GH VRU Model Solutions
Fall 2024

1. Learning Objectives:

1. The candidate will understand and apply valuation principles for insurance contracts.

Learning Outcomes:

(1c) Calculate appropriate claim reserves given data.

(1d) Reflect environmental factors in reserve calculations (trend, seasonality, claims processing changes, etc.).

(1e) Evaluate data resources and appropriateness for calculating reserves.

(1g) Apply applicable standards of practice related to reserving.

Sources:

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

- Ch. 39: Claim Reserves for Short-Term Benefits

Individual Health Insurance, Bluhm, William and Leida, Hans, 2nd Edition, 2015

- Ch. 6: Reserves and Liabilities

GHVR-103-16: Health Reserves

ASOP 5: Incurred Health and Disability Claims (excluding Appendices)

ASOP 23: Data Quality (excluding Appendices)

ASOP 41: Actuarial Communications (excluding Appendices)

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).

1. Continued

Solution:

(a) Define the following terms:

(i) Valuation date

(ii) Incurral date

(iii) Reporting date

(iv) Reporting lag

(v) Payment lag

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.

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

(b) Calculate the incurred but not reported (IBNR) claims on the emerging small group block as of June 20X2. Show your work.

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.
See Excel file for solution.

(c) Assess whether the methodology prescribed is appropriate in this situation. Justify your response.

1. Continued

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.

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.

(d) 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.

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.

1. Continued

(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.

(e) 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."

1. Continued

(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."

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.

(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.

2. Learning Objectives:

2. The candidate will understand how to prepare and be able to interpret insurance company financial statements in accordance with U.S. statutory principles and GAAP.

Learning Outcomes:

(2b) Interpret the results of both statutory and GAAP statements from the viewpoint of various stakeholders, including regulators, senior management, investors.

(2c) Project financial outcomes and recommend a strategy.

Sources:

Group Insurance, Chapter 43

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) 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.

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.

See Excel file for model solution

(b) Calculate the change in return on equity if this plan is implemented. Show your work.

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.

See Excel file for model solution.

2. Continued

(c) Calculate the change in:

(i) Return on assets

(ii) Return on equity

Show your work.

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.

See Excel file for model solution.

(d) Describe the adjustments you will need to make to perform an accurate financial comparison of ABC to:

(i) Competitor X

(ii) Competitor Y

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.

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.

2. Continued

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).

3. Learning Objectives:

2. The candidate will understand how to prepare and be able to interpret insurance company financial statements in accordance with U.S. statutory principles and GAAP.

Learning Outcomes:

(2b) Interpret the results of both statutory and GAAP statements from the viewpoint of various stakeholders, including regulators, senior management, investors.

(2c) Project financial outcomes and recommend a strategy.

Sources:

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

- Ch. 43: Analysis of Financial and Operational Performance

GHVR-109-19: Health Insurance Accounting Basics for Actuaries (excluding Ch. 1 & section 2.2)

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Explain how each party uses different types of XYZ's financial statements by completing the table below.

Commentary on Question:

Most candidates answered this question correctly.

3. Continued

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.

(b) 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.

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.

See Excel file for model solution.

3. Continued

(c) Describe the primary driver(s) of the change, from CY 20X1 to CY 20X2, in each of the metrics calculated in part (b).

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.

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.

(d) Calculate the impact of each expansion initiative on XYZ's Net Profit Margin and Return on Assets in 20X4. Show your work.

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.

See Excel file for solution.

(e) Explain why XYZ should seek to maximize earnings growth, using the Gordon Constant Growth Model as a framework.

Commentary on Question:
Most candidates were able to answer this question correctly.

3. Continued

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.

4. Learning Objectives:

1. The candidate will understand and apply valuation principles for insurance contracts.

Learning Outcomes:

(1f) Describe, calculate and evaluate non-claim reserves and explain when each is required.

(1g) Apply applicable standards of practice related to reserving.

Sources:

AAA Premium Deficiency Reserves Discussion Paper

GHVR-103-16: Health Reserves

ASOP 42

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.

Solution:

(a) Describe the three fundamental principles when establishing a premium deficiency reserve.

Commentary on Question:

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

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

4. Continued

(b) Explain the difference between a contract reserve and a premium deficiency reserve.

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.

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.

(c) 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.

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.

(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.

4. Continued

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.

(d) 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.

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.

Please see Excel workbook.

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

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.

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.

4. Continued

(f) Compare and contrast premium deficiency reserves and reserves for insufficient administrative fees for self-insured contracts.

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.

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.

5. Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on companies and plan sponsors in the US.

Learning Outcomes:

(3a) Describe the regulatory and policy making process in the US.

(3b) Describe the major applicable laws and regulations and evaluate their impact.

Sources:

Pharmaceutical Patent Regulation in the United States, The Actuary, Feb 2021

Potential Abuses Within U.S. Pharmaceutical Patent Regulation, The Actuary, Feb 2021

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.

Solution:

(a) Describe the main elements required for a successful patent grant.

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.

- 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

(b) Compare and contrast patent exclusivity and regulatory exclusivity

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.

5. Continued

	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

(c) Calculate Brand X's estimated revenue for Panacea over its exclusivity window. Show your work.

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.

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

(d) Calculate Brand X's estimated revenue from the end of exclusivity through 2060. Show your work.

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)

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

(e) Calculate the total revenue for Panacea over its exclusivity window if the secondary patent is approved. Show your work.

5. Continued

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.

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

(f) Identify and describe potential and existing legislative efforts that could reduce Brand X's estimated revenue.

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.

- 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.

6. Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on companies and plan sponsors in the US.

Learning Outcomes:

(3c) Interpret a capital needs assessment and calculate RBC.

Sources:

Chapter 41, Group Insurance

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a)

(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.

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.

(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

(b) Calculate the change in the ACL capital requirement. Show you work.

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.

See Excel for model solution.

7. Learning Objectives:

2. The candidate will understand how to prepare and be able to interpret insurance company financial statements in accordance with U.S. statutory principles and GAAP.

Learning Outcomes:

(2a) Prepare financial statement entries in accordance with generally accepted accounting principles.

(2b) Interpret the results of both statutory and GAAP statements from the viewpoint of various stakeholders, including regulators, senior management, investors.

(2d) Apply applicable standards of practice.

Sources:

Actuarial Memorandum Practice Note, AAA, Oct 2020

GHVR-818-18: Revised Actuarial Statement of Opinion Instructions for the NAIC Health Annual Statement

Commentary on Question:

Candidates generally did well on parts a and b. For parts c, d, and e, many candidates did not provide the correct information in the relevant part. For example, they provided information on methodology in the data question, or vice versa.

Solution:

(a)

(i) List the intended audiences of the Actuarial Memorandum.

(ii) Describe how each audience uses the Actuarial Memorandum.

Commentary on Question:

Most candidates did well on this part. Note that the memorandum is not public information and not available to the public.

Regulators or Auditors – monitoring of financial solvency of a company, including to gain an understanding of how key risks and significant areas of judgment were reflected in recorded Annual Statement amounts.

Company Management or Board of Directors – focus on significant items that impact the reported financials and have implications regarding the future profitability and solvency of the company.

7. Continued

(b) Compare and contrast the narrative and technical components of the Actuarial Memorandum.

Commentary on Question:
Some candidates confused the Actuarial Memorandum with the rate filing. Many candidates only provided contrasting items without comparison items, or too simplistic a comparison to demonstrate understanding (e.g., both are part of the memorandum). Other reasonable responses beyond what is listed below also received credit.

Contrast:

- Narrative should provide sufficient detail to explain to management or regulators the recommendations or conclusions. Technical should provide sufficient detail to allow another actuary to evaluate the work.
- Narrative audience is primarily non-technical. Technical audience is primarily other actuaries.

Compare:

- Both must provide sufficient detail to support the actuary's conclusions with respect to items within scope.
- Both should address all items in scope, including those with an amount of zero.

(c) List the aspects of the data that should be included in this section.

Commentary on Question:
Many candidates incorrectly provided aspects related to assumptions, methodology, or margin here instead of data. Other relevant items not listed below may have received credit.

- Source of data
- Definition of incurred dates
- Extent of reliance on others, including documentation of review for reasonableness
- Any concerns/limitation with data, in accordance with ASOP 23

(d) State the questions you should ask concerning methodology in this section.

Commentary on Question:
Many candidates incorrectly provided questions on data or margin here instead. The question on completion factor development and changes from prior year were the ones most often identified by candidates. Other relevant questions not listed below may have received credit.

7. Continued

- How were the completion factors developed?
- How were the estimated incurred claims determined for incurral months where completion factors were not used?
- How were estimated incurred claims adjusted for seasonality?
- Were there any changes in methodology from the prior year?
- How was reinsurance reflected?
- Are there counterparty risks that were or should be reflected in the calculations?
- Were there any adjustments for operational challenges (large inventory increases or decreases), large claims, etc.?
- Were there any special considerations (new line[s] of business) that were reflected in the calculation?

(e) Develop a brief narrative concerning the provision for adverse deviation for this section.

Commentary on Question:
This part required a higher level of knowledge utilization, asking candidates to draft text that could be used in a memorandum. Many candidates stated a margin amount or discussed aspects of setting margin. To receive full credit, the candidate had to provide a narrative that addressed all relevant questions in the text. One possible example narrative is provided below but others received consideration.

An explicit margin of 10% was added to the best estimate reserves for all lines of business. This percentage was determined based on hindsight analysis over the past 10 years. This is the same percentage used in the prior year. Other internal and external factors were reviewed and considered but ultimately did not require any additional margin to be held. While the actual margin level was determined by the Company, I believe that the level is reasonable.

(f) List other items that should be included in the Actuarial Memorandum.

Commentary on Question:
Some candidates incorrectly identified items addressed in previous parts of the question. Other reasonable responses also received consideration.

7. Continued

- Statement of Opinion
- Identification of Appointed Actuary
- Company Overview
- Accrued medical incentive pool and bonus payments
- Unpaid claims adjustment expenses
- Aggregate health policy reserves
- Specified actuarial items presented as assets in the Annual Statement
- Hindsight testing or follow-up studies

8. Learning Objectives:

3. The candidate will understand how to evaluate the impact of regulation and taxation on companies and plan sponsors in the US.

Learning Outcomes:

(3b) Describe the major applicable laws and regulations and evaluate their impact.

Sources:

GHVR-821-18: Employer Guide for Compliance with the Mental Health Parity and Addiction Equity Act

Commentary on Question:

This question was intended to test the candidates understanding and ability to apply the basic principles of the Mental Health Parity and Addiction Equity Act. Generally, candidates were more successful with the first 3 sections of the question which called for the candidate to explain the Act. If candidates struggled, it was generally with the application of the Act in parts d and e.

Solution:

(a) List the six benefit classifications under the Final Rules of the Mental Health Parity and Addiction Equity Act (MHPAEA) related to medical/surgical and mental health/substance use disorder (MH/SUD) benefits.

Commentary on Question:

Almost all candidates were able to obtain full credit on part a.

- Inpatient, In-Network
- Inpatient, Out-of-Network
- Outpatient, In-Network
- Outpatient, Out-of-Network
- Emergency Care
- Pharmacy

(b) Describe the permissible benefit subclassifications under the MHPAEA.

Commentary on Question:

Many candidates were able to identify the subclassifications however did not obtain full credit because they did not describe the subclassifications. Candidates did receive partial credit for identifying the subclassifications.

8. Continued

- **Multi-tiered Prescription Drug Benefit:** Plan may apply different levels of financial requirements to different tiers of prescription drug benefits based on reasonable factors, including cost, efficacy, generic versus brand name, and mail order versus retail pharmacy (but cannot take into consideration whether the drug is generally prescribed with respect to medical/surgical benefits or MH/SUD benefits).
- **Multiple network tiers –** plan may have two or more network tiers of providers within the in-network classifications, such as a preferred provider tier and a participating provider tier (but without regard to whether the provider is an MH/SUD provider or a medical/surgical provider).
- **Office visits, separate from other outpatient services** – plan may divide its benefits furnished on an outpatient basis into two sub-classifications: office visits and all other outpatient items and services, but not any other sub-classifications for purposes of determining parity.

(c) Explain financial requirements, quantitative treatment limits, and nonquantitative treatment limits under the MHPAEA.

Commentary on Question:
Candidates were more successful in explaining the financial requirements than they were the QTLs and NQTLs. For those candidates who were less successful, they generally referred to but did not explain QTLs/NTQLs.

- **Financial requirements** are aspects of the plan design that outline cost sharing between the plan and the enrollee (copays, coinsurance, etc.)
- **Quantitative Treatment Limits (QTLs)** include treatment limitations that are expressed numerically (calendar-year or lifetime limits on services)
- **Nonquantitative Treatment Limits (NQTLs)** are treatment limitations that are not necessarily numerically expressed (prior authorization requirements).

(d) Explain which benefit provision(s) do or do not violate the MHPAEA. Justify your response.

8. Continued

Commentary on Question:
There was a typo in the published version of this question. The 'Psychiatric office visits per year' were given two different maximums (30 days and 10 days). Candidates dealt with this in a variety of ways, all of which were considered for credit given they provided sufficient explanation as to their assumptions and thinking. The most common mistake was on the application of the 'substantially all' and 'predominant' tests. Often, candidates included the wrong costs in the calculations which led them to draw the wrong conclusions. The candidate needed to provide context leading to a pass or fail of the test results.

- Inpatient MH/SUD In-Network – violation, cannot have separate financial requirement (deductible) that applies only to MH/SUD
- Outpatient MH/SUD In-Network – no violation for financial requirements, since deductible is integrated with medical/surgical
- Office visit In-Network – violation, cannot have QTL (visit limit) on psychiatric visits
- Emergency Care – violation, cannot exclude Out-of-Network emergency coverage of MH/SUD, because the plan provides MH/SUD benefits in other classifications.
- Office visit – this requires a "substantially all" and a "predominant" test.
    - First, confirm that substantially all medical/surgical OV benefits are subject to a copay. Total medical/surgical OV benefits are projected to be $1 million.
    - Only preferred PCP visits have no copay, so 75% of OV benefits are subject to copay ($300k + $450k / $1MM). **This is greater than the 2/3 requirement, so substantially all benefits are subject to copay.**
    - Second, determine the predominant level of copay. **60% of benefits are subject to $40 copay ($450k / $750k) and 40% are subject to $20 copay. $40 copay is the predominant level**.
    - Thus the plan cannot impose a copay for MH/SUD that is greater than the $40 level. Since the MH/SUD is set at $40, this does not violate the MHPAEA rules.

(e) Recommend plan design changes needed to comply with the MHPAEA.

Commentary on Question:
Generally, candidates who performed well on part d, also performed well on part e. One common mistake was candidates expressing the deductibles for Inpatient MH/SUD In-Network should be the same as Medical/Surgical. However, candidates needed to contemplate the integration as well as the amount of the deductible.

8. **Continued**

- Inpatient MH/SUD In-Network – combine deductible with medical/surgical (like with Outpatient)
- Office visit MH/SUD In-Network – remove 30 day maximum on psychiatric visits
- Emergency Care – include Out-of-Network emergency coverage of MH/SUD at same level as medical/surgical