

GH DP Model Solutions

Spring 2022

1. Learning Objectives:

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

Learning Outcomes:

- (2e) Identify critical metrics to evaluate actual vs. expected results.
- (2f) Describe the product development process including risks and opportunities to be considered during the process.

Sources:

Group Insurance – Chapter 3

Mechanics and Basics of Long-Term Care Rate Increases, Long-Term Care News, August 2014

Commentary on Question:

Commentary listed underneath each question component.

Solution:

- (a) List and describe the steps in the product development cycle for a long term care (LTC) product.

Commentary on Question:

Candidates generally did well on part (a) and received full credit for providing the list below with descriptions.

- Innovate – Either develop a new product or evolve an existing product. This includes understanding the company’s strategic perspective, idea generation, idea screening, and market assessments.
- Design – Determine the product structure, variables in plan design, contribution requirements, and regulatory compliance.
- Build – Project enrollment, price the product, perform financial assessments, implement necessary infrastructure, and receive approval from senior management.
- Sell – Before selling in all markets, many companies will offer in test markets to test the infrastructure, incorporate customer feedback, refine pricing assumptions, and improve the product to ensure it will be successful.

1. Continued

- Assess – As soon as results are available, a company can begin assessing the results. After preliminary enrollment, customer detail assumptions can be reviewed. After experience comes in, actual-to-expected results can be reviewed.
- Revise – May include changes to product features, plan design or pricing. Changing external forces and regulatory changes will require regular revisions to the product.

(b) Explain how the following contribute to a LTC rate increase:

- (i) Age-rating structure
- (ii) Renewal provisions
- (iii) Low loss ratios in early durations
- (iv) Assumption updates between original pricing and current experience

Commentary on Question:

Most candidates received partial credit on part (b) as some candidates provided descriptions of the items rather than explanations of how each contributes to a rate increase. Credit was given for reasonable answers not included below.

- (i) LTC is typically issue-age rated. This means that loss ratios tend to start low and rise dramatically. This pre-funding creates a disconnect between the timing of claims and premium, which means that there is often very little premium left (due to lapses) when problems are uncovered. To address worsening claims, the little amount of premium remaining must be increased substantially.
- (ii) LTC is required to be guaranteed renewable. This means that if experience worsens, the carrier is required to carry the risk moving forward. In doing so, carriers will seek out rate increases to address the rising costs.
- (iii) While evaluating the need for a rate increase based on historical loss ratios may be appropriate for medical insurance, this method does not capture the pre-funding component of LTC premiums. Contract reserves are established as a regulatory requirement to capture the portion of premiums designated to fund future claims. Because the contract reserves represent a liability, by capturing the change in contract reserves in the numerator of the loss ratio calculation, the historical loss ratios increase significantly.

1. Continued

- (iv) LTC is sensitive to the following assumptions:
 - a. Lapse – LTC is very sensitive to lapse rates, which have proved substantially worse compared to when most LTC was originally priced. It has become evident that policyholders understand the value of LTC insurance and as a result are lapsing at a much lower rate than originally anticipated.
 - b. Interest/investment earnings – Investment earnings have been low, particularly since the Great Recession.
 - c. Morbidity – Morbidity assumptions have generally worsened, particularly at the older ages. Over the past decade, we have seen the morbidity curve steepen, with the claim costs at younger ages decreasing and those at older ages increasing.
- (c)
 - (i) Propose two product design changes assuming product design regulations are loosened.
 - (ii) Explain how the changes will support the regulator’s objectives.

Commentary on Question:

Candidates generally did well on part (c). Credit was given for reasonable answers not included below.

- (i) I propose the following changes:
 - a. Use attained-age rating.
 - b. Incorporate provisions that vary the inflation of benefits with investment returns, similar to a life policy with variable returns.
- (ii) The changes above will support the regulator’s objectives in the following ways:
 - a. Using attained-age rating causes premiums to increase alongside claims, meaning that the leveraging of claims over premium would be reduced. In this way, a 10% increase in claims could be fully mitigated with about a 10% increase in premiums.
 - b. By varying inflation in benefits with investment returns, the premiums will be less sensitive to variability in investment performance – which should reduce the need for unanticipated rate increases.

