41.5
Total				180			259.1	**79.1**

Next, calculate average claim size for Q4 2020 based on claims paid to date.

Total claims payments through December 2020: $8.9 million + $8.4 million + $4.6 million = $21.9 million.

Average claim to date: $21.9 million / 180 = $121,667

Finally, calculate total IBNP claims dollars:

IBNP Claims = $121,667 * 79.1 = **$9.63 million**

Part c:

Source(s): GH201-100-25 – Health Reserves

Question: Propose questions to investigate based on your analysis of the patterns in the claims data. Justify your answer.

SOA Commentary on Question:

In order to receive full credit, candidates needed to provide at least two observations on the data patterns and propose relevant question(s) based on each of those observations. Four possible observations and questions are provided below. Many candidates just provided a general list of questions not tied to any particular observations and were awarded partial credit.

SOA Answer:

Observation #1: Total number of claims increased from 1,656 in 2018 to 1,907 in 2019, a 15.2% increase. This is significantly higher than the 4% annual mortality rate suggested by recent studies.

Questions: Have premium or lives inforce for the two years been reviewed to see if they exhibit the block of business growth? Is experience deteriorating for other reasons?

Observation #2: Average claim size increased from $105,676 in 2018 to $110,121 in 2019, a 4.2% increase, and to $121,667 in 2020, a 10.5% increase from 2019. This is significantly higher than the 3% annual wage increase suggested by recent studies, and group life benefits are typically in proportion to wages.

Questions: Have claims been reviewed to see if there is a selection issue? Have new groups been added with higher salaries or richer benefits?

Observation #3: Estimated annualized number of claims in 2020 is 1,036, a decrease of 45.6% from 2019 claims, an extremely large drop.

Questions: Have premium or lives inforce for Q4 been reviewed to see if there was a significant drop? Are there seasonality effects (Q4 claims tend to drop compared to other quarters)?

Observation #4: Claims incurred and paid in November 2020 are 46, much higher than duration 0 claims in October and December (38 each month).

Questions: Were there issues with claims processing in those months (backlogs of claims to be paid, issues with claims processing systems, etc)?

5. Fall 2021 FV-A #2

SOA Commentary on Question:

This was a fairly lengthy question focused specifically on premium deficiency reserves (PDRs) with some straightforward calculations. Few candidates did well on this question, with the average candidate receiving around half of the total points available.

Part a:

Source(s): GH201-100-25 – Health Reserves

Question: List factors the actuary should consider when projecting claims for a Premium Deficiency Reserve ("PDR") calculation.

SOA Commentary on Question:

Most candidates did poorly on this part, instead referring to a different list in the syllabus that included many items not specifically related to claims projections (e.g., non-claim expenses, rate increases, asset returns, etc.). Credit may be earned for items not included on the list below.

SOA Answer:

- Current trends in medical cost and utilization
- Provider risk-sharing
- Changes in provider contracts
- Environmental and demographic impacts on morbidity
- Potential improvements in technology resulting in new services being offered and covered
- Positive morbidity impact of growth in underwritten coverage
- Durational wear-off
- The impact of benefit changes

Part b:

Source(s): PDR Discussion Paper

Question: Describe two reasons why a PDR of $0 may be appropriate for Woodford's Medicare Supplement business.

SOA Commentary on Question:

Candidates performed poorly on this part. Many just provided the definition of a PDR, or brought up other reserves (contract reserves, deferred acquisition costs) that were not relevant. Full credit required more than just a list; some description was necessary. Credit may be earned for items not included on the list below.

SOA Answer:

- Lapsation of members that had high claims so that the business will be profitable going forward
- Large rate increase approved by state makes the business profitable

Part c:

Source(s): PDR Discussion Paper

Question: Calculate the PDR at the end of year 2 for the group medical contract given the premium rate increases are guaranteed through year 5 and assume a discount rate of 0%. Show your work.

SOA Commentary on Question:

Candidates generally did well on this part. Almost all candidates calculated the revised profits correctly, but many did not calculate the resulting PDR correctly.

SOA Answer:

For each of the years 3 through 5, calculate revised gain/loss = earned premiums – revised claims – expenses.

Year	Annual Results ($000)				
	Earned Premiums	Original Claims	Revised Claims	Expenses/ Commissions	Revised Gain/(Loss)
3	$454	$382	$396	$54	$4
4	$464	$392	$414	$56	($6)
5	$475	$403	$417	$57	$1

At end of year 2, only year with projected loss is year 4, and then a gain in year 5. Present value of the losses in year 3 and 4 = $4 - $6 = - $2 … PDR = $2

Part d:

Source(s): PDR Discussion Paper

Question: Calculate the PDR at each testing level for the Denmain businesses including the business acquired from Bayshore. Show your work.

SOA Commentary on Question:

Many candidates did well on this part and calculated the testing level PDRs correctly. Few candidates combined the existing individual and acquired group contracts for testing purposes.

SOA Answer:

Testing Group	Projected Underwriting Cash Flows by Year ($000)					Testing Level PDR
	3	4	5	6	7	
Group Disability	($14)	$3	$4	$5	$7	$14
Group Long-Term Care	$19	$22	$21	$23	$25	$0
Group Dental	$13	$10	$9	$6	$5	$0
Individual Medicare Supplement	($9)	($7)	($5)	($4)	$0	$25
Individual Major Medical	($22)	$0	$15	termed	termed	
Bayshore Group Medical	$4	($6)	$1			
Combined Major Medical	($18)	($6)	$16			$24

Part e:

Source(s): PDR Discussion Paper

Question: Recommend a grouping for the PDR at the reporting level for Denmain including the business acquired from Bayshore. Justify your answer.

SOA Commentary on Question:

Most candidates answered this part correctly. In order to receive full credit, candidates had to provide a justification for their recommendation. A sample justification is provided below.

SOA Answer:

- Group Long-Term Care would need to be reported on its own
- Group Disability would need to be reported on its own
- Comprehensive Major Medical (including Group Dental, Individual Major Medical, Individual Medicare Supplemental, and Bayshore Group Medical) would be combined when reporting

This is the grouping recommended by the Health Reserves Guidance Manual (HRGM).

Part f:

Source(s): PDR Discussion Paper

Question: Calculate the PDR at the reporting level for Denmain including the business acquired from Bayshore using your recommended grouping from (e). Show your work.

SOA Commentary on Question:

Some candidates received full credit for this part, but many made various mathematical or grouping errors.

SOA Answer:

	Projected Underwriting Cash Flows by Year ($000)					PDR
All Comprehensive Major Medical	$13 - $9 - $22 + $4 = ($14)	$10 - $7 + $0 - $6 = ($3)	$9 - $5 + $15 + $1 = $20	$6 - $4 = $2	$5 + $0 = $5	$17

All Comprehensive Major Medical = Group Dental + Individual Medicare Supplement + Individual Major Medical + Bayshore Group Medical

Reporting Grouping		PDR
Group Disability		$14
Group Long-Term Care		$0
All Comprehensive MM		$17
Total		**$31**

Part g:

Source(s): PDR Discussion Paper

Question: Recommend a method to allocate the PDRs from (f) by product for internal reporting purposes. Justify your answer.

SOA Commentary on Question:

Many candidates answered this part correctly. To receive full credit, candidates had to provide a justification for their recommendation. Credit may be earned for other reasonable recommendations.

SOA Answer:

Recommend allocating the resulting PDR for reporting purposes based on earned premium. This would be a good approximation of the relative size of the groupings.

Part h:

Source(s): PDR Discussion Paper

Question: Calculate the PDR at the reporting level for each product using the method recommended in part (g). Show your work.

SOA Commentary on Question:

Generally, if candidates answered part (g) correctly, the calculations done for this part were correct. Other calculations may receive credit based on the recommendations given in part (g).

Product	Grouping	Earned Premium	% of grouping	Grouping PDR	Product PDR
Group Disability	Disability		100.0%	$14	$14.0
Group Long-Term Care	LTC		100.0%	$0	$0.0
Group Dental	Comp MM	$300	23.8%	$17	$4.0
Individual Medicare Supplement	Comp MM	$472	37.4%	$17	$6.4
Individual Major Medical	Comp MM	$47	3.7%	$17	$0.6
Bayshore Group Medical	Comp MM	$443	35.1%	$17	$6.0
Total		$1,262			

Product PDR = Grouping PDR * % of grouping

6. Fall 2021 FV-A #3

SOA Commentary on Question:

Successful candidates summarized the authorization data on an incurred basis and utilized other information appropriately to calculate the reserve. Additionally, successful candidates justified their ways to add conservatism instead of simply providing a list.

Part a:

Source(s): GH201-100-25 – Health Reserves

Question: Calculate the total estimated inpatient Incurred But Not Reported (IBNR) reserve as of the end of the year. Show your work.

SOA Commentary on Question:

Many candidates summarized the authorization data appropriately, but some ignored the data, summarized incorrectly, or did not summarize on an incurred basis. Some candidates had trouble applying completion, seasonality, and/or credibility correctly. Most candidates understood that the IBNR was calculated as incurred minus paid. Partial credit was given where appropriate.

SOA Answer:

Summarize authorizations on an incurred basis using a combination of month and sum-if functions, using a pivot table, or using appropriate sorting. The 'Authorized Days' column below shows the correct amounts.

The following table outlines the remainder of the calculation:

Incurred Month	Authorized Days	Completion	Incurred Days	Contract Cost/Day	Lag-Based Cost/Day	Credibility	Blended Cost/Day	Incurred Claims (000s)	Incurred & Paid (000s)	Estimated IBNP (000s)
	a	b	c=a/b	d	e	f	g=e*f+d*(1-f)	h=c*g/1,000	i	j=h-i
1	948	0.9700	977	$1,100	$930	100%	$930	$909	$909	($0)
2	1,048	0.9700	1,080	$1,100	$1,012	100%	$1,012	$1,093	$1,093	$0
3	1,080	0.9700	1,113	$1,100	$1,068	100%	$1,068	$1,189	$1,165	$24
4	1,061	0.9700	1,094	$1,100	$1,083	100%	$1,083	$1,185	$1,137	$48
5	1,088	0.9700	1,122	$1,100	$1,042	100%	$1,042	$1,169	$1,099	$70
6	1,002	0.9700	1,033	$1,100	$1,026	100%	$1,026	$1,060	$975	$85
7	1,274	0.9700	1,313	$1,100	$939	100%	$939	$1,233	$1,110	$123
8	1,187	0.9700	1,224	$1,100	$1,081	100%	$1,081	$1,323	$1,164	$159
9	1,088	0.9700	1,122	$1,100	$969	100%	$969	$1,087	$935	$152
10	880	0.9500	926	$1,100	$1,153	100%	$1,153	$1,068	$897	$171
11	811	0.9000	901	$1,155	$1,046	90%	$1,057	$952	$781	$171
12	864	0.8500	1,016	$1,045	$942	80%	$963	$978	$774	$204
Total							Totals			$1,207

Part b:

Source(s): GH201-100-25 – Health Reserves

Question: Describe issues with using authorization reports when estimating an IBNR reserve.

SOA Commentary on Question:

Most candidates received credit for generally noting that data quality may be an issue. Candidates may earn credit for other reasonable responses not listed.

SOA Answer:

1) Not all days that are authorized happen so you may need to adjust for differences
2) Not all days that happen are authorized so you may need to adjust for differences
3) COB may result in actual days being less than authorized
4) Appeals may be why actual days are more than authorized

Part c:

Source(s): GH201-100-25 – Health Reserves

Question: Explain four different ways to add conservatism when using authorized days to estimate your IBNR reserve in (a). Justify your answer.

SOA Commentary on Question:

Many candidates successfully listed ways to add conservatism. Some candidates struggled to justify their answers. Candidates may earn credit for other reasonable responses not listed.

SOA Answer:

1) Combine this data with data from another block of business with similar payment patterns to increase data credibility
2) Add conservatism to the cost per day to compensate for the variance in costs caused by combining more than one type of plans as the contractual provisions, benefit structures, and other dynamics of the plans being grouped may differ.
3) Be conservative in selecting credibility assumed of lag data to provide implicit margin for variability in patterns
4) Be conservative in selecting completion factors used in lag approach to provide implicit margin for variability in patterns

7. Fall 2021 FV-A #5

SOA Commentary on Question:

Candidates had a difficult time with making correct calculations. Challenges include the correct length of lag durations and the claims data to be used for the calculation. Since this is the last question, some candidates may have experienced a challenge with limited time.

Part a:

Source(s): GH201-100-25 – Health Reserves

Question: Calculate the incurred but not reported (IBNR) reserve as of September 30, Year 4. Show your work.

SOA Answer:

	(A)	(B)	(C) = (A) - (B)			(D)	(E)	(F) = (C) / (E)	(G) = (F) - (C)
Incurred Date	Paid Through Dec	Paid 4th qtr Year 4	Paid thru Sep Year 4		Sep-Year 3	Cumulative	CF	Calculate Ultimate	Reserve
	$1,871,000						100%		
Sep-Year 3	$2,298,000						100%		
Oct-Year 3	$2,185,000	$0	$2,185,000		Lag 12	$2,298,000	100.0%	$2,185,000	$0
Nov-Year 3	$2,436,000	$4,000	$2,432,000		Lag 11	$2,293,000	99.8%	$2,437,303	$5,303
Dec-Year 3	$1,782,000	$13,000	$1,769,000		Lag 10	$2,289,000	99.6%	$1,775,955	$6,955
Jan-Year 4	$1,888,000	$16,000	$1,872,000		Lag 9	$2,286,000	99.5%	$1,881,827	$9,827
Feb-Year 4	$1,131,000	$15,000	$1,116,000		Lag 8	$2,277,000	99.1%	$1,126,292	$10,292
Mar-Year 4	$1,629,000	$42,000	$1,587,000		Lag 7	$2,263,000	98.5%	$1,611,545	$24,545
Apr-Year 4	$1,252,000	$76,000	$1,176,000		Lag 6	$2,229,000	97.0%	$1,212,404	$36,404
May-Year 4	$1,489,000	$64,000	$1,425,000		Lag 5	$2,196,000	95.6%	$1,491,189	$66,189
Jun-Year 4	$1,321,000	$342,000	$979,000		Lag 4	$2,122,000	92.3%	$1,060,199	$81,199
Jul-Year 4	$1,166,000	$399,000	$767,000		Lag 3	$1,784,000	77.6%	$987,985	$220,985
Aug-Year 4	$1,230,000	$737,000	$493,000		Lag 2	$819,000	35.6%	NA	
Sep-Year 4	$1,400,000	$1,327,000	$73,000		Lag 1	$56,000	2.4%	NA	

PMPM (Aug-Year3) = $1,871,000 / 11,700 = $159.91
PMPM (Sep-Year3) = $2,298,000 / 11,400 = $201.58
PMPM (Aug-Year4) = $159.91 * 1.07 = $171.11

Projected Claims (Aug-Year4) = $171.11 * 11,900 = $2,036,192
Reserve (Aug-Year4) = $2,036,192 - $493,000 = $1,543,192

PMPM (Sep-Year4) = $201.58 * 1.07 = $215.69
Projected Claims (Sep-Year4) = $215.69 * 12,100 = $2,609,843
Reserve (Aug-Year 4) = $2,609,843 - $73,000 = $2,536,843

Total Reserve = ∑(Column G) + $1,543,192 + $2,536,843 = $4,541,734

Part b:

Source(s): GH201-100-25 – Health Reserves

Question: Calculate the difference between the original reserve and the revised reserve from the run-out study. Show your work

SOA Answer:

		(H)	(I)	(J) = (A) / (E)	(K) = (J) - (H)	(L)	(M) = (K) + (L)	(N) = (G)
		Paid Thru	Lag factors	Revised	Reserve as	4th Qtr	Run-out	Original
		Dec - Year 4	from part a	Ultimate	of 12/31/Year 4	Payments	Reserve	Reserve
Lag 17	Aug-Year 3	$1,871,000	100.0%					
Lag 16	Sep-Year 3	$2,298,000	100.0%					
Lag 15	Oct-Year 3	$2,185,000	100.0%	$2,185,000	$0	$0	$0	$0
Lag 14	Nov-Year 3	$2,436,000	100.0%	$2,436,000	$0	$4,000	$4,000	$5,303
Lag 13	Dec-Year 3	$1,782,000	100.0%	$1,782,000	$0	$13,000	$13,000	$6,955
Lag 12	Jan-Year 4	$1,888,000	100.0%	$1,888,000	$0	$16,000	$16,000	$9,827
Lag 11	Feb-Year 4	$1,131,000	99.8%	$1,133,466	$2,466	$15,000	$17,466	$10,292
Lag 10	Mar-Year 4	$1,629,000	99.6%	$1,635,405	$6,405	$42,000	$48,405	$24,545
Lag 9	Apr-Year 4	$1,252,000	99.5%	$1,258,572	$6,572	$76,000	$82,572	$36,404
Lag 8	May-Year 4	$1,489,000	99.1%	$1,502,733	$13,733	$64,000	$77,733	$66,189
Lag 7	Jun-Year 4	$1,321,000	98.5%	$1,341,431	$20,431	$342,000	$362,431	$81,199
Lag 6	Jul-Year 4	$1,166,000	97.0%	$1,202,094	$36,094	$399,000	$435,094	$220,985
Lag 5	Aug-Year 4	$1,230,000	95.6%	$1,287,131	$57,131	$737,000	$794,131	$1,543,192
Lag 4	Sep-Year 4	$1,400,000	92.3%	$1,516,117	$116,117	$1,327,000	$1,443,117	$2,536,843

Total Original Reserve = ∑(Column N) = $4,541,734 (from part a)
Total Revised Reserve = ∑(Column M) = $3,293,949
Difference = $4,541,734 - $3,293,949 = $1,247,785

Part c:

Source(s): ASOP #5 – Incurred Health and Disability Claims
Question: List considerations of Actuarial Standard of Practice #5 that can be used in estimating incurred claims.

SOA Commentary on Question:

There was some confusion on what ASOP 5 represents.

SOA Answer:

Considerations include:

- Health Benefit Plan Provisions and Business Practices
- Economic and other External influences
- Behavior of Claimants
- Organizational Claims Administration
- Claim Seasonality
- Credibility
- Risk Characteristics and Organizational Practices by Line of Business
- Legislative Requirements
- Carve-Outs
- Special Considerations for Long-term Products (not applicable for health insurance)

8. Spring 2022 FV #1

Part a:

Source(s): ASOP #21 – Responding to Financial Audits

Question: Describe the considerations regarding the quality of data to be used for reserving according to Actuarial Standard of Practice No. 23.

SOA Commentary on Question:

To receive full credit, candidates needed to make at least one statement describing data quality related to reserving. Credit was awarded for descriptions not identified in the list below. Most candidates described several considerations relating generally to data quality but nothing specific to reserving, and therefore only received partial credit. No credit was given for responses that only listed key terms.

SOA Answer:

To receive full credit, candidates needed to make at least one statement describing data quality related to reserving. Credit was awarded for descriptions not identified in the list below. Most candidates described several considerations relating generally to data quality but nothing specific to reserving, and therefore only received partial credit. No credit was given for responses that only listed key terms.

Part b:

Source(s): GH201-100-25 – Health Reserves

Question: Describe the considerations when setting initial lag factors for the age-to-age development method.

SOA Commentary on Question:

Candidates did not perform well on this question. Many candidates listed general considerations for using the development method, and not specifically for setting the initial lag factor. Some candidates received partial credit for generally describing the twofold test

SOA Answer:

- In a simple model, pick the duration at which all claims are expected to be complete and set at 1.000 (fully complete). Divide age-to-age development backward to get completion factors.
- It is possible to set the last lag factor to something less than 1.000 if residual claims may still develop.
- Consider whether completion factors can be set greater than 1.000. This means that we expect to have a negative liability, and the expected runout will be recoveries.
- The test for setting completion factors greater than 1.000 is twofold:
  - Consider whether the pattern is consistent historically.
  - Consider whether there are any changes in business practices or provider contracts to suggest the pattern will continue going forward

Part c:

Source(s): GH201-100-25 – Health Reserves

Question: Calculate the IBNR estimate as of 12/31/2021. Show your work

SOA Commentary on Question:

For the months using the development method, most candidates received partial credit for setting up the reserve calculation correctly even if they did not calculate the smoothed six-month average lag factor or completion factors correctly. A common mistake was to use an earlier time period to calculate the six-month average factors, instead of the most recent months, or to set lag 11 at 1.0 instead of lag 12 when determining the completion factor.

For the month using the projection method, few candidates received full credit because most did not trend the PMPM correctly. Several candidates did not use the correct experience period to determine the PMPM or used the sum of the entire triangle instead of the ultimate value. However, most candidates received at least partial credit for calculating a PMPM and applying it correctly in the reserve calculation.

Candidates also received points for appropriately identifying which months should use the projection method instead of the development method based on their completion factors, even if those factors were not correct

SOA Answer:

To calculate the IBNR, candidates had to perform the following steps:

- Step 1: Calculate the age-to-age development factors by dividing the adjacent cells in the claims triangle.

	Month Lag												
Incurred Month	0	1	2	3	4	5	6	7	8	9	10	11	12
June-20	23.51	1.46	1.05	1.02	1.01	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
July-20	30.27	1.29	1.08	1.08	1.02	1.01	1.00	1.00	1.01	1.00	1.00	1.00	1.00
August-20	9.28	1.40	1.06	1.03	1.01	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00
September-20	47.12	1.13	1.04	1.02	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
October-20	5.75	1.44	1.12	1.03	1.01	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
November-20	22.29	1.30	1.03	1.01	1.01	1.01	1.01	1.00	1.00	1.00	1.00	1.00	1.00
December-20	14.91	1.21	1.04	1.05	1.01	1.04	1.00	1.00	1.01	1.01	1.00	1.00	
January-21	10.90	1.50	1.07	1.05	1.03	1.00	1.01	1.01	1.01	1.00	1.00		
February-21	15.82	1.57	1.09	1.02	1.02	1.00	1.01	1.00	1.00	1.00			
March-21	9.23	1.48	1.03	1.01	1.03	1.01	1.00	1.00	1.00				
April-21	20.73	1.28	1.03	1.06	1.01	1.00	1.01	1.00					
May-21	17.03	1.20	1.07	1.02	1.01	1.01	1.00						
June-21	16.51	1.59	1.03	1.01	1.00	1.00							
July-21	23.11	1.25	1.11	1.02	1.01								
August-21	14.52	1.37	1.04	1.08									
September-21	11.23	1.14	1.07										
October-21	4.83	1.69											
November-21	21.94												
December-21													

- Step 2: Calculate the smoothed age-to-age factors by averaging the most recent 6 months of data.
- Step 3: Calculate the completion factors (CF). Since the problem states that all claims are complete after 12 months, set the CF for lag month 12 at 1.00. Then

calculate the lag month 11 CF by dividing the lag month 12 CF by month 11 lag factor.

- Step 4: Identify months with <30% completion, which need to use the projection method to estimate reserves.

Lag Month	0	1	2	3	4	5	6	7	8	9	10	11	12
Lag Factor (6 Mo Avg)	15.356	1.374	1.057	1.031	1.014	1.005	1.005	1.003	1.002	1.003	1.001	1.001	1.000
Completion Factor	4.2%	64.5%	88.7%	93.8%	96.7%	98.1%	98.6%	99.1%	99.4%	99.6%	99.9%	99.9%	**100.0%**
Projection Method Required?	Yes	No	No	No	No	No	No	No	No	No	No	No	No

- Step 5: Calculate the trended PMPM to use for the projection method. Start by using 1/2019-12/2020 experience to calculate a PMPM. Then trend the PMPM for 23.5 months (trending mid-point of experience period to mid-point of reserve estimate month; i.e., 1/1/2020 to 12/15/2021).

2019-2020 Claims	$42,872,648
2019-2020 Members	276,327
PMPM	**$155.15**
Trend at 10% for 23.5 months	
Trended PMPM	**$186.99**

- Step 6: Calculate reserves using the appropriate method for each month.
  - For months that are at least 30% complete, divide the claims paid to date by the completion factor to determine the incurred claims.
  - For months that are less than 30% complete, multiply the trended PMPM by the membership to determine the incurred claims.
  - Subtract the claims paid to date from the incurred claims to determine the IBNR.

			Months that are 30% or more complete			Months that are less than 30% complete		Selected Method	
Incurred Month	**Members**	**Claims Paid to Date**	**Lag Month**	**Completion Factor**	**Incurred Claims**	**Trended PMPM**	**Incurred Claims**	**Incurred Claims**	**IBNR**
January-21	12,227	$2,548,319	11	99.9%	$2,549,802			$2,549,802	$1,482
February-21	12,201	$2,187,520	10	99.9%	$2,190,341			$2,190,341	$2,821
March-21	12,130	$2,361,225	9	99.6%	$2,370,435			$2,370,435	$9,209
April-21	11,986	$2,237,437	8	99.4%	$2,251,387			$2,251,387	$13,950
May-21	11,927	$2,385,024	7	99.1%	$2,406,479			$2,406,479	$21,455
June-21	11,814	$2,196,919	6	98.6%	$2,228,197			$2,228,197	$31,278
July-21	11,787	$2,502,042	5	98.1%	$2,550,951			$2,550,951	$48,909
August-21	11,689	$2,466,086	4	96.7%	$2,550,060			$2,550,060	$83,974
September-21	11,731	$2,688,921	3	93.8%	$2,867,962			$2,867,962	$179,041
October-21	11,843	$2,193,388	2	88.7%	$2,473,189			$2,473,189	$279,802
November-21	11,902	$1,283,817	1	64.5%	$1,989,471			$1,989,471	$705,654
December-21	11,844	$96,378	0	4.2%		$186.99	$2,214,706	$2,214,706	$2,118,328
Total IBNR as of December 2021									**$3,495,902**

9. Fall 2022 FV #1

SOA Commentary on Question:

There are multiple sub-questions in this question – and multiple parts within each sub-question. Many candidates did not provide answers in a clear format which resulted in reduced marks.

Part a:

Source(s): PDR Discussion Paper

Question: Compare and contrast the testing and reporting contract grouping levels with respect to: (i) The purpose of the contract grouping, (ii) Factors impacting how the contract grouping is accomplished.

SOA Commentary on Question:

Candidate should realize there are two comparison points (Testing Contract Grouping and Reporting Contract Grouping). Sub-question (i) is looking to compare and contrast these two points for the purpose of each contract grouping. Sub-question (ii) is looking to compare and contrast these two points on the factors impacting how the contract groupings are accomplished. Candidates should identify similarities and differences when asked to compare and contrast a point. Candidates may have different points compared to below. Points are awarded for any valid answers.

SOA Answer:

(i).

Similarities	• Both grouping levels are a way to group a company's business to determine whether a PDR is necessary. • Both grouping levels may have regulatory requirements but also require actuarial judgment.
Differences	• The testing level is the initial level and its purpose is to achieve a contract grouping so that the projections will provide meaningful results based on reasonable and credible assumptions. • The reporting level is an aggregation of the testing level results to align with external reporting in the appropriate statutory financial format. For GAAP reporting, groupings are generally at a corporate consolidated level and statutory reporting is generally at a legal entity level.

(ii).

Similarities	• For both the testing and reporting groups, the materiality of each grouping relative to the whole reporting entity should be considered. • Groups that are not material by themselves should be combined with the most similar other group.
Differences	• Because reporting groups are framed around external reporting, considerations in establishing the groupings are defined in the respective regulations: SSAP 54 for statutory and FAS 60 for GAAP." • Other factors to consider when determining reporting level groupings include how policies are acquired, marketed, serviced, and measured.

Part b:

Source(s): PDR Discussion Paper

Question: Describe the components that should be included when documenting the assessment of whether a PDR is needed.

SOA Commentary on Question:

The following is a sample solution that warrants full mark. Many candidates missed the describe component and only listed points, partial marks were awarded for this. Candidates may have different points compared to below. Points are awarded for any valid answers.

SOA Answer:

- Description of the groupings, along with:
  - Rationale for the groupings (such as "marketed," "serviced," and "measured" issues)
  - An indication of which lines of business were combined due to immateriality
  - The basis of changes from prior years
- All assumptions used in the projections, such as discount rate, premium rate increase, claims trend
- Discussion of time periods chosen for the projections, over which the deficiency is calculated The basis on which losses will be offset by the release of the reserve – based on timeline or on an index such as earned premiums or membership

Part c:

Source(s): PDR Discussion Paper

Question: Describe American Academy of Actuaries guidance concerning the treatment of expenses that you should consider in your assessment of Osgoode's PDR.

SOA Commentary on Question:

Although there are different treatments of expenses available to Osgoode's PDR, this question specifically asked about the AAA guideline. Successful candidates were able to reference and describe the AAA guidelines concerning the treatment of expenses; not listing the expenses that could be included in the calculation.

SOA Answer:

- Expenses directly attributable to the business being modeled must be reflected in the PDR calculation for that business
- Expenses that are not relevant at all to the business being modeled do not have to be included in any fashion
- All other expenses, including even fixed and indirect expenses, must be supported by some business There is flexibility to allocate some expenses to lines of business (e.g., life and annuity) that fall entirely outside the health PDR calculations as long as it can be demonstrated that those other lines can support those expenses

Part d:

Source(s): PDR Discussion Paper

Question: Critique management's proposal.

SOA Commentary on Question:

Candidate should identify that the management proposal conflicts with HRGM guidelines. Candidate should provide reasons to support such conflict and rationale on their proposal to group or not group LTD and LTC. Candidate should also identify LTD claims system implementation cost should not be allocated to LTD. The following is a sample critique, other proposals and rationales were accepted.

SOA Answer:

- Management's proposal conflicts with HRGM guidelines, which specify separate lines of business for LTC and income protection (including LTD)
- Although HRGM guidelines allow lines of business that are not material on their own to be combined with the most similar other line of business, the claims and premium volume for Osgoode Insurance Company's LTC business does not appear to be small enough to be considered immaterial.
- The new claims processing system is only applicable to LTC, so the associated expenses must be reflected in the PDR calculation for LTC. These expenses cannot be spread across LTC and LTD.

Part e:

Source(s): PDR Discussion Paper

Question: Calculate the PDR as of December 31, 2022 in the below scenarios. Show your work. (i) LTC and LTD are tested and reported separately, (ii) LTC and LTD are combined for testing and reporting purposes.

SOA Commentary on Question:

Candidates should calculate Gain/Loss for each year, then calculate the PDR for the book of business. For (ii), Candidate should identify and illustrate in a calculation, because no year is projected to have a loss, a PDR for combined LTC and LTD block is not required. Candidate needed to show their work to be awarded full marks

SOA Answer:

(i)

	Annual Projections				Discount Factors		Discounted to 12/31/2022			
Yr	Prem	Clm	Exp		1/1 cash flows	7/1 cash flows	Prem	Clm	Exp	G/L
2023	653	588	59		0.0	0.5	653	584	59	11
2024	692	609	113		1.0	1.5	682	596	111	-24
2025	714	663	58		2.0	2.5	693	639	56	-2
2026	735	671	65		3.0	3.5	703	637	62	4

Because 2025 was the last year that carried a loss, gain from 2026 should not be included in the PDR calculation. As such, PDR is $15,000 for the LTC block.

	Annual Projections				Discount Factors		Discounted to 12/31/2022			
Yr	Prem	Clm	Exp		1/1 cash flows	7/1 cash flows	Prem	Clm	Exp	G/L
2023	2,755	1,873	614		0.0	0.5	2,755	1,859	609	286
2024	2,975	1,993	688		1.0	1.5	2,931	1,949	673	309
2025	3,184	2,229	703		2.0	2.5	3,091	2,148	677	266
2026	3,423	2,396	771		3.0	3.5	3,273	2,274	732	267

Because no year is projected to have a loss, no PDR is required for the LTD block.

(ii)

Yr	LTC	LTD	Total
2023	11	286	297
2024	-24	309	285
2025	-2	266	264
2026	4	267	272

Because no year is projected to have a loss, no PDR is required for the combined LTC and LTD block.

10. Fall 2022 FV #4

Part a:

Source(s): Skwire 39 – Claim Reserves for Short-Term Benefits

Question: Describe considerations associated with establishing reserves for short-term benefits.

SOA Commentary on Question:

Part (a) was large a recitation of a list from Chapter 39 of Group Insurance. Most candidates did moderately well on this part with very few candidates receiving either the full score or no points. Only responses with descriptions were awarded points. Candidates were awarded additional points for relevant responses beyond those listed below.

SOA Answer:

- Incurral dating method – some methods incur for claims as they occur and some incur for claims in the future
- Reserve basis – for STAT, GAAP, and Tax use different margin, methods, interest, and continuance tables
- Internal considerations – such as internal staffing or computer system changes
- External considerations – such as epidemics, new government laws
- Economic – such as pent up demand after a recession for discretionary services
- Reserve cells – separate estimation for claims exhibiting different claim cost, frequency, or severity
- Controls and reconciliation – review and confirm the data underlying the analysis
- Claim seasonality – adjust for the impact of seasonality

Part b:

Source(s): Skwire 39 – Claim Reserves for Short-Term Benefits

Question: Describe considerations for setting reserves for BigCo on March 31, 2021.

SOA Commentary on Question:

Part (b) asked candidates to apply the list from Part (a) in a specific situation. Candidates generally recognized that Covid was an event that needed to be addressed and most candidates recognized that either you need to adjust for changes in incurred costs or in completion factors. Candidates were awarded additional points for relevant responses beyond those listed below.

SOA Answer:

- Since no claims were incurred in April and May we would not want to include those two months in any averaging.
- There is likely some built up demand in the months that followed. That will cause reserves needing to be higher.
- Because of deferred care, health claims in the following months might be higher.
- Due to the economic impact of covid-19, individuals may not have the finances to pay for dental services and forgo their visit. Saves money now, but likely has a bigger impact down the road.

Part c:

Source(s): GH201-100-25 – Health Reserves

Question: Calculate the IBNR reserve as of March 31, 2021 using the age-to-ultimate development method. Show your work.

SOA Commentary on Question:

Many candidates received full credit on this part. Common errors included either including January 2020 and February 2020 incurrals in data to develop the completion factor when the payment pattern has clearly changed or basing the completion factors entirely on January 2020 and February 2020 data. Although the answer below uses a link-ratio method, full credit was also given to candidates who based completion factors only on incurred months that were fully complete.

SOA Answer:

Note for the prior 8 months, claims have been complete at month 4.
Data prior to August 2020 is not used due to the impact of the COVID 19 pandemic on claims.

	Paid to Paid factor			
Average	1.9690233	1.168486	1.0195256	1
Incurred Month	1	2	3	4
6/1/2020	2.0606061	1.135294	1.0284974	1
7/1/2020	1.9462366	1.176796	1.0211268	1
8/1/2020	1.8638743	1.16573	1.0289157	1
9/1/2020	1.9798995	1.139594	1.0200445	1
10/1/2020	2.035	1.159705	1.0105932	1
11/1/2020	1.9851485	1.169576	1.0170576	1
12/1/2020	1.9767442	1.126471	1.0104439	
1/1/2021	1.8291457	1.274725		
2/1/2021	2.0445545			
3/1/2021				

Calculated Age to Ultimate	
3	1
2	0.980848
1	0.839418
0	0.426312

	Inc. and Pd	Age to Ult.	Incurred.	IBNR
12/1/2020	387	1	387	0
1/1/2021	464	0.980848	473	9
2/1/2021	413	0.839418	492	79
3/1/2021	194	0.426312	455	261
	Total	**349**		

Part d:

Source(s): GH201-100-25 – Health Reserves

Question: Evaluate the reasonableness of the reserve from (c) using membership and premium data. Show your work and justify your answer.

SOA Commentary on Question:

This part was looking for the candidate to do a comparison of both implied PMPMs and implied loss ratios based on the monthly incurred claims calculated in the prior question. Many candidates only performed one of the tests.

SOA Answer:

Average PMPM for complete data after pandemic:	17.07	June 2020-November 2020
Average LR for complete data after pandemic:	71%	June 2020-November 2020

Implied Incurred for Incomplete Months

		PMPM	Loss Ratio
	1/1/2021	17.22	72.0%
	2/1/2021	19.59	81.8%
	3/1/2021	17.93	74.3%
Average		18.22	75.9%

The PMPM and loss ratio is reasonably aligned with historical average.

Therefore, the reserve appears reasonable.

Part e:

Source(s): ASOP #23 – Data Quality

Question: (i) Assess the level of compliance for each listed consideration. Justify your answer. (ii) Recommend improvements to BigCo for each deficient consideration.

SOA Commentary on Question:

Part (e) (i) asked the candidate to apply ASOP 23 to the specific situations described. Most candidates scored some points on the question but few candidates received a full score. Part (e) (ii) asked the candidate to recommend improvements for deficient considerations. The primary improvements to be identified were performing a review of the data and looking for additional data to give some perspective on things such as possible seasonality and whether the slow payment patterns for January 2020 and February 2020 were related to processing issues resulting from Covid shutdowns.

SOA Answer:

• Selection of Data Mostly compliant. Given that the data looks complete for the analysis it is the right data, but there is some concern for the lack of data during the closure. Identify other sources that may help fill in the gap -- potentially historical data for the client or other industry data
• Review of Data Deficient. The client explicitly indicates no review has been conducted. A review is necessary given the gaps in the data and further analysis will be required. Review with the client if the lags after the office closure are expected to return to the lags experienced prior to the office closure.
• Use of Data Mostly compliant. The data is appropriate for the calculation requested. However, there are issues within the data that must be understood, or it could limit the analysis. Validate data to ensure a higher level of appropriateness to complete the reserve calculation.
• Reliance on Data Supplied by Others Possibly deficient. Much is not known about the data source. Review the data provided with the client to better understand how the information ties out with the general ledger and reconcile to other sources. Disclose any reliance of the claims data.
• Reliance on Other Information Relevant to the Use of Data Possibly deficient. The client did not provide any contract or plan/benefit details, which may be relevant to the reserve calculation. The loss ratio appears to have improved since the pandemic, perhaps caused by a change in benefits. Review with the client if the contract provisions and plan details changed once the pandemic began, or why the client believes the change in loss ratio occurred.
• Confidentiality i. Compliant, to the extent CACC properly protects the information. ii. No improvement required

11. Spring 2023 VR #1

SOA Commentary on Question:

Generally, candidates performed well on this question, especially the first three sections.

Part a:

Source(s): GH201-100-25 – Health Reserves

Question: List and describe the types of claim reserves and claim liabilities required in regulatory statements.

SOA Commentary on Question:

Candidates generally performed very well on this question. Some candidates listed other types of reserves, but were generally able to get part marks if these reserves contained concepts related to claim reserves or liabilities.

SOA Answer:

Points were awarded based on providing the list and describing each type of reserve, up to the maximum points allocated for the question.

Due and unpaid (D&U)
Liabilities for claims that have been reported, adjudicated and processed but final payment has not been recorded as of the valuation date. D&U are typically fairly small in relation to overall reserves. They may be estimated using historical averages.
In Course of Settlement (ICOS)
Liabilities for claims reported, received but not yet adjudicated or paid as of the valuation date.
Incurred but not reported (IBNR)
Liabilities for claims that are anticipated but have not been reported as of the valuation date. This is typically a very large accrual for health insurance. A wide range of estimation techniques can be applied to estimate this liability.
Loss Adjustment Expenses (LAE)
Liabilities for the administrative costs associated with the adjudication of unpaid claims. Usually developed as a percentage of the unpaid claims liability.
Present value of amounts not yet due, or Unaccrued
This reserve covers claims that were incurred on or before the valuation date which have not accrued as of the valuation date. These are most commonly done on a seriatim basis.
Resisted Claims
May vary from carrier to carrier, however, generally include claims for which known litigation situation exists
Outstanding Accounting Feed
Amounts acknowledged as payments, but for which no check has been cut as at the valuation date. Overlaps with Due and Unpaid definitions
Other extended benefits
May include deferred maternity benefits where claim payments after the valuation date are known but not yet due.

Part b:

Source(s): Skwire 39 – Claim Reserves for Short-Term Benefits

Question: (i) List and describe basic techniques to estimate claim reserves. (ii) Recommend reserve methods for each of XYZ's products. Justify your answer.

SOA Commentary on Question:

Generally candidates performed well on this part.

SOA Answer:

Factor method
• This method is generally used for reserves that are easily estimated due to a short lag or run off period.
Lag method (or development method)
This method assumes the historical lag pattern can predict the payment patterns for claims that have been incurred but not yet paid. The method provides an estimate of the ultimate aggregate fully incurred payment for all claims in a time period.
Tabular method
For products such as group long term disability (LTD) insurance, where benefits can be paid for many years on a single claim, industry practice and regulatory standards require the use of a tabular method to compute reserves.
Average Size Claim method
The claim reserve for reported claims is estimated by reviewing claim sizes for previously closed claims. The total reported reserve is then calculated as the estimated average size multiplied by the number of reported claims, less any payments made on these claims prior to the valuation date.
Loss Ratio method
The reserve under this method is based on earned premium times an estimated loss ratio minus paid claims.
Projection Methods
1 Develop projected incurred claims cost per unit of exposure. 2. Multiply this value times the exposure base for each period being estimated. 3. Subtract known paid claims. Can assume the claims cost used in pricing as an estimate.
Examiner's method or Case reserves
Generally, these estimates are based on doctors' statements and past history for such claims. This method is often used to estimate the liability arising from claims subject to lawsuits. In that case, the legal department should be involved in the process.

Life
• Factor method is appropriate given the company has sufficient historical experience to establish a credible factor • Waiver of Premium reserves can leverage the Tabular method
AD&D
• Given the relatively minimal historic experience, the Loss Ratio method would be most suitable
STD
• Given the relatively minimal historic experience, the Loss Ratio method would be most suitable
LTD
• The Tabular method is best suited for long term reserves associated with Long Term Disability
Supplemental Health Plan
• Given the relatively minimal historic experience, the Loss Ratio method would be most suitable • While potentially not fully credible, the lag method can also be reviewed and potentially credibility weighted

Part c:

Source(s): GH201-100-25 – Health Reserves, Skwire 39 – Claim Reserves for Short-Term Benefits

Question: Calculate the total incurred health claims from January 20X2 to June 20X2 using an average of the most recent six months' age-to-age factors. Show your work.

SOA Commentary on Question:

Candidates who were able to calculate the correct incurred claims were able to get full marks even if they did not specifically calculate all steps in the model solution (i.e. calculate incurred claims from age to ultimate factors as opposed to completion factors). Candidates were also not required to perform all of the calculations below, as long as they performed enough calculation to derive the

response. Some areas that candidates generally lost marks were not leveraging the most recent period and six months' of age-to-age factors for averaging.

SOA Answer:

See the accompanying Excel file for the full solution.

Completion Factors

Lag Mth	Development factor	Completion factor
8	1.000	1.000
7	1.000	1.000
6	1.002	1.000
5	1.016	0.998
4	1.054	0.981
3	1.108	0.931
2	1.371	0.840
1	5.794	0.613
0	NA	0.106

Incurred Claim by Month

		Paid to Date	Lag Mth	Completion Factor	Total Incurred
Incurral months	Jan 20X2	1147	5	0.998	1150
	Feb 20X2	1137	4	0.981	1159
	Mar 20X2	1116	3	0.931	1199
	Apr 20X2	934	2	0.840	1111
	May 20X2	734	1	0.613	1198
	Jun 20X2	165	0	0.106	1560
	20X2 Total				7376

Part d:

Source(s): GH201-100-25 – Health Reserves

Question: Critique the use of the development method in part (c).

SOA Commentary on Question:

In order to receive full marks, candidates were required to confirm all the necessary requirements for development method to be suitable, critique how that applies in this situation, and recommend some potential alternatives to improve.

SOA Answer:

i) Development method works best if the following conditions are met:

1. Ability to record incurred date and payment date of each claim.
2. Consistent lag patterns.
3. Incurred periods should have a relatively short duration.
4. Sufficient volume of business
5. Requires either earned premium or exposed contract counts to assist in the calculation

ii) XYZ's health block does not meet criteria 2. 4. And unclear on 5. Significant business growth is observed in 2021 and 2022. The runoff pattern is not stable.

iii) Estimates for ultimate claims for months below the threshold are often based on an alternative estimate of the average incurred claim cost per contract or member. Two common methods of developing the alternative estimates are

1. an estimate based on the trend in claim cost (claim dollars per unit of exposure, such as PMPM), or
2. an estimate based on applying an assumed loss ratio (ratio of incurred claims to earned premium) to earned premium.

Part e:

Source(s): GH201-100-25 – Health Reserves, Skwire 39 – Claim Reserves for Short-Term Benefits
Question: Calculate the Incurred But Not Paid (IBNP) reserve as of June 30, 20X2 by applying both credibility weights and an alternative method. State your assumptions and show your work.

SOA Commentary on Question:

Some candidates did not consider an alternative method for this part of the question and considered alternative smooth techniques within the development method. Points were awarded for either Loss Ratio or Projection Method alternatives, although Loss Ratio method is described below. In order to get full marks, candidates were required to provide a reason for their determination of the credibility formula.

SOA Answer:

Calculate Loss Ratio

		Paid to Date	Earned Premium	Loss Ratio
Incurral months	Jan 20X1	97	150	65%
	Feb 20X1	243	350	69%
	Mar 20X1	534	750	71%
	Apr 20X1	969	900	108%
	May 20X1	989	1200	82%
	Jun 20X1	1010	1300	78%
	Jul 20X1	1030	1400	74%
	Aug 20X1	1051	1400	75%
	Sep 20X1	1072	1500	71%
	Oct 20X1	1093	1500	73%
	Nov 20X1	1115	1700	66%
	Dec 20X1	1137	1800	63%

Loss Ratio = Sum of Paid to Date / Sum of Earned Premium = 74%

Calculate Incurred Claims based on LR Method

		Paid to Date	Earned Premium	Expected Incurred
Incurral months	Jan 20X1	1147	1750	1297
	Feb 20X2	1137	1700	1260
	Mar 20X2	1116	1750	1297
	Apr 20X2	934	1750	1297
	May 20X2	734	1800	1334
	Jun 20X2	165	1800	1334

Credibility-Blended Estimate

		Paid to Date	Completion Factor	Incurred (Development)	Incurred (Loss Ratio)	Incurred (Blended with Completion Factor)
Incurral months	Jan 20X1	1147	0.998	1150	1297	1150
	Feb 20X2	1137	0.981	1159	1260	1160
	Mar 20X2	1116	0.931	1199	1297	1205
	Apr 20X2	934	0.840	1111	1297	1141
	May 20X2	734	0.613	1198	1334	1250
	Jun 20X2	165	0.106	1560	1334	1358

IBNP

IBNP = 2031

12. Fall 2023 VR #1

Part a:

Source(s): GH201-100-25 – Health Reserves

Question: (i) Describe the Tabular method, Examiner's method, and Factor method. (ii) Explain for which lines of business it is appropriate to use each method.

SOA Commentary on Question:

Most candidates were able to describe the three methods, but had difficulty in part ii) of identifying appropriate lines of business for the examiner's method and factor method.

SOA Answer:

(i) **Tabular method –**

Under this method, a reserve is computed for each claim (rather than for the block as a whole), using a table of expected recovery and mortality rates. The actuary projects future benefits expected to be paid to the claimant, and then determines the present value of those benefits, discounting for recovery and mortality (using the tabular rates) as well as for interest.

Examiner's method –

Under this method, claim department or other qualified personnel are asked to estimate the remaining claim payments expected on known claims, based on the characteristics of each claim.

Factor method –

This method is generally used for reserves that are easily estimated due to a short lag or run off period. Utilizes historical factor (percent of premium, claims PMPM factor etc.) to project future ultimate claims.

(ii) **Tabular method –** This method is used for long term products such as long term disability and long term care.

Examiner's method –

This method can be used for the following types of products:

Short Term Medical Products

- to estimate very large catastrophic claims.

Short Term Disability and Hospital Income

- where the present value of amounts not yet due is easily estimated and not particularly impacted by termination rates or other contingencies.

Factor method –

This method is used for Group Life and Medical Products.

Part b:

Source(s): GH201-100-25 – Health Reserves

Question: Recommend whether the development method is appropriate for each scenario. Justify your answer.

SOA Commentary on Question:

Most candidates received partial credit on this section.

Table 4 presented a challenge to many candidates as they looked only at the lag patterns and not the claims volume that was changing significantly. Some candidates did not provide a recommendation, but instead gave pros and cons. If no recommendation was given, then no points were awarded for that scenario.

SOA Answer:

Table 1

• No, the development method is not appropriate.

The lag patterns are not consistent in the progression of claims from incurred date to ultimate date. The claim pattern is too erratic to use the development method.

Table 2

• Yes, the development method is appropriate.

The lag patterns appear to be consistent with smaller amounts of paid claims in later lag periods. The duration appears to be within a 1-year timespan which is considered a shorter duration. Claim levels indicate that this is a large enough block of business to deem credible.

Table 3

• No, the development method is not appropriate.

It is not clear when the ultimate date will be or what the ultimate claims amount will be in order to calculate the completion factors to be used in the development method

Table 4

• No, the development method is not appropriate.

While lag patterns appear consistent, the problem is the block appears to be either growing rapidly or has issues with credibility. It is unclear is the current payment pattern will hold in later months with higher claim volume.

Part c:

Source(s): GH201-100-25 – Health Reserves

Question: Recommend the incurred month to be used as the basis for an age-to-ultimate development factor reserve. Show your work and justify your answer.

SOA Commentary on Question:

Most candidates did well on this section. Below is a solution, but other selected months with appropriate justification that met the Chief actuary's criteria are acceptable.

SOA Answer:

January has an unusual payment in month 12 that does not seem to be representative of the other months.

The chief actuary requires at least 10 months to be used, which eliminates using May through December.

Recommend using Feb as it has the most months of data otherwise.

Part d:

Source(s): GH201-100-25 – Health Reserves

Question: Calculate the IBNR as of January 31, 20X2 using your recommendation from (c). Show your work.

SOA Commentary on Question:

The solution in the attached excel file is based on having chosen February as the reserve month. Other solutions are acceptable based on the month recommended in part c.

SOA Answer:

See the accompanying Excel file for the full solution.

Part e:

Source(s): GH201-100-25 – Health Reserves

Question: Calculate the total case reserve for the members in Exhibit 3. Show your work.

SOA Commentary on Question:

Since the contract terms for Hospital C and D are based on an average cost per day, the length of stay for members at those hospitals needs to be calculated in the actual number of days. Some candidates used 30 days for all months instead of the calendar days that each month has. Also, if the length of stay below plus 1 was used, then this was an acceptable answer. Many candidates did not apply the stop loss correctly for member 4 to limit the financial limit to $300,000 across both hospital stays.

SOA Answer:

		A)	B)	C) = 12/31-B)	D) = Hosp A and B	E) = Hosp C and D	F) = A)*D) + C)*E)	G) = Min $300k, F) per member
Mbr ID	Hosp	Billed Amt	Admit Date in 20X2	LOS	Discount	Cost per day	Expected Claims	With Financial Limit Applied
1	A	$944,647	9/1		0.6		$566,788.20	$300,000.00
2	B	$928,492	9/1		0.4		$371,396.80	$300,000.00
3	C	$505,729	11/1	60		4000	$240,000.00	$240,000.00
4*	B	$501,205	9/1		0.4		$200,482.00	$200,482.00
4*	D	$849,032	11/1	60		2500	$150,000.00	$99,518.00
5	A	$747,554	9/1		0.6		$448,532.40	$300,000.00
6	B	$948,928	9/1		0.4		$379,571.20	$300,000.00
7	C	$524,505	10/1	91		4000	$364,000.00	$300,000.00
8	D	$819,454	10/1	91		2500	$227,500.00	$227,500.00
9	C	$530,468	10/1	91		4000	$364,000.00	$300,000.00
10	D	$943,329	9/1	121		2500	$302,500.00	$300,000.00
11	A	$696,121	11/1		0.6		$417,672.60	$300,000.00
12	B	$816,868	9/1		0.4		$326,747.20	$300,000.00
13	C	$946,993	9/1	121		4000	$484,000.00	$300,000.00
14	D	$658,236	10/1	91		2500	$227,500.00	$227,500.00
15	A	$850,079	11/1		0.6		$510,047.40	$300,000.00
16	B	$868,005	9/1		0.4		$347,202.00	$300,000.00
17	C	$845,355	9/1	121		4000	$484,000.00	$300,000.00
18	D	$639,030	10/1	91		2500	$227,500.00	$227,500.00
19	C	$557,874	9/1	121		4000	$484,000.00	$300,000.00
20	D	$550,065	10/1	91		2500	$227,500.00	$227,500.00
							Total =	**$5,650,000**

Mbr 4 has 2 hospital stays so the second visit is capped at $300K - $200,482 = $99,518.00

13. Fall 2023 VR #2

Part a:

Source(s): GH201-100-25 – Health Reserves
Question: Identify and describe any provider or outcome-based liabilities that should be accounted for on the Non-Grandfathered Small Group Fully Insured block.

SOA Commentary on Question:
Most candidates were able to describe either one of the ACA-related liabilities.

Nearly all candidates did not identify that no provider-related liabilities were needed. Some candidates identified group-specific liabilities, but these are not relevant in Non-Grandfathered Small Group space.

SOA Answer:

- There are no outcome or provider based liabilities needed in a discounted FFS Model, as there are no incentive or bonus payments contracted to providers
- MLR - The actuary should consider accruing a liability if the MLR is lower than the MLR Threshold for rebates.
- Risk Adjustment - the actuary should consider accruing payments or receipts from HHS risk adjustment.

Part b:

Source(s): ASOP #42 – Determining Health and Disability Liabilities
Question: Identify and describe considerations when setting the liabilities in part (a).

SOA Commentary on Question:
Most candidates were able to describe some considerations related to the ACA liabilities.

SOA Answer:

- MLR - Make sure to adjust claims by gross reinsurance, risk adjustment recoveries, IBNR, and allowable quality improvement expenses. Make sure to adjust revenue by taxes
- MLR - Collectability and required adjustments
- Risk Adjustment - The actuary must estimate the MCO's average risk score against the statewide average, knowing that this is a zero-sum game
- Risk Adjustment - Understand whether payments are market neutral and the collectability
- Risk Adjustment - Understand the payments methodology prescribed by law
- Risk Adjustment - the outcome of a RADV audit

Part c:

Source(s): GH201-100-25 – Health Reserves
Question: Calculate the withhold and incentive liabilities for each provider group. Justify your answer and show your work.

SOA Commentary on Question:

Most candidates were able to calculate the inpatient incentive correctly.

Most candidates were not able to calculate the physician incentive correctly. Common mistakes were: calculating the withhold as a percentage of the target PMPM, allocating the whole withhold given a positive balance, or not offsetting a positive physician balance by inpatient losses. Partial credit was given if any of these occurred.

Candidates also failed to properly justify their work given their mathematical responses.

SOA Answer:

Inpatient Incentive:

	Inpatient (Block-Wide)			
Provider	Claims	Target	Balance	**Liability**
Provider Group A	$2,000,000	$2,000,000	$0	**$0**
Provider Group B	$1,100,000	$1,000,000	-$100,000	**$0**
Provider Group C	$450,000	$500,000	$50,000	**$20,000**
Provider Group D	$2,000,000	$2,500,000	$500,000	**$200,000**

Claims = Claim PMPM * Member Months
Target = Target PMPM ($100) * Member Months
Balance = Claims – Target
Liability = Maximum of (Balance * Bonus Percentage (40%)) and 0.

Providers A and B do not book an Inpatient Incentive liability since their balance is either 0 or a negative amount.

Providers C and D do have positive liabilities since their balances are positive.

Physician Withhold:

	Physician (Block-Wide)						
Provider	Total Claims	Withhold	Adjusted Claims	Target Claims	Balance	IP Losses (If Any)	**Liability**
Provider Group A	$1,100,000	$110,000	$990,000	$1,000,000	$10,000	$0	**$10,000**
Provider Group B	$450,000	$45,000	$405,000	$500,000	$95,000	-$100,000	**$0**
Provider Group C	$300,000	$30,000	$270,000	$250,000	-$20,000	$0	**$0**
Provider Group D	$1,250,000	$125,000	$1,125,000	$1,250,000	$125,000	$0	**$125,000**

Total Claims = Actual Claim PMPM * Member Months
Withhold = Total Claims * Withhold Percentage (10%)
Adjusted Claims = Total Claims – Withhold
Target Claims = Target Claim PMPM * Member Months
Balance = Target Claims – Adjusted Claims
Liability = Maximum of (Balance + Inpatient Loss (If Any)) and 0.

Providers A and D will book a physician withhold liability since they do not have any IP losses and they have positive Physician balances.

Provider B has positive physician balance but is completely offset by the IP balance.

Provider C has a negative physician balance and no liability is booked.

Part d:

Source(s): GH201-100-25 – Health Reserves
Question: Describe considerations when accounting for physician withholding.

SOA Commentary on Question:

Candidates struggled to identify specific considerations related to physician withhold liabilities. Responses containing information from ASOP 42 were commonly used but not specifically relevant to physician withholding.

SOA Answer:

- Monthly accounting is needed to keep track of complex reimbursement arrangements to estimate liabilities. This matches fully incurred costs against revenue.
- Since the maximum payment is the withhold, the MCO could book the withhold amount as a reserve until more experience develops. This is particularly true in the early months of a contract before experience develops.
- Adjustments for data errors, reduce claims for internal stop loss arrangements, and to account for fully incurred claims.
- Disputes over incurred claims estimates are typically minimized by paying claims run-out for a period after the contract date.

Part e:

Source(s): ASOP #42 – Determining Health and Disability Liabilities
Question: Describe considerations when estimating provider-related assets and liabilities.

SOA Commentary on Question:

A majority of candidates were able to describe some considerations from ASOP 42.

SOA Answer:

- Provider Risk-Sharing and Capitation Arrangements - The actuary should consider the relevant contractual arrangements with providers to determine whether the contractual arrangements require an asset or liability to be estimated.
- Provider Financial Condition - When a risk-bearing entity shares risk with a provider under a risk-sharing or capitation arrangement, the actuary should estimate, to the extent practical, whether the provider's overall financial condition will allow it to meet its obligations, and, if not, adjust the asset or liability accordingly.
- Provider Incentive or Penalty Payments - If a provider agreement calls for incentive or penalty payments if certain conditions are met, such as quality of care standards or claim targets, the actuary should consider whether the risk-bearing entity should record a provider-related asset or liability.

- Provider Risk-Bearing Entities - When the risk-bearing entity is a provider, the actuary should also consider relevant contractual arrangements with other providers as well as non-provider entities to determine whether the contractual arrangements require an asset or a liability to be estimated.

Part f:

Source(s): GH201-100-25 – Health Reserves
Question: Describe Claim Stabilization Reserves (CSR), including their advantages to employer groups.

SOA Commentary on Question:
A majority of candidates were able to describe CSRs, including employer advantages.

SOA Answer:

- These are contracts designed to minimize risk charges to employers by sharing the risk of emerging claims cost experience.
- Favorable claims experience under the contract creates surplus that is retained for the benefit of the employer as a partial offset to future losses or to reduce future rate increases.
- These amounts may be paid out to the employer in the form of rate credits.
- Employer groups are entitled to the entire CSR if the account terminates after all claims run-out has been paid.

Part g:

Source(s): GH201-100-25 – Health Reserves
Question: Calculate the maximum experience refund for each of the four large group customers. Justify your answer and show your work.

SOA Commentary on Question:
Most candidates were able to set up the calculation and its individual components well. Common mistakes were to not compare the ending balance against the minimum CSR and omitting the risk charges and interest from the balance calculation.

Candidates also failed to properly justify their work given their mathematical responses.

SOA Answer:

		Group A	Group B	Group C	Group D
	Prior CSR	$5,000	$25,000	$10,000	$75,000
+	Interest	$250	$1,250	$500	$3,750
+	Premium	$100,000	$200,000	$210,000	$350,000
-	Claims	$110,000	$190,000	$215,000	$404,250
-	Risk Charge	$2,000	$4,000	$4,200	$7,000
=	**Balance**	**-$6,750**	**$32,250**	**$1,300**	**$17,500**
	Minimum CSR	$5,000	$10,000	$10,500	$17,500
	Refund	**$0**	**$22,250**	**$0**	**$0**

Interest = Prior CSR * Interest Percentage (5%)
Risk Charge = Premium * Risk Charge Percentage (2%)
Balance = Prior CSR + Interest + Premium – Claims – Risk Charge
Minimum CSR = Premium * Minimum CSR Percentage (5%)
Refund = Maximum of (Balance – Minimum CSR) and 0

Group A has a negative balance and thus no CSR refund is given. Group A does not have to retroactively fund a minimum CSR.

Group B has a positive balance that is greater than the minimum CSR, and thus receives a CSR refund of the difference.

Group C has a positive balance that is less than the minimum CSR, and thus no CSR refund is given.

Group D has a positive balance that is equal to the minimum CSR, thus no CSR refund is given.

14. Spring 2024 VR #1

SOA Commentary on Question:

This question aimed to test candidates on Incurred But Not Reported reserving, including applying two specific methods. Generally, candidates were able to score partial marks throughout, however, in order to get full marks while being mindful of time, there are ways of organizing the provided data to facilitate calculation.

Part a:

Source(s): GH201-100-25 – Health Reserves

Question: (i) Describe four ways you could set a monthly Incurred But Not Reported (IBNR) reserve estimate for small group hospital claims, including the data needed to use each approach. (ii) Propose a ranking of the four methodologies listed in part (a) (i), with #1 being the best and #4 being the worst in terms of methodologies to use when setting the small group IBNR reserve for hospital claims. Justify your answer.

SOA Commentary on Question:

Majority of candidates were able to name four ways to set up Incurred But Not Reported (IBNR) reserves and ranking them, however, candidates whom identified reserving techniques suitable for IBNR and also specifically highlighted data requirements were able to get full marks. Model solution incorporates acceptable methods, however, other methods were also acceptable given that they were described, including the data needed, and ranked with justification. Candidates were required to include subtraction of paid claims to date in order to receive full marks.

SOA Answer:

(i)

- Set the IBNR estimate using the expected loss ratio.
  - Under this approach, the IBNR = Expected Loss Ratio * Revenue - Paid Claims
  - Data required: Need expected loss ratio through 6/30/202X as the paid claims to date are already provided
- Set the IBNR estimate using the budgeted claims.
  - Under this approach, the IBNR = Budgeted claims * enrollment – paid claims
  - May need to adjust for population differences from the budget.
  - Data required: Need budgeted claims through 6/30/202X as the paid claims to date are already provided
- Set the IBNR estimate using the traditional completion factor approach with small group hospital paid claims data.
  - Under this approach, completion factors are developed based on the hospital lag triangle and an incurred claim estimate by month is developed as Paid Claims / Completion Factor. IBNR = Estimated Incurred Claims - Paid Claims
  - Data required: Hospital paid data with incurred and paid dates to construct a lag triangle. However, with only 6 months of data it may be difficult to develop appropriate completion factors. Paid claims to date are already provided.
- Set the IBNR estimate using the traditional completion factor approach with proxy completion factors from the large group business.

- Under this approach, completion factors would not be specific to small group hospital claims; rather based on patterns for hospital claims from another block of business different source of data could be used.
- The incurred claim estimate by month is developed as Paid Claims / Completion Factor. IBNR = Estimated Incurred Claims - Paid Claims
- Claim patterns may not be appropriate given differences in seasonality (benefit richness differences between the segments) or delays caused by implementation of claims system.
- Data required: Hospital paid data with incurred and paid dates to construct a lag triangle from the large group business are needed. Paid claims to date are already provided.

- Set the IBNR estimate using pre-authorizations (or admissions).
  - IBNR = Number of Admissions x Assumed Cost per Admit - Paid Claims
  - Not all pre-authorizations become claims and some claims (e.g. OON) are not subject to pre-authorizations
  - Data required: Need average cost per admission. The other data needed includes number of admits per month, and paid claims by month, which are already provided.

(ii)

1. Set the IBNR using Authorization Data – all the data needed has been provided, so it would be the quickest methodology to use
2. Set the IBNR using the Expected Loss Ratio – all the data to use this method has been provided except for the expected loss ratio. The expected loss ratio is something that the company should have internally and reflects emerging experience in terms of the revenue sold (presumably reflects risk of business is sold)
3. Use large group completion factors. This makes sense if claim patterns are similar for both products and if the system was set up on time for the new block (no delays); if slower set up, may need to add larger higher margin since large group block would be operating at normal speeds
4. Use budget claims. This data is available but it does not reflect any of the emerging data so least useful approach.

Part b:

Source(s): GH201-100-25 – Health Reserves

Question: (i) Critique the intern's IBNR reserve estimate. (ii) Recommend the hospital IBNR reserve that you would record at 6/30/20X2. Justify your answer and show your work.

SOA Commentary on Question:

Majority of candidates were able to identify that the intern's estimate incorrectly used average member months instead of number of admits, that paid claims incorrectly included physician claims, and that the source of the cost per admit assumption was unclear. In order to get full marks, candidates were required to identify that the current estimate is overstated (as a result of any of the identified errors above, or by a reasonableness check), derive an appropriate average hospital claim cost per admit, and include an appropriate explicit load to take into account that the paid claims data used to derive cost per admit may not yet be complete. Candidates who used the same cost per admit as the intern but explicitly questioned where it came from were awarded partial credit.

SOA Answer:

(i)

- The INTERN is drastically overstating the IBNR estimate, with an IBNR estimate of over $29M when compared to revenue and/or claims paid.
- Average hospital claim cost per admit can be calculated by reviewing hospital paid claims data and pre-authorized admission, with the earlier months (more complete) of January and February averaging about $32,500
- When calculating IBNR based on admits, the intern should have multiplied by the number of pre-authorized admits, not average member months
- Paid claims being subtracted should only be hospital paid claims; it should not include physician paid claims
- The INTERN should consider including explicit conservatism in their estimate. Apply an additional percentage load to the IBNR to account for the additional uncertainty due to normal claims volatility as well as the fact that the calculation of average hospital claims per admit data may not yet be complete. An additional load between 5% and 20% could be reasonable.

(ii)

IBNR = [Cost per Admit] x [# admits] – [Total Paid Hospital Claims]

Although Jan and Feb are not 100% complete, the cost per admission is around $32,500, so using $33,000 would be a reasonable assumed cost per admit.

(A cost per admit between $32,500 and $40,000 would be reasonable)

IBNR = [33,000] x [29] – [$913,104]
IBNR = $957,000 - $913,104
IBNR = $43,896

Due to potential claims volatility of the new business, an explicit load of 10%, or $4,390
(Additional load between 5% and 20% could be reasonable, depending on the candidate's assumed cost per admit. For example, if they are assuming a cost per admit of $40,000 including 20% explicit conservatism would be too conservative).

Part c:

Source(s): GH201-100-25 – Health Reserves
Question: Calculate the unpaid claim liabilities as of 8/1/20X2 using a development method that addresses the enrollment decline for the following completion ratios. Show your work. (i) 3-month average completion ratios (ii) 6-month average completion ratios (iii) 9-month average completion ratios

SOA Commentary on Question:

Candidates generally were able to do well in this question, however, there are certain ways to organize the data to facilitate the calculations faster. This revolves around the idea of being able to drag formulae as opposed to having to change formulae manually. Candidates were also asked to address the enrollment decline. Candidates were able to use either a PMPM approach prior to deriving completion ratios or a weighted average approach to calculating the average completion ratios. While the PMPM approach doesn't impact the final result (due to each successive incurral month's completion ratio derivation from cumulative claims being based on the same headcount), candidates were required to at least address the enrollment in some way.

SOA Answer:

See the accompanying Excel file for the full solution.

Part d:

Source(s): GH201-100-25 – Health Reserves

Question: Recommend which completion ratios to use in your final estimate. Justify your answer.

SOA Commentary on Question:

Candidates were generally awarded points if they were able to justify their answer appropriately. In order to get full marks, candidates generally had to present multiple reasons for their recommendation.

SOA Answer:

Many responses are acceptable, which may include some of the below:

The 6-month average because the claims are completing more quickly in recent months. 9-month average estimates are higher because there is less ability to react to recent changes. 3-month may be too reactive.

The 6-month average because it strikes a good balance between a stable and credible answer while still incorporating some of the speed up in claims for recent months.

The 3-month average has the advantage of using more current data that reflets current trends in payment patterns unlike longer periods which would smooth those out (bury the current trends).

The 6-month or 9-month average because I don't want to give too much credit to the recent speed up, it may be a false sign.

The 9-month average smooths things which is consistent with a desire to recognize change slowly and not over-react to changes.

The 9-month average is typically smoother, but may bury recognition of more current trends in payment patterns.

15. Spring 2024 VR #4

Part a:

Source(s): GH201-100-25 – Health Reserves
Question: State the formula for the premium deficiency reserve (PDR) calculation.

SOA Commentary on Question:

Many candidates got full credit for the PV of the claims, expenses and premium portions of this credit. A blank statement of change in reserve did not receive full credit, we were looking for specifying the 3 different reserves. Some candidates forgot to include the present value.

SOA Answer:

PDR = PV of (Claims + expenses) – PV of (Premiums) – current Contract reserve – current Claim Reserve – current Premium Reserve

Part b:

Source(s): GH201-100-25 – Health Reserves
Question: Describe potential impacts from higher inflation to: (i) The contract reserve (ii) The PDR

SOA Commentary on Question:

All candidates struggled with answering part (i) of this question in the manner that was intended. Alternate solutions were accepted for part (i) as long as candidates provided potential impacts of the higher inflation along with justification. Points were also rewarded for demonstrating they understand a contract reserve.

The answers for part (ii) were much more normally distributed. Many candidates discussed the increased claims costs and expenses. Top candidates identified the impact from changes in other reserves and impact from potential future rate increases

SOA Answer:

(i) Contract Reserve Impact:
   a. A contract reserve is set up for policies in which level premiums are applied against claims that are anticipated to increase in later durations. So HGA likely set up a contract reserve for their LTC and LTD products; these products' benefits could be impacted by inflation (e.g., COLA). If the inflation is higher than originally assumed when setting the premiums and contract reserve, the reserve would be deficient

(ii) Premium Deficiency Reserve Impact: HGA should perform a PDR calculation to determine if one needs to be set up (or increased) due to higher inflation. The following should be incorporated when performing this calculation:
   a. **Claims Trend**: Anticipated increases in costs due to reasonably expected claims cost inflation should be included in the calculation
   b. **Expenses:** The PDR should include fixed and indirect expenses along with incremental adjustments. Due to expenses increasing this has the potential of increasing the PDR

c. **Impact from other Reserves**: Per the PDR formula the PV of claims and contract reserves at the end of the deficiency period would need to be re-evaluated with adjusted assumptions.
d. **Rate Increases** Assumptions for future premium rate increases should be incorporated into PDR calculations. These increases should be reasonable relative to assumed claims trend, market competition, regulatory constraint, contractual limitations and company philosophies.

Part c:

Source(s): PDR Discussion Paper
Question: Calculate: (i) Current total claim and contract reserve as of 12/31/20X3. (ii) Gain/Loss for the 12/31/20X3 income statement after adjusting for reserves. Show your work.

SOA Commentary on Question:

Few candidates were able to obtain full credit on this portion. Some were able to group the lines of business using the HRGM grouping method. Some candidates included ASO in the calculations and/or Hospital Indemnity in the Comprehensive Major Medical grouping which was incorrect. Partial credit was given for correct groupings or calculations. For part (i) some candidates included 2023 data which was incorrect and they lost points for that.

SOA Answer:

See the accompanying Excel file for the full solution.

Part d:

Source(s): ASOP #42 – Determining Health and Disability Liabilities
Question: List eight items that should be disclosed in an actuarial communication for the reserves established in (c).

SOA Commentary on Question:

Candidates generally performed pretty well on this part of the question. Full credit was awarded if they mentioned 7 of the bullets below.

SOA Answer:

- Dates used in the analysis
- Significant limitations, if any, which constrained the actuary's asset or liability estimate analysis
- Specific significant risks/uncertainties, if any, with respect to whether actual results may vary from the asset or liability estimate
- Risk that provider insolvency may have a material effect on the risk-bearing entity's ultimate asset or liability
- Any follow-up studies actuary may have used in the development of the estimate of assets or liabilities
- any explicit provision for adverse deviation
- When updating a previous estimate, changes in assumptions, procedures, methods, or models that have a material impact on health benefit plan actuarial asset or liability estimate (and reasons for change)
- Any reliance on experts
- If any material assumption or method was prescribed by applicable law

- Reliance on other sources and thereby disclaims responsibility for any material assumption or method selected by a party other than the actuary
- If the actuary has otherwise deviated materially from the guidance of ASOP 42
- Disclosures consistent with ASOP 23 for reliance on data provided by others

16. Fall 2024 VR #1

SOA Commentary on Question:

This question is mainly aimed to test candidates the methods of estimation for claim reserves and applicable ASOPs. To receive maximum points, candidates need to assess the appropriateness of both reserving methods for part (c), explain the impact on both IBNR methodology and estimate for part (d), and critique the excerpts and cite relevant ASOPs for part (e).

Part a:

Source(s): Skwire 39 – Claim Reserves for Short-Term Benefits
Question: Define the following terms: (i) Valuation date (ii) Incurral date (iii) Reporting date (iv) Reporting lag (v) Payment lag

SOA Commentary on Question:

Candidates generally did well on this part. The common mistakes include candidates confusing the service date with the incurral date and misinterpretation of the payment lag.

SOA Answer:

Valuation date = the date on which reserves are estimated

Incurral date = the date on which an event either causes a reserve or a liability. Can either be the date of death, disability, medical service, or other insured event. Any claim incurred before the valuation date generates a reserve.

Reporting date = the date on which the claim is reported

Reporting lag = the time between the incurral date and the reporting date

Payment lag = the time between the incurral date and the payment date

Part b:

Source(s): GH201-100-25 – Health Reserves
Question: Calculate the incurred but not reported (IBNR) claims on the emerging small group block as of June 20X2. Show your work.

SOA Commentary on Question:

Some candidates failed to recognize that the claims provided are cumulative. Another portion where candidates struggled was the proper use of the loss ratio method.

SOA Answer:

See the accompanying Excel file for the full solution.

Part c:

Source(s): GH201-100-25 – Health Reserves
Question: Assess whether the methodology prescribed is appropriate in this situation. Justify your response.

SOA Commentary on Question:

Candidates struggled on this question. The intent of the question was to understand if candidates understood the appropriate use of both the loss ratio and development methods. Few candidates mentioned that completion factors that were not high enough should not be used due to lower credibility. Other reasonable answers were also accepted.

SOA Answer:

The loss ratio method can be applied in situations in which historical claims costs are not available and in which pricing loss ratios may be deemed to be more appropriate. For new blocks of business without credible history, the loss ratio method may be the best estimate until other information is available to adjust the assumptions

Completion factors in durations 3-4 makes sense, since the completion factors are more credible. Typically, completion factors below 40% to 70% are replaced with other projected fully incurred cost per member estimates or blended under a credibility-weighted approach. Completion factors below 40% to 70% are subject to greater estimation error.

Part d:

Source(s): GH201-100-25 – Health Reserves

Question: Explain how the following situations may affect your IBNR methodology and estimate:

(i) EMC installs a new claim adjudication system which accelerates reporting and payment times.
(ii) A pandemic causes widespread and sustained closures of medical offices.
(iii) The small group block becomes subject to a risk adjustment mechanism.
(iv) The small group block only offers high-deductible health plans.
(v) EMC experiences an increase in the proportion of its total claims that are inpatient claims.
(vi) EMC changes its provider reimbursements from a fee-for-service model to a capitation model.

SOA Commentary on Question:

Candidates struggled to identify both the impact to the methodology and the resulting change in estimate. Many candidates failed to identify the impact due to risk adjustment or changing the provider reimbursement method.

SOA Answer:

(i) New adjudication system:
A change in computer systems may be preceded by a speed up in claim processing time as the processing area cleans up its inventory of unpaid claims in anticipation of the computer change. During the system change itself, unanticipated bugs or errors may emerge that slow processing time and create claim backlogs. May need to pick different completion factors as a result.

(ii) Pandemic causes medical office closure:
Expect ultimate claims to be significantly lower. May not want to use unadjusted development factors created during the timeframe of office closures for future reporting periods when claims volume returns to status quo.

(iii) Small group subject to risk adjustment:
May be a speed-up of claims processing before the risk adjustment data submission cutoff date in order to increase risk scores. Take caution when applying completion factors or using completion data in future reporting periods.

(iv) Small group block offers only HDHPs:
May see seasonal pattern in paid claims, where paid claims in early durations are much lower because the deductible has not yet been met. Consider adjusting completion factors to account for this seasonality.

(v) Greater proportion of claims are inpatient:
Inpatient claims tend to complete more slowly since they are more complex and take time for the actual claim to complete (i.e., bed days). Other claims, like outpatient and Rx, tend to complete faster because they are more likely to be electronically submitted and processed in real time. EMC may want to decrease the completion factors to account for the longer duration inpatient claims.

(vi) Change from FFS to capitation:
Under capitation, providers are totally compensated by the negotiated capitation rate, so there are no claims to be reported or reserves held for.

Part e:

Source(s): ASOP #23 – Data Quality; ASOP #41 – Act. Communications; ASOP #5 – Incurred Health and Disability Claims

Question: Critique the following excerpts from the actuarial memorandum, citing relevant guidance from applicable ASOPs.

(i) "We relied on EMC's accounting department for the large group claims development figures. We have reviewed, but not audited, the data and consider it reasonable for this purpose."
(ii) "The loss ratio assumption came from EMC's actuarial pricing team."
(iii) "Experience for the small group block is emerging, so we cannot conduct follow-up studies to confirm our initial estimates."
(iv) "We have documented the methods, assumptions, and sources of data used. Members of EMC's valuation team can follow this documentation to assess the reasonableness of our work."

SOA Commentary on Question:

This question asked candidates to critique the statement first, and then cite relevant ASOPs. Some candidates did not clearly say whether the statement was appropriate or needed revision. Many candidates failed to make references to the correct ASOPs or provided inadequate detail.

SOA Answer:

(i) This statement is adequate and does not require revision.
- ASOP 5 (3.6) requires disclosure of data supplied by others
- ASOP 23 (3.3) requires a reasonable review of the data if necessary

ASOP 23 (3.8c) does not require the actuary to audit the data

(ii) ASOP 41 (3.4.4) requires the disclosure and source of all assumptions. However, this statement could be expanded. There should be further explanation of whether:
- the assumption was prescribed by law,
- the assumption conflicts significantly with the valuation actuary's judgment, or
- the valuation actuary is unable to judge the reasonableness of the assumption

(iii) This statement is false and should be corrected. ASOP 5 (3.5) permits the actuary to conduct follow-up studies to assess the reasonability of past estimates

(iv) The first part of the statement complies with ASOP 5 (3.8). However, the documentation should be altered such that another qualified actuary in the same field (not just EMC valuation actuaries) could assess the reasonableness of the work.

17. Fall 2024 VR #4

SOA Commentary on Question:

This question was designed to test the candidate's knowledge of the use of a Premium Deficiency Reserve from both a Statutory and GAAP perspective, as well as the guidance on what businesses can and cannot be included in the analysis/test. A working spreadsheet example was also required. Most candidates attempted this question and did fairly well.

Part a:

Source(s): PDR Discussion Paper
Question: Describe the three fundamental principles when establishing a premium deficiency reserve.

SOA Commentary on Question:

Most candidates did very well on this section. Answers were very consistent across candidates.

SOA Answer:

1.) You want to record a premium deficiency reserve when it's expected that there will be a loss in the near-term, or when it's expected that there will be a pattern of profits followed by losses, or if there's internal replacement.

2.) You want to minimize false positives, meaning do not establish a premium deficiency reserve unless there is a meaningful potential for a loss, because even profitable companies will have some downfall years, but the profitable years could offset the downfall years.

3.) You want to minimize false negatives because there needs to be a premium deficiency reserve if there is an expectation of a loss

Part b:

Source(s): PDR Discussion Paper, GH201-100-25 – Health Reserves
Question: Explain the difference between a contract reserve and a premium deficiency reserve.

SOA Commentary on Question:

Again, most candidates did well on this section explaining the differences between the two reserves. To get full credit a comment on the significance of the reserve as it relates to the business was required. That is, a PDR signifies unexpected adverse experience while a Contract Reserve is anticipated at the time of pricing.

SOA Answer:

The idea is similar between the two, to set up a reserve for losses in the future because premiums will be insufficient for the cost of benefits and expenses of future policies. However, a contract reserve is set up because it is anticipated when the contract is set up that costs will increase and exceed premiums in future years so a reserve is initially set up to hold excess premiums in earlier durations. This is commonly done for products that have a net level premium. PDRs do not have this foresight and are established after gross premium valuation reveals a deficiency due to adverse experience.

Part c:

Source(s): PDR Discussion Paper

Question: Critique the following statements made by the CFO. Justify your answer.

(i) ABC should book a premium deficiency reserve of $5 million on its GAAP balance sheet as of December 31, 20X1.

(ii) ABC should book a premium deficiency reserve of $0 on its statutory balance sheet as of December 31, 20X1.

SOA Commentary on Question:

Very few candidates answered with an agree/disagree only. To get points, candidates had to provide comments on why or why not they took the position they did, which most candidates did. The below represents a representative answer but other appropriate considerations also earned credit.

SOA Answer:

(i) It is somewhat strange that a company would price and launch a product line immediately with the assumption of future losses, but since the overall line is intended to be profitable shortly after the first year (likely the first year is unprofitable due to startup costs), this is more understandable.

Since 20X2 is the only year for which there is an expectation of loss, and this loss is the $5M amount, it may not actually make sense to establish a PDR just for the one year, with the entirety of it being released in that same year. Essentially, the loss would just be shifted from a time 1 recognition to a time 0 recognition. Rather, if it can be shown that the first year's loss is due to startup costs, I would recommend using a DAC (for GAAP) to amortize these costs over the line's expected lifetime.

(ii) Statutory guidance requires that expenses be incurred immediately and does not permit the use of a DAC asset. Thus, a PDR should be established immediately to recognize the loss of $5M in 20X2. However, consider that statutory reporting is at the legal entity level while GAAP is at the consolidated enterprise level. Therefore, PDR groupings under statutory will likely differ from GAAP.

Part d:

Source(s): PDR Discussion Paper

Question: Calculate XYZ's premium deficiency reserve at the end of 20X1 using the projected underwriting cash flows and a 5% discount rate. Show your work.

SOA Commentary on Question:

Candidates generally performed well on this section. Very few received full credit because most missed the fact that you shouldn't include 12-month renewable contracts in the projection. Most included all years of the ACA plans when only 20X2 was valid.

SOA Answer:

See the accompanying Excel file for the full solution.

Part e:

Source(s): PDR Discussion Paper

Question: Recommend two courses of action that XYZ could take, beyond making changes to its assumptions or projection methodology, to reduce its premium deficiency reserve.

SOA Commentary on Question:

Some candidates recommended actions related to making changes to assumptions or projection methodology, such as changing the groupings, which is not in line with the question. Other appropriate recommendations also received credit.

SOA Answer:

XYZ could invest in its risk adjustment coding efforts to increase members' risk scores and increase risk equalization payments.

XYZ could investigate whether it would make sense to invest in reinsurance to protect against large claims.

Part f:

Source(s): PDR Discussion Paper

Question: Compare and contrast premium deficiency reserves and reserves for insufficient administrative fees for self-insured contracts.

SOA Commentary on Question:

Many candidates missed that assumptions should be similar and that reserves for insufficient admin fees are not recognized on a GAAP basis but a PDR can be. Credit was provided for other answers not listed below.

SOA Answer:

Both reserves are held to immediately recognize projected future losses in the business as a charge to earnings/income.

Both reserves can be reported on Statutory financial statements.

Reserves for insufficient administrative fees are a specific type of reserve that may be smaller in magnitude to the premium deficiency reserves, since they are a generally a much smaller portion of the revenue. Premium deficiency reserves cover fully insured contracts and generally a larger portion of the revenue.

Similar blocks of businesses can be grouped together for determining premium deficiency reserves, where losses on a block can be offset by profits on a different block within the same grouping. Reserves for insufficient administrative fees are evaluated for each contract.

18. Spring 2022 FV #4a-c

SOA Commentary on Question:

Many candidates did quite well in identifying ways to incorporate conservatism into IBNR reserves but needed to better apply knowledge correctly to the scenario provided.

Part a:

Source(s): GH201-100-25 – Health Reserves

Question: Describe three different ways to incorporate conservatism into Incurred But Not Reported (IBNR) estimates

SOA Commentary on Question:

Candidates generally did well on this part of the question. Additional credit may be earned for relevant descriptions not identified in the list below.

SOA Answer:

- Implicit Conservatism
  - Apply actuarial judgement within the IBNR calculation to reflect higher than normal claim costs in the most recent months due to the lice outbreak.
- Explicit Conservatism
  - Apply an additional percentage load to the IBNR to account for the additional uncertainty due the lice outbreak. This would be above any normal explicit conservatism that is applied each period.
- Case Reserve
  - Establish a fixed dollar amount reserve outside the normal IBNR which is calculated by taking the number of expected incurred lice claims times the average amount paid minus the claims paid to date

Part b:

Source(s): GH201-100-25 – Health Reserves

Question: Recommend which method from (a) FIC should use for the ACA business. Justify your answer.

SOA Commentary on Question:

Candidates generally did well in selecting a method for incorporating conservatism and justifying why. Additional credit may be awarded for recommendations not identified in the list below.

SOA Answer:

A Case Reserve should be used since it can be established outside the normal IBNR process and easily tracked and explained to regulators and auditors. I would recommend that this case reserve be calculated as [number of members < 18] x [infection rate assumption] x [avg claim cost]. FIC can quantify the number of its current members who are less than 18 years old, and historical industry trend (or other credible resources) could be used it help set the infection rate as the average claim cost

Part c:

Source(s): PDR Discussion Paper

Question: Calculate the Premium Deficiency Reserve (PDR) that should be recorded at 12/31/Year 2. Show your work.

SOA Commentary on Question:

Many candidates failed to annualize numbers or incorporate salaries into the calculation

SOA Answer:

PDR for 12/31/2021 is based on the 2022 forecast PDR

= Claims + Expenses – Premium

PDR = [Claims PMPM] * Members*12 +[Marketing Expense PMPM] * Members*12+ [Claims Department PMPM] * Members *12 + Salaries – [Premium PMPM] * Members *12

PDR = $513*215,000*12 + $52* 215,000*12 + $26* 215,000*12 + $67,080,000 -$626* 215,000*12
= ($23,220,000)

A PDR less than 0 means no PDR is needed.

Recorded PDR at 12/31/2021 = $0

Group and Health Course 201-U
Curated Past Exam Solutions
Learning Objective #2: Financial Statements
Applicable SOA Questions: Fall 2020 to Fall 2024
Model Solutions

Contents

1. Fall 2020 FV-C #3a-c

Part a:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Identify the considerations in determining the need for a premium deficiency reserve.

SOA Commentary on Question:

Candidates did poorly on this section. Most candidates struggled to list more than one relevant consideration.

SOA Answer:

Grouping considerations:

- All commercial combined or grouped based on how each block is regulated?
- Should ancillary be grouped with Medical?
- Should ACA block be separated from pre-ACA or Small Group or Medicaid?
- Should Medicare Advantage, Standalone Part D, and Med Supp be separate groupings?
- For Medicaid across several States, should each State be its own grouping?
- Is reinsured business grouped with business where the insurer is the primary carrier?

Timing considerations:

- What are the renewability characteristics of the underlying insurance contracts?
- Are there insurance contracts with future effective dates that need to be included in the PDR calculation?

Part b:

Source(s): PDR Discussion Paper

Question: Justify whether you have sufficient information to calculate a premium deficiency reserve on this block of business as of 12/31/2019.

SOA Commentary on Question:

Candidates did generally well on this section. Most candidates correctly identified that there was insufficient information to calculate PDR. Partial credits were given where justification was sound and demonstrated an understanding of the material.

SOA Answer:

I do not have sufficient information because,

- Information is needed at a more granular level, splitting out Medicare supplement business.
- For guaranteed renewable coverage, information regarding renewability and premium increase limitation are needed.
- Information may be needed that projects profit/loss beyond the next 12-month period.

Part c:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: With regards to the requirements of VNC as regulated by the National Association of Insurance Commissioners (NAIC): (i) Describe the publicly available statutory financial reports that

VNC is required to submit to the NAIC. (ii)Describe the confidential statutory financial reports that VNC is required to submit to the NAIC

SOA Commentary on Question:

Candidates' performance was mixed in this section. Most candidates were able to identify all the required statutory financial reports but struggled to categorize them as public or confidential. Since the problem requested a description, credit was only given to candidates who provided an explanation of each item that demonstrated understanding of the item.

SOA Answer:

(i) Public available statutory financial reports include:

- Annual statement blank: an annual pre-formatted template consisting of core financial statements together with a wide variety of supplemental exhibits.
- Quarterly statement blank: a similar but less voluminous pre-formatted template submitted on a quarterly basis.
- Annual audited financial statement: presents the core financial information found in the annual statement blank in more condensed form, and includes an opinion statement from the audit firm.
- Annual actuarial opinion: a statement signed by the insurer's appointed actuary attesting to the adequacy of the actuarial liabilities & assets recorded by the insurer.

(ii) Confidential statutory financial reports include:

- Annual RBC report: a pre-formatted template that computes an insurer's minimum capital requirement under formulas adopted by the NAIC.
- Annual actuarial opinion memorandum: documents the appointed actuary's work supporting the conclusions expressed in the opinion.

2. Fall 2020 FV-C #6

Part a:

Source(s): GH201-400-25 – Health Insurance Accounting Basics
Question: List the three main concepts that have influenced the development of NAIC Statutory Accounting Principles guidance.

SOA Commentary on Question:

Since the question only asked candidates to list the items, full credit was given for listing the items from p. 117 of the study note.

SOA Answer:

- Conservatism
- Consistency
- Recognition

Part b:

Source(s): GH201-400-25 – Health Insurance Accounting Basics
Question: Explain six distinct ways in which GAAP accounting differs from statutory accounting.

SOA Commentary on Question:

Study notes pp. 120-124 listed 12 specific items related to NAIC SAP and US GAAP, one of which (unpaid claims liabilities) was noted as generally being the same under both. Full credit was given for identifying and explaining any six of the remaining 11 items.
Many candidates just noted general differences between the two (e.g., statutory accounting is more conservative). Partial credit was given if any of the general observations were linked to one of the specific items.

SOA Answer:

- Disabled life reserves – under GAAP, based on the ultimate cost of settling the claim; SAP prescribes minimum standards for methods and assumptions
- Policy reserves – similar to disabled life reserves in that SAP uses prescribed minimum standards; SAP reserves are implicitly "locked in"
- Deferred acquisition costs (DAC) – allowed under GAAP; does not exist under SAP (recognized as expenses when costs are incurred)
- Premium deficiency reserves (PDR) – under GAAP, if DAC exists, PDR may lead to partial write off of DAC; under SAP, no DAC allowed, so premium deficiency always results in PDR
- Additional actuarial reserves – under SAP, actuary may conclude need for additional reserves; no such requirement under GAAP
- Reinsurance – ceded reserves are an asset under GAAP; treated as a contra-liability under SAP
- Healthcare receivables – asset under GAAP; generally non-admitted asset under SAP unless there is specific guidance to the contrary
- Prepaid expenses – under GAAP, debit asset account and later recognize expenses and reduce asset; under SAP, assets are non-admitted
- ASO Fees – recognized as revenue under GAAP; treated as a contra-expense under SAP

- Cost containment expenses – no clear guidance under GAAP, may be included in claims expense; treated as an administrative expense under SAP
- Measurement attributes for invested assets – GAAP has different measurement guidelines for asset class; SAP also distinguished between Orange Blank and Blue Blank companies (with latter having special Asset Valuation Reserves and Interest Maintenance Reserves)

Part c:

Source(s): GH201-400-25 – Health Insurance Accounting Basics
Question: Calculate ABC's claims expense for 2019 for annual GAAP reporting. Show your work.

SOA Commentary on Question:

This was a straightforward calculation of claims incurred for the year plus change in reserves (p. 107 of the study note). Many candidates received full credit. The most common mistakes were miscalculating or ignoring the change in reserves or not including claims paid in the current year for prior years' services.

SOA Answer:

Claims expense = (Claims paid in current year for current year services + Claims paid in current year for prior years' services) + (Ending UCL for current year services + Ending UCL for prior years' services) – Beginning UCL
Claims expense (in $millions) = ($160.1 + $11.3) + ($15.2 + $0.3) - $13.8 = $173.1

Part d:

Source(s): GH201-400-25 – Health Insurance Accounting Basics
Question: Justify whether a change in the following items would impact statutory income, statutory surplus, or both: (i) Prepaid Expense Assets (ii) Claims Overpayment Receivables

SOA Commentary on Question:

To receive full credit, candidates must have understood admitted versus non-admitted assets (p. 118 of the study note), and how each of the items affects statutory income and surplus (pp. 122-123). Very few candidates demonstrated this correctly. Partial credit was given if the correct impacts were given, even if the reasoning was not fully demonstrated.

SOA Answer:

Statutory surplus is equal to admitted assets less liabilities, and therefore only admitted assets impact surplus. Statutory income may be impacted by both admitted assets and non-admitted assets.

(i) Prepaid expenses are non-admitted assets and therefore a change in their value would only impact statutory income.

(ii) Claims overpayment receivables are admitted assets to the extent that an insurer has sent an invoice to the provider; assets above that are non-admitted. A change in value of the admitted portion would impact both statutory surplus and statutory income, and a change in value of the non-admitted portion would only impact statutory income.

Part e:

Source(s): GH201-400-25 – Health Insurance Accounting Basics
Question: Critique the strategy of using Fee-For-Service providers to enhance a capitated provider network.

SOA Commentary on Question:

Candidates were expected to provide both strengths and weaknesses of this approach in their answer. Many candidates provided only weaknesses. Full credit was given if at least two strengths and two weaknesses were provided. (See discussion on pp. 57-63 of the study note. Examples for strengths and weaknesses below:

SOA Answer:

Strengths:

- Quick and easy to add new providers, since no need to negotiate a capitated rate
- FFS relatively easier to administer than capitated plans
- May result in increased quality of service as FFS providers are more incentivized to have repeat business than capitated providers

Weaknesses:

- FFS providers may be higher cost that capitated ones
- Difficult to control claims trend, since no incentive for FFS providers to keep utilization under control
- Current capitated providers may find out about FFS providers getting paid more for similar services, and may opt out of HMO network or demand higher reimbursements

Part f:

Source(s): GH201-400-25 – Health Insurance Accounting Basics
Question: Recommend an alternative strategy that can help ABC expand rapidly into new geographic areas. Justify your answer.

SOA Commentary on Question:

This was an open-ended question meant to draw on a candidate's ability to synthesize different risk sharing and provider contracting arrangements. To receive full credit, a candidate needed to identify and justify only one arrangement. Partial credit was given for solutions that were not necessarily "rapid" expansions as required by the questions (e.g., purchasing or merging with another insurer). Examples below:

SOA Answer:

- Create a new network product that is exclusively PPO (FFS), while gradually continuing to expand its HMO network in the new area as well, so eventually it can have a product in the new geography that carries the same value proposition (low cost) as the existing HMO.
- Allow PPO (FFS) providers to join the HMO network, but invest in a strong care management program and/or incentive/bonus program that ensures there is no excess utilization and claims costs are kept low.
- Establish a partnership with an HMO already operating in the geographic area, in order to leverage pre-existing provider relationship.

3. Spring 2021 FV-C #4

SOA Commentary on Question:

This question tested the candidates on calculation of refunds on a specified Share Return product and the corresponding impact on the income statement and balance sheet. A majority of the candidates did well on determining loss ratios. Many candidates failed to take prior year experience into consideration. Most candidates had difficulty identifying how the refunds are reflected on the income statement and balance sheet.

Part a:

Source(s): GH201-400-25 – Health Insurance Accounting Basics
Question: Describe some benefits and drawbacks of this new product for: (i) Royale Health, (ii) A large group employer client.

SOA Commentary on Question:

There was some confusion around the clients moving from the current ASO plan to the SR plan. Many comparisons were made against a fully insured plan as opposed to the ASO plan that they are currently on.

SOA Answer:

(i) Royale Health

- Benefits
  - Insurer can possibly charge higher premium (because it is taking on higher risk)
  - Refund agreement implies a longer relationship with client
- Drawbacks
  - Complicated product could be difficult to administer financially
  - Insurer now has responsibility of keeping claims costs low (e.g. utilization management, care management, etc.)

(ii) A large group employer client

- Benefits
  - More predictability and protection from claims volatility
  - No need to hold as large of a claims reserve (frees up cashflow)
  - Continued benefit of favorable morbidity
- Drawbacks
  - Higher monthly payments that now include premium tax and larger insurer profit load
  - Opportunity cost of not receiving refund until year-end
  - Less flexibility in product design

Part b:

Source(s): GH201-400-25 – Health Insurance Accounting Basics
Question: Calculate the refund that Royale Health owes to its clients on 12/31/2019 for calendar year 2019. Show your work.

SOA Commentary on Question:

Most candidates were able to calculate 2019 loss ratios and identify which clients were in a surplus or deficit position but few candidates remembered to evaluate 2018 experience and factor any deficits into the final refund for 2019.

SOA Answer:

($ in thousands)	**Client A**	**Client B**	**Client C**	**Client D**	**Client E**
Contract Effective Date	1/1/2018	1/1/2018	1/1/2018	1/1/2018	1/1/2018
2018 Annual Earned Premium	$1,000	$1,500	$2,000	$2,500	$3,000
2019 Annual Earned Premium	$1,200	$1,700	$2,200	$2,700	$3,200
2020 Annual Earned Premium	$1,400	$1,900	$2,400	$2,900	$3,400
Insurer's Expected Annual Loss Ratio	85%	85%	85%	95%	80%
Loss Ratio Floor	80%	80%	80%	90%	75%
Loss Ratio Ceiling	90%	90%	90%	100%	85%
Claims:					
1Q'18	$215	$300	$1,000	$750	$800
2Q'18	$215	$300	$500	$750	$800
3Q'18	$215	$300	$500	$750	$900
4Q'18	$215	$300	$500	$750	$900
1Q'19	$250	$275	$250	$600	$1,000
2Q'19	$250	$275	$250	$600	$1,000
3Q'19	$250	$275	$250	$600	$1,000
4Q'19	$250	$275	$250	$600	$1,000
1Q'20	$275	$275	$250	$600	$1,000
2Q'20	$275	$275	$250	$600	$1,000

2018 Loss Ratio	86.0%	80.0%	125.0%	120.0%	113.3%	
2018 Surplus:	$0	$0	$0	$0	$0	
2018 Deficit:	$0	$0	$700	$500	$850	
2019 Loss Ratio	83.3%	64.7%	45.5%	88.9%	125.0%	
2019 Surplus:	$0	$260	$760	$30	$0	
2019 Deficit:	$0	$0	$0	$0	$1,280	
Net Surplus to Clients in Dec 2019:	$0	$260	$60	$0	$0	**$320**

Part c:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Assess the impact of the 2019 refund on Royale Health's: (i) Income Statement, (ii) Balance Sheet.

SOA Commentary on Question:

Many candidates had difficulty identifying which parts of the financial statements would be impacted and the direction of the impacts. Many candidates failed to relate their answers to Royale Health's refund and wrote about financial statements more generally.

SOA Answer:

- Income Statement
  - Recognize that refund is settled through premium, not claims
  - Debit Earned Premium reduces Total Revenue (and hence, Net Income) by $320k
- Balance Sheet
  - Recognize that refund will reduce Retained Earnings by $320k as well as a corresponding decrease in asset or increase in liability/lower cash or higher current liability

Part d:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Calculate the Refund Reserve for Royale Health as of 06/30/2020 using: (i) The year-to-date method, (ii) The pro-rated ultimate method. Show your work.

SOA Commentary on Question:

Candidates generally did a good job calculating the LR for the year-to-date method but some struggled more with the prorated method. Most candidates failed to acknowledge that 2019 deficits must be considered in setting reserves. Some candidates used the full annual premium as opposed to the half that should have been used.

SOA Answer:

($ in thousands)	**Client A**	**Client B**	**Client C**	**Client D**	**Client E**	
Contract Effective Date	1/1/2018	1/1/2018	1/1/2018	1/1/2018	1/1/2018	
2018 Annual Earned Premium	$1,000	$1,500	$2,000	$2,500	$3,000	
2019 Annual Earned Premium	$1,200	$1,700	$2,200	$2,700	$3,200	
2020 Annual Earned Premium	$1,400	$1,900	$2,400	$2,900	$3,400	
Insurer's Expected Annual Loss Ratio	85%	85%	85%	95%	80%	
Loss Ratio Floor	80%	80%	80%	90%	75%	
Loss Ratio Ceiling	90%	90%	90%	100%	85%	
Claims:						
1Q'18	$215	$300	$1,000	$750	$800	
2Q'18	$215	$300	$500	$750	$800	
3Q'18	$215	$300	$500	$750	$900	
4Q'18	$215	$300	$500	$750	$900	
1Q'19	$250	$275	$250	$600	$1,000	
2Q'19	$250	$275	$250	$600	$1,000	
3Q'19	$250	$275	$250	$600	$1,000	
4Q'19	$250	$275	$250	$600	$1,000	
1Q'20	$275	$275	$250	$600	$1,000	
2Q'20	$275	$275	$250	$600	$1,000	
YTD June 2020 LR	78.6%	57.9%	41.7%	82.8%	117.6%	
Prorated 2020 LR	81.8%	71.4%	63.3%	88.9%	98.8%	
YTD Surplus Reserve	$10	$210	$460	$105	$0	
Prorated Surplus Reserve	$0	$81	$200	$16	$0	
2019 Deficit	$0	$0	$0	$0	$1,280	
YTD Refund Reserve	$10	$210	$460	$105	$0	**$785**
Prorated Refund Reserve	$0	$81	$200	$16	$0	**$298**

Part e:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Explain four alternatives that Royale Health can use to reduce its large group employer clients' risk. Justify your response.

SOA Commentary on Question:

Candidates generally did well on this section but more than a few candidates focused on changing the floor and ceiling loss ratios instead of identifying true alternatives.

SOA Answer:

- Fully insured contract
  - employer only pays monthly premium, with all risk taken by insurer.
- Reinsurance/Stop loss protection
  - employer keeps the ASO arrangement, but caps it's catastrophic risk.
- Managed care plans
  - shift to capitated providers or narrower network; sacrifices access but gives more claims stability.
- Plan design
  - shift costs to employees (higher deductibles or coinsurance/copays)

4. Spring 2021 FV-C #7

Part a:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Construct a quarterly statutory pretax income statement for each quarter for XYZ. Show your work.

SOA Commentary on Question:

Generally, candidates were able to develop a pretax income statement. The most common mistake on this question was the appropriate handling of the change in advanced premium and change in due premium. Many candidates included the full amount rather than the change.

SOA Answer:

	Q1	Q2	Q3
Collected Premium	6,000	6,000	6,000
Change in Adv Premium	100	200	0
Change in Due Premium	300	-200	100
Earned Premium	6,200	5,600	6,100
Paid Claim	1550	3150	3300
Change in Claim Liability	500	900	400
Change in Reserve	1200	300	300
DAC	0	0	0
Pre-tax Income	2,950	1,250	2,100

Earned Premium = Collected Premium + Change in Premium Due Balance – Change in Premium Advance Balance

- Incurred Claims = Paid Claims + Change in Claims Liability
- Because this is a Statutory Statement, DAC is not included

Part b:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: XYZ wants to protect itself against excessive risk. (i) Describe how US health insurers can use contractual vehicles to transfer risk to another party. (ii) Explain how XYZ's pretax income statement will need to be adjusted under each type of risk transfer vehicle.

SOA Commentary on Question:

Generally, candidates were successful in part (i) of this question and were able to identify contractual vehicles to transfer risk. Candidates earned more credit by providing additional details and describing the vehicles rather than listing. Part (ii) of the question, candidates struggled providing specific adjustments to the income statement. Candidates could have achieved more points by detailing each entry that would have been made and in which way the vehicle impacted that entry.

SOA Answer:

(i).

- Use reinsurance to transfer portion of the risk to another insurer
- There are two generic types of reinsurance treaties: quota share reinsurance and excess-of-loss reinsurance
  - Quota Share: one insurer assumes a pro rata portion of the risks arising from a set of insurance contacts written by another insurer
  - Excess-of-loss: to cap the risk borne by the insurer on any particular exposure.
  - Common health insurance contracts pre-ACA are to specify a max limit on the amount (attachment point) that could be paid on behalf of a given insured individual (for example $500k)
- Another important risk transfer vehicle is capitation arrangement, which transfers risk to providers
  - Typical capitation arrangement are PMPM cap or %-of-premium cap; global or specific services (for example Mental Health cap)

(ii)

- Besides the regular income statement entries (called gross), we need separate entries for the corresponding ceded amounts and the net (gross - ceded).
  - Ceded earned premium
  - Ceded paid claims
  - Change in ceded claim liabilities
  - Change in disabled life reserves / policy reserves
  - Expense allowances received from reinsurer

Part c:

Source(s): ASOP #21 – Responding to Financial Audits

Question: Describe what you should consider when responding to the request for information, in compliance with applicable Actuarial Standards of Practice.

SOA Commentary on Question:

Candidates performed well on part (c) and were successfully able to list the considerations of ASOP 21.

SOA Answer:

- The extent to which the information requested is readily available.
- If the information requested is not readily available, what other information is available or reasonably can be produced that can meet the auditor's or examiner's needs; and whether the information requested is within the scope of the financial audit, financial review, or financial examination.
- To the extent practicable, the responding actuary should consider working with the auditor or examiner if there are conflicts or time frames that cannot be met.

5. Fall 2021 FV-C #2a-f

Part a:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: List the benefits that ABC, as a third party vendor, provides in an ASO contract.

SOA Commentary on Question:

Candidates generally did well on this part. Most candidates were able to identify claims adjudication as a benefit that ABC provides in an ASO contract. Many candidates also identified provider contracting and provider discounts as another benefit. Some candidates listed related services. Full credit was given if all were mentioned.

SOA Answer:

Third party vendor offers claims adjudication and related services. Third party vendor also contracts with providers & hospital systems to obtain discounts off original charges, which it can then offer to other health plans to "rent" or "lease".

Part b:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Explain why the "premium equivalents" accounting model may not be appropriate for ASO contracts.

SOA Commentary on Question:

Candidates struggled to define the Premium Equivalent accounting model and give reasons why it may not be appropriate for ASO contracts. Candidates who did well were able to identify that claim payments, under ASO contracts, are pass-through activities and that the insurer does not own the associated risk.

SOA Answer:

Under the Premium Equivalent accounting model, the insurer views not only the fees received from its ASO customers, but also the reimbursement it gets from those customers for the benefit payments made on their behalf, as a form of revenue known as premium equivalents. However, for ASO contracts, claims payments are "pass-through" activities and the insurer does not own the risk. Insurer is only responsible for the expense of claims administration & related services. Liabilities are intended to represent future economic sacrifices associated with past events. The insurer has no such sacrifice to make on behalf of its ASO customers.

Part c:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Compare and contrast quota share reinsurance with excess of loss reinsurance options, in regards to ABC's ISL coverage.

SOA Commentary on Question:

Candidates generally did well on this part. Most were able to identify the purpose and benefits of reinsurance arrangements. Most candidates were able to define Quota Share and Excess Loss reinsurance and how risk was shared with each. Full credit was given to candidates who were able to give details on how the two differed in terms of risk share, premium, and expense allowance.

SOA Answer:

With Quota Share, the reinsurer coverages set % of all ABC claims. So, company ABC will pay XYZ = X% of stop loss premium collected; XYZ will pay ABC = Y% of total ABC stop loss claims paid, XYZ will pay ABC an expense allowance (% of ceded premium).

With Excess-of-Loss, the reinsurer coverage based on individual or aggregate claimant exceeding an attachment point. So, ABC would pay XYZ a premium charge ($ pmpm) for reinsurance coverage, XYZ will pay ABC for all claims incurred above $X attachment point, with no cap.

Both forms of reinsurance protect ABC from excess losses.

Part d:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Recommend which reinsurance coverage ABC should purchase from XYZ, if at all, in 2021 based on the information above. Show your work. Justify your recommendation.

SOA Commentary on Question:

Results were mixed on this section. Candidates struggled to apply expense allowance correctly on the Quota Share calculation. Some candidates applied expense allowance on Excess Loss even though it does not apply. Many candidates did not calculate the impact of no reinsurance and did not consider no reinsurance as an option when providing their recommendation. Most candidates did not give enough justification for their recommendation; most only giving profitability as a justification.

SOA Answer:

Full credit was given if candidates correctly calculated ABC's profits for 2018/2019/2020 under all three scenarios; No Reinsurance, 50% Quota Share Reinsurance, and Excess Loss Reinsurance and gave a justified recommendation. Partial credit was given if the candidate calculated sub-parts correctly and/or gave a weak justification.

No Reinsurance 3-Yr Total Profit: $580,000
50% Quota Share Reinsurance 3-Yr Total Profit: $340,950
Excess Loss Reinsurance 3-Yr Total Profit: $409,446

Candidate gave a recommendation and a well thought out justification for their recommendation. Either of the 3 options is a valid recommendation here if it is properly justified.

Recommend Excess of Loss Reinsurance: this reinsurance coverage protects ABC from catastrophic risk. In 2018, ABC's worst year, they would have made money had they had excess of loss coverage. Additionally, the average profit was the second highest of the three options, and the loss was never as significant as without reinsurance. The downfall of this method is that, when claims are very low, there is a chance that ABC will lose money, like in 2019, because of reinsurance premiums. As a solution, they could look for higher excess pooling points than $500,000 to pay lower premiums but still be protected against catastrophic risk.

Recommend 50% Quota Share Reinsurance: even though the average profits are the lowest, there is the least volatility in the results. The reinsurer shares in profits along with losses. So, the losses in 2018 would have been significantly dampened had they had 50% quote share. Additionally, a situation where the reinsurer makes money and Company ABC doesn't, is unlikely. Finally, XYZ is offering 10% expense allowance for their portion of the administrative expenses. But, ABC's expenses never exceeded 10%, so XYZ would have paid for a larger percentage of the expenses.

Recommend No Reinsurance: the average and total profits for the last three years are the largest. So, as long as ABC can absorb the risk, they stand to make the most money under this method. However, they also hold the most risk with this method. If there is a year worse than 2018, it could bankrupt ABC.

Part e:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Assess whether or not ABC should continue with your proposed recommendation from part (d) in 2022 based on this new option. Justify your response. Show your work.

SOA Commentary on Question:

Candidates did not answer this part well, similar to part (d). Candidates who correctly calculated Excess Loss in part (d) generally did so in part (e) and vice versa. Most candidates gave recommendations based on their calculations in part (e) but did not give thorough enough justifications.

Full credit was given if candidates correctly calculated ABC's profits for 2018/2019/2020 under the new option and gave a justified recommendation. Partial credit was given if the candidate calculated sub-parts correctly and/or gave a weak justification.

SOA Answer:

New Option 3-Yr Total Profit: $426,501

Candidate gave a recommendation and a well thought out justification for their recommendation.

If originally recommended no reinsurance

Not changing: the total profit is still higher on the no reinsurance scenario, so not changing

Changing: changing to new option because the profit was second highest and risk was significantly minimized

If originally recommended quota share

Not changing: re-emphasize expenses and profit in good years

Changing: much higher profits, still have reinsurance protection, and pay lower premium than full excess-of-risk coverage

If originally recommended excess-of-loss

Not changing: greater protection in bad years, made more money when claims were worse

Changing: higher average profits and lower premium such that ABC doesn't lose as significantly when the claims run very well

Part f:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Explain whether or not ABC should continue with your proposed recommendation from part (d) in 2025. Justify your response.

SOA Commentary on Question:

Candidates who recommended 'no reinsurance' and justified it by pointing out the reduced volatility in experience were given full credit. Many candidates did not consider 'no reinsurance' as an option and, rather, justified staying with either Quota Share or Excess Loss reinsurance. Candidates who pointed out the reduced volatility resulting from the growth in the block of business but did not recommend 'no reinsurance' were given partial credit based on the quality of their justification

SOA Answer:

Regardless of option chosen in (d) or (e), candidate should recommend no reinsurance, given the growth. The growth in the block significantly reduces volatility and allows ABC to act as their own reinsurer. Paying reinsurance premiums will likely end in lower profit every year except certain catastrophic years, which will not outweigh the profits in good years.

6. Fall 2021 FV-C #4

SOA Commentary on Question:

This question was testing candidates' knowledge of financial statements and the details of actuarial vs accounting view.

Part a:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Describe the differences between the "accounting view" and the "actuarial view" for: (i) Claims expense (i) Revenue

SOA Commentary on Question:

The answers for part (i) and part (ii) were very similar. A lot of candidates knew the definitions of each view, but some struggled with additional details (like accounting view doesn't change after the period).

SOA Answer:

(i) Claims Expense

Accounting view:

- Does not change after the accounting period has closed.
- Reflects claims recognized during current period that pertains to coverage provided in current and prior periods plus the change in unpaid claim liability.

Actuarial view:

- Continually changes based on most recent information (claims runout for earlier service dates).
- Reflects claims associated with coverage provided in that period, regardless of when those amounts were recognized in the insurer's claims/accounting systems.

(ii) Revenue

Accounting view:

- Does not change after the accounting period has closed.
- Reflects revenue recognized during current period that pertains to coverage provided in prior periods.

Actuarial view:

- Continually changes based on most recent information (revenue runout for earlier service dates).
- Reflects revenues associated with coverage provided in that period, regardless of when those amounts were recognized in the insurer's billing systems.

Part b:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Calculate the claims expense for each quarter of 2021 using: (i) The "accounting view" (ii) The "actuarial view"

SOA Commentary on Question:

This is the calculation portion that is worth the most grading points. Some candidates got a bit confused about how to apply the Unpaid Claims Liability (UCL) and provision for adverse deviation (PfAD).

SOA Answer:

PAID CLAIMS	Payment Month																	
Incurred Month	Jan-21	Feb-21	Mar-21	Apr-21	May-21	Jun-21	Jul-21	Aug-21	Sep-21	Oct-21	Nov-21	Dec-21	Jan-22	Feb-22	Mar-22	Apr-22	May-22	
Jan-21	$600	$300	$200	$100	$50	$25												$1,275
Feb-21		$550	$350	$150	$50	$25	$50											$1,175
Mar-21			$650	$250	$100	$150	$100	$75										$1,325
Apr-21				$700	$300	$200	$75	$75	$50									$1,400
May-21					$450	$350	$250	$125	$100	$25								$1,300
Jun-21						$800	$300	$150	$75	$50	$75							$1,450
Jul-21							$700	$200	$100	$175	$125	$50						$1,350
Aug-21								$750	$500	$150	$100	$75	$25					$1,600
Sep-21									$650	$300	$250	$50	$100	$75				$1,425
Oct-21										$550	$350	$200	$100	$75	$50			$1,325
Nov-21											$400	$400	$300	$400	$50	$25		$1,575
Dec-21												$800	$400	$200	$100	$50	$25	$1,575
	$600	$850	$1,200	$1,200	$950	$1,550	$1,475	$1,375	$1,475	$1,250	$1,300	$1,575						

Translating the table given into a lag triangle is not necessary, but makes it easier to visualize.

Accounting View:
-Paid claims are the sum of the bottom row, or all claims paid in the quarter regardless of incurred date.
-Change in reserve is end of quarter UCL minus beginning of quarter UCL.
-Claims expense is the combination of the two.
Q1 paid claims = 600 + 850 + 1,200 = $2,650
Q1 change in reserves with PfAD = (1,100 - 0)*1.1 = $1,210
Q1 claims expense = $2,650 + $1,210 = **$3,860**
Q2 paid claims = 1,200 + 950 + 1,550 = $3,700
Q2 change in reserves with PfAD = (1,500 - 1,100)*1.1 = $440
Q2 paid claims = $3,700 + $440 = **$4,140**

Q3 paid claims = 1,475 + 1,375 +1,475 = $4,325
Q3 change in reserves with PfAD = (1,250 - 1,500)*1.1 = ($275)
Q3 claims expense = $4,325 + ($275) = **$4,050**
Q4 paid claims = 1,250 + 1,300 + 1,575 = $4,125
Q4 change in reserves with PfAD = (1,600 - 1,250)*1.1 = $385
Q4 claims expense = $4,125 + $385 = **$4,510**

Actuarial View:
Since we have runout, no UCL or PfAD is needed. Claims expense is all paid claims incurred dates in the quarter, or the far right column.
Claims expense:
Q1 = 1,275 + 1,175 + 1,325 = **$3,775**
Q2 = 1,400 + 1,300 + 1,450 = **$4,150**
Q3 = 1,350 + 1,600 + 1,425 = **$4,375**
Q4 = 1,325 + 1,575 + 1,575 = **$4,475**

Part c:

Source(s): GH201-400-25 – Health Insurance Accounting Basics
Question: Describe what additional information you would need to calculate the "actuarial view" of claims expense for 1Q'22 at the end of March 2022.

SOA Commentary on Question:

Some candidates only mentioned the reserve portion and didn't specify that paid claims were also needed. Some also didn't specify that the information needed to be for 1Q22 incurred dates only.

SOA Answer:

Following information would be needed:

- Paid claims through Jan-Mar pertaining to services in Jan-Mar 2022
- Unpaid Claims Reserve balance as of Mar 2022 specifically for services pertaining to Jan-Mar 2022

Part d:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Explain whether the "accounting view" or the "actuarial view" is more appropriate for a pricing exercise. Justify your response.

SOA Commentary on Question:

Almost all candidates recognized that actuarial view is more appropriate for pricing. Most gave a good reason or two to justify their response, but few candidates did enough for full credit.

SOA Answer:

- The actuarial view is more appropriate
- Accounting view is potentially distorted by prior period effects
- The claims amounts include end-of-period estimates of quantities that become more certain with additional time, and the actuarial view keeps evolving over time
- You would want to work with the revenue and claims associated with calendar year coverage

Part e:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Describe the purpose of an "elimination entry" in a consolidated income statement.

SOA Commentary on Question:

Most candidates either knew what an elimination entry is or they didn't. A few made broad statements about canceling out entries on financial statements that got a small amount of partial credit.

SOA Answer:

Elimination entries:

- Are needed in consolidated financial statements of the parent company of a multi-entity enterprise
- Occur when there is line-by-line aggregation of the financial statements across entities
- Arise from intercompany transactions between companies under common control
- When the consolidated financial statements are being prepared, these transactions need to be removed from the consolidated income statement and/or balance sheet, in order to prevent the consolidated enterprise from reporting revenue and expense from in effect doing business with itself

Part f:

Source(s): GH201-400-25 – Health Insurance Accounting Basics
Question: Describe three examples of an "elimination entry".

SOA Commentary on Question:

If candidates understood part (e) and the definition of an elimination entry, they generally did well on part (f) as well.

SOA Answer:

- If the same parent company owns both a hospital and a health insurer. When one of the insurer's members receives a healthcare service from the hospital and the insurer pays the claim, from the insurer's standpoint, the insurer debits claims expense and credits cash. From the hospital's standpoint, the hospital would debit cash and credit revenue. So, when the financial statements of the insurer and the hospital are combined, the cash entries net to zero and we are left with a net entry in which the debit is claims expense and the credit is revenue. However, since this represents a double-counting of both revenue and expense; thus, in consolidation it is necessary to record an elimination entry to prevent double-counting.

- Suppose that one insurer owns another smaller insurer and the smaller insurer enters into a reinsurance treaty with its larger parent. For standalone financial reporting, each of these insurers would treat this so-called intercompany reinsurance treaty in the same way that it would treat a similar reinsurance treaty with an unaffiliated company. However, for consolidated financial reporting, all entries relating to the intercompany reinsurance treaty need to be eliminated. When viewing matters from the standpoint of consolidated financial reporting, it is as if this treaty simply doesn't exist.

- A large health insurer typically writes insurance through multiple legal entities. However, commonly the insurer is structured so that all of its employees are legally employed by one particular entity, and then the other entities in effect purchase the services of those employees via so-called intercompany expense allocation agreements. At any given point in time, there may be balances owed between affiliates under these expense allocation agreements, due to timing differences arising from when entities should recognize expense versus when cash is transferred between entities. Elimination entries are needed to remove those intercompany asset and liability balances in consolidation.

7. Spring 2022 FV #8

Part a:

Source(s): GH201-400-25 – Health Insurance Accounting Basics
Question: Compare and contrast the benefits for AIC of a provider incentive program versus a fee-for-service model.

SOA Commentary on Question:

*Many candidates simply listed the key characteristics of Provider Incentive Program and Fee for Services Model. However, the question is asking candidates to compare and contrast the **benefits** of a Provider Incentive Program and Fee for Services Model from the **AIC's perspective**.*

Candidates need at least 5 of the following to obtain full mark. Other reasonable responses that are not on list may also be accepted.

SOA Answer:

The benefits of a Provider Incentive Program for AIC:

- AIC can reward providers for specified outcomes based on their objectives.
- Lowers quantity of excess / unnecessary services, thus lowering overall cost / utilization.
- Aligns incentives for provider to partner with AIC in helping lower overall managed care costs.
- Creates incentive for efficient / proactive management of claims costs for individuals with chronic conditions.
- Not as drastically different from FFS model as, say, a capitation-based model; so is seen as a generally more acceptable form of reimbursement model by the provider community than global cap.

The benefits of a Fee for Services Model for AIC:

- Simple to administer.
- Easy contracting and attractive to providers.
- Accounting and actuarial support is easier.

Part b:

Source(s): GH201-400-25 – Health Insurance Accounting Basics
Question: Explain how two types of provider incentive programs are structured

SOA Commentary on Question:

In order to obtain full marks, candidates should explain how the program works (instead listing only highlights or comparing the two programs

SOA Answer:

Quality bonus programs are oriented around incenting providers to achieve measurable healthcare outcomes. As such, a quality bonus program involves non-financial metrics, such as the HEDIS measures promulgated by the NCQA. The

program may define additional payments that the provider can receive on an annual basis, over and above its normal FFS reimbursements, if the provider's performance on specified quality measures for the program year has exceeded defined benchmarks. Alternatively, the program can be structured as a so-called "withhold" instead of a bonus, meaning that a fraction of the normal fee-for- service reimbursements owed to the provider is initially retained (or withheld) by the insurer and is only remitted to the provider on an annual basis to the extent that quality benchmarks have been met.

Gain-sharing programs are oriented around sharing unexpectedly good financial results with providers, under the theory that those results are attributable in part to the provider's efforts to efficiently manage the care of their patients. As such, a gain-sharing program involves the financial performance of some relevant subset of the insurer's business, e.g., the subset of individuals who selected a primary care physician belonging to a particular provider group. The potential additional payment to the provider is often defined by reference to the loss ratio (i.e., incurred claims divided by earned premium) of the measured business for the program year, before incentives. For example, the insurer and provider may agree that if the loss ratio for the measured business is above 80% then the provider gets no additional payment, but if the loss ratio is below 80% then the provider gets 50% of the excess margin, e.g., if the loss ratio is 78% then the provider gets a bonus payment equal to 50% * (80% - 78%) = 1% of premium for the measured business.

Part c:

Source(s): GH201-400-25 – Health Insurance Accounting Basics
Question: You are given the following information

- On 1/1/2021, AIC signs a provider incentive program with Diaby Ankle Rehabilitation Center (DARC) for the calendar year 2021.
- On 5/31/2021, AIC forecasts the full year payout of the program to DARC to be $2.4M. AIC continues to accrue for this program at the same rate throughout the program year.
- On 12/31/2021, AIC and DARC determine the annual settlement is worth $2.0M.

(i) Create the accounting entry for this program on May 31, 2021.
(ii) Create the accounting entry for this program on December 31, 2021.

SOA Commentary on Question:

For part (i), candidates should recognize the entries are as at May 31, 2021 which means the annual figures should be prorated. For part (ii), candidates should recognize the true-up of $0.4 million. Lastly, and most importantly, candidate must accurately represent credits/debits, as well as expense vs liabilities.

SOA Answer:

(i) Since reporting entries are as at May 31, 2021, $2.4 million should be prorated by 5/12 to $1.0 million. Therefore:

Debit provider incentive expense $1.0 million
Credit provider incentive liability $1.0

(ii) Although the actual settlement is $2.0 million, since the year has ended, AIC should debit provider incentive liability $2.4 million. At the same time, since the final settlement is $2.0 million, AIC should credit cash $2.0 million. Lastly, the true-up of $0.4 million should be a credit to provider incentive expense.

Alternatively, if the candidate recognize the provider incentive liability is accrued at the end of the month, so before the December entry is booked, AIC already knows the full amount is $2.0 million, the true-up is only $0.2 million. As such, AIC should debit provider incentive liability of $2.2 million, credit cash $2.0 million, and credit provider incentive expense $0.2 million

Part d:

Source(s): GH201-400-25 – Health Insurance Accounting Basics
Question: Describe challenges associated with provider incentive programs for insurers

SOA Commentary on Question:

Candidates need at least 5 of the following to obtain full mark. Other reasonable responses that are not on list may also be accepted.

SOA Answer:

- Difficult to set quality measure and/or define healthcare outcomes
- Hard to track which program negotiated with each provider
- Difficult to keep communication channels open at all times both within internal depts. of company as well as externally with providers.
- Data accuracy – reporting issues are common
- Data timeliness – often data not received in time for setting up an exposure liability
- Data granularity - often not available at required level of detail
- Timing issues – often the annual provider incentive metrics are hard to estimate at mid-year to forecast the FY amount.

Part e:

Source(s): GH201-400-25 – Health Insurance Accounting Basics
Question: Describe potential steps to address the challenges from part (d).

SOA Commentary on Question:

Other reasonable responses that are not on list may also be accepted.

SOA Answer:

- Increase actuarial / finance workforce dedicated to provider incentive program

forecasting & reporting.

- Identify databases and appropriate data channels that can carve out claims at a more granular level.
- Proactively identify rules-of-thumb to be used where accuracy is a concern (e.g. if the nature of the provider metric is such that it is difficult to estimate the FY amount in the middle of the year, then either use last year's results as a proxy; or assume that the max possible payout will be incurred just to be on the safe side) – either way, it is important to clearly communicate which assumptions are being used in this environment of uncertainty.
- Establish open communication channels with providers, while setting clear expectations on which data elements are needed and at what frequency.
- Establish open communication channels between internal departments (provider contracting vs finance) to ensure that latest information is making its way to the appropriate teams that can accrue payables / receivables ahead of time

8. Spring 2022 FV #12a-b

Part a:

Source(s): GH201-400-25 – Health Insurance Accounting Basics, Skwire 9 – Gov't Health Plans (US)

Question: Outline how a prescription drug plan (PDP) shares financial risk with CMS.

SOA Commentary on Question:

This question tested specific risk-sharing provisions described in the assigned text. To get full credit, candidates must have listed and described the three primary risk sharing facets of Medicare Part D (risk corridors, low-income cost sharing and premium subsidies, and reinsurance). Credit was not given for other aspects which do not include risk sharing with CMS (direct subsidy and coverage gap discounts), but points were not deducted if candidates mentioned them.

SOA Answer:

Risk Corridor Payments – If the PDP's actual adjusted costs for a given year exceed the projected cost by more than 5%, CMS will pay the plan 50% of the amount in excess of 5%. If the PDP's cost exceed 10% of the expected amount, CMS will pay 80% of the amount in excess of 10%. Conversely, the PDP must pay CMS 50% or 80% of any amount by which costs are less than 5% or 10% of the expected cost.

Low Income Subsidies – CMS provides premium (LIPS) and cost-sharing (LICS) subsidies to PDPs for low-income beneficiaries

Reinsurance – CMS provides reinsurance for members with high out-of-pocket costs (above a current-year threshold)

Part b:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Explain the importance of estimating Part D settlements before the final true-up with CMS.

SOA Commentary on Question:

For full credit, candidates must have provided general information about the timing and recognition of settlements, as well as points on timing of specific aspects of the program

SOA Answer:

Cash flows vary throughout the year as a result of the Part D benefit design. Final settlement occurs roughly 6-9 months after the end of the contract year. Year-to- date payments from CMS may exceed actual claims payments, so plans must hold early payments received when the plan costs are low to pay for higher plan liabilities later in the year.

Coverage gap discount program (CGDP) – Pharmaceutical companies are responsible for the majority of drug costs in the gap. Plans invoice the manufacturers quarterly. This subsidy is estimated in the bid submission process. Amounts are reconciled after the end of the plan year.

Reinsurance and LICS payments are steady throughout the year based bid projections in bid submission, but the associated claims are not. Reinsurance costs are zero at the beginning of the year until members reach the catastrophic threshold. LICS costs vary over time, with high subsidies during the deductible phase, lower subsidies in the pre-ICL coverage phase where standard plan cost- sharing is lower, and higher subsidies in the coverage gap and catastrophic phases.

9. Fall 2022 FV #2

Part a:

Source(s): Read. Think. Write.

Question: List the Academy qualifications required for issuing a Statement of Actuarial Opinion.

SOA Commentary on Question:

The answer was simply the three components of AAA qualifications standards stated at the beginning of the article. Several candidates missed on this component. No points were awarded for merely stating that credentials were required as the question asked what goes into obtaining and maintaining these credentials

SOA Answer:

- Basic education
- Experience
- Continuing education
- Actuary must document continuing education activities and attest to satisfying standards annually

Part b:

Source(s): Read. Think. Write.

Question: Assess whether any of the prescribed opinion statements have been violated for each of the items noted above. Justify your answer.

SOA Commentary on Question:

Candidates did generally well on this question, but candidates generally struggled with some subpoints (mainly i and vi). On vi, candidates that declared that including PAD implicitly was correct for sufficient provisions, but that explanation on the reasoning should be required and that an explicit margin would be preferable got partial credits.

A good answer clearly stated whether there was a violation or not, which prescribed statement was violated and an explanation as to why. Candidates would still get full marks even if they did not specify the correct prescribed statement that was violated if the rationale was good. Prescribed opinion statements are:

1. The liabilities are in accordance with accepted actuarial standards…
2. … are based on appropriate actuarial assumptions…
3. … meet the requirements of the state…
4. … make good and sufficient provision…
5. … consistent with the preceding year-end…
6. … provision for all items which ought to be established…

SOA Answer:

- Violated 5. ABC changed reserve basis between years, and this has to be disclosed in the opinion a statement. Often times, the statement will be qualified in cases where the actuary is not involved in the prior year work or lacks knowledge on how it was done, or if it's a new item that did not exist in the prior year.

- Violated 6. ABC must participate in the mandatory risk adjustment program. The strategy to attract healthy members will likely lead to risk score below the average of the market. Therefore, ABC needs to establish a liability for the risk adjustment payable amount.
- Violated 3. Even though the individual line lacks credible, the two LOB are too different to be a good proxy for completion factors. Medicare Supplement has cost sharing features and demographics that cannot apply to the individual business without significant adjustments. It would be preferable to use other methods, such as loss ratio projection, or to acquire data from a more similar product.
- Violated 1. According to ASOP, an asset adequacy analysis must be performed. There is considerable asset-liability mismatch risk with ABC's strategy that requires testing.
- No violation. The changes are only applied to new issues
- Violation of 4. ABC assumptions will likely lead to reserves that are too high, thus provisions that are not "good", especially for claims in later months of run-off.
- Violated 6. Based on patterns of losses on a closed group where rate increases are not possible, a premium deficiency reserve (PDR) should be established. A gross premium valuation (GPV) has to be performed to determine the proper reserve amount.

Part c:

Source(s): ASOP #41 – Act. Communications
Question: Identify additional steps required pursuant to ASOP 41.

SOA Commentary on Question:

The suggested answer focuses on next steps with regards to reliance on the CFO certifying accuracy and completeness of data. Several candidates answered with items to disclose per ASOP 41, such as conflict of interest, intended purpose and scope of the report, intended users, etc. These were all acceptable answers and most candidates received full credit on part c.

SOA Answer:

- Disclose reliance
- Disclose uncertainty or risk
- Identify the party responsible for each material assumption and method, disclosing where it differs from the opining actuary's judgment
- Define the extent of the reliance, for example by stating whether checks on reasonableness of the data have been applied

10. Spring 2023 VR #4

Part a:

Source(s): Skwire 43 – Analysis of Financial & Operational Performance

Question: In the table below: (i) List the formula(s) for each component of the DuPont Formula. (ii) Describe what each component measures.

Component	Formula(s)	Measures
Net Profit Margin		
Total Asset Turnover		
Total Leverage Ratio		
Return on Equity		
Return on Assets		

SOA Commentary on Question:

Most candidates did well in providing the formulas and measures. Candidates who simply defined a measure as a ratio of two items did not receive credit. Most candidates struggled to identify the correct measure for Return on Equity.

SOA Answer:

Component	Formula(s)	Measures
Net Profit Margin	*= [Net Income] / [Revenue]*	*How profitable is each customer? In other words, what percent of each dollar of sales does Company X earn as profits?*
Total Asset Turnover	*= [Revenues] / [Total Assets]*	*How much total investment in assets (e.g., real estate, medical equipment) is needed to meet the requirements of Company X's customers?*
Total Leverage Ratio	*= [Total Assets] / [Shareholder Equity]*	*To what degree can Company X utilize other peoples' money (e.g., trade and long-term creditors' money) to magnify Return on Assets for shareholders' benefit?*
Return on Equity	*= [Net Income] / [Shareholder Equity]* OR *= [Return on Assets] * [Total Leverage Ratio]*	*How fast does Company X's net worth grow, assuming all earnings are reinvested? Also measures the limits of such growth, without external sources of capital*
Return on Assets	*= [Net Income] / [Total Assets]* OR *= [Total Asset Turnover] * [Net Profit Margin]*	*What is the level of profits, as a percent, that can be earned on Company X's assets?*

Part b:

Source(s): Skwire 43 – Analysis of Financial & Operational Performance

Question: You are an actuary at Company X, a publicly traded company. Company X's Finance department provides you the following information for 20X1.

Health benefit ratio	82.0%
Administrative expense ratio	17.4%
Investment Income, as a percent of revenue	4.6%
Non-operating expense, as a percent of revenue	2.2%
Total Asset Turnover	2.28
Total Leverage Ratio	1.75
Corporate tax rate	21%

Calculate Company X's shareholder equity as a percent of revenue. Show your work.

SOA Commentary on Question:

Most candidates earned full credit with providing the correct ratio of equity to revenue. Candidates who earned full credit either defined all parts of the DuPont to arrive at the answer or used algebra to isolate the answer given the provided metrics.

Partial credit was given in accurately calculate parts of the Dupont formula or relevant algebra and formulas.

SOA Answer:

Pre-tax profit, as a percent of revenue = 1 - [Health Benefit Ratio] - [Admin Expense Ratio] - [Non Op Expenses] + [Investment Income]
= 3.0%

Net profit, as a percent of revenue = [Pre-Tax Profit] * (1 - [Corporate Tax Rate])
= 2.4%

[Return on Assets] = [Net Profit Margin] x [Total Asset Turnover]
= 5.40%

[Return on Equity] = [Net Income] / [Equity]
=[Total Leverage Ratio] x [Return on Assets]
= 9.46%

Equity as % of Revenue = [Net Profit as % of Revenue] / [Return on Equity]
= 25.06%

Alternatively, algebra could be used:

$$[\text{Equity}] / [\text{Revenue}] = \frac{1}{[Total\ Asset\ Turnover] * [Total\ Leverage\ Ratio]} = \frac{1}{\left(\frac{Revenue}{Assets}\right) * \left(\frac{Assets}{Equity}\right)}$$

Part c:

Source(s): Skwire 43 – Analysis of Financial & Operational Performance

Question: (i) Identify a component of the DuPont Formula that would differ significantly between a staff model plan and a fee-for-service plan, all else being equal. Justify your response. (ii) Recommend an adjustment that could be made to a different component of the DuPont Formula to counteract the effect described in (i) and achieve the same Return on Equity. Justify your response.

SOA Commentary on Question:

Candidates in general gave mixed responses. Some common incorrect responses were that Staff Models have lower profit margins because of increased assets or that FFS Models had decreased profit margins because providers had an incentive to overutilize. These both are not inherently true.

An alternative acceptable answer for part (ii) was to identify that Return on Assets would be lower in a Staff Model and that increasing the Total Leverage Ratio by financing with debt would balance out the difference.

SOA Answer:

(i) Total Asset Turnover will be lower in the staff model because it needs to have more assets (e.g., clinics, pharmacies, pharmacy medication inventory, hospitals) to deliver health care. FFS plans do not need this level of assets because they do not deliver healthcare.

(ii) Increase the profit margin to offset the decrease in Total Asset Turnover for the staff model. This will result in the same Return on Assets, and assuming Total Leverage Ratio is consistent, will achieve the same Return on Equity.

11. Fall 2022 FV #8

Part a:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Describe the difference between the "accounting view" and the "actuarial view" of claims.

SOA Commentary on Question:

Candidates did well on this question and were able to explain the differences between accounting and actuarial view.

SOA Answer:

Accounting view:

- Does not change after the accounting period has closed.
- Reflects claims recognized during current period that pertains to coverage provided in prior periods (earlier months or even prior year).

Actuarial view:

- Continually changes based on most recent information (claims runout for earlier service dates).
- Reflects claims associated with coverage provided in that period, regardless of when those amounts were recognized in the insurer's claims/accounting systems.

Part b:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Calculate the year-over-year Jan-Dec 2021 claims trend using: (i) Ship date, (ii) Fill date. Show your work.

SOA Commentary on Question:

Candidates were able to calculate the pharmacy cost well and were able to differentiate between ship and fill date. Utilizing the triangle format was helpful to receive partial credit where the final answer was incorrect but full credit was given for all correct answers. Some candidates did not multiply the cost by the units which did not produce the desired trends.

SOA Answer:

Calculate pharmacy cost for all lines in the data table provided.
Pharmacy cost = AWP * (1 – RX Discount) * drug units
Summarize pharmacy cost by year by ship date and fill date and calculate year over year trends.
((2021 pharmacy cost) / (2020 pharmacy cost)) – 1

(i) Ship date trend = (165,166,380 / 143,714,993) – 1 = 14.9%
(ii) Fill date trend = (166,033,665 / 143,641,528) – 1 = 15.6%

Part c:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Explain why ship date is preferred when calculating claims trend in the "accounting view".

SOA Answer:

The accountant's income statement represents the net effect of all financial transactions that were recognized in that period. From QS's perspective, the transaction would only be recognized once the drug is shipped and the Pharmacy requests reimbursement. Hence, an accountant would only recognize the claim once it is shipped.

Part d:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Explain factors that could cause the "actuarial view" of claims trend to differ from the "accounting view".

SOA Commentary on Question:

Candidates generally knew that the lag between ship date and fill date created differences but did not always explain what would cause the lag to differ from the historical experience.

SOA Answer:

Widening lag between when drug is ordered vs when drug is shipped by Pharmacy. Could be driven by a variety of factors:

- Operational delays in either year
- Supply chain bottlenecks in either year
- Higher utilization of drugs (fill date) in Dec of one year versus another year; this would shift more shipments from Dec of one year to Jan of another year

Part e:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: (i) Calculate the claims trend based on data through June 2021 using the "actuarial view". Show your work. (ii) Assess whether the calculated trend in part (i) would have better predicted the Jan-Dec 2021 trend. Justify your response.

SOA Commentary on Question:

Generally candidates did well on this part but some candidates calculated full year trends or Jul-Dec trends rather than the first half of the year. Another common mistake was using ship date instead of fill date.

SOA Answer:

(i) The candidate should calculate the Jan-Jun year over year trend using fill date.
(Jan-Jun 2021 Pharmacy cost)/(Jan-Jun 2020 Pharmacy cost) – 1
(71,825,765 / 82,211,013) – 1 = 14.5%

(ii) Fill Date is a better indicator of customer behavior than ship date, which could be influenced by operational delays and other one-time events. Hence, if they had forecasted 14.5% Trend for FY21, they would have been closer to the ultimate actual claims trend of 15.6%. So, 2H'21 claims trend would still have been higher than 1H'21, but it would have been a smaller magnitude of a "surprise".

Part f:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Create the accounting entry for Drug J3381 for the month of Nov 2021. Show your work.

SOA Commentary on Question:

Some candidates did not filter the data for Drug J3381 and had amounts for all claims experience rather than the specific drug in the question. The claims expense was calculated accurately but some candidates omitted the revenue and profit from the entry.

SOA Answer:

Cash, Accounts Receivable, Earned Revenue $398,106
Claims Expense $395,650
Profit $2,455

Part g:

Source(s): GH201-400-25 – Health Insurance Accounting Basics
Question: Calculate the profit margin for PQR in 2021 using: (i) Ship date. (ii) Fill date.

SOA Commentary on Question:

Some candidates did not filter the data for the PQR client and had amounts for all claims experience rather than the specific client in the question. Partial credit was given if the resulting profit margin was calculated correctly. If profit margins were accurately expressed as a percentage, full credit was given.

SOA Answer:

Use data table provided to calculate pharmacy cost, client cost and profit margin.
Profit margin = pharmacy cost – customer cost
Pharmacy cost = AWP * (1 – RX Discount) * drug units
Client cost = AWP * (1 – client discount) * drug units

(i) Profit Margin = $141,694
(ii) Profit margin = $145,192

Part h:

Source(s): ASOP #21 – Responding to Financial Audits
Question: Describe the circumstances an actuary should be prepared to discuss with an examiner due to changing conditions.

SOA Commentary on Question:

Candidates sometimes gave very vague, general answers but often could list a few items an actuary would be prepared to discuss.

SOA Answer:

- Changes in operating environment
- Changes in experienced trends
- Changes in product / plan design / demographic mix
- Change in valuation bases
  Compliance with any new/revised rules that may be relevant

12. Spring 2023 VR #9

Part a:

Source(s): GH201-400-25 – Health Insurance Accounting Basics, PDR Discussion Paper
Question: Describe the considerations in determining the need for a premium deficiency reserve for a health insurer.

SOA Commentary on Question:

Very few candidates provided the detailed grouping and timing questions that must be considered. However, most candidates received partial credit for generally describing when a PDR is needed and for providing assumptions to consider when calculating it. To receive full credit, candidates could either list the grouping and timing considerations, or a combination of some of the grouping and timing considerations in addition to describing when a PDR is needed and assumptions to consider.

SOA Answer:

Grouping Considerations:

- Should all commercial be combined or grouped based on how each block is regulated (small group more heavily regulated than large group)?
- Do ancillary group coverages like dental and vision constitute their own PDR grouping or are these coverages combined with group medical?
- Does ACA individual medical business constitute a separate PDR grouping, or is it combined with another block of business, such as pre-ACA individual medical, or small group medical, or even Medicaid?
- Do Medicare Advantage, standalone Medicare Part D, and Medicare Supplement products each constitute a separate PDR grouping, or are they combined together?
- For a health insurer that participates in multiple states' Medicaid managed care programs, does each state program constitute a separate grouping, or are all the insurer's Medicaid programs combined together?
- Does business assumed by the insurer through reinsurance get grouped together with similar business directly written by the insurer, or not?

Timing Considerations

- What are the renewability characteristics of the underlying insurance contracts?
- Are there insurance contracts with future effective dates that need to be included in the PDR calculation?

Part b:

Source(s): PDR Discussion Paper
Question: Justify whether you have sufficient information to calculate a premium deficiency reserve as of December 31, 20X1.

SOA Commentary on Question:

Most candidates correctly stated not enough information was provided and included one or two reasons for support. Candidates needed to provide three reasons to justify their decision to receive full credit.

SOA Answer:

Not enough data is provided to calculate a premium deficiency reserve. Information is needed at a more granular level, splitting out the long-term care business. Renewability and premium increases limitations is needed for the guaranteed coverage. Information may be needed to project profit/loss beyond the next 12-month period.

Part c:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Specific to the requirements of Diversity as regulated by a state agency that is a member of the National Association of Insurance Commissioners (NAIC): (i) Describe the publicly available statutory financial reports that Diversity is required to submit to the state regulatory agency based on NAIC rules. (ii) Describe the confidential statutory financial reports that Diversity is required to submit to the state regulatory agency based on NAIC rules.

SOA Commentary on Question:

Most candidates did well on this question. In order to receive full points, candidates had to be able to differentiate between the types of reports. Partial credit was given for providing the type of report without a description.

SOA Answer:

(i)

- Annual Statement Blank
  - Annual pre-formatted template consisting of core financial statements together with a wide variety of supplemental exhibits
- Quarterly statement blank
  - Similar but less voluminous pre-formatted template submitted on a quarterly basis
- Annual audited financial statement
  - Presents the core financial information found in the annual statement blank in more condensed form, and includes an opinion statement from the audit firm
- Annual actuarial opinion
  - Statement signed by the insurer's appointed actuary attesting to the adequacy of the actuarial liabilities and assets recorded by the insurer

(ii)

- Annual risk-based capital (RBC) report
  - A pre-formatted template that computes an insurer's minimum capital requirement under formulas adopted by the NAIC
- Annual actuarial opinion memorandum
  - Documents the appointed actuary's work supporting the conclusions expressed in the opinion

13. Fall 2023 VR #6

Part a:

Source(s): GH201-400-25 – Health Insurance Accounting Basics
Question: Contrast GAAP financial statements and statutory financial statements

SOA Commentary on Question:

Candidates generally scored well on this section.
A wide range of answers were accepted, some of which are listed in the model solution. Four distinct contrasts were required for full credit.

SOA Answer:

GAAP financial statements are produced by "registrants" who release equity and debt instruments, and regulated by the SEC. Statutory (STAT) financial statements are produced by licensed insurance entities and are regulated by the state insurance departments.

GAAP financial statements are produced on a consolidated (whole firm) basis with some breakouts into reportable segments, while STAT statements are produced "standalone" by each licensed entity.

GAAP financial statements are not pre-formatted and registrants have some flexibility with respect to nomenclature, segmentation, and other aspects. STAT statements are rigid and pre-formatted.

GAAP financial statements are much less detailed than STAT.

STAT statements include the requirement that a qualified actuary opines on the liabilities, while there is no analogous requirement for GAAP.

Part b:

Source(s): GH201-400-25 – Health Insurance Accounting Basics
Question: List primary users of each type of financial statement.

SOA Commentary on Question:

Candidates generally scored well on this section.

Two distinct users per financial statement type were required for full credit and credit was given for accurate responses other than those listed below.

SOA Answer:

GAAP: shareholders, company management
STAT: regulators, state departments of insurance

Part c:

Source(s): Skwire 43 – Analysis of Financial & Operational Performance
Question: Calculate the following financial metrics for each company. Show your work. (i) Return on Equity (ii) Total Leverage Ratio (iii) Return on Assets (iv) Net Profit Margin (v)Total Asset Turnover

SOA Commentary on Question:

Candidates generally scored well on this section. Partial credit was provided when the appropriate process was followed and minor mistakes were carried through. The most common mistakes were omitting the taxes from the net income calculation, miscalculating shareholder equity, and miscalculating total assets.

SOA Answer:

		Company A	Company B	Company C	
	Income Statement				Formulas:
	Premium Revenue	400,000,000	240,000,000	15,000,000	
	Operating Expenses	375,000,000	224,000,000	13,000,000	
	Non-Operating Expenses	2,500,000	2,500,000	800,000	
	Pre-tax Income	22,500,000	13,500,000	1,200,000	Revenue - Operating Expenses - Non-Operating Expense
	taxes	4,500,000	2,700,000	240,000	.2 * Pre-Tax Income
	Net Income	18,000,000	10,800,000	960,000	Pre-Tax Inxome - Taxes
	Balance Sheet				
	Total Current Assets	150,000,000	80,000,000	35,000,000	
	Total Fixed Assets	50,000,000	20,000,000	15,000,000	
	Total Assets	200,000,000	100,000,000	50,000,000	
	Total Current Liabilities	50,000,000	50,000,000	5,000,000	
	Long-term Debt	25,000,000	2,000,000	1,000,000	
	Equity	125,000,000	48,000,000	44,000,000	Total Assets - Total Current Liabilities - Long-term Debt
i)	Return on Equity	14.40%	22.50%	2.18%	Net Income / Shareholder Equity
ii)	Total Leverage Ratio	1.60	2.08	1.14	Total Assets / Shareholder Equity
iii)	Return on Assets	9.00%	10.80%	1.92%	Net Income / Total Assets
iv)	Net Profit Margin	4.50%	4.50%	6.40%	Net Income / Revenue
v)	Total Asset Turnover	2.00	2.40	0.30	Revenue / Total Assets

Part d:

Source(s): Skwire 43 – Analysis of Financial & Operational Performance

Question: Calculate the increase in revenue required for each company to maintain the same return on equity as the current year. Show your work.

SOA Commentary on Question:

Many candidates attempted this question but neglected to increase the total assets and equity by the current period's net income. Partial credit was provided when the appropriate process was followed and minor mistakes were carried through. Many successful candidates used the Goal Seek Excel function to target the previous year's ROE by manipulating the current year's revenue.

SOA Answer:

	Company A	Company B	Company C	
Income Statement				Formulas:
Revenue	433,860,000	261,912,000	16,110,000	Revenue required to target ROE from previous year.
Operating Expenses	405,000,000	241,920,000	14,040,000	Given in problem
Non-Operating Expenses	2,575,000	2,575,000	824,000	Given in problem
Pre-tax Income	26,285,000	17,417,000	1,246,000	Revenue - Operating Expenses - Non-Operating Expense
taxes	5,257,000	3,483,400	249,200	.2 * Pre-Tax Income
Net Income	21,028,000	13,933,600	996,800	Pre-Tax Inxome - Taxes
Balance Sheet				
Total assets	221,028,000	113,933,600	50,996,800	Increase Assets by Net Income
Total Current Liabilities	50,000,000	50,000,000	5,000,000	
Long-term Debt	25,000,000	2,000,000	1,000,000	
Equity	146,028,000	61,933,600	44,996,800	Total Assets - Total Current Liabilities - Long-term Debt
Return on Equity	14.40%	22.50%	2.22%	Target ROE from previous year
Required revenue Increase ($)	33,860,000	21,912,000	1,110,000	
Required revenue Increase (%)	8.47%	9.13%	7.40%	

Part e:

Source(s): Skwire 43 – Analysis of Financial & Operational Performance

Question: Explain why the required revenue increase varies by company.

SOA Commentary on Question:

No credit was given when candidates mentioned the size of the company without further elaboration. Most candidates were not specific enough in their response.

SOA Answer:

Each company's percent increase of revenues is different because each company has a different total leverage ratio (TLR). The ROE consists of both the return on assets and the total leverage ratio. The impact of additional net income (achieved through premium increases) on the ROA is magnified by a company's TLR. The higher the TLR, the more of an impact an increase in Net Income will have on a company's Return on Equity.

Part f:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Describe the differences in accounting for fully-insured and ASO contracts.

SOA Commentary on Question:

Candidates generally performed poorly on this section. Candidates provided a lot of detail of ASO and fully-insured contracts but not necessarily the differences in the accounting. Four distinct contrasts were required for full credit.

SOA Answer:

- In ASO contracts, the insurer only adjudicates claims and provides access to discounts, but does not retain risk like in fully insured contracts.
- Correct accounting treatment is to not reflect ASO benefit payments on income statement (since payments are just a pass through), just on balance sheet

- With this treatment, insurer would record no claim liabilities or claims reserves with ASO business
- More complicated ASO arrangements (related to risk sharing and termination of contract) may require actuarial involvement
- Under SAP, ASO fees are recognized as contra-expense, and not revenue
- ASO providers do not require as much assets compared to insured plans, and thus have lower asset turnover

Part g:

Source(s): Skwire 43 – Analysis of Financial & Operational Performance

Question: Calculate the following projected financial metrics for Company C. Show your work. (i) Return on Equity (ii) Total Leverage Ratio (iii) Return on Assets (iv)Net Profit Margin (v)Total Asset Turnover

SOA Commentary on Question:

Most candidates knew how to approach this problem. The most common mistakes were updating equity without making an equivalent update to the total assets, and not properly adjusting the net income for the addition of the ASO.

SOA Answer:

	Company C	New ASO	New Total
Income Statement			
Revenue	16,110,000	5,000,000	21,110,000
Operating Expenses	14,040,000		
Non-Operating Expenses	824,000		
Pre-tax Income	1,246,000		
taxes	249,200		
Net Income	996,800	300,000	1,296,800
Balance Sheet			
Total assets	50,996,800	4,500,000	55,496,800
Total Current Liabilities	5,000,000		5,000,000
Long-term Debt	1,000,000		1,000,000
Equity	44,996,800	4,500,000	49,496,800
Return on Equity	2.22%	6.67%	2.62%
Total Leverage Ratio	1.13	1.00	1.12
Return on Assets	1.95%	6.67%	2.34%
Net Profit Margin	6.19%	6.00%	6.14%
Total Asset Turnover	0.32	1.11	0.38

Part h:

Source(s): Skwire 43 – Analysis of Financial & Operational Performance

Question: Explain how the financial metrics in part (g) would change if Company C financed the expansion with debt instead of equity.

SOA Commentary on Question:

Most candidates performed well on this question. Many candidates neglected to mention ROA, net profit margin and total asset turnover were unchanged.

SOA Answer:

- Return on Equity is higher, because no additional equity issued.
- Leverage Ratio is higher, because debt has increased
- Return on Assets, Net Profit Margin, and Total Asset Turnover all unchanged, because total assets have not changed

14. Spring 2024 VR #2

Part a:

Source(s): Skwire 43 – Analysis of Financial & Operational Performance

Question: (i) Describe the Gordon Constant Growth Model (GCGM). (ii) Describe why the GCGM assumes the price-to-earnings (P/E) ratio of companies with high growth rates will be expected to drop in a context of rising interest rates.

SOA Commentary on Question:

This question was not answered well in general.

- *For part (i), most candidates got 1 point for stating the GCGM formula, but failed to describe it as a simplified discounted future cash flow model that assumes that dividends grow in perpetuity at a constant rate.*
- *For part (ii), what the question intended to test is why P/E drops faster for high G (the growth rate of dividends) company when k (the required rate of return) increases in comparison to a company with a lower G, and candidates that demonstrated this generally received credit. While the question was not straightforward, simply explaining why increase in interest rate would decrease P/E ratio was insufficient to receive credit.*

SOA Answer:

i.Describe the Gordon Constant Growth Model (GCGM). ii.Describe why the GCGM assumes stock prices of companies with high growth rates will be expected to drop more in a context of rising interest rates."
- The Gordon Constant Growth Model is a simplified discount future cash model that assumes dividends grow in perpetuity at a constant rate.
- The P/E ratio of a stock is equal to 1/(k-G) where k is the required rate of return for equity investor and G is the growth rate in dividends
- The P/E ratio is therefore higher for companies with higher expected growth rates, but that advantage diminishes when interest rates grow higher. - For example, if we consider a 15% discount rate, enterprise A with 5% growth has a P/E ratio of 10 while enterprise B with a 10% growth rate has a P/E of 20. - If the required rate of return were to rise to 25% with the same expectations for both companies, enterprise A's P/E ratio would reduce to 5 (two times lower) while enterprise B's would reduce to 6.67 (three times lower).

Part b:

Source(s): Skwire 43 – Analysis of Financial & Operational Performance

Question: Describe why stock prices are imperfect metrics for the financial analysis of health plans.

SOA Commentary on Question:

This question was not answered well in general.

Many candidates pointed out that stock prices sometimes reflect short-term phenomena, but very few candidates mentioned the other points which were mentioned on page 778 in Skwire Chapter 43.

SOA Answer:

Describe why stock prices are imperfect metrics for financial analysis of health plans
• Health plans that are not publicly traded will not have stock prices
• Stock prices sometimes reflect short-term phenomena
• Investment analysts may not understand operational realities of the insurance plan
• May be impossible to clearly communicate detailed or trade secret aspects of strategies to investment analysts

Part c:

Source(s): Skwire 43 – Analysis of Financial & Operational Performance

Question: Calculate the following performance metrics for Portwater and Carabelle separately. Show your work. (i) Total Asset Turnover (ii) Return on Assets (iii) Total Leverage Ratio (iv) Return on Equity

SOA Commentary on Question:

This question was answered very well. Candidates that lost points often made small mistakes like using the Total Current Assets rather than the Total Assets in their calculations.

SOA Answer:

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

Part d:

Source(s): Skwire 43 – Analysis of Financial & Operational Performance

Question: Calculate the two annual profit margin ratios most commonly used by financial analysts for Carabelle and Portwater separately. Show your work.

SOA Commentary on Question:

*The question asks to calculate the **most commonly used** two annual **profit margin** ratios by financial analysts. These were identified in Skwire Chapter 43 on page 764.*

Many candidates recognized they are Net Profit Margin and Operating Profit Margin, but very few calculated Operating Profit Margin correctly.

Some candidates calculated other ratios, such as expense ratio, loss ratio, etc.

SOA Answer:

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

Part e:

Source(s): Skwire 43 – Analysis of Financial & Operational Performance

Question: Your intern made the following statements:

- GAAP profit margins for insured businesses are overstated relative to statutory profit margins.
- "Same-size" analyses are done on a per capita basis to reflect the impact of size on operating measures

Critique the accuracy of the intern's statements. Justify your answer.

SOA Commentary on Question:

The question asks to critique the intern's statements and then justify. Many candidates who correctly restates the intern's statements failed to explicitly state if the intern's statements were true or false. The below represents an example of a response that would earn full credit but other responses not listed may also earn credit.

SOA Answer:

Statement on insured business is TRUE.

The profit margins for insured businesses are in a sense overstated, since they imply a level of cash flow available to owners that excludes the impact of generally more conservative statutory reserve requirements.

Statement on same-size analysis is FALSE.

"Same-size" income statements express all relevant income statement items as a percentage of revenue and not on a per-capita basis. In this way, profit margins can be divided into component parts, all of which are expressed independently of the size of the enterprise.

15. Spring 2024 VR #3

SOA Commentary on Question:

This was a recall question. Surprisingly, candidates performed relatively poorly on the question. In part (a)(i), candidates generally got some credit but most candidates did not list both the concept of comparison to understand current performance and well as setting targets for future performance. In part (a)(ii), candidates frequently listed some items but few candidates provided the majority of the list. In part (b)(i), most candidates identified NAIC blanks as a source of data. Fewer candidates listed SEC filings as a data source and even fewer candidates listed commercial sources. In part (b)(ii), many candidates confused "evaluating data sources" with evaluating data and erroneously referenced provisions from ASOP 23 in their answers.

Part a:

Source(s): Skwire 43 – Analysis of Financial & Operational Performance
Question: (i) State reasons why Company X would want to compare its financial ratios to its competitors. (ii) List characteristics that, when similar, improve comparisons of financial ratios between Company X and competitors.

SOA Commentary on Question:

Candidates generally got some credit on part (i) but most candidates did not list both the concept of comparison to understand current performance and well as setting targets for future performance.

In part (ii), candidates frequently listed some items but few candidates provided the majority of the list.

SOA Answer:

(i) Comparisons allow health plans to identify whether it operates at best practices. Comparisons also allow health plans to set best practice goals for future performance.

(ii) Similar:

a. Products or lines of business
b. Business models (e.g. staff model vs. ffs)
c. Operational philosophies
d. Geographic focus
e. Capital cost conditions
f. Size

Part b:

Source(s): Skwire 43 – Analysis of Financial & Operational Performance
Question: (i) Identify sources of data you could use to prepare your comparison. (ii) Describe factors you should consider when evaluating the data sources identified in part (b)(i).

SOA Commentary on Question:

In part (i), most candidates identified NAIC blanks as a source of data. Fewer candidates listed SEC filings as a data source and even fewer candidates listed commercial sources. Some candidates broadly listed something such as "financial statements" which is not really identifying a data

source. In part (ii), many candidates confused "evaluating data sources" with evaluating data and erroneously referenced provisions from ASOP 23 in their answers.

SOA Answer:

(i) Data sources can include:
   a. SEC filings since Megacorp is a public company
   b. NAIC blanks
   c. Commercial sources (may yield more precise cost information or precise segmentation)

(ii) Factors to consider include:
   a. RegionalCare's income statement may include intersegment charges rather than actual costs
   b. Publicly available data may not have sufficient detail in cost segmentation by product
   c. Cost definitions may vary from carrier to carrier
   d. Commercial survey data may be de-identified or provided only in groupings such as quartiles.

16. Spring 2024 VR #7

SOA Commentary on Question:

Candidates received full credits if they understood the accounting entries of assets vs liabilities from a balance sheet and accounting entries of revenues vs expenses from an income statement given part (a) and part (d) questions were relatively straightforward

Part a:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Describe the four core activities of health insurance operations.

SOA Commentary on Question:

Most of candidates were able to describe these four core activities and received full credits.

SOA Answer:

Premium cycle

The insurer collects premiums from customers in exchange for providing insurance coverage.

Investments cycle

The insurer invests excess funds, generating income from those investments.

Benefits cycle

Policyholders receive benefits, directly or indirectly, from the insurer under the insurance coverage provided to them.

Expense cycle

The insurer makes various other types of expenditures other than the payment of insurance benefits.

Part b:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: State the necessary accounting entries by completing the following table:

Date of Entry	Necessary Accounting Entries
12/31/20X1	
1/31/20X2	
2/28/20X2	

SOA Commentary on Question:

Some candidates misunderstood the accounting entries of Debit vs Credit.

SOA Answer:

12/31/20X1
Dr Cash $3,000
Cr Advance Premium $3,000
1/31/20X2
Dr Advance Premium $3,000
Cr Earned Premium $250
Cr Unearned Premium $2,750
2/28/20X2
Dr Unearned Premium $500
Cr Earned Premium $500

Part c:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: State the necessary accounting entries by completing the following table:

Date of Entry	Necessary Accounting Entries
7/31/20X2	
8/31/20X2	

SOA Commentary on Question:

Most candidates provided correct answers for Due and Unpaid premium part, but some struggled to recognize that the initial coverage from January still extended into July.

SOA Answer:

7/31/2023
Dr Due & Unpaid Premium $3,000
Cr Unearned Premium $2,500
Cr Earned Premium $500
8/31/2023
Dr Unearned Premium $2,750
Dr Earned Premium $250
Cr Due & Unpaid Premium $3,000

Part d:

Source(s): ASOP #21 – Responding to Financial Audits

Question: Compare and contrast the relationship and responsibilities of a Responding Actuary and a Reviewing Actuary.

SOA Commentary on Question:

Most candidates were able to explain roles and responsibilities of a responding actuary vs. a reviewing actuary but not many got full credit.

SOA Answer:

Responsibilities common to both

handle confidential information in accordance with Code of Professional Conduct.
may produce independent documentation appropriate for their respective teams or principals

Responding actuary

cooperate with Reviewing Actuary
be responsive to requests from auditor/examiner
should help with compilation of information
work with auditor/examiner if timelines cannot be met
be prepared to discuss data, assumptions, methods, models, and controls used with reviewing actuary and auditor/examiner
document information provided to the auditor/examiner

Reviewing actuary

cooperate with Responding Actuary
communicate in writing with entity what is requested, including time frames and whether information requested in scope with audit/review/examination
discuss disagreements with responding actuary with auditor/examiner of the entity
document findings from the actuarial procedures

17. Spring 2024 VR #10

SOA Commentary on Question:

Most candidates received partial credit on this question. Many candidates were able to provide some information for Part A and Part C. Candidates who performed well provided succinct and accurate answers. This question was only 5 points, but some candidates spent time writing lengthy descriptions that did not correctly answer the question.

Part a:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Describe three accounting sub-entries related to group medical premiums using the table below:

SOA Commentary on Question:

This chart was not directly shown in the source material; it required candidates to interpret and comprehend the accounting sub-entries to be able to produce this condensed chart.

Essential to this accounting question was recognizing that the Assets and Liabilities cancel out across entries, in order to leave the 'Cash' Asset and 'Earned Premium' Liability. Candidates who recognized this performed well.

Very few candidates completed the entire chart correctly and received full credit. Most candidates received partial credit for correctly listing some of the Assets and Liabilities.

SOA Answer:

Purpose of the sub-entry	**Description of the asset/debit item**	**Description of the liability/credit item**	**Timing of the sub-entry**
Insurer's obligation to provide insurance coverage for the month commences	Due & Unpaid Premium	Unearned Premium	Beginning of the month
Customer pays monthly premium	Cash or 'Paid in Advance'	Due & Unpaid Premium	When insurer physically receives premium from customer
Insurer's provision of insurance coverage to the customer	Unearned Premium	Earned Premium	Continuously throughout the month

Alternative Answer:

A different choice of column titles and wording could have been the following:

Purpose of the sub-entry	Account name	Debit or Credit	Type of account	Account Increases or Decreases	Timing of the sub-entry
A non-cash accounting entry on the balance sheet, setting up an asset for premium receivable from the customer	Due & Unpaid Premium	Debit	Asset	Increase	Beginning of the month
	Unearned Premium	Credit	Liability	Increase	
Monetizing the due & unpaid premium asset	Cash	Debit	Asset	Increase	When the insurer physically receives payment
	Due & Unpaid Premium	Credit	Asset	Decrease	
The insurer providing insurance coverage	Unearned Premium	Debit	Liability	Decrease	Occurs continuously throughout the month
	Earned Premium	Credit	Revenue	Increase	

Part b:

Source(s): GH201-400-25 – Health Insurance Accounting Basics
Question: Explain why Company X might record a UCL rather than separate estimates of ICOS and IBNR liabilities.

SOA Commentary on Question:

Many candidates noted it was difficult, which was insufficient for credit. Candidates who explained WHY it was difficult received credit. The 'Explain' verb requires showing that you can convey "why" or "how."
Many candidates defined ICOS and IBNR, which did not receive credit.

SOA Answer:

For medical claims, precise estimation is difficult because there can be a high degree of variation from one ICOS claim to the next. Variations include:

- Likelihood any payment will be made (e.g., claims before customer deductible, same claim submitted multiple times by the provider, adjudication is slow and difficult)
- Relationship between the ultimate amount paid by Company X and the amount billed by the provider (e.g., need to consider contractual provider discounts, factor in customer cost-sharing)

Part c:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Compare and contrast liabilities applicable to group medical and group LTD coverages.

SOA Commentary on Question:

Candidates performed well on Part C. Many were able to list the liabilities for group medical and group LTD. Credit was assigned for listing or describing the reserves. Partial credit was assigned for each correct similarity and difference. Full credit required candidates to list multiple similarities as well as multiple differences.

SOA Answer:

Similarities:

- Neither typically has policy reserves, since neither involves pre-funding.
- Both estimate liabilities for claims that have been incurred but not yet reported (IBNR).

Differences:

- Group LTD is longer term and group medical is shorter term.
- Group medical includes IBNR in UCL; group LTD typically has separate estimates for IBNR and general unpaid claims.
- Group LTD's DLR is calculated on a seriatim basis (separate calculation for each claimant), while the equivalent for group medical, ICOS, is combined with IBNR in UCL and calculated for the block of business.
- Group medical typically has only one type of claim-related liability (UCL) while LTD has several claim-related liabilities:
  - IBNR – claims related to disabling events that have not yet been reported to the insurer
  - Accrued Claim Liability – liability for the partial month's payment that the claimant has earned as of month-end by having remained disabled since the last time a monthly payment was made
  - Disabled Life Reserve (DLR) – liability for future (beyond the valuation date) claim payments to be made to claimants who are currently receiving payments. Also called Unaccrued Claim Reserve.
  - Pending Reserve – liability related to disabling events that have been reported to the insurer, but for which the insurer has not yet initiated payment to the insured

18. Fall 2024 VR #2

Part a:

Source(s): Skwire 43 – Analysis of Financial & Operational Performance
Question: Calculate the new stock price if the required rate of return for an equity investor increased from 10% to 12% using the Gordon Constant Growth Model. Show your work.

SOA Commentary on Question:

This was a relatively straightforward application of the Gordon Constant Growth Model formula. Most candidates were able to recall the formula, but only about 1/3 of the candidates were able to apply the formula to the problem. Candidates most commonly struggled to identify the dividend rate, a key input for the formula. Many students also struggled with the algebra.

SOA Answer:

See Excel file for model solution

Part b:

Source(s): Skwire 43 – Analysis of Financial & Operational Performance
Question: Calculate the change in return on equity if this plan is implemented. Show your work.

SOA Commentary on Question:

Candidates performed relatively well on this component with many candidates receiving full credit. Areas where candidates frequently strayed from the intended solution included increasing net income for the sale of the fixed assets, failing to recognize that reduction in the asset would reduce surplus, and failing to tax adjust the change in income.

SOA Answer:

See Excel file for model solution.

Part c:

Source(s): Skwire 43 – Analysis of Financial & Operational Performance
Question: Calculate the change in: (i) Return on assets (ii) Return on equity. Show your work.

SOA Commentary on Question:

Candidates performed relatively well on this component with many candidates receiving full credit. Areas where candidates frequently strayed from the intended solution included failing to tax adjust the change in income, failing to increase surplus for the increase in the asset, and only adjusting for medical benefit expenses and not all health benefit expenses.

SOA Answer:

See Excel file for model solution.

Part d:

Source(s): Skwire 43 – Analysis of Financial & Operational Performance
Question: Describe the adjustments you will need to make to perform an accurate financial comparison of ABC to: (i) Competitor X (ii) Competitor Y

SOA Commentary on Question:

Candidates performed poorly on this component. Many candidates mentioned removing pharmacy claims from ABC to compare to Competitor X but few addressed administrative expenses, and very few discussed rebates. A large number of candidates compared Competitor X to Competitor Y, rather than comparing each to ABC, or minimally addressed the scenarios presented in the problem.

SOA Answer:

Health plans with a capitation arrangement that includes medical management and claims processing will have a higher health benefit ratio and lower administrative expense ratio as some of the plan's administrative expenses are included in capitation, which is treated as a medical expense on financial statements.

To perform a comparison to Competitor X, you should remove all pharmacy-related elements of expense from ABC – incurred claims, administrative expenses, and pharmacy rebates.

To perform a comparison to Competitor Y, you can consolidate Competitor Y's financial statements with the organization receiving capitation from Competitor Y, since that is the only business for that organization. Alternatively, although not quite as good, you could develop administrative expense and health benefit ratios only for Competitor Y members not subject to capitation (although this would require significant segmentation of administrative expenses).

19. Fall 2024 VR #3

Part a:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Explain how each party uses different types of XYZ's financial statements by completing the table below.

SOA Commentary on Question:

Most candidates answered this question correctly.

SOA Answer:

Party	Type(s) of financial statement(s) typically reviewed	How party uses XYZ's financial statements
Management	Internal financial reporting is typically based on GAAP.	Used to evaluate and communicate XYZ"s overall performance. Used to compare actual to expected financial performance.
Shareholders/Investors	GAAP based financial reporting required by the SEC such as the 10-K and 10-Q	Use financial statements to model performance directly, which, when compared to XYZ's stock price, may indicate whether to buy or sell XYZ's stock
Creditors	GAAP based financial reporting required by the SEC such as the 10-K and 10-Q	Use financial statements to evaluate XYZ's solvency to ensure that XYZ will be able to repay any loans.
NAIC-member Regulators	STAT filings	Use financial statements to evaluate XYZ's solvency.

Part b:

Source(s): Skwire 43 – Analysis of Financial & Operational Performance

Question: Calculate the following metrics for XYZ in CY 20X1 and CY 20X2. (i) Net Profit Margin (ii) Return on Assets (iii) Return on Equity. Show your work.

SOA Commentary on Question:

Most candidates answered this question correctly. Some candidates did not correctly split the member months between ASO and fully insured. Other candidates did not subtract the taxes to correctly calculate the net income which is needed to calculate all metrics. Some candidates did not include the income and revenue from the ASO business when calculating the net profit margin.

SOA Answer:

See Excel file for model solution.

Part c:

Source(s): Skwire 43 – Analysis of Financial & Operational Performance
Question: Describe the primary driver(s) of the change, from CY 20X1 to CY 20X2, in each of the metrics calculated in part (b).

SOA Commentary on Question:

Most candidates answered this question correctly. Some candidates did not comment on the net profit margin, but only answered the changes for the ROA and ROE.

SOA Answer:

Fully-insured loss ratio deteriorated in CY 20X2 but was offset by a larger reduction in the expense ratio, resulting in an increased profit margin %.

ASO net profit nearly doubled, driven both by an increased net profit PMPM and increased membership.
Return on Assets Minimal change from CY 20X1 to CY 20X2 because, although total net profit increased by ~9%, total assets increased by the same percentage, resulting in nearly the same return on assets

Total equity increased by ~17%, driven by increase in assets (+9%) being greater than increase in liabilities (+1%). Larger increase in total equity, compared to increase in total net profit (+9%), led to a lower return on equity.

Part d:

Source(s): Skwire 43 – Analysis of Financial & Operational Performance
Question: Calculate the impact of each expansion initiative on XYZ's Net Profit Margin and Return on Assets in 20X4. Show your work.

SOA Commentary on Question:

Most candidates struggled on this question with very few candidates correctly calculating the solution. Common mistakes included: 1) not applying the trend for two years, 2) applying the anticipated operating margin for the expansion initiatives to both the existing business and the expansion, 3) not applying the tax rate to the expansion initiatives when determining the net income, and 4) not calculating the impact of each initiative separately, but rather combining the two initiatives together. Credit was also given if the impact was compared to the values from 20X2 calculated in part b.

SOA Answer:

See Excel file for solution.

Part e:

Source(s): Skwire 43 – Analysis of Financial & Operational Performance
Question: Explain why XYZ should seek to maximize earnings growth, using the Gordon Constant Growth Model as a framework.

SOA Commentary on Question:

Most candidates were able to answer this question correctly.

SOA Answer:

Gordon Constant Growth Model:

$P = D / (k – G)$, where

P = price per share
D = Expected dividend per share one year from now
k = Required rate of return for equity investor
G = growth rate in dividends (in perpetuity)

Treating dividends as equal to earnings and rearranging the terms, we see that the price-to-earnings ratio (P/E) is equal to $1 / (k – G)$. Maximizing G on the right maximizes the P/E which maximizes the shareholder value.

20. Spring 2021 FV-A #7a,c

SOA Commentary on Question:

This question tested candidates' knowledge of actuarial communication and the recommended practices from ASOP 41. It also tested their knowledge of the six opinions that an actuary is required to make when signing an actuarial opinion, and how they would apply to a hypothetical example.

Part a:

Source(s): ASOP #41 – Act. Communications

Question: Explain how eight considerations from ASOP 41 apply to an actuary's work signing actuarial opinions for annual statements.

SOA Commentary on Question:

Most candidates were able to identify several considerations specified in ASOP 41, but few were able to list enough to receive full credit. Some candidates provided several examples that fell under a particular consideration, while the graders were looking for a broader list of considerations. For example, listing form and content, clarity, and timing was only one consideration and not three.

SOA Answer:

- Actuarial communications should be appropriate in form and content, clarity, and timing, and should identify the responsible actuary.
- The actuary should complete an actuarial report if they intend the findings to be relied upon by any intended user. The report should explain findings, methods, and assumptions.
- Specific circumstances may constrain the content of the actuarial report. The actuary should justify any limitation.
- The actuarial report must make certain disclosures, including uncertainty or risk, conflict of interest, reliance on sources for data and information, responsibility for assumptions and methods, the information date of the report, and subsequent events.
- The actuarial opinion should identify the signing actuary and other disclosures such as the intended users and scope and purpose of the opinion.
- The actuary should disclose reliance on other sources for assumptions and methods.
- The actuary should disclose when assumptions or methods are prescribed by law.
- The actuary should disclose and explain any material deviation from an ASOP.

Part c:

Source(s): Read. Think. Write.

Question: Recommend how to address issues you face as the signing actuary, referring to the scenarios above and relevant items from the list in (b), for: Company Alpha and Company Bravo

SOA Commentary on Question:

Most candidates who answered this question performed well, even if they could not answer (b). Candidates received credit for making a recommendation of how they would address each issue. Some candidates did not receive all the points because they omitted one of the issues. Candidates did not receive credit if the recommendation was unclear, too vague, or did not actually address the specific issue. This question was left blank on several exams.

SOA Answer:

Company Alpha

- Actuarial liabilities must meet the legal requirements of the state of domicile. The actuary should be careful in this case due to the unusual requirements.
- Liabilities must be in accordance with accepted actuarial standards, consistently applied. However, it is acceptable to use various reserve methods if there are sound actuarial reasons
- You could ask management to reduce the reserves because the liabilities are too high. Alternatively, you could qualify the statement to say the liabilities "make sufficient provision" (not "good", because the liabilities are too high).
- The liabilities must "make provision for all items which ought to be established", so you need to understand the business. You should talk to the management to find out about the possible new line and any other relevant information.

Company Bravo

- Liabilities should be "consistent with the preceding year end". Since you were not involved and have no knowledge of the prior calculations, you can issue a qualified statement explaining this. Alternatively, you could get that information from management and become familiar with the prior year's numbers in order to evaluate them.
- The liabilities should be "based on appropriate actuarial assumptions". You should determine whether you agree the assumptions set by management are appropriate, and qualify your statement if needed.
- The liabilities should "make good and sufficient provision" for claims. In this case, the liabilities are clearly too low. You could ask management to change the reserves, or refuse to sign the statement. It does not make much sense to qualify the statement, as the reserves being too low is a critical problem.
- The liabilities must "make provision for all items which ought to be established". If you do not have enough information to evaluate the reserve for experience-rated refunds, you could issue a qualified opinion stating that. Alternatively, you could get a reliance letter from management stating that the actuary has been informed of all relevant items.

Group and Health Course 201-U
Curated Past Exam Solutions
Learning Objective #3: Regulation
Applicable SOA Questions: Fall 2020 to Fall 2024
Model Solutions

Contents

1. Fall 2020 FV-C #1a-b

SOA Commentary on Question:

Candidate performance was generally mixed. While most received partial credit and did particularly well on the lists and identification, very few candidates provided enough detail as it related to connecting goals on insurance regulation and ACA components meant to address them.

Part a:

Source(s): Skwire 15 – Principles of Health Insurance Regulation
Question: Identify four potential problems that could exist in an unregulated insurance market.

SOA Commentary on Question:

Most candidates received full or the majority of credit for adequately identifying potential problems under a lack of regulation in the insurance market. Other reasonable answers beyond the below were accepted.

SOA Answer:

1. Dishonest Company gains competitive advantage
2. Customer might purchase policy based on misinformation or fraudulent claims
3. Company may become insolvent with no warning leaving customer without insurance protection
4. Insurance policy may be more geared toward company profit rather than consumer value

Part b:

Source(s): Skwire 15 – Principles of Health Insurance Regulation, Skwire 19 – The ACA
Question: (i) List the four goals of insurance regulation. (ii) Identify and describe two relevant components of the Affordable Care Act (ACA) that help to achieve each of these goals.

SOA Commentary on Question:

Most candidates received full or the majority of credit for listing goals of regulation in part i). Answers beyond those listed below were accepted if reasonable. For part ii), very few candidates provided sufficient responses to receive full credit. The question asked candidates to identify two ACA components relevant to each goal of insurance regulation; not two ACA components in total. Partial credit was given for providing a subset of the answers below or others assuming reasonable justification of a connection to goals of regulation.

SOA Answer:

(i) Prevent problems for the consumer
Maintain fairness among competing companies
Raise tax revenue
Advance or promote social goals

(ii)

1. Prevent Problems for the Consumer:
    i. MLR Requirements – Ensure minimum portion of premium is spent on clinical services, quality, and other associated costs
    ii. Rate Review – Ensure consumer protection from unreasonable rate increases

iii. Guaranteed Issue-Employers and individuals must be accepted for coverage and not denied due to pre-existing conditions or health status

2. Maintain Fairness among Competitors
   i. 3Rs/Premium Stabilization-Mitigate risk for carriers entering new markets and ensure balance among carriers
   ii. EHBs-Required package of benefits to be offered by all plans operating in ACA market

3. Raise Tax Revenue
   i. Individual and Employer Mandate-Penalties levied on individuals and employers lacking or refusing to offer coverage
   ii. HIF-ACA imposed tax on insurers
   iii. Cadillac tax-Tax imposed on policies offering high value and cost coverage above set thresholds

4. Promote Social Goals-
   i. Expansion of Dependent Coverage to Age 26-Coverage must be offered to dependents up to age 26
   ii. Preventative Care Coverage-Mandated coverage of services deemed preventative with no cost share imposed
   iii. Medicaid Expansion-Expand Medicaid availability to individuals below 133% of FPL

2. Spring 2021 FV-C #1

SOA Commentary on Question:

This question tested candidate knowledge on regulatory and policy making process in the US and how funding differs from other countries. Candidates generally did very well on this question.

Part a:

Source(s): Skwire 4 – Health Policy and Group Insurance
Question: List "the triple aim" of health policy.

SOA Commentary on Question:

Candidates did well on this section.

SOA Answer:

Better care for individuals
Better health for populations
Lower per-capital costs

Part b:

Source(s): Skwire 4 – Health Policy and Group Insurance
Question: Compare and contrast how health care is financed between US and two of the following four countries: (i) Canada, (ii) Germany, (iii) England, (iv) Netherlands.

SOA Commentary on Question:

Candidates did well identifying the funding in the United States and noting differences with 2 other countries listed. Some candidates did not specify general vs. public funding and discussed types of insurance offered instead.

SOA Answer:

United States: US is a mix of public and private funding. About 1/3 is from private health insurance, sponsored by employers on behalf of their employees. Another 1/3 is public health funding, made up primarily of Medicare and Medicaid

i. Canada: All Canadians have access to public provincial health care, funded by tax revenues from the federal government. Roughly 2/3 of Canadians have supplemental private insurance to cover a small portion of services not covered by provincial plans.
ii. England: English health care system is also a single-payer system. NHS funded primarily by taxes pays private general practitioners, hospital based specialists and public hospitals. A mix of for-profit and not-for-profit insurers cover supplemental services, accounting to a small percentage of the country's total spending.
iii. Germany: German health care is financed by private statutory health insurance funds which are on governmental non-profit bodies regulated by law. These are funded by compulsory wage-based contributions from employers and employees, with a complex risk adjustment system. About 10% of Germans are exempt and required to purchase insurance from private health insurers.
iv. Netherlands: In Netherlands, health insurance coverage is mandatory and provided by private health insurers. The statutory health insurance system is financed by a mixture of income-

related contributions and premium paid by the insured, and employers must reimburse their employees for this question

3. Spring 2021 FV-C #3

SOA Commentary on Question:

Candidates generally performed well on this question, but some had difficulty properly elaborating on their recommendations. Candidates who performed well provided extra details and properly justified their answers. Candidates who struggled tended to have difficulty with the mathematical portion of the question and failed to properly identify when a company is in a difficult financial position.

Part a:

Source(s): Skwire 15 – Principles of Health Insurance Regulation, Skwire 41 – Risk-Based Capital Formulas

Question: List and describe three types of measures US regulators use to assess insurer solvency.

SOA Commentary on Question:

Candidates were generally able to correctly identify the three measures, however some struggled to provide sufficient detail that helped demonstrate their knowledge of the topic.

SOA Answer:

Capital requirements – Insurers are required to meet minimum capital requirements before beginning operations in a particular regulatory jurisdiction. State regulators use Risk Based Capital formulas that vary by life insurance, property and casualty, and various types of managed care organizations.
Guaranty funds – The funds make a monetary assessment of all similar insurers to cover some of the financial consequences of insolvency.
Reserves – Requirement of adequate levels of reserves for future payment of current liabilities. Examples include claim reserves and liabilities, contract reserves, provider liabilities, and premium deficiency reserves.

Part b:

Source(s): Skwire 15 – Principles of Health Insurance Regulation, Skwire 41 – Risk-Based Capital Formulas

Question: (i) Assess the company's solvency position. Show your work. (ii) Recommend any possible actions for the company due to the solvency position in part (i). Justify your answer.

SOA Commentary on Question:

Many candidates were able to perform the math to determine the solvency position of the company. However, many struggled to offer a recommendation that may assist the company. Describing how to mathematically change the formula to satisfy the 200% requirement without providing details on how that change would happen did not score any points.

SOA Answer:

(i) *(this was an over simplified version of the RBC formula that was used here)*
RBC = \$15M * 25.1% + \$3M * 7.6% = \$3.993M
TAC = \$7M
Ratio = \$7M / \$3.993M = 175%
Insurer is insolvent based on the 200% requirement

(ii) Possible actions for the company include, but are not limited to:

Placing the business into runoff mode, where no business can be sold until the capital position returns to adequate levels.
Liquidation of the company.
Liquidation of a portion of the company to improve capital position.
Use of guaranty funds.

4. Fall 2021 FV-C #3

SOA Commentary on Question:

This question tested a candidate's knowledge of the general regulations governing sale and review of health insurance at a state and federal level. Candidates did reasonably well identifying the steps involved in obtaining approval to sell health insurance and the standard policy provisions. Candidates also generally succeeded in identifying and calculating the various taxes associated with benefit packages offered by employers to employees and their implications on both stakeholders.

Part a:

Source(s): Skwire 16 – State Regulation (US)

Question: (i) List and define the steps that must be taken by a company to start selling health insurance. (ii) List and define the items reviewed by the Insurance Commissioner to assure financial soundness of insurers.

SOA Commentary on Question:

Most candidates received at least partial credit on both parts of this question. It was important to distinguish steps involved in licensing and filing to sell insurance (i) versus the items reviewed by insurance commissioners for already licensed insurers to ensure adequacy to meet financial obligations (ii).

SOA Answer:

(i)
-Company must obtain a license from the state to offer insurance
-Company must file policies and forms with regulator
-Company's brokers/salespeople must be licensed to sell product
-Company must abide by regulations on advertising
-Company must consider and abide by laws regulating unfair trade practices and claims settlement practices
-Company must abide by prompt pay regulation governing that claims be paid within a set period of time upon receipt

(ii)
-Solvency of insurer
-Investments of insurer and strategy
-Reserve adequacy of insurer to cover liabilities
-Minimum surplus levels and maximum dividends
-Enrollment in Guaranty Associations
-Creation of Insurance Regulatory Information System (IRIS) which provides early warning of trouble for an insurer

Part b:

Source(s): Skwire 16 – State Regulation (US)

Question: List the standard contract provisions of a Health insurance policy.

SOA Commentary on Question:

Most candidates received full credit on this part of the question identifying typical contract provisions of insurance policies and more specifically health insurance.

SOA Answer:

-Grace period for premium payment
-Incontestability
-Application and statements part of policy
-Evidence of insurability
-Misstatement of age provisions
-Certificates
-Benefits and eligibility
-Listing of pre-existing conditions
-Notice and proof of claims
-Legal actions

Part c:

Source(s): Skwire 16 – State Regulation (US)

Question: (i) Create a benefits package where Grind My Gears pays no taxes, while maximizing the amount of money spent on benefits. (ii) Calculate the amount of tax saved by choosing the benefits package in part (i) above. Assume an unlimited benefits budget. Show your work.

SOA Commentary on Question:

Most candidates received at least partial credit on this question and did reasonably well. Candidates generally succeeded in identifying where taxes would be applicable to the employer and constructed an appropriate benefit package accordingly. There was a slight nuance with the Cadillac tax application to health insurance that in some cases impacted the calculation of total taxes saved based on the package constructed.

SOA Answer:

(i) Benefit Package:

Benefit	**Amount**
Retirement	$ 10,000
Dental Insurance	$ 1,000
Vision Insurance	$ 1,000
Pharmacy Insurance	$ 2,500
Life Insurance (Benefit = Salary)	$ 5,000
Disability (STD + LTD)	$ 5,000
Total for Choice:	**$ 24,500**

(ii) Taxes Saved:

Benefit	**Amount**	**Tax (%)**	**Total Tax ($)**
Cash	$ 20,000	35%	$ 7,000
*Health Insurance	$ 12,000	40%	$ 720
Gym Membership	$ 1,000	35%	$ 350
Vacation Time	$ 5,000	35%	$ 1,750
Non-Qualified LTCI	$ 5,000	35%	$ 1,750
Total Tax Saved			**$ 11,570**

**Cadillac Tax = (Benefit Amt. – Tax Threshold) * Tax = ($12k - $10.2k)*40%*

Part d:

Source(s): Skwire 17 – Federal Regulation (US)

Question: (i) Create a benefits package, where Grind My Gears' employees pay no taxes, while maximizing the amount of money spent on benefits. (ii) Calculate the amount of tax saved by choosing the benefits package in part (i) above. Assume an unlimited benefits budget. Show your work.

SOA Commentary on Question:

Most candidates received at least partial credit on this question and did reasonably well. Candidates generally succeeded in identifying where taxes would be applicable to the employee and constructed an appropriate benefit package accordingly. There was a slight nuance with imputed income on life insurance and application of the correct employee tax versus corporate for the savings calculation.

SOA Answer:

(i) Benefit Package

Benefit	**Amount**
Health Insurance	$ 12,000
Dental Insurance	$ 1,000
Vision Insurance	$ 1,000
Pharmacy Insurance	$ 2,500
Disability (STD + LTD)	$ 5,000
Total for Choice:	**$ 21,500**

(ii) Taxes Saved

Benefit	**Amount**	**Tax (%)**	**Total Tax ($)**
Cash	$ 20,000	25%	$ 5,000
Retirement	$ 10,000	25%	$ 2,500
Gym Membership	$ 1,000	25%	$ 250
Vacation Time	$ 5,000	25%	$ 1,250
*Life Insurance (Benefit = Salary)	$ 5,000	25%	$ 625
Non-Qualified LTCI	$ 5,000	25%	$ 1,250
Total Tax Saved			**$ 10,875**

**Life Insurance Imputed Income Tax Saved = $5k*($100k – $50k)/$100k*25%*

5. Fall 2022 FV #7

SOA Commentary on Question:

Candidates generally performed well on this question. They were able to identify key aspects and differences between HMO and PPO plans.

Part a:

Source(s): Skwire 16 – State Regulation (US)
Question: Define and describe a Health Maintenance Organization (HMO) and a Preferred Provider Organization (PPO).

SOA Answer:

HMO:

- Definition: "Health Maintenance Organization" means any person that undertakes to provide or arrange for the delivery of basic health services to enrollees on a prepaid basis, except for enrollee responsibility for co-payments and/or deductibles.
- Performed through establishing relationships with providers
- Makes all basic health services that the enrollee might reasonable require (preventative care, emergency care, in-patient and out-patient hospital and physician care, diagnostic lab, and diagnostic and therapeutic radiological services)
- Members can only go to HMO providers, except in emergencies
- Members often have to go through a 'gate-keeper' for care
- Some states have approved "point of service" or "open HMOs", which allow for out of network services
- The payments for coverage are only on a prepayment basis, whether made by individual enrollees, employer groups, Medicare or Medicaid.

PPO

- Definition: Preferred Provider Organization (also called a preferred provider arrangement) involves a group of health care providers that have contracted directly or indirectly with an insurer, who reimburses/indemnifies an insured for covered expenses.
- Largest difference vs HMO: PPOs Reimburse reimburse or indemnify an insured for covered expenses; HMOs provide/arrange for the provision of services.
- PPOs are a hybrid of indemnity (passive management of healthcare) and HMO (total management of care) products.
- Providers are "preferred" because the insurer provides a meaningful financial incentive for plan participants to use the providers in the provider network (typically through lower coinsurance)
- Can add a gatekeeper (to make it look more similar to a HMO)
- To implement PPOs, the insurer can either contract directly with providers or use a third-party vendor with established networks.

Part b:

Source(s): Skwire 16 – State Regulation (US)
Question: Write down in the following chart the advantages of an HMO and PPO from each perspective:

Perspective	HMO Advantages	PPO Advantages
Member		
Provider		
Health Plan		

SOA Commentary on Question:

Candidates who were able to consider the benefits and drawbacks of the plans from multiple viewpoints were the most successful.

SOA Answer:

Perspective	HMO Advantages	PPO Advantages
Member	Have a good relationship with doctor, that will manage your care and guide you through the healthcare system; likely cheaper cost because of network restrictions.	Broader network, no gate keeper, have out of network care that you pay more for
Provider	Get paid up front and manage the risk by managing end-to-end care; have ownership of healthcare costs	Get paid on a 'fee for service' basis (no risk for cost management of members)
Health Plan	Develop deeper relationships with physicians	Take on all the risk and thus profit, people generally like the product more and is easier to sell

Part c:

Source(s): Skwire 4 – Health Policy and Group Insurance

Question: The "triple aim" is commonly used to describe the modern paradigm of health policy by the Centers of Medicare and Medicaid Services. (i) List each element of the "triple aim." (ii) Describe the characteristics of each element of the "triple aim."

SOA Commentary on Question:

Candidates did not achieve full points on part C when they only listed characteristics of the triple aim. Full credit was given to candidates who were able to describe what the characteristics were and how why they impacted the triple aim.

SOA Answer:

(i) Better care for individuals (Quality)
- Characteristics:
  - Safety: avoidance of preventable adverse events (for example: wrong blood type transfusion)
  - Effectiveness: health care based on scientific knowledge (for example: mammograms recommended after 50 (was 40) and every 2 years
  - Patient Centered: healthcare should be respectful and responsive to individual patient preferences, needs, and values; patient values clinical decisions (for example: does a patient understand their diagnosis, not does the patient like their doctor)

- Timely: healthcare should strive to reduce wait times and delays, which would be harmful (for example: access to care, which varies by factors like geography, available transportation)
- Efficient: healthcare should avoid waste and unnecessary care (for example: today efficiency is not encouraged with fee for service payments, having insurance shield the consumer, and fear of litigation encourage health care providers to perform unnecessary services)
- Equitable: healthcare should not vary in quality based on ethnicity, gender, geographic location, and socioeconomic status. (for example: work to address access to care issues; payers should not limit restrict Medicaid patients to lower quality providers)

(ii) Better health for populations
- Characteristics:
  - Environmental Factors: A significant contributor to good or poor health at the population level is the population's physical environment (examples: lack of sanitized water, pollution)
  - Community Disease Prevention: community's level of commitment to prevent disease (examples: childhood immunization programs, free/reduced cost flu shots)
  - Lifestyle: for example obesity and the health consequences (examples: health policy can fund healthy school lunches, safe pedestrian walkways)
  - Smoking / substance abuse: Smoking contributes to a host of health problems, including heart disease, lung disease, cancer; (examples: anti smoking law can be adopted)
  - Socioeconomic factors: income is directly related to poor health, but is difficult to address (examples: Medicaid)
  - Wellness and disease management solutions: (examples: healthy lifestyle programs can be enacted to promote health)

(iii) Lower per-capita costs
- Characteristics:
  - Health expenditures as a percentage of GDP – the US is 1.5X higher than other developed countries (Example: 16% of GDP in the 2016 textbook)
  - Healthcare is becoming unaffordable for individuals (Examples: insurance premiums too high, too high out of pocket expenses)
  - Healthcare is becoming unaffordable for employers (Examples: insurance premiums too high, employers are struggling to sponsor health insurance for their employees)

Part d:

Source(s): Skwire 4 – Health Policy and Group Insurance
Question: Contrast how HMOs and PPOs each meet the goals of the "triple aim."

SOA Commentary on Question:

In part D, candidates were asked to apply their knowledge of HMOs and PPOs in the context of the Triple Aim. Candidate needed to understand the answers from parts A-C to apply through the lens of the Triple Aim.

SOA Answer:

- Better care for individuals

Course GH 201-U – Valuation and Regulation

Learning Objective 3: Regulation

    - HMO: an individual's care is managed via a gate-keeper who provides/arranges for their care. Individuals can establish a relationship with that physician, who control the member's care and can refer to the care that is most needed
    - PPO: individuals have the flexibility to choose their provider, with incentives to use the preferred network the health plan selected; the health plan contracts with preferred providers who fit their standards of best care
- Better health for populations
    - HMO: Manage end-to-end care of patients, HMOs can educate and supporting health initiatives in their community (immunization, trusted resource for smoking cessation)
    - PPO: insurers incentivize members to use the most qualified members of the 'preferred provider organization', members choose the options that are in network due to cost and get the best care
- Lower per-capita costs
    - HMO: HMOs arrange end-to-end care for their patients and are compensated to incentivize efficient use of resources
    - PPO: through selecting networks, PPOs can negotiate better rates and control costs

6. Fall 2022 FV #11

Part a:

Source(s): Skwire 15 – Principles of Health Insurance Regulation
Question: List the goals of insurance regulation.

SOA Answer:

(1) to prevent less serious problems for the insurer
(2) to maintain fairness among competing companies,
(3) to raise tax money, and
(4) to advance social goals
(5) to protect consumers

Part b:

Source(s): Skwire 15 – Principles of Health Insurance Regulation
Question: Describe the situations where simple regulation is preferable versus situations where complex regulation is preferable.

SOA Commentary on Question:

Most candidates missed the passages regarding simple vs complex regulations.

SOA Answer:

Simplicity: Where other COMPLEX standards already exist
Simplicity: There is a general understanding or agreement on standards that already exist
Complexity: When markets are complex
Complexity: When simplicity has not worked in the past

Part c:

Source(s): Skwire 15 – Principles of Health Insurance Regulation
Question: Outline the five categories of regulatory enforcement, including: (i) Definitions of each category, (ii) An example for each category showing how it is applied.

SOA Commentary on Question:

Quite a few candidates put down the same for both definition and example.

SOA Answer:

Licensing - Determining which kinds of companies are subject to regulation
Example: Determination of how to allow domiciled versus non-domiciled insurance companies to compete within the landscape.
Information Gathering - Obtaining data regularly or on ad hoc basis to confirm compliance, financial soundness, consumer disclosure or other
Example: Collecting quarterly RBC data.
Prior Approval - Requiring companies to receive government approval before performing certain business activities.
Example: File and Approve rate filings before premium changes.
Receivership - Regulating companies in financial distress
Example: Can include receiving & reviewing special reports to taking over an insolvent company.

Enforcement - Penalties for companies who violate the law
Example: Monetary fines or removal of license

Part d:

Source(s): Skwire 15 – Principles of Health Insurance Regulation
Question: Identify and define each of the types of Consumer Protection Regulations.

SOA Answer:

Disclosure – providing to potential customers, the key features of an insurance policy
Reasonableness – policies must have or exclude certain benefits, while premiums must not be excessive compared to benefits
Fairness – Prohibition of discrimination among classes of policyholders

Part e:

Source(s): Skwire 15 – Principles of Health Insurance Regulation
Question: Identify which protections described in (d) apply to each of the potential regulations above. Justify your response.

SOA Commentary on Question:

Hardly any candidate correctly categorized the last item for Section e ("Require all life insurance application forms to contain tables showing future guaranteed costs") as it seems counter intuitive.

SOA Answer:

Disclosure: Standardized summary of benefits to for consumers for all medical insurers
Disclosure: Mandate illustrations of the results of the policy under different scenarios for whole life policies
Reasonableness: Strict loss ratio regulation for premium regulation on small group major medical insurance
Reasonableness: Create the state's own definition of mandated benefits for ACA plans
Disclosure: Explicit mention of exclusions in all sales materials
Fairness: Removal of ANY USE of prior experience to write major medical insurance, regardless of group size
Fairness: Elimination of credit data as an allowable Underwriting method for life insurers
Fairness: Require all life insurance application forms to contain tables showing future guaranteed costs

7. Spring 2023 VR #5a-b

SOA Commentary on Question:

The model solution below is an example of full credit but the syllabus contained more opportunities to achieve points not included below. More detailed commentary is listed underneath each question component.

Part a:

Source(s): Skwire 19 – The ACA

Question: List and describe the rating characteristics allowed for these plans under the Affordable Care Act (ACA).

SOA Commentary on Question:

Candidates generally performed well on this part of the question. Candidates needed to provide a description of each item listed to earn full credit.

SOA Answer:

- Plan design – plans must be within a corridor around the target actuarial value to comply with metal level requirements
- Age – all insurers in a state use the same age curve with most states using a standard age curve created by CMS but the standard curve is not mandated on the states
- Family Composition – each insurer can develop their own relativities based on actuarial basis to reflect family size
- Tobacco Usage – allowed to increase rates up to 50% but many small groups do not assess tobacco usage due to technical and time constraints

Part b:

Source(s): Skwire 17 – Federal Regulation (US)

Question: Explain how the Coronavirus Aid, Relief, and Economic Security (CARES) Act directly affected health insurers.

SOA Commentary on Question:

Some candidates explained how the Coronavirus more broadly affected health insurers. Candidates needed to explain how the CARES Act specifically affected health insurers to earn credit.

SOA Answer:

- Covid testing was covered with no cost sharing
- Created a telehealth cost sharing safe harbor for high deductible plans
- Removed requirement that over the counter medications must be prescribed to be paid with HSA, HRA, or FSA

8. Spring 2023 VR #8

SOA Commentary on Question:
Many candidates are not familiar with guidelines for choosing blue blank vs orange

Part a:

Source(s): Skwire 41 – Risk-Based Capital Formulas
Question: Assess whether the company should be filing the Blue Blank or the Orange Blank. Show your work. Justify your answer.

SOA Commentary on Question:
Many candidates are not familiar with the guidelines for blue vs orange blanks

SOA Answer:
See excel file for complete solution.

Part b:

Source(s): Skwire 41 – Risk-Based Capital Formulas
Question: Calculate the Authorized Control Level (ACL) for the company using the Orange Blank. Show your work.

SOA Commentary on Question:
The solution includes multiple calculations to get to the final answer, many candidates had difficulties calculating the RBC numbers accounting for various discount factors.

SOA Answer:
See excel for complete solution.

Part c:

Source(s): Skwire 41 – Risk-Based Capital Formulas
Question: Propose two options for lowering the ACL, including a numeric example for each that illustrates its potential impact.

SOA Commentary on Question:
Very open ended and straight forward question, though more than a few candidates didn't come up with the impacts,

SOA Answer:

VERY OPEN ENDED – this is not an exhaustive list
1 Points for each example that would reduce ACL
3 Point for a numeric Example
Below are some examples
Move more Health claims to Managed Care, NOT category 0
Example:
Currently $80,750,000 in Category 0 – no rate guarantee
Resulting in $17,535,000 of a risk charge
Moving to Capitated charges would result in
($25m*.15 +80.75m*.15)*.6 = $7,267,500
Move common stock investments in the top 10 to more conservative – say corporate bonds
Security #5 has a risk charge of $1.4m
Moving that exposure to corporate bonds means a risk charge of 5% instead, so a risk charge of $235,548
Set up a Premium Stabilization reserve for LTC
Risk charge is reduce by 50% of the premium stabilization reserve, so if a PSR of $20m was set up, it would reduce the risk charge by $10m
Purchase Reinsurance for Rate Guarantees
H(2) is considered NET of any ceded reinsurance
Purchasing Reinsurance on all Rate Guarantee business would reduce the risk to $0.

9. Fall 2023 VR #7

Part a:

Source(s): Potential Abuses With US Rx Patents

Question: Explain the strategies a patent-holder may employ to extend the lifespan of a patent.

SOA Commentary on Question:

Candidates performed well on this question. For the most part, they were able to explain the strategies and what they entailed. Some candidates were able to list the strategy but unable to explain what it was trying to achieve.

SOA Answer:

Evergreening: Filing Secondary patents for any of the patentable aspects of a drug in order to extend the length of the exclusivity period for longer than 20 years

Product Hopping: reformulations of a drug to both extend exclusivity and prevent Abbreviated New Drug Application (ANDA) applicants from referencing the primary patent.

Withholding Samples: manufacturer withholding samples from a potential generic distributor, inhibiting its ability to perform a bioequivalence assessment.

Patent Thicket: uses the presence of multiple patents on a drug to deter potential litigants. Generic entrant burdened to prove that every patent covering the drug is is invalid

Pay for Delay: Settlements are common when legal action is brought through the Hatch-Waxman Act, inter parties review (IPR) or other legal action entirely. The terms of these settlement agreements are not often publicly available. They have raised concerns about the possibility of anticompetitive practices, specifically when these agreements involve a brand producer paying a generic producer to delay the entry of the generic into the market.

Part b:

Source(s): Potential Abuses With US Rx Patents

Question: (i) Describe legislation that focuses on intellectual property reforms for the pharmaceutical industry. (ii) Explain what strategies from (a) this legislation is addressing.

SOA Commentary on Question:

Candidates performed well on part B. Most candidates were able to recall the intellectual property reforms that were described in the source material. Candidates achieved the most points when they were able to tie back their response in part B to the strategies listed in part A.

SOA Answer:

CREATES Act of 2019: Attempts to make samples more easily accessible for generic manufacturers. The bill allows generics to bring action in federal court to obtain samples needed for bioequivalence analyses and allows for limited damages to be awarded in particularly egregious cases of sample withholding.

Preserve Access to Affordable Generics and Biosimilars Act: prohibits settlement agreements where a branded drug firm pays a potential generic competitor to abandon a patent challenge and delay entering the market. Addresses pay for delay strategy.

The Prescription Drug Price Relief Act: would legislate the voiding of patent rights and regulatory exclusivity on pharmaceutical products if the prices of covered drugs were found to be excessive. Not directly tied to strategies above.
FLAT Prices Act: shorten regulatory exclusivity periods by 180 days if the price of a drug increased by more than 10 percent over a 12-month period, 18 percent over a 24-month period or 25 percent over a 36-month period. Not directly tied to strategies above.
The Biologic Patent Transparency Act: closes the gap in information required by the FDA's Orange Book and Purple Book. While patent information is contained in the Orange Book, the Purple Book does not contain patent information. This impacts the ability of biologic biosimilar manufacturers to use an ANDA application to resolve patent disputes via the Hatch-Waxman Act. This addresses withholding samples
The Affordable Prescriptions for Patients Act: codifies definitions of patent thicketing and product hopping within the FTC Act, which could enable the FTC to bring antitrust suits against companies that employ these strategies in abusive ways. Addresses patent thicketing and product hopping.

Part c:

Source(s): Potential Abuses With US Rx Patents
Question: Explain the actuarial implications of this variance for your company, the covered employers, and their employees.

SOA Commentary on Question:

The intent of part C was to identify potential implications of generic and branded drugs for the insurer, employers and employees. Since the question did not specify between funding types, candidate were able to offer the impact in either funding scenario. If the candidate was able to explain the impact, they were given credit. The most common mistakes on this question were not identifying who the impacted party was and confusing the impact of the GDP going down.

SOA Answer:

The Company:

- Trend Would be Too Low / PMPM costs would be higher than expected: Generic drugs are generally less expensive than branded drugs and we would expect the cost per script to go up.
- Formulary Implications: Formulary developed based on assumptions on Branded vs. Generic drugs. New information may have changed how you would have build the formulary
- Rebates: Rebates may look different than initially expected based on contracts

The Employer:

- If self-insured customer, they would experience higher than expected drug costs
- If fully insured, may expected future rate increases based on higher than expected drug costs

The Employee

- Cost to the member may be impacted if the drugs are generic or not
- Cost to the member may impact the ability of the member to continue to take drug / impact health of the member

10. Fall 2023 VR #8a

SOA Commentary on Question:

Candidates who performed well on this question were those who paid attention to the type of responses being requested (i.e., Assess and Justify, List and Describe) and who were able to recall and apply knowledge from the source materials to provide thoughtful responses. Part (a) in particular was testing the candidates' ability to think through the given prompts and to provide recommendations. Part (b) did not require the same levels of knowledge application, and candidates who were able to identify and recall the source material being referenced generally performed well.

Part a:

Source(s): Skwire 16 – State Regulation (US)

Question: (i) Identify the type of PPO Regulation each recommendation potentially violates. (iii) Assess the likelihood of each recommendation violating state law into: likely, unlikely, or not enough information. Justify your answer.

SOA Commentary on Question:

Part (a) required students to read the question narrative and use common sense – similar to a work environment. The question narrative often provided clues as to how to answer part ii of this question. For instance, item 5 proposes using centers of excellence for transplants and rare cancer. The narrative says the market leader uses a few select providers, so clearly the center of excellence approach is legal in this state.

For the Classification piece, the graders were looking for specific regulation names (i.e., "Provider Protection", "Freedom of Choice", "Anti Trust").

Many candidates missed out on points for giving only an assessment, missing the justification. No credit was given for the Assessment section without justification. In cases where the candidate did not provide the same assessment as the model solution but gave a satisfactory justification, credit was given

Additional credit was given for candidates who were able to provide sufficient background across parts (i) and (ii) to show they understood the general dynamics of the PPO Regulations and how they came into play in the question scenario.

For companies that don't mind disruption, there should be an option for an Exclusive Provider Organization (EPO) as well. We would be the only one in the market who does this. It could be a big win!

SOA Answer:

Classification: Provider Protection

Assessment: Likely – no one else has an EPO

Description: It is likely the state has "any-willing provider laws" given no one else offers an EPO

For the broader PPO, let's be selective who our In-Network providers are and only look for efficient & effective providers

Classification: Provider Protection OR Consumer Protection

Assessment: Likely – could be too similar to an EPO
Description:

If Provider Protection – This may violate any-willing-provider laws

If Consumer Protection – This could limit availability & accessibility. Additionally, quality is difficult to measure and there may be laws about this.

Our benefit differentials shouldn't be TOO large, maybe 20% at most, between in and out of network benefits.

Classification: Provider Protection OR Freedom of Choice

Assessment: unlikely – 20% is not very high

Description

If Provider Protection: This may violate any-willing-provider.

If Freedom of Choice – If differential is too large, employee may literally not be able to go to non-preferred providers due to financial barrier.

To keep costs down, let's exclude all chiropractic care. None of the competitors offer this benefit.

Classification – Provider Protection

Assessment – Not enough information. We don't know the competitive landscape.

Description – Allied medical practitioners may be mandated benefits/inclusions

For high impact claims, like transplants, we should ONLY let members use our closest hospital partner. It might mean people need to travel a few hours to get there, but it is worth it because we know they do a great job and will limit issues post operation. The current market leader in membership does this with transplants and rare cancer diagnosis. We should definitely follow suit.

Classification – Freedom of Choice

Assessment - Unlikely. If the market leader already does this, it is likely we can too.

Description – Many states DO have statutes that prohibit provisions requiring a medical service be rendered at a particular doctor or hospital.

There is no time to build a Utilization Review team so let's talk to corporate and we can find a 3rd party partner that already operates in the market to do our UR.

Classification – Utilization Review

Assessment - Unlikely – if the UR 3rd party is already in the state, it already has all necessary licenses and follow rules/regulations.

Description – There are a variety of regulations that the 3rd party would need to ensure it is following, including but not limited to UR procedures and criteria, restrictions on access to medical information, etc.

I know we have an in with Hospital A in the state capital (the CFO there used to work for us), and they have an extensive provider network. Maybe we can work that connection to get a Most Favored Nations clause on our discounts with them.

Classification – Anti Trust

Assessment – Not enough information. MFN clauses can be both anti and pro competition.

Description – Some states have outlawed these because there is a DOMINANT insurer and having an MFN would be anti-competitive.

For Rx, we can retain 100% of the rebates. This will allows us to have higher levels of profit!

Classification – Pharmacy Laws

Assessment - Not enough information. We have no market information.

Description – If this profit is kept and not disclosed as part of our Medical Loss calculation it would violate the ACA laws.

11. Spring 2024 VR #9

SOA Commentary on Question:

Part a through c are memorization and retrieval questions. Majority of candidates were not familiar with the source material and struggled on these sections. Part d is a calculation question, where candidates generally score more points.

Part a:

Source(s): Skwire 17 – Federal Regulation (US)

Question: (i) State the functions a fiduciary typically performs for an ERISA-governed employee benefit plan. (ii) Describe the requirements ERISA imposes upon you as named fiduciary.

SOA Commentary on Question:

Candidates performed poorly on this part. Most of candidates attempted this question but were only able to list one fiduciary function or requirement.

SOA Answer:

(i)

- Exercises any discretionary authority or control respecting management of plan;
- Exercises any discretionary authority or control respecting disposition of assets;
- Renders investment advice for a fee or other direct or indirect compensation with respect to any moneys or other property of the plan;
- Has any authority or responsibility to render investment advice with respect to plan money or property;
- Has any discretionary authority or responsibility in administration of the plan.

(ii)

- Acts in the sole interest of the plan and for the exclusive purpose of providing benefits to participants and their beneficiaries and defraying reasonable administration expenses
- Act with prudence and care in carrying out their duties
- Diversify their investments of the plan to minimize risk and loss, unless circumstances show that it is not prudent
- Adhere to the plan documents in discharging their duties

Part b:

Source(s): Skwire 17 – Federal Regulation (US)

Question: Compare and contrast the key plan documents required for plan members under ERISA and the ACA.

SOA Commentary on Question:

Candidates were able to score slightly more points in this section than part a. Some candidates struggled to identify the difference under ERISA and ACA.

SOA Answer:

- ERISA requires SPD (Summary Plan Description)
- ACA requires SBC (Summary of Benefits and Coverage)

Similarities:

- SPD and SBC must both be provided to plan participants
- SPD and SBC must both disclose benefits under the plan
- SPD and SBC must both generally be written in plain language and understandable to average plan participant

Differences:

- SPD must disclose party responsible for plan administration; SBC must include contact information for beneficiary
- SPD must include the appeals process when a claim for plan benefits is denied
- SBC must include uniform definitions of insurance terms (e.g. deductible, coinsurance, copay, out-of-pocket max)
- SBC must include examples of common benefit scenarios
- SBC must include exceptions and limitations of coverage

Part c:

Source(s): Skwire 17 – Federal Regulation (US)
Question: (i) Explain ERISA claim appeal requirements. (ii) Describe the additional claim appeal procedures required by the ACA.

SOA Commentary on Question:
Candidates performed poorly on this part. Some candidates were able to recall one or two bullet points.

SOA Answer:

(i)

- ERISA requires a reasonable procedure for plan participants to appeal a decision to deny in whole or in part a claim for plan benefits.
- Claim procedure is deemed reasonable if it meets minimum standards for review set forth in regulations promulgated by DOL.
- In 2000, the DOL published final regulations to establish timeframes for claim and appeal determinations, and set standards for content of denial letters

(ii) The ACA added a number of additional requirements:

- An external review process must be implemented to allow claimants to have their claim denial reviewed by an independent claim review organization following final level of internal appeal.
- Appeal notices must be provided in a culturally and linguistically appropriate manner in certain situations.
- Diagnosis and treatment codes must be provided upon request.
- The definition of adverse benefit determination now includes recissions of coverage.

Part d:

Source(s): Skwire 17 – Federal Regulation (US)

Question: Calculate the annual COBRA cost for each member for 20X1, 20X2, and 20X3. State your assumptions. Show your work.

SOA Commentary on Question:

Most candidates realized to combine the ER and EE rate, and applied annual increase, but most did not apply the 2% COBRA admin fee. To receive full credits, candidates need to know COBRA coverage covers up to 18 months, and recognize member D and E are not eligible for the coverage. Source material listed several scenarios where COBRA coverage could be available for up to 36 months for dependent. However, none of them applied to this question and no credit was given for using 36 months of coverage for Member B.

SOA Answer:

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

12. Spring 2021 SPC #6

SOA Commentary on Question:

This problem is similar to Example H of the Group Health Specialty Study Note containing RBC calculation examples. Candidates that followed the spirit of methodology outlined in Example H and arrived at the correct answer were given full credit. Several candidates opted for the Simplified Methodology and were awarded partial credit for the less rigorous approach.

Part a:

Source(s): GH201-402-25 – RBC Calculation Examples
Question: Calculate the RBC ratio if the company changes its asset portfolio from 100% cash to(i) 85% cash/15% equities (ii) 85% cash/15% bonds

SOA Commentary on Question:

The model solution approach will solve for H1 and substitute changes to H1. The same answer can be achieved if solving for H2 instead.

SOA Answer:

(i) Old H_1 = (1.00 * 0.003) * Amount Invested = 0.003* Amount invested
New H_1 = ((0.85 * 0.003) + (0.15 * 0.20)) * Amount Invested = 0.03255 * Amount Invested
New H_1 / Old H_1 = 0.03255 / 0.003 = **10.85**

Old ACL RBC = 0.5 * (3.2 * $(H_2)^2$ + $(H_2)^2)^{1/2}$ = **1.025** * H_2
New ACL RBC = 0.5 * (3.2 * (**10.85** * $H_2)^2$ + $(H_2)^2)^{1/2}$ = **9.72** * H_2

New RBC Ratio = 325% * (1.025 H_2 / 9.72 H_2) = **34.3%**

Simplified Method:

New RBC Ratio = 325% * 0.003 / 0.03255 = **29.95%**

(ii) 85% Cash/15% Bonds

Old H_1 = (1.00 * 0.003) * Amount Invested = 0.003* Amount invested
New H_1 = ((0.85 * 0.003) + (0.15 * 0.01)) * Amount Invested = 0.00405 * Amount Invested
New H_1 / Old H_1 = 0.00405 / 0.003 = **1.35**

Old ACL RBC = 0.5 * (3.2 * $(H_2)^2$ + $(H_2)^2)^{1/2}$ = **1.025** * H_2
New ACL RBC = 0.5 * (3.2 * (**1.35** * $H_2)^2$ + $(H_2)^2)^{1/2}$ = **1.307** * H_2

New RBC Ratio = 325% * (1.025 H_2 / 1.307 H_2) = **254.8%**

Simplified Method:

New RBC Ratio = 325% * 0.003 / 0.00405 = **240.74%**

Part b:

Source(s): GH201-402-25 – RBC Calculation Examples

Question: Assess whether either of the asset portfolio changes in part (a) require regulatory action and if so, propose an alternative asset allocation that requires no regulatory action. Assume no changes to the types of assets in each portfolio. Show your work.

SOA Commentary on Question:

Candidates received full credit if they used an incorrect answer from Part A to answer Part B, but correctly answered Part B. No credit was given if a candidate did not justify their response in Part B.

No credit was given for suggesting a portfolio of 100% cash. Partial credit was given to candidates who used the simplified method to come up with a mix of 99.05% cash and 0.95% equities.

SOA Answer:

The portfolio in part A(i) has an RBC ratio of 34.3%. This is below the 70% threshold that triggers the Mandatory Control Level, so Yes, regulatory action is required.

The portfolio in part A(ii) has an RBC ratio of 254.8%. This is above the 200% threshold that triggers regulatory action.

The exact ratio for part A(i) to get an RBC ratio of 200% is 98.82% cash, 1.18% equities. However, since the question merely asked for "*an* alternative asset allocation that requires no regulatory action," any proposed mix of cash and equities that uses the correct formulas, identifies the threshold as being above 200%, and does generate an RBC ratio over 200% was given full credit.

13. Spring 2022 SPC #2

SOA Commentary on Question:
Most candidates performed well on parts (b) and (c) but struggled with parts (a) and (d).

Part a:
Source(s): Skwire 41 – Risk-Based Capital Formulas
Question: Describe business risk and its components as it relates to the Health Risk-Based Capital (RBC) formula.

SOA Commentary on Question:
Most candidates did not include enough detail to receive full points. Because the question asks the candidate to describe rather than only list the components of business risk, candidates needed to provide a description in order to receive full points.

SOA Answer:
The business risk category of the Health RBC formula includes several miscellaneous types of general business risks not included elsewhere:

- Administrative Expense Risk:
  - Administrative expenses for health insurance are subject to misestimation, just like claim expenses.
  - Assumptions regarding both claims and administrative expenses drive premium rates and thus impact plan performance, but the degree of misestimation for administrative expenses should be somewhat less.
  - Thus, the risk factors applied to administrative expenses are somewhat less than the factors applied to claims.
  - The weighted average risk factor varies between 4% and 7% of annual administrative expenses, dependent on premium volume.
  - ASC and ASO revenues, expenses, and commissions are excluded from the administrative expense risk and are discussed below.

- Risks from ASC/ASO Business:
  - Administrative services contract (ASC) and administrative services only (ASO) are both contracts where the health insurer agrees to provide administrative services for a third party, typically a large employer, that is at risk for medical expenses.
  - The NAIC defines the distinction between the two as follows: under an ASC contract, benefits are paid from the health insurer's bank account and the health insurer receives reimbursement from the third party, while under an ASO contract, benefits are paid from a bank account owned or funded by the third party.
  - Alternatively, benefits under an ASO contract could be paid from the health insurer's bank account, but only after the health insurer has received funds from the third party to cover the benefit payments.
  - Under both types of contracts, there is a risk that the insurer may misestimate the amount that it charges the customer for administrative services. For this reason, a risk factor of 2% is applied against the annual administrative expenses for ASC/ASO contracts.

- Under an ASC contract only, there is some additional risk since the insurer is fronting the cash for the benefit payments. If the third party goes bankrupt, the health insurer might not be able to collect these amounts. Accordingly, there is a 1% additional risk factor applied to annual benefit payments administered under ASC contracts.

- Guaranty Fund Assessment Risk:
  - A 0.5% risk factor is applied against premiums that are subject to guaranty fund assessments, reflecting the risk that future assessments will be higher than expected.

- Excessive Growth Risk:
  - The RBC requirement for excessive growth only applies if a health insurer's underwriting RBC increases from one year to the next by more than the "safe harbor" level.
  - The safe harbor level is calculated as the current year underwriting revenue, divided by the prior year underwriting revenue, plus 10%. The excessive growth RBC requirement is 50% of growth in underwriting RBC beyond this safe harbor amount.
  - Since the safe harbor includes the growth in revenue, this is really not just an adjustment for excessive growth in the amount of business a health insurer has, as the adjustment would apply if a health insurer changes to a significantly more risky mix of business or provider reimbursement arrangements.

Part b:

Source(s): Skwire 41 – Risk-Based Capital Formulas
Question: (i) Define underwriting risk as it relates to the Health RBC formula.(ii) Describe how underwriting risk is calculated.(iii) State exceptions for why underwriting risk factors may differ across health insurance companies.

SOA Commentary on Question:
Most candidates performed well on this part of the question.

SOA Answer:

(i) Underwriting Risk reflects the risk of underestimating the cost of insurance or having inadequate premium rates in the future.

(ii) Underwriting risk is calculated separately for each health insurance product by applying a risk factor against some measure of the insurer's exposure. The exposure measure is usually either earned premium or incurred claims, measured on an annual basis and net of any ceded reinsurance.

(iii) In some cases the factors are tiered by size, implying that a large company achieves a lower average risk per exposure unit than a small company.

Some risk factors are adjusted in order to reflect the nature of the insurer's provider reimbursement contracts.

Part c:

Source(s): Skwire 41 – Risk-Based Capital Formulas

Question: (i) Define the purpose of the Managed Care Risk Adjustment Factor. (ii) Describe the categories used in the Managed Care Risk Adjustment Factor. (iii) Describe how the Managed Care Risk Adjustment Factor is calculated.

SOA Commentary on Question:

Most candidates performed well on this part of the question.

SOA Answer:

(i) Reflect the fact that certain contractual reimbursement arrangements with providers lead to greater predictability of future claim levels, thus reducing the need for capital to support fluctuations in experience.

(ii) Category 0:

a. This is the default category and includes claims payments in the following categories:
   - Fee-for-service
   - Discounted fee for service
   - Usual, customary, and reasonable (UCR) schedules
   - Relative value scale (RVS)
   - Stop loss payments by a health entity to its providers
   - Retroactive payments to capitated providers or intermediaries whether by capitation or other payment method
   - Capitation paid to providers or intermediaries that have retroactive payments for previous years

Category 1:

- This category includes payments made based on such contractual arrangements as provider fee schedules; hospital per diems or case rates; non-adjustable professional case and global rates; RVS where the payment base and RV factor are fixed contracts; and ambulatory payment classifications.
- The common element here is that there are contractual protections to the insurer regarding the level of allowed charges.

Category 2:

- This category includes payments that would normally fall under Category 0 or Category 1, but that also fall under the scope of a withhold or bonus arrangement with the provider.
- Category 2 is divided between providers reimbursed under a UCR schedule (Category 2a) and those reimbursed on a provider fee schedule (Category 2b).

Category 3:

- This category includes capitation payments, so long as those payments are contractually fixed (either as a percentage of premium or as a dollar amount per member) for a period of at least 12 months.

- Arrangements that include a provision for prospective revision within 12 months or for retroactive revisions do not qualify and are classified as Category 1 or 0, respectively.
- Also, capitated payments to intermediaries that are not subject to state regulation and do not file the Health RBC with the state are subject to special limitation: if payments by the intermediary exceed 5% of total payments, then the excess is reported as Category 0 instead of Category 3.

Category 4:

- This category applies primarily to a staff model HMO and includes non-contingent salaries to persons directly providing care and facility-related medical expenses generated within a health facility that is owned and operated by the health entity.
- Since staff model HMOs have the most alignment between the practicing provider and the risk-taking party, and also should benefit from a natural dampening of financial risk due to the providers' salary arrangements, Category 4 has the highest discount factor.

(iii) The insurer takes all of the claims paid over the previous twelve months and assigns those claims to one of five managed care categories.

The formula uses paid claims rather than incurred claims, in order to eliminate the risk of misestimated claim reserves, as well as due to the difficulty of estimating claim reserves by category.

Part d:

Source(s): Skwire 41 – Risk-Based Capital Formulas
Question: Calculate the required increase in risk to achieve an $800 marginal impact of RBC after covariance to underwriting risk. Show your work.

SOA Commentary on Question:
Most candidates struggled on this part of the question. Credit was given whether candidates calculated the increase with or without operational risk.

SOA Answer:

RBC After Covariance Before Operational Risk = $H0 + \{H1^2 + H2^2 + H3^2 + H4^2\}^{1/2}$
RBCAC Before Operational Risk = $0 + (40^2 + 100^2 + 25^2 + 30^2)^{1/2} = 115$

The $800 marginal impact is a multiplicative factor of 8 (800/100) on the RBC components added to the original component amount

H1: 40 + (40 * 8) = $360
H2: 100 + (100 * 8) = $900
H3: 25 + (25 * 8) = $225
H4: 30 + (30 * 8) = $270
RBCAC Before Operational Risk = $0 + (\$360^2 + \$900^2 + \$225^2 + \$270^2)^{1/2} = \$1{,}031$
Increase in RBC = $1,031 – $115 = $916

14. Fall 2022 SPC #6

Part a:

Source(s): Skwire 41 – Risk-Based Capital Formulas

Question: Describe regulatory actions based on Total Adjusted Capital to Authorized Control Level (TAC-to-ACL) ratios.

SOA Commentary on Question:

Candidates performed very well on this part of the question.

SOA Answer:

150-200% Company Action Level – Company suggests changes to TAC/ACL. No regulator impact.
100-150% Regulatory Action Level – Regulator suggests changes, no potential for takeover.
70 -100% Authorized Control Level – Regulator suggests changes and may take control of the company.
<70% Mandatory Control Level – Regulator must take control of the company.

Part b:

Source(s): Skwire 41 – Risk-Based Capital Formulas

Question: (i)Calculate the TAC-to-ACL ratio for each company. Show your work.(ii) Identify for each company what, if any, regulatory action needs to be implemented based on the TAC-to-ACL ratio.

SOA Commentary on Question:

Most candidates did well on this part of the question. If candidates missed points, it was usually because they made a mistake on the calculation. A common error was forgetting the 3% load or transposing the ratio.

SOA Answer:

Risk Category	H_0	H_1	H_2	H_3	H_4	TAC	RBC	RBCAC	ACL	TAC/ACL
Company 1	10	60	200	16	30	75	221.56	228.20	114.10	66%
Company 2	5	40	175	12	22	85	186.25	191.84	95.92	89%
Company 3	15	32	100	6	10	250	120.64	124.26	62.13	402%
Company 4	8	21	75	6	8	50	86.52	89.12	44.56	112%

ACL = RBCAC/2

RBC = H0 + (h1^2 + h2^2 +h3^2 +h4^2)^(1/2)

RBC x 1.03 = RBCAC

Company 1 had a ratio of 66%, this falls under mandatory control. The regulators take control of the company.

Company 2 had a ratio of 89%, this falls under regulatory action. Regulators will make suggestions and the company will implement them,

Company 3 had a ratio of 402%. This is above the company action level and will not result in regulator action.

Company 4 had a ratio of 112%. This falls under regulatory actions. Regulators will make suggestions and the company will implement them,

Part c:

Source(s): Skwire 41 – Risk-Based Capital Formulas
Question: Recommend to your manager why your company should follow the RBC Model Act. Justify your response.

SOA Answer:

- If the company is a health insurance company, they file the orange blank and must file the RBC in the annual statement.
- Regulators like the RBC model act and like to know if the RBC is below 200%.
- Quasi-regulators like BCBS like the model act and may require the company to follow it if the company is affiliated with it.
- Also, it can be beneficial to know if your RBC is very high and outweighs your TAC. It can also indicate if a company is hoarding reserves/capital instead of improving products. This would be the case if the TAC is much higher than the RBC, resulting in very high ratio.

Part d:

Source(s): Skwire 41 – Risk-Based Capital Formulas
Question: Describe differences in insurance risk factors between the Life and Health RBC formulas.

SOA Commentary on Question:

Fewer candidates performed well on this part of the question. Most candidates described differences between the RBC formulas. Additional differences outlined in the text were needed to receive full credit.

SOA Answer:

- Individual medical products – life RBC formulas have a 20% higher load for individual medical products due to the extra work needed to get regulatory approval for these products.
- Reserves-
  - Life RBC formula gets a 5% factor for all health related reserves whereas Health RBC formulas only get a 5% for LTC and disability reserves.
- Higher charges in life RBC formulas for life products than health formula.
- Higher charges in life RBC for LTC and disability products than health formula but similar after-tax consideration.
- Work Compensation is carved out for Health RBC formula.
- General formula differences:
  - In the life insurance formula, there are many more asset class risks
  - The biggest component of health is H2 or underwriting risk. For Life insurance it's interest rate and credit risks. This is because the nature of health is much more short term while life is long term so they face different risks.
  - Life insurance risk formula includes a catastrophic risk component

- Health formula doesn't include reserves for the most part and assumes they are estimated properly
- Life formula groups together some of the risks in the covariance portion of the formula (squares the sum of them)
- Insurance risk is much bigger for health than life and includes management risk adjustment since risk can be reduced

15. Fall 2024 VR #5

SOA Commentary on Question:

This question tested candidate knowledge of the US pharmaceutical regulatory environment including elements of the patent process; outlining differences between patent and regulatory exclusivity; and current and potential legislation to combat abuses of the process. Candidate performance on the question was mixed. In general, candidates succeeded in the revenue calculation at a high-level but often missed some of the more detailed aspects of the assumptions provided. Candidates also had some difficulty in distinguishing between patent and regulatory exclusivity.

Part a:

Source(s): Rx Patent Regulation in the US

Question: Describe the main elements required for a successful patent grant.

SOA Commentary on Question:

This question tested candidate's knowledge of the key elements of a successful patent. Most candidates were able to get full credit for listing and describing the 3 main elements required for a successful patent.

SOA Answer:

- Usefulness – The invention (drug) accomplishes its intended purposed
- Novelty – The invention was not publicly known before the applicant invented it
- Non-obviousness – The invention is not an obvious development to an expert in the invention's field

Part b:

Source(s): Rx Patent Regulation in the US

Question: Compare and contrast patent exclusivity and regulatory exclusivity

SOA Commentary on Question:

This question tested a candidate's knowledge of the two exclusivities that can apply to pharmaceuticals. While most candidates were able to obtain partial credit, many candidates missed key elements of differentiation or similarity between the two exclusivities. Additionally, many candidates described separately elements of regulatory and patent exclusivity without doing a direct comparison or contrasting of the two in their responses.

SOA Answer:

	Patent Exclusivity	**Regulatory Exclusivity**
Operation	Operate separately; drugs may have one, both, or neither	
Concurrency	May or may not run concurrently	
Coverage	Can cover similar or different aspects of drug	
Reform	Generally focus of reform due to longer timeframe and ability to lengthen	
Timeframe	Fixed 20 Year Timeframe	Seven Different Types: Term varies depending on type from 180 days (new generic) to seven years (orphan drug)
Applicability	Shared with other industries	Unique to pharmaceutical industry
Lengthening	Can be lengthened with secondary patent	Cannot be lengthened, only provided to new drug applicants

Part c:

Source(s): Rx Patent Regulation in the US

Question: Calculate Brand X's estimated revenue for Panacea over its exclusivity window. Show your work.

SOA Commentary on Question:

This question test candidate's knowledge of patent exclusivity with a simple mathematical calculation. Most candidates did well on this question; the main source of difficulty was determining the length of time for the exclusivity window.

SOA Answer:

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

Part d:

Source(s): Rx Patent Regulation in the US

Question: Calculate Brand X's estimated revenue from the end of exclusivity through 2060. Show your work.

SOA Commentary on Question:

This question was an extension of part (c), testing a candidate's knowledge of patent exclusivity in the context of two generic entrants which impact price and market share. Candidate performance was mixed. Where candidates made errors, it involved using the wrong time periods or not including all the appropriate assumptions from the question (price discount and market share)

SOA Answer:

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

Part e:

Source(s): Rx Patent Regulation in the US

Question: Calculate the total revenue for Panacea over its exclusivity window if the secondary patent is approved. Show your work.

SOA Commentary on Question:

This question was an extension of part (c/d), testing a candidate's knowledge of secondary patent exclusivity and its impact on price and population eligible for treatment. Some candidates received full credit, but the majority received partial credit. Similar to the prior calculation-based questions candidates ran into issues calculating the appropriate time period; ignoring the first 5 years of the primary prior to approval of the secondary patent; or failing to build out the right drug pricing structure over the 20 year window of the secondary patent.

SOA Answer:

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

Part f:

Source(s): Potential Abuses With US Rx Patents

Question: Identify and describe potential and existing legislative efforts that could reduce Brand X's estimated revenue.

SOA Commentary on Question:

This question tested a candidate's knowledge of existing and potential legislative actions to combat patent abuse. Candidate performance was mixed, but almost all candidates were able to get partial credit by naming a few pieces of legislation. Some candidates made the mistake of describing potential patent abuse techniques rather than legislation. Other items not listed below may have also received credit.

SOA Answer:

- CREATES Act of 2019: Attempts to make samples more easily accessible for generic manufacturers. The bill allows generics to bring action in federal court to obtain samples needed for bioequivalence analyses and allows for limited damages to be awarded in particularly egregious cases of sample withholding.
- Preserve Access to Affordable Generics and Biosimilars Act: Prohibits settlement agreements where "a branded drug firm pays a potential generic competitor to abandon a patent challenge and delay entering the market."
- The Prescription Drug Price Relief Act: Would legislate the voiding of patent rights and regulatory exclusivity on pharmaceutical products if the prices of covered drugs were found to be excessive.
- FLAT Prices Act: Shorten regulatory exclusivity periods by 180 days if the price of a drug increased by more than 10 percent over a 12-month period, 18 percent over a 24-month period or 25 percent over a 36-month period.

16. Fall 2024 VR #6

Part a:

Source(s): Skwire 41 – Risk-Based Capital Formulas
Question: (i) State the purpose of the Ruin Theory Model. (ii) Describe the key factors that impacted the risk for a given scenario within the Ruin Theory Model.

SOA Commentary on Question:
Many candidates did not have a good concept of the purpose of the Ruin Theory model and struggled on this question. Candidates may have received credit for other reasonable answers other than the ones given below.

SOA Answer:

(i) Used to determine the level of capital needed to give a certain probability of solvency over a specific time horizon.

(ii) The risk of pricing errors (such as trends)
The length of time needed to recognize a pricing error, implement and adjustment, and have those adjustments becomes effective
The risk of catastrophic claims and other fluctuations in claims levels

Part b:

Source(s): Skwire 41 – Risk-Based Capital Formulas
Question: Calculate the change in the ACL capital requirement. Show your work.

SOA Commentary on Question:
Most candidates did well in this portion. Some candidates used one weighted average factor applied to all LOBs which resulted in incorrect answers.

SOA Answer:
See Excel for model solution.

Group and Health Course 201-U
Curated Past Exam Solutions
Learning Objective #4: Government Programs
Applicable SOA Questions: Fall 2020 to Fall 2024
Model Solutions

Contents

1. Spring 2023 DP #1c-d

Part c:

Source(s): Skwire 19 – The ACA

Question: Explain how the following impact PQR's silver loading factor: (i) The state has not implemented Medicaid expansion (ii) The state has implemented a Basic Health Plan (iii) The state has funded additional subsidies targeted at low-income individuals

SOA Commentary on Question:

This section was asking the candidate to demonstrate an understanding of the impact on the loading of the premiums for a silver plan based on the policy decisions that a state has made around health coverage. Partial credit was provided for demonstrating an understanding of the state's policy decision. Full credit was awarded when the candidate correctly identified how this impacted the silver loading.

SOA Answer:

(i) If a state has not implemented Medicaid expansion, then their pool of individuals who are on Medicaid are limited to parents, children, pregnant women, seniors and disabled who are making up to 138% of the FPL. This results in fewer people on Medicaid and more in the ACA individual exchange market. This means that more people in those states will qualify for the CSR (having a silver plan and < 250% of federal poverty level) so the silver loading factor would be higher.

(ii) The Basic Health Plan is a benefit coverage program for low-income members. If the state implements a Basic Health Plan, you'd expect to see fewer low-income members on CSR silver plans. There should be a limited impact on the silver loading.

(iii) Additional subsidies would encourage more low-income members to sign up for plans on the exchange. As a result, you'd expect higher enrollment in CSR plans.
This would increase the silver loading.

Part d:

Source(s): Skwire 19 – The ACA

Question: Describe how the introduction of the ACA affected: (i) Mental health parity (ii) Enforcement of portability and conversion laws (iii) Government funding for MA plans

SOA Commentary on Question:

This part of the question asks the candidates to consider how the provisions of the ACA impacted specific types of coverage or government funding for medical coverage. Generally, if the candidate was familiar with the provisions, they did well on this part.

SOA Answer:

(i) Mental health parity: The ACA extended mental health parity to small groups and individual non-grandfathered markets. Coverage of mental health and substance abuse were included in the Essential Health Benefits (EHB) package. Coverage for mental health conditions must be equivalent to coverage for medical conditions.

(ii) Enforcement of portability and conversion laws: The ACA created a marketplace for individual health insurance allowing individuals to procure coverage. By law, the coverage is guaranteed issue and guaranteed renewable. There can be no lifetime limits or recissions, other than for non-payment of premium. Because there are a large number of individuals in this marketplace, they achieve the financial advantages of community rating and the coverage is more affordable. This has lessened the need for COBRA and associated programs.

(iii) Government funding for MA (Medicare Advantage) plansGovernment funding for MA plans is expected to decrease substantially due to the introduction of the ACA. Specific changes include:

- A minimum loss ratio of 85% was implemented

2. Spring 2023 DP #4b-e

Part b:

Source(s): GH201-403-25 – Medicare Part D

Question: Calculate the cost share, as a percentage of paid claims, using the 2007 benefit design for the: (i) Member (ii) Health plan. Show your work.

SOA Commentary on Question:

Candidates' performance was mixed on Part (b). Strong candidates applied the correct cost sharing before ICL at 25% and verified that the 5% catastrophic benefit is greater than the fixed copays.

SOA Answer:

Cost Share before ICL: 25%

Phase	Member	Health Plan	Total	Cumulative Total
Deductible	265	0	265	265
ICL	534	1,601	2,135	2,400
Donut Hole	3,051	0	3,051	5,451
Catastrophic	129	2,459	2,589	8,040
Total	3,979	4,061	8,040	
Cost as % of Paid	**49.50%**	**50.50%**	**100.00%**	

Verify catastrophic benefit 5% applies:

Type	Per Script	5% of script
Generic	120	6
Brand NP	550	27.5

Both \$6 and \$27.5 exceed the 2007 copays:

- generic or preferred multi-source \$2.15, or
- other drugs \$5.35.

Thus, 5% cost sharing applies

Part c:

Source(s): GH201-403-25 – Medicare Part D

Question: Calculate the cost share, as a percentage of paid claims, using the 2020 benefit design for the: (i) Member (ii) Health plan (iii) Manufacturer. Show your work.

SOA Commentary on Question:

Candidates did not perform well on Part (c). Common mistakes include applying the same donut hole discounts for both brand and generic drugs, not tracking cumulative TrOOP correctly, and not calculating cost share as a percentage, among others.

SOA Answer:

Incurred Date	Type	**(1) Cumulative**	**(2) Cumulative-Generic**	**(3) Cumulative-Brand**
January 2	Generic	**120**		
January 16	Brand	**670**		
February 2	Generic	**790**		
February 16	Brand	**1,340**		
March 2	Generic	**1,460**		
March 16	Brand	**2,010**		
April 2	Generic	**2,130**		
April 16	Brand	**2,680**		
May 2	Generic	**2,800**		
May 16	Brand	**3,350**		
June 2	Generic	**3,470**		
June 16	Brand	**4,020**		
July 2	Generic	**4,140**	**120**	**0**
July 16	Brand	**4,690**	**120**	**550**
August 2	Generic	**4,810**	**240**	**550**
August 16	Brand	**5,360**	**240**	**1,100**
September 2	Generic	**5,480**	**360**	**1,100**
September 16	Brand	**6,030**	**360**	**1,650**
October 2	Generic	**6,150**	**480**	**1,650**
October 16	Brand	**6,700**	**480**	**2,200**
November 2	Generic	**6,820**	**600**	**2,200**
November 16	Brand	**7,370**	**600**	**2,750**
December 2	Generic	**7,490**	**720**	**2,750**
December 16	Brand	**8,040**	**720**	**3,300**

Cost Share before ICL: 25%

Phase	Member	Health Plan	Manufacturers	Total
Deductible	435	0	0	435
ICL	896	2,689	0	3,585
Donut Hole -G	180	540	0	720
Donut Hole -B	825	165	2,310	3,300
Total	2,336	3,394	2,310	8,040
Cost as % of Paid	**29.06%**	**42.21%**	**28.73%**	100.00%

Part d:

Source(s): GH201-403-25 – Medicare Part D

Question: Describe the impact of "closing the donut hole" on the: (i) Member (ii) Health plan (iii) Manufacturer

SOA Commentary on Question:

Candidates were expected to observe the impacts on closing the donut hole. Thoughtful responses addressed the shift in financial burden through the example above and pointed out the nuances with health plan cost share. Credit was given for responses in addition to those provided below if supported by sound logic.

SOA Answer:

- The member cost share reduced dramatically from 49% to 29%. Between 2007 and 2020, members cost share generally declined due to the introduction of brand manufacturer cost share.
- The health plan cost share reduced from 51% to 42%. Although health plans are responsible for 5% more of the cost share in the donut hole, the health plan liability depends on the total costs and brand vs generic mix.
- The manufacturers pick up the share in 2020 that was not in 2007. Brand drug manufacturers' cost share increased.

Part e:

Source(s): GH201-403-25 – Medicare Part D

Question: Describe the impact to the: (i) Member (ii) Health plan (iii) Manufacturer

SOA Commentary on Question:

Candidates performance was mixed. Strong candidates articulated the OOPM impact and considered the dynamic in the pharmacy delivery system. Credit was given for responses in addition to those provided below if supported by sound logic.

SOA Answer:

The member will not owe anything for claims after paying a total of $2,000. Amounts the member would have paid are shifted to the health plan, and possibly the manufacturer. The richer benefit is also likely to increase premiums. The split between health plan and manufacturers will depend on various factors such as the generic and brand mix and pharmacy price negotiations.

3. Fall 2023 DP #2

SOA Commentary on Question:

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

Part a:

Source(s): MA Expanded Supp Benefits

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

SOA 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.

SOA Answer:

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

Part b:

Source(s): GH201-404-25 – MA, ESRD eligibility

Question: (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.

SOA Commentary on Question:

Candidates should have addressed how the practice reduced medical costs.

SOA Answer:

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 heath 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.

Part c:

Source(s): Med. Adv. - Experience Data

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

SOA 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.

SOA Answer:

- 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.

Part d:

Source(s): ASOP #23 – Data Quality

Question: Describe data quality considerations and disclosures needed when completing the MA bids.

SOA Commentary on Question:

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

SOA Answer:

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

4. Fall 2023 DP #10

Part a:

Source(s): Skwire 19 – The ACA

Question: 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

SOA 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.

SOA Answer:

(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

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.

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.

Part b:

Source(s): Skwire 41 – Risk-Based Capital Formulas
Question: Recommend whether or not to proceed with the proposal. Justify your response.

SOA 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.

SOA Answer:

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.

5. Spring 2024 DP #1

Part a:

Source(s): GH201-403-25 – Medicare Part D

Question: 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 and (ii) 2025. Show your work.

SOA 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.

SOA Answer:

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

Part b:

Source(s): GH201-403-25 – Medicare Part D

Question: 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.

SOA 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.

SOA Answer:

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

Part c:

Source(s): GH201-403-25 – Medicare Part D

Question: Evaluate the impact to: (i) Member cost share (ii) Manufacturer liability (iii) Government reinsurance. Justify your response.

SOA 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.

SOA Answer:

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.

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.

6. Fall 2022 FV #9

Part a:

Source(s): GH201-403-25 – Medicare Part D

Question: Explain the options available for employers to provide federal government subsidized drug coverage to their retirees.

SOA Commentary on Question:

Candidates generally performed well on this problem. To receive full credit a candidate had to list the available option and then provide a description similar to the answer below. The response did not need to be verbatim to the answer below but it did need to provide sufficient information demonstrating knowledge of each option.

SOA Answer:

Direct Contract EGWP (Employer Group Waiver Plan) - Employer or Unions could contract directly with CMS as a self-insured PDP or MA-PDP. Due to the large regulatory and administrative demands of these plans, this is uncommon. These are essentially self-administered group Medicare PDP plans.

800-series EGWP - Under EGWPs, the employers or unions contract with an insurance carrier to set up a custom group Medicare PDP fully insured plan. The carrier sets the premium. The federal government (CMS) provides a subsidy to the carrier which is then passed along to the employer as a reduction in the member premiums.

Medicare non-EGWP plan – The employer or union provides funds for members to enroll in an individual PDP plan. Similar to the EGWPs, CMS provides a subsidy that lowers member premiums.

Group Rx plan with RDS subsidy – An employer can provide Rx coverage that is not a Medicare part D plan. For example, it could be the same Rx benefits as for active employees. If the benefits offered are determined to be creditable coverage, then the employer would receive a subsidy from CMS for providing such coverage.

Part b:

Source(s): GH201-403-25 – Medicare Part D

Question: Calculate the 2023 PMPM premium for ABC's defined standard PDP. Show your work.

SOA Commentary on Question:

Many candidates did well on this question, however very few got it perfectly correct. Common mistakes consisted of applying trend at the incorrect spot in the calculation, applying the incorrect trend amount, missing the Pharma Share portion of Member's 3 claims, incorrectly calculating the Plan Share portion and incorrectly calculating the Direct Subsidy.

Candidates that did poorly on the question assumed the Member Share's portion of claims was the premium that ABC would charge for the plan.

SOA Answer:

	Member 1	Trend	2023 Claims	Member Share	Plan Share	Pharma Share	Govt Share
	$340.91	10%	$375.00	$375.00	$0.00	$0.00	$0.00
	$190.91	10%	$210.00	$108.75	$101.25	$0.00	$0.00
	$590.91	10%	$650.00	$162.50	$487.50	$0.00	$0.00
	$90.91	10%	$100.00	$25.00	$75.00	$0.00	$0.00
	$363.64	10%	$400.00	$100.00	$300.00	$0.00	$0.00
	$272.73	10%	$300.00	$75.00	$225.00	$0.00	$0.00
	$477.27	10%	$525.00	$131.25	$393.75	$0.00	$0.00
Total	$2,327.27		$2,560.00	$977.50	$1,582.50	$0.00	$0.00

	Member 2	Trend	2023 Claims	Member Share	Plan Share	Pharma Share	Govt Share
	$1,136.36	10%	$1,250.00	$650.00	$600.00	$0.00	$0.00
	$786.36	10%	$865.00	$216.25	$648.75	$0.00	$0.00
	$863.64	10%	$950.00	$237.50	$712.50	$0.00	$0.00
	$113.64	10%	$125.00	$31.25	$93.75	$0.00	$0.00
	$863.64	10%	$950.00	$237.50	$712.50	$0.00	$0.00
Total	$3,763.64		$4,140.00	$1,372.50	$2,767.50	$0.00	$0.00

	Member 3	Trend	2023 Claims	Member Share	Plan Share	Pharma Share	Govt Share
	$2,272.73	10%	$2,500.00	$962.50	$1,537.50	$0.00	$0.00
	$2,272.73	10%	$2,500.00	$625.00	$1,875.00	$0.00	$0.00
	$2,272.73	10%	$2,500.00	$625.00	$125.00	$1,750.00	$0.00
	$2,272.73	10%	$2,500.00	$625.00	$125.00	$1,750.00	$0.00
Total	$9,090.91		$10,000.00	$2,837.50	$3,662.50	$3,500.00	$0.00

Member 4 – 10 did not have claims that exceeded the $450 deductible

Total Plan Paid:	$8,012.50	= $1582.5+$2767.50+$3662.50
Total Member Months:	120	=10*12
Plan Paid PMPM:	$66.77	=$8012.5/120
Admin/Margin Load:	20%	= 0.15 + 0.05
Risk Score	1.00	
Bid:	$83.46	=$66.77 / (1 + 0.2) / 1
NABA:	$35	
NAMP:	$33	
Direct Subsidy	2	=$35 – $33
Member Premium:	$81.46	=$83.46 - 2

Part c:

Source(s): GH201-400-25 – Health Insurance Accounting Basics

Question: Calculate ABC's CMS risk sharing settlement for 2023. Show your work.

SOA Commentary on Question:

Many candidates forgot to multiply by the total member months to get the total CMS Share. If a candidate's response to Part B got them to a range that was in a different threshold (including no cost sharing) and they calculated the cost sharing accordingly they received full credit. In the scenario where they had no cost sharing, they had to mention the cost sharing guidelines to receive full credit.

SOA Answer:

		CMS Share PMPM	CMS Share Total	
Actual Claims:	$80			
Expected Claims:	$66.77			
5% Threshold:	$70.11			=$66.77 * 1.05
10% Threshold:	$73.45			=$66.77 * 1.10
Claims between 5-10%:	$3.34	$1.67	$200.31	$200.31 = 120 * (73.45 – 70.11) * 0.5
Claims over 10%:	$6.55	$5.24	$629.00	$629 = 120 * (80 – 73.45) * 0.8
			$829.31	=200.31 + 629.00

*Note these values are not rounded in Excel. Rounded / not rounded values were accepted as answers

7. Fall 2020 FV-C #5

SOA Commentary on Question:

Candidates generally performed fairly well on part (a) of the question. On part (b), about half of the candidates did well while many were only partially successful. The most common mistake on (b) was confusing the actuarial value with the anticipated loss ratio. On part (c), most candidates provided at least a partial answer but relatively few provided a complete answer. Candidates struggled with part (d). Many candidates determined that there was a difference in pmpm premiums based on the actual enrollment but few candidates matched up the difference in expenses with the difference in premiums and failed to recognize that profitability varies significantly by silver tier.

Part a:

Source(s): Skwire 19 – The ACA

Question: For each of the following terms in the ACA: Actuarial Value; Minimum Value; Essential Health Benefits; Non-Standard Plan Designs

(i) Define the term

(ii) Explain the term's application to Company ABC

SOA Answer:

(i) Actuarial Value is the percentage of total allowed costs that the plan is expected to pay in benefits.

Minimum Value is the minimum percentage of allowed costs that the plan is expected to pay to be an ACA approved employer plan.

Essential Health Benefits is the defined list of benefits that an ACA plan is required to provide in the individual and small group markets.

Non-Standard Plan Designs are plan designs that cannot be evaluated using the AV calculator or MV calculator.

(ii) ABC must determine actuarial value for each of their plans and fit each into Bronze, Silver, Gold or Platinum designations.

Minimum value does not apply for ABC since they are only offering individual products.

ABC must include all essential health benefits in their plan design.

If ABC's plans have any non-standard plan designs, then ABC must use a supplemental calculation and make the appropriate disclosures.

Part b:

Source(s): Skwire 19 – The ACA; GH201-405-25 – Dynamics of the ACA

Question: Calculate premium loadings necessary under each of the options below. Show your work.

(i) Option 1: Load Silver plans only

(ii) Option 2: Load all metal levels

SOA Answer:

(i) First step is to calculate required premiums for each benefit plan as shown:

- Bronze=200
- Silver (70)=300
- Silver (73)=300*73/70=313
- Silver (87)=300*87/70=373
- Silver (94)=300*94/70=403
- Gold=360

Next step is to determine the average premium for the silver plans weighted by enrollment since all silver plans need to have the same rate.

- Average of silver plans=(300*0.1+313*0.2+373*0.25+403*0.25)/(0.1+0.2+0.25+0.25)=358

Final step is to determine the percentage load to the existing Silver premium.

- Load=358/300-1=19.3%

(ii) Using amounts calculated in the first step above, first step is to determine average required premium for all plans weighted by enrollment.

- Average required premium=200*0.15+300*0.1+313*0.2+373*0.25+403*0.25+360*0.05=335

Second step is to determine average premium based on existing premium and weighted by enrollment.

- Average premium=200*0.15+300*0.8+360*0.05=288

Final step is to determine the percentage load to be applied to all premiums.

- Load=335/288-1=16.3%

Part c:

Source(s): Skwire 19 – The ACA; GH201-405-25 – Dynamics of the ACA

Question: (i) Identify alternative options Company ABC can use aside from premium loading (ii) Describe the pros and cons of each of the options in (i).

SOA Answer:

(i) Options include:

Sue the government
Withdraw from exchanges and, therefore, not offer CSR plans
Do nothing and have inadequate premium

(ii) Sue the government

Pros: potential collection of loss of premium
Cons: expensive and may not be successful

Withdraw from exchanges

Pros: avoid subsidy of CSR plans

Cons: loss of potential customers and associated profits

Do nothing

Pros: maintain premium competitiveness; no additional filing; less disruptive to customers

Cons: deterioration of profitability and potential insolvency

Part d:

Source(s): Skwire 19 – The ACA; GH201-405-25 – Dynamics of the ACA
Question: Calculate the financial impact of the actual enrollment to Company ABC's profitability. Show your work.

SOA Answer:

First step is to determine planned profitability. Easiest method to calculate this is to take 2.5% of the average pmpm after loading.

- Planned profits=335*0.025=8.38

Next step is to determine profitability based on revised enrollment. This requires subtracting premiums based on revised enrollment from required premiums by tier based on revised enrollment (after adjusting out planned profit margin). The premiums based on revised enrollment is the average of the premiums developed in (b)(i) weighted by revised enrollment. The required premiums by tier based on revised enrollment is the required premiums developed in the first step of (b)(i) weighted by revised enrollment and adjusted for the planned profit margin.

- Average premium based on revised enrollment

=200*0.18+358*(0.07+0.19+0.23+0.26)+360*0.07=329.70

- Required premiums based on revised enrollment adjusted for planned profit

= (1-0.025)*(200*0.18+300*0.07+313*0.19+373*0.23+403*0.26+360*0.07) =323.84

- Actual profits=329.70-323.84=5.86

Revised enrollment caused profitability to reduce by 2.52 pmpm based on a combination of lower pmpm and richer average benefit plans.

8. Fall 2020 FV-C #7

SOA Commentary on Question:

Candidates did well identifying data quality issues related to data elements and completeness but often excluded issues related to benefit parameters and provider contracts. Common mistakes were mixing up internal vs external concerns and only including information from ASOP #23 Data Quality. Several candidates explained bid pricing considerations rather than concerns related to data quality.

Part a:

Source(s): Med. Adv. - Experience Data

Question: Explain potential areas of concern related to data quality that are internal to your company's claims adjudication process.

SOA Commentary on Question:

Candidates were given credit for explaining elements in any category. Most answers focused on required data elements.

SOA Answer:

Does the data contain the required elements?

- Missing information – certain benefits may not have claims data at a member level detail, or didn't track encounter data associated with capitated services
- Aggregate data – some claims data may lack sufficient detail to allocate to specific service categories as outlined in the BPT
- Integration of benefits – related to dual eligibles, need to be able to segregate the two benefits and use only the subset used by Medicare-Medicare vs. non-Medicare covered benefits – some service categories include services that are covered under traditional Medicare vs. only supplemental benefits
- Incomplete data – claims lags impact completion, also impact of vendor changes or contract changes
- Eligibility – member claim records need to have a consistent eligibility record; 2021 bids now allow for ESRD enrollment so corresponding data needs to be included
- Utilization considerations – verify that the correct unit definitions are being used to measure a particular service.
- Paid amounts – ensure all the appropriate financial fields are being used
- BPT and PBP classification – ensure claims data correctly correspond to the appropriate BPT and PBP categories (e.g., crosswalk table)

Is claims experience consistent with benefit parameters and provider contracts?

- Capitated arrangements – need to validate that the vendor is receiving the correct PMPM amounts and they are covering services consistent with the PBP definition
- Member cost sharing – need to confirm that vendors and providers are charging cost sharing consistently with the PBP and CMS rules; need to ensure negotiated reimbursement rates are in compliance with CMS

- Benefit coverage – confirm and vendors are providing beneficiaries with the correct coverage for each of their plans and correctly adjudicated

Is claims experience reasonable compared to internal expectations?
Examples of actual-to-expected comparisons include:

- Financial results
- Adjudication or contracting issues
- Impact of care management
- Should monitor A/E throughout the year as well as at year end

Part b:

Source(s): Med. Adv. - Experience Data
Question: Explain potential areas of concern related to data quality that are external to your company's claims adjudication process.

SOA Commentary on Question:

Candidates did well identifying concerns related to benchmarks and population risk.

SOA Answer:

Is the experience reasonable given external benchmarks?

- Need to compare claims experience to both the expected results and external benchmarks
- Elements include geographic area, covered benefits, risk scores and levels of utilization management

Is claims experience being prepared to comply with CMS requirements for bid pricing?

- Non-benefit expenses – need to be consistent with CMS guidance on what qualifies as medical claims expense vs. non-benefit expense
- Capitation encounters – encounter data needs to incorporated into the BPT; if accurate data is unavailable this needs to be disclosed as a deficiency and a develop corrective action plan
- Global payment allocation – related to capitation or risk-sharing arrangements. Need to allocate appropriately to the net cost of services on Worksheet 1

9. Spring 2021 FV-C #5

SOA Commentary on Question:

Describe Medicaid program structure and benefits and evaluate pricing and filing
Calculate the impact of changing the structure of rate cells, while exploring waivers and EPSDT benefit

Part a:

Source(s): GH201-406-25 – Medicaid and Risk-Based MCOs
Question: Describe the EPSDT benefit and its purpose.

SOA Commentary on Question:

Candidates did poorly on this section. While most got partial credit for stating something about EPSDT very few hit these specific bullets.

SOA Answer:

- Mandatory pediatric benefit unique to Medicaid enrollees under age 21 – Early and Periodic Screening, Diagnostic and Treatment –
- Covers services particularly important on an ongoing basis for children with disabilities (PT, personal care, DME) that often have service limits in private insurance
- Includes diagnostic services and treatment necessary to correct or ameliorate chlidren's acute and chronic physical and mental health conditions
- Conception of medical necessity is expansive to promote children's health development – service limits that typically apply to adults do not apply to children

Part b:

Source(s): GH201-406-25 – Medicaid and Risk-Based MCOs
Question: Explain public policy reasons why this waiver approval necessitates a change in rate cells.

SOA Commentary on Question:

Candidates did poorly on this section. While most candidates gave actuarial/rating reasons for the change in rate cells few addressed the "public policy reasons".

SOA Answer:

- Waivers must be budget neutral for the federal government
- Federal costs under a waiver must not exceed what federal costs would have been for that state without the waiver
- Budget neutrality is enforced by establishing a cap on federal funds under the waiver, putting the state at risk for increases in per member per month costs.
- Capitation rates must be actuarially sound

Part c:

Source(s): GH201-406-25 – Medicaid and Risk-Based MCOs
Question: Calculate the projected 19-25 year old statewide medical cost without EPSDT. Show your work.

SOA Commentary on Question:

Candidates generally did well on this section. They did not have to calculate the PMPM to get full credit since the question asks for "medical cost" and not necessarily a PMPM. There were several ways to calculate the correct answer. Partial credit was given if they at least calculated the 21-25 cost.

SOA Answer:

Medical (Excluding EPSDT) for Age Range 16-20 = 181.42 = (6,000/8,000)*172.35 + (2,000/8,000)* *Medical (Excluding EPPSDT Costs) for Age 19-20*

208.63 Solved for Medical (Excluding EPSDT Costs for Age 19-20)

Age Range	Medical (Excluding EPSDT)	MMOS
19-20	208.63	2,000
21-25	250.45	4,000

236.51 Medical (Excluding EPSDT) Cost PMPM for Age 19-25 = SUMPRODUCT(Medical Cost, MMOS)/SUM(MMOS) for Age 19-25

6,000 MMOS Age 19-25

1419060 Statewide Projected Medical Cost age 19-25 no EPSDT =Medical Cost (Excluding EPSDT) PMPM * MMOS

Part d:

Source(s): GH201-406-25 – Medicaid and Risk-Based MCOs

Question: Calculate the total statewide composite PMPM, including EPSDT and non-benefit costs. (i) Before the waiver approval, (ii) After the waiver approval. Show your work.

SOA Commentary on Question:

Candidates generally did well on this section. A common mistake was to forget to gross up the final answer for the LR of 90% (did not divide final answer by .9).

SOA Answer:

Before Waiver Approval

Age range	Medical (excluding EPSDT)	EPSDT portion	Cost PMPM = Medical Excluding EPSDT + EPSDT Portion	MMOS
16-20	$181.42	$2.50	$183.92	8,000
21-25	250.45	-	$250.45	4,000

206.0966667 Claim Cost PMPM Including EPSDT Before Waiver Approval

90% Medical Loss Ratio

229.00 Expected Total Composite Cost PMPM = Claim Cost PMPM / Medical Loss Ratio (Before Waiver Approval)

After Waiver Approval

Age range	Medical (excluding EPSDT)	EPSDT portion	Cost PMPM = Medical Excluding EPSDT + EPSDT Portion	MMOS
16-18	$172.35	$2.50	$174.85	6,000
19-25	236.51	-	$236.51	6,000

205.68 Claim Cost PMPM Including EPSDT Before Waiver Approval

90% Medical Loss Ratio

228.53 Expected Total Composite Cost PMPM = Claim Cost PMPM / Medical Loss Ratio (After Waiver Approval)

Part e:

Source(s): GH201-406-25 – Medicaid and Risk-Based MCOs

Question: Calculate your MCO's statewide composite PMPM, including EPSDT and non-benefit costs. (i) Before the waiver approval, (ii) After the waiver approval. Show your work.

SOA Commentary on Question:

Candidates generally did well on this section. A common mistake was to forget to gross up the final answer for the LR of 90% (did not divide final answer by .9). Another common error was using the wrong population distribution.

SOA Answer:

Before Waiver Approval

Age range	Medical (excluding EPSDT)	EPSDT portion	Cost PMPM = Medical Excluding EPSDT + EPSDT Portion	MCO's MMOS = Statewide MMOS * MCO's Share
16-20	$181.42	$2.50	$183.92	2500
21-25	250.45	-	$250.45	1000

$202.93 Claim Cost PMPM Including EPSDT Before Waiver Approval

90% Medical Loss Ratio

225.48 Expected MCO Composite Cost PMPM = Claim Cost PMPM / Medical Loss Ratio (Before Waiver Approval)

After Waiver Approval

Age range	Medical (excluding EPSDT)	EPSDT portion	Cost PMPM = Medical Excluding EPSDT + EPSDT Portion	MCO's MMOS = Statewide MMOS * MCO's Share
16-18	$172.35	$2.50	$174.85	1,800
19-25	236.51	-	$236.51	1,700

204.7991429 Claim Cost PMPM Including EPSDT Before Waiver Approval

90% Medical Loss Ratio

227.55 Expected MCO Composite Cost PMPM = Claim Cost PMPM / Medical Loss Ratio (After Waiver Approval)

10. Spring 2021 FV-C #6a,c-d

SOA Commentary on Question:

This question tested the candidate's knowledge on how the Affordable Care Act (ACA) changed regulations and rating practices. Candidates did well on the question overall.

Part a:

Source(s): Skwire 19 – The ACA

Question: Describe four ways that the Affordable Care Act (ACA) impacted Individual Rates.

SOA Commentary on Question:

Candidates were asked to describe 4 of the items listed. Some candidates simply listed items without explaining the impact on individual rating.

SOA Answer:

Rate Review – Exchange qualified plans must be reviewed at the federal level in addition to the state-level reviews that were previously required.

Minimum Loss Ratio – An 80% minimum loss ratio must be met in both the individual and small group markets. Loss ratios below 80% result in refunds to policyholders

Individual Mandate – A tax penalty applies to individuals who do not enroll in "minimum essential coverage"

Metal Tiers – Plans sold in the individual and small group markets are required to meet an actuarial value criterion that allows consumers to compare benefit values across issuers to increase transparency. Plans must fit into one of four tiers: bronze, silver, gold or platinum

Risk Adjustment – Risk adjustment was introduced across each market in each state, and is intended to have issuers compete on their ability to provide affordable care and an efficient administrative system, rather than their ability to attract a less risky membership.

Premium subsidies – Premium subsidies are offered to individuals who meet the following requirements:

- Individual must have an income level between 100% and 400% of the Federal Poverty Level
- Individual must purchase a plan in an individual exchange
- Individual is not eligible for other coverage

Cost Sharing Subsidies – Cost sharing subsidies are available only for individuals with incomes below 250% of the federal poverty level who select a silver plan in the exchange.

Age Rating Compression and Gender Neutrality – The ACA prescribes a 3:1 age rating limit. It also prohibits rating differently based on gender. The ACA prescribes a common rate slope across issuers in each state.

Essential health Benefits – All qualified health benefits plans offered inside or outside the exchanges, for individual and small group plans, are required to offer an essential health benefits package.

Pre-existing Conditions – The ACA does not allow health insurance companies to refuse coverage or charge more just because of pre-existing conditions.

Part c:

Source(s): GH201-405-25 – Dynamics of the ACA

Question: Calculate the premium rates that this individual was required to pay for the lowest cost option at each metallic level. Show your work.

SOA Commentary on Question:

Candidates frequently used 2014 income information for calculating the Federal Poverty Level rather than 2013 income. Partial credit was given if 2014 information was used correctly to calculate the net premium.

SOA Answer:

Federal Poverty Level = 2013 Income ÷ 2013 Federal Poverty Level Amount = $31,597.50 ÷ $11,490.00 = 275%

Maximum Percent of Income = Interpolation of 250% FPL and 300% FPL = 50% × 8.05% + 50% × 9.50% = 8.775%

Maximum Contribution = FPL Amount × FPL Level × Maximum Percent of Income ÷ 12 = $11,490 × 275% × 8.775% ÷ 12 = $231.06

Calculated Subsidy = Benchmark Plan (Second Lowest Silver Plan) – Maximum Contribution = $324.88 – $231.06 = $93.82

Individual's Net Premium = Premium Rate – Premium Subsidy:

Metal Tier	Premium Rate	Net Premium
Bronze	$250.11	$156.29
Bronze	$277.14	$183.32
Silver	$295.22	$201.40
Silver	$324.88	$231.06
Silver	$341.11	$247.29
Gold	$350.11	$256.29
Gold	$372.11	$278.29
Platinum	$404.10	$310.28

Part d:

Source(s): Skwire 19 – The ACA, GH201-405-25 – Dynamics of the ACA

Question: Describe two other types of premium and cost sharing assistance available in all post-ACA markets and the requirements to qualify for each program under ACA in 2014.

SOA Commentary on Question:

Many candidates identified two of the examples of premium and cost sharing assistance below. Candidates who struggled with this question often provided incorrect qualification requirements or did not provide enough detail.

SOA Answer:

Premium Subsidies for Individuals – Premium credits are available to qualified individuals and families with incomes between 133% - 400% of the federal poverty level (FPL) for qualified

coverage purchased through the exchanges. Employees are not eligible for premium credits if their employer offers coverage, unless that employer plan does not have an actuarial value of at least 60%, or if the employee share exceeds 9.5% of the premium.

Cost Sharing Reductions – These plan design subsidies are available to individuals and families for plans purchased through the exchanges. Currently, individuals and families with incomes up to 250% of the FPL. CSR plans reflect lower cost-sharing amounts and limits, and are established as variations of silver plans, with targeted actuarial values of 94%, 87% and 73%.

Small Business Tax Credits – Employers with 25 or fewer employees and average annual wages of less than $50,000 can receive a tax credit if they purchase health insurance for employees through the SHOP exchange. Beginning in 2014, employees are required to contribute at least 50% of the total premium cost. The maximum credit is 35% of the employer's contribution to employers with 10 or fewer employees and average annual wages of less than $25,000.

11. Fall 2021 FV-C #1

Part a:

Source(s): Skwire 9 – Gov't Health Plans (US)

Question: Explain how the Federal government finances benefits provided by the "Parts" of the Medicare program.

SOA Commentary on Question:

*Candidates generally were able to describe how Plan A, Plan B, and Plan D are financed. A common theme of the responses was not providing enough details for full credit on the question. A lot of candidates mentioned Part C in their answer – noting that it was **not** funded by the Federal government.*

SOA Answer:

Medicare is funded on pay-as-you-go basis; no prefunding of benefits; nothing set aside in reserves to fund future benefit payments

Part A – HI (Hospital Insurance) trust fund is financed primarily through employment payroll taxes

Taxes paid by current employees bear no direct relationship to their future Medicare costs; no "ownership" of contributions

Part B and Part D – SMI (Supplemental Medical Insurance) trust fund is financed from a combination of the general funds from the Treasury (75% Part B, 74.5% Part D) and beneficiary premiums that change annually (25% Part B, 25.5% Part D)

Part B and Part D are funded through separate accounts within the SMI trust fund; no law allows transfer of assets or earnings between the two accounts

Benefit costs and administrative expenses are charged against these funds

HI payroll tax is funded equally by employee and employer, self-employed pay both; additional tax on high earners

No earnings cap on the HI tax as is with Social Security

Trust funds managed by board of trustees that must report annually (by 4/1) to Congress.

Part b:

Source(s): Skwire 9 – Gov't Health Plans (US)

Question: Explain three fundamental long-range financing challenges facing the Medicare program as described in the 2020 Medicare Trustees Report.

SOA Commentary on Question:

Similar to question 1 (a), a common theme of the responses was not providing enough details for full credit on the question

SOA Answer:

1 - HI trust fund income falls short of the amount to fund the HI benefits

HI expenditures are projected to exceed HI revenues based on current law, particularly for MA beneficiaries

HI trust fund is projected to be depleted in 2026

Projected HI deficit over the next 75 years is 0.76% of taxable payroll

2 – Increases in SMI costs increase pressure on beneficiary household budgets and the federal budget

SMI financing is reset each year

SMI general revenue funding is projected to nearly double in the next 75 years as a % of GDP

3 – Increases in total Medicare spending threaten the program's sustainability

Need to consider the share of GDP that will be consumed by Medicare

Medicare spending currently outpaces GDP growth

Projected growth under current law differs from CMS Actuary projections

Part c:

Source(s): Skwire 9 – Gov't Health Plans (US)

Question: Identify approaches to improving Medicare solvency, aside from higher taxes and member premiums.

SOA Commentary on Question:

This question was answered very well. More than 75% candidates received full grading points.

SOA Answer:

Reduce or eliminate covered services

Increase Medicare cost sharing through higher deductibles and copays

Raise the current eligibility age for benefits

Adjust reimbursement to providers of care

Encourage new initiatives and expand existing initiatives that slow grown in health care costs

Any other valid approach.

12. Spring 2024 VR #11

Part a:

Source(s): GH201-405-25 – Dynamics of the ACA

Question: Identify the benchmark plans for ages 30 and 40 in this market. Justify your response.

SOA Commentary on Question:

Candidates were able to obtain full credit if they identified the plans (by price and/or issuer/metal level) and explain that it was the second lowest cost silver plan. Candidates were extremely successful on part a.

SOA Answer:

Benchmark Plan, Age 30: $360 Best Price Silver
Benchmark Plan, Age 40: $400 ValueNow Silver

Identified as the second lowest silver plan in the market.

Part b:

Source(s): GH201-405-25 – Dynamics of the ACA

Question: For each individual, Chris and James: (i) Calculate the premium subsidy for each available plan. (ii) Calculate the net monthly premium for each available plan. Show your work.

SOA Commentary on Question:

Candidates were able to use the identified benchmark to calculate the subsidy for each plan and the net monthly premium. The most common errors on this question were Excel related – not locking the reference to the benchmark plan or calculated subsidy. Partial credit was awarded where appropriate. Many candidates were able to achieve full credit on part b.

SOA Answer:

The model solution for this part is in the accompanying Excel file.

Part c:

Source(s): GH201-405-25 – Dynamics of the ACA

Question: Calculate the new net monthly premium for each plan for both Chris and James. Show your work.

SOA Commentary on Question:

Some candidates struggled to find the new premium for Chris and James. The question wanted the 'non-benefit load percentage' to be the same before and after the calculation. Some candidates used the PMPM differential rather than the ratio of claims to premium. Some candidates did not use the updated premium to calculate the new net premium for Best Price Silver.

SOA Answer:

The model solution for this part is in the accompanying Excel file.

Part d:

Source(s): GH201-405-25 – Dynamics of the ACA

Question: Calculate the net monthly premium for each plan for both Chris and James in this expanded market. Show your work.

SOA Commentary on Question:

Like parts b and c above, candidates were successful at calculating the net premium for each of the plans. The most common errors were Excel related, not locking references to the benchmark plan or calculated subsidy.

SOA Answer:

The model solution for this part is in the accompanying Excel file.

Part e:

Source(s): GH201-405-25 – Dynamics of the ACA

Question: (i) Describe how increased competition in the ACA exchange marketplace can impact consumers. (ii) Explain how the ACA risk adjustment program has affected how insurers view potential enrollees. (iii) Describe the impact of cancelling cost sharing subsidies on the ACA exchange marketplace.

SOA Commentary on Question:

Candidates were largely successful in understanding the impact competition had on the subsidized members. Most candidates were able to talk generally about the risk adjustment program, but struggled to talk specifically about the ACA risk adjustment methodology and discuss that imbalance that has been observed in the program. On part iii, many candidates talked about 'Silver Loading' but did not connect the canceling of the cost share subsidies with the premium subsidies that the question focused on in parts (a) through (d)

SOA Answer:

(i) Since premium subsidy is based on the second lowest plan, and not on an average or median plan, increased insurer participation depresses the premium subsidy. As more insurers enter the market, the subsidy is naturally based on a lower cost plan.

(ii) ACA risk adjustment understates risk for low cost enrollees and overstates for high cost enrollees. This results in the transfer formula penalizing plans that enroll low cost enrollees.

(iii) When CSR subsidies were canceled, insurers responded by increasing silver premiums (sometimes known as 'Silver Loading'). This led to premium subsidies increasing and net premiums decreasing for those who qualified. For those without premium subsidies, this made some plans too expensive. This let some consumers buy coverage other than the benchmark plan at a lower net premium cost, increased enrollment, and made the market more attractive to consumers and insurers.

13. Fall 2021 FV-C #7a-b

SOA Commentary on Question:

Part A was the best answered part of the question while part B was the worst answered. Generally speaking candidates made an attempt at all three parts of the question.

Part a:

Source(s): Skwire 9 – Gov't Health Plans (US)

Question: Describe responsibilities federal and state governments have in financing the program.

SOA Commentary on Question part a:

Most candidates mentioned the partnership and per capita share parts of this answer, but were unable to note the government using a formula and Medicaid being a significant part of the states budget.

SOA Answer:

Medicaid a partnership between State and Federal Government.

Federal government uses a formula for to determine state funding match.

The percentage of state match is based on per capita state income. The lower the income the higher the federal match.

The state contribution to Medicaid is a significant part of the state's budget.

Part b:

Source(s): GH201-406-25 – Medicaid and Risk-Based MCOs, Skwire 9 – Gov't Health Plans (US)

Question: Explain how components of the Affordable Care Act have affected financing of the program.

SOA Commentary on Question part b:

Most candidates mentioned the partnership and per capita share parts of this answer, but were unable to note the government using a formula and Medicaid being a significant part of the state's budget.

SOA Answer:

ACA provides almost full federal funding for new eligible.

State cost increase with expanded Medicaid.

An enhanced federal match for certain services like primary care.

ACA reduces federal DSH (disproportionate share).

14. Spring 2022 FV #10

Part a:

Source(s): GH201-405-25 – Dynamics of the ACA

Question: (i) Calculate the Advance Premium Tax Credit (APTC) for each of Joe and Carole. Show your work. (ii) Calculate the net monthly premiums for Joe and for Carole under each plan offered on the exchange. Show your work.

SOA Commentary on Question:

Candidates did not answer this part well. The calculation includes trending experience data, normalizing rates, adjusting for actuarial values and ages. No candidate was able to do all steps correctly. Also, most candidates applied the 80% minimum loss ratio to get gross premium, while the question asked to calculate net monthly premiums only. To calculate APTC, candidates need to identify the benchmark plan, the second-lowest-cost silver tier plan. Some used the second highest. Some knew to use the second-lowest but pointed to the wrong plan. No credit was given for just writing "second-lowest-cost silver tier plan".

SOA Answer:

See the accompanying Excel file for the solution.

Part b:

Source(s): GH201-405-25 – Dynamics of the ACA

Question: Assess the directional impact of the silver loading on net monthly premium for each plan by filling out the chart below with "increase", "decrease", or "unchanged".

SOA Commentary on Question:

This part was answered very well by candidates. Candidates could receive high to full score regardless of the work in part 1

SOA Answer:

Directional Change in Net Monthly Premium						
	Lion Bronze	Lion Silver	Lion Gold	Tiger Bronze	Tiger Silver	Tiger Gold
Carole	↓	–	↓	↓	–	↓
Joe	↓	–	↓	↓	–	↓
OR						
Carole	Decrease	Unchanged	Decrease	Decrease	Unchanged	Decrease
Joe	Decrease	Unchanged	Decrease	Decrease	Unchanged	Decrease