2. Learning Objectives:

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

3. The candidate will understand how to evaluate and recommend an employee benefit strategy.

Learning Outcomes:

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

- (3a) Describe structure of employee benefit plans and products offered and the rationale for offering these structures.

- (3c) Recommend an employee benefit strategy in light of an employer's objectives

Sources:

Consumers to the Rescue? A Primer on HDHPs and HSAs, Health Watch, Feb 2019

Commentary on Question:

Commentary is listed below each question component.

Solution:

- (a) List characteristics of a high deductible health plan (HDHP).

Commentary on Question:

Most candidates struggled with this part and only received partial credit. Many candidates focused on a particular feature of HDHP (such as being able to pair with an HSA account) rather than listing additional characteristics of HDHPs.

- HDHPs provide limited first dollar coverage; individuals usually pay full allowed cost, up to the plan deductible
- Many services are subject to coinsurance after the deductible is met
- Plan pays 100 percent of the allowed cost after the out-of-pocket maximum
- HDHP cannot cover costs for non-preventive prescription drugs until deductible is met
- HDHPs with self-only deductibles below the family minimum deductible are required to administer an aggregate deductible

2. Continued

- If self-only deductible is greater than the family minimum deductible, then each member of family is subject to lesser of their own deductible and the remainder of family deductible
- (b) Describe examples of consumer behaviors demonstrated by individuals enrolled in HDHPs.

Commentary on Question:

Candidates needed to describe each behavior to earn full credit. Most candidates received partial credit.

- Saving for health care services - Unused funds are kept by the HSA enrollee, which encourages regular deposits into the account
 - Selecting a more appropriate treatment venue - Enrollees are exposed to significant first dollar cost sharing, so the member will search for lower-cost providers and treatments.
 - Avoiding unnecessary care - Just as with finding lower cost treatment, members may also forgo treatment for more minor ailments and procedures.
 - Selecting generic prescription drugs over brand names – Generic drugs are typically less expensive than brand name drugs.
 - Comparing quality ratings of providers - Use of online tools to find the best treatment possible for the given cost of the procedure
 - Negotiating prices with providers, especially for costs before deductible - Since the member owns the HSA and is liable for higher out-of-pocket costs, the member has incentive to negotiate for lower price services.
 - Improving their own health and taking other illness avoidance measures - Since better health leads to lower out-of-pocket costs, the enrollee is incentivized to be healthier to also save funds that are in their control.
- (c) Recommend actions to make the HDHP more attractive to employees.

Commentary on Question:

Candidates did well on this part, with most candidates receiving partial to full credit.

- Lower the deductible amounts for the HDHP plan.
- Encourage frequent communication between patients and providers regarding their own health.
- Increase or setup employer contributions for members in an HDHP.
- Provide members a list of the highest quality and lowest cost providers by service.

2. Continued

(d) Calculate the family's total out-of-pocket cost for each of the following Moonraker plan types:

(i) PPO

(ii) HDHP

Show your work.

Commentary on Question:

Candidates did relatively well on this part, but there were some common mistakes. Some candidates applied deductibles to the claim totals in aggregate instead of at a claim-by-claim level. Many candidates did not clearly show the accumulation process. Another common mistake was applying coinsurance before deductible. Credit was awarded if candidates assumed copays were not subject to the deductible AND did not contribute to deductible accumulator.

Member	Month of Service	Service Category	Member Cost	PPO		Note
				Aggregate Paid By Member After Claim	Aggregate Paid By Family After Claim	
Employee	January	Office Visit Preventive	\$300	\$300	\$300	Subject to Deductible
Employee	January	Care	\$0	\$300	\$300	Preventive
Spouse	January	Chiropractic	\$150	\$150	\$450	Subject to Deductible
Spouse	February	Office Visit	\$200	\$350	\$650	Subject to Deductible
Spouse	March	Chiropractic Preventive	\$150	\$500	\$800	Spouse hits deductible
Spouse	April	Care	\$0	\$500	\$800	Preventive
Spouse	May	Chiropractic Emergency	\$15	\$515	\$815	Coinsurance
Spouse	June	Care	\$370	\$885	\$1,185	Copay plus Coinsurance
Spouse	July	Chiropractic	\$15	\$900	\$1,200	Coinsurance
Spouse	September	Chiropractic Preventive	\$15	\$915	\$1,215	Coinsurance
Employee	October	Dental	\$0	\$300	\$1,215	Does not count towards OOP
Spouse	November	Chiropractic	\$15	\$930	\$1,230	Coinsurance
TOTAL			\$1,230			

2. Continued

HDHP						
Member	Month of Service	Service Category	Member Cost	Aggregate Paid By Member After Claim	Aggregate Paid By Family After Claim	
Employee	January	Office Visit Preventive	\$300	\$300	\$300	Subject to Deductible
Employee	January	Care	\$0	\$300	\$300	Preventive
Spouse	January	Chiropractic	\$150	\$150	\$450	Subject to Deductible
Spouse	February	Office Visit	\$200	\$350	\$650	Subject to Deductible
Spouse	March	Chiropractic Preventive	\$150	\$500	\$800	Subject to Deductible
Spouse	April	Care	\$0	\$500	\$800	Preventive
Spouse	May	Chiropractic Emergency	\$150	\$650	\$950	Subject to Deductible
Spouse	June	Care	\$2,350	\$3,000	\$3,300	Spouse hits deductible
Spouse	July	Chiropractic	\$0	\$3,000	\$3,300	100% covered
Spouse	September	Chiropractic Preventive	\$0	\$3,000	\$3,300	100% covered
Employee	October	Dental	\$0	\$300	\$3,300	Does not count towards OOP
Spouse	November	Chiropractic	\$0	\$3,000	\$3,300	100% covered
TOTAL			\$3,300			

3. Learning Objectives:

1. The candidate will understand how to describe plan provisions typically offered under:
 - Group and Individual medical, dental and pharmacy plans.
 - Group and Individual long-term disability plans.
 - Group and Individual short-term disability plans.
 - Group and Individual long-term care insurance.
 - Group life insurance plans.
 - Supplementary plans, like Medicare Supplement.
2. The candidate will understand how to calculate and recommend a manual rate for each of the coverages described in Learning Objective 1.

Learning Outcomes:

- (1b) Describe each of the coverages listed above.
- (2a) Identify and evaluate sources of data needed for pricing, including the quality, appropriateness and limitations of each data source.
- (2b) Develop a medical cost trend experience analysis.
- (2c) Calculate and recommend assumptions.
- (2d) Calculate and recommend a manual rate.

Sources:

GHDP-128-21: Pricing Medicare Supplement Benefits, Section IV

Individual Health Insurance, Chapters 2, 5

Group Insurance, Chapter 35

Commentary on Question:

This question assessed the candidate's knowledge of pricing techniques, including normalization of trends, application of expense ratios, and key elements of ACA and Medicare Supplement products.

Solution:

- (a) Describe Medicare Supplement pricing methods.

Commentary on Question:

This question tested candidates' knowledge of Medicare supplement pricing methods. Most candidates were able to describe most of these items in sufficient detail to earn credit. Some candidates failed to differentiate between community rating and modified community rating.

3. Continued

- **Issue Age:** Priced for a target loss ratio or target rate of return over the lifetime of the policy; the rate an individual pays will be based upon his/her age at first issue
- **Attained Age:** Priced to be self-sustaining at each age; rate will be based on the individual's current age, regardless of how long coverage has been in force
- **Community Rated:** Regardless of characteristics of the member, everyone gets charged the same premium; rate increases periodically, usually annually
- **Modified Community Rated:** Employs a limited number of variations that may be based on age, duration, or other parameters

(b) Compare and contrast plan design restrictions for:

- (i) Affordable Care Act (ACA) individual major medical
- (ii) Medicare Supplement

Commentary on Question:

This question required candidates to synthesize commonalities and differences in regulations on plan design for ACA and Medicare supplement products. Most candidates were able to describe general similarities and differences between products, however these were frequently focused on differences in premium rating approaches, eligibility, rate review, or underwriting and not plan design restrictions.

Compare:

- Laws and regulations require both products to become more standardized to make it easier for consumers to compare insurance plans and prices.
- Both are allowed to continue blocks of business that were in force prior to laws being passed, which have benefits that are not standardized today.

Contrast:

- ACA plans must include 10 essential health benefits. Each state has its own benchmark plan listing exact services that must be covered. ACA plans must meet certain average actuarial values.
- Medicare supplemental plans are entirely standardized across 10 plans at the federal level. Medicare pays as primary.

3. Continued

- (c) Calculate the annualized claims trend for the Medicare Supplement experience from Year 2 to Year 4. Show your work.

Commentary on Question:

Candidates generally did well with the core trend calculation methodology. Candidates struggled most with adjustments to normalize for changes in gender and area mix, either neglecting to apply an adjustment or applying the adjustment incorrectly. Some candidates failed to normalize for changes in membership, but otherwise calculated trends appropriately. Partial credit was given in either case.

Year	Claims per policy	Area Factor	Gender Factor	Claim Per policy adjusted for Area /Gender	Annual Trend	Two Year trend
Year 2	945	1.0041	1.0050	936.63		
Year 3	1,005	1.0042	1.0039	997.01	6.4%	
Year 4	1,062	1.0050	1.0038	1,052.29	5.5%	5.995%

Formulas to use:

- Claims per policy = Incurred Claims / Policy Count
- Area Factor = $\text{SumProduct}(\text{Area Factor} \times \text{Members}) / \text{Sum}(\text{Members})$, calculated for each year
- Gender Factor = $\text{SumProduct}(\text{Gender Factor} \times \text{Members}) / \text{Sum}(\text{Members})$, calculated for each year
- Adjusted Claims per policy = $\text{Claims per policy} / [\text{Area Factor} * \text{Gender Factor}]$
- Annual Trend = $(\text{Year 3 Adjusted Claims} / \text{Year 2 Adjusted Claims}) - 1$
- Annualized Trend from Year 2 to Year 4 = $\text{Sqrt}(\text{Year 4 Adjusted Claims} / \text{Year 2 Adjusted Claims}) - 1$

- (d) Describe considerations other than historical experience when developing prospective pricing trends.

Commentary on Question:

Most candidates did well and were generally able to describe considerations for prospective pricing trends. Candidates who only listed the items but did not describe them received partial credit. The list below is not exhaustive; credit was given for items not on the list when the description was relevant to prospective pricing trends.

3. Continued

- **Economic conditions:** when economy is stable, utilization changes can be predicted using leading indicators, such as the change in personal disposable income. In more turbulent economic periods, factors such as fear of layoffs may disrupt historical patterns
- **Workdays:** utilization of services varies by weekday and placement of holidays.
- **One-time changes:** For example, if there was an abnormally high flu season
- **Legislative changes:** such as mandated benefits
- **New Technologies:** new type of surgery or expensive new drugs often have material impact on cost of health care and health care trends.
- **Population changes** expected in future: new service areas, etc.
- **Structural changes:** anticipated changes in provider network

(e) Calculate the Year 6 rate increase. State your assumptions. Show your work.

Commentary on Question:

Most candidates did well on this section and demonstrated an understanding of how to calculate the rate increase. Full credit was given when assumptions were stated if the assumptions were reasonable. Several candidates calculated rate increases as if year 5 premiums were being calculated, while others used normalized claims instead of actual claims without a justification for the change from year 4 enrollment. Some candidates applied the target expense ratio incorrectly. Partial credit was given in these cases.

Year 4 Premium Per Policy	\$	1,425	= Year 4 premium / Policy count
Year 4 Claims Per Policy	\$	1,062	= Year 4 claims / Policy count
Trend - 6% for 2 years		1.12349	= (1.06) ²
Year 6 Projected Claims	\$	1,193	= 1062 x 1.12349
Target LR (1 - expense and profit)		75%	
Required Premium	\$	1,590	= 1193/0.75
Required Rate Increase		11.6%	= 1590 / 1425 - 1

Trend is assumed to be 6% per year based on the result from part c.

4. Learning Objectives:

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

Learning Outcomes:

- (5a) Understand the risks and opportunities associated with a given coverage, eligibility requirement or funding mechanism.
- (5d) Describe and apply approaches to claim credibility and pooling.
- (5e) Recommend retention (administrative expenses, claims expenses, profit margin, etc.) when underwriting a group.

Sources:

Group Insurance Chapter 26

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

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a) Describe:
 - (i) Retention accounting
 - (ii) Deficit recovery arrangement
 - (iii) Unilateral arrangement
 - (iv) Bilateral arrangement

Commentary on Question:

Candidates did generally well. Some confused the term retention accounting with general non-benefit expenses.

- (i) A retention accounting group is rated on its own experience and also shares in its experience. Even if other variations exist on the insurance market, the most common financial arrangements are: (1) Deficit Recovery Arrangement, (2) Unilateral Arrangement and (3) Bilateral Arrangement.
- (ii) Under a Deficit Recovery Arrangement, if, at the end of the policy year, costs exceed premiums, the deficit is recovered through a premium increase over a given number of years. The insurer risks being left with deficit if the policy is terminated.

4. Continued

- (iii) Under a Unilateral Arrangement, the insurer assumes all the shortfall in premiums if at the end of the policy year costs exceed premiums. In other words, the client gets the surpluses, but deficits are assumed by the insurer.
- (iv) Under a Bilateral Arrangement, the plan sponsor assumes the risk of a premium shortfall if at the end of the policy year costs exceed premiums. In that case, the plan sponsor will have to reimburse the insurer the full amount at the end of the policy year.
- (b) Calculate the accumulated surplus or deficit as of June 30, 2018 from the client perspective. Show your work.

Commentary on Question:

Full credit was given to candidates who calculated the correct answer, regardless of whether the answer was presented as 1000's or PMPMs. In the calculation of pooled experienced premiums, some candidates added pooled premiums rather than subtracting. Some candidates did not apply the change in IBNR correctly.

	July 1, 2015 - June 30, 2016	July 1, 2016 - June 30, 2017	July 1, 2017 - June 30, 2018	Total
Paid premiums [Paid Premium PMPM * Avg. Members * 12]	\$12,979,200	\$8,856,000	\$16,040,640	\$37,875,840
less pooled premiums	<u>(\$875,000)</u>	<u>(\$910,000)</u>	<u>(\$1,080,000)</u>	<u>(\$2,865,000)</u>
= experienced premiums	\$12,104,200	\$7,946,000	\$14,960,640	\$35,010,840
less administrative expenses [4% * Paid premiums]	(\$519,168)	(\$354,240)	(\$641,626)	(\$1,515,034)
less claim adjudication expenses [5% * Paid premiums]	(\$648,960)	(\$442,800)	(\$802,032)	(\$1,893,792)
less premium taxes [3% * Paid premiums]	(\$389,376)	(\$265,680)	(\$481,219)	(\$1,136,275)
less risk and profit [2% * Paid premium]	<u>(\$259,584)</u>	<u>(\$177,120)</u>	<u>(\$320,813)</u>	<u>(\$757,517)</u>
= Net Premium	\$10,287,112	\$6,706,160	\$12,714,950	\$29,708,222
paid claims	\$10,110,000	\$10,505,000	\$14,011,000	\$34,626,000
less pooled claims	(\$370,000)	(\$460,000)	(\$680,000)	(\$1,510,000)
plus Delta IBNR	<u>\$112,000</u>	<u>\$429,000</u>	<u>\$691,000</u>	<u>\$1,232,000</u>
= Incurred Claims	<u>\$9,852,000</u>	<u>\$10,474,000</u>	<u>\$14,022,000</u>	<u>\$34,348,000</u>
surplus / deficit	\$435,112	(\$3,767,840)	(\$1,307,050)	(\$4,639,778)

4. Continued

- (c) Calculate the accumulated surplus or deficit as of June 30, 2018 from the insurer perspective. Show your work.

Commentary on Question:

Importance was placed on recognizing the three components of profit from the insurer perspective.

profit / loss from account experience	(\$4,639,778)
profit / loss from pooled experience [sum of Pooled Premium – sum of Pooled Claims]	\$1,355,000
risk and profit (2%) embedded in paid premiums	\$757,517
= total profit / loss for this account	(\$2,527,261)

- (d) Calculate the total premium rates for the period July 1, 2019 to June 30, 2020. State your assumptions. Show your work.

Commentary on Question:

Candidates generally performed poorly. Partial credit was given for understanding general rating methodology. The study note contained a different method that resulted in the same premium, which received full credit as well.

As given:

Members: 4,400

Pooled Premium July 2019 through June 2020: \$27.50 PMPM

Trended Claims: Incurred Claims x Trend

Assumptions: Deficit is recovered over 24 months

Pooled Premium PMPM is fully-loaded

4. Continued

	Trended Claims	Membership	Claims PMPM	Credibility Weight
July 1 2015 - June 1 2016	$\$9,852 \times 1000 \times 1.05^4 =$ \$11,975,168	4,160	\$239.89	1/14 = 7%
July 1 2016 - June 1 2017	$\$10,474 \times 1000 \times 1.05^3 =$ \$12,124,964	4,100	\$246.44	4/14 = 29%
July 1 2017 - June 1 2018	$\$14,022 \times 1000 \times 1.05^2 =$ \$15,459,255	4,312	\$298.76	9/14 = 64%
Credibility Weighted PMPM	\$279.61			
Required Premium	$\$279.61 / (1 - 4\% - 5\% - 3\% - 2\%) =$ \$325.13			
Pooled Premium (given)	\$27.50			
Deficit Recovery (from b) Charge spread over 24 months	$\$4,639,778 / 4,400 / 24 =$ \$43.94			
Total Premium [325.13 + 27.50 + 43.94]	\$396.56			

5. Learning Objectives:

4. The candidate will understand how to evaluate the effectiveness of different provider reimbursement methods from both a cost and quality point of view.

Learning Outcomes:

- (4b) Evaluate standard contracting methods from a cost-effective & quality perspective.
- (4c) Understand contracts between providers and insurers.
- (4d) Understand accountable care organizations and medical patient home models and their impact on quality, utilization and costs.

Sources:

Value-Based Care Framework, The Actuary, April 2020

The Cost of Value-Based Care, The Actuary, April 2020

GHDP-140-22: The Application of Tiering in Healthcare

Commentary on Question:

The question covered Value Based Care and Tiered Network Health Plans, comparing and contrasting two different approaches to contract with providers in a manner to reward quality and drive savings.

Solution:

- (a) Describe how Value Based Care (VBC) addresses each component of the Triple Aim of Healthcare.

Commentary on Question:

Part (a) evaluated candidates' ability to link the various elements of Value Based Care. To receive full credit, candidates needed to state the three elements of the Triple Aim and describe "how" VBC addresses each rather than just stating VBC addresses each component.

Definition of the Triple Aim of Healthcare:

- 1) Improving the patient experience
- 2) Reducing per-capita medical spend
- 3) Improving the population's health

5. Continued

- VBC improves the patient experience through rewards for quality metrics and tying reimbursement to quality metrics
 - VBC reduces costs by incentivizing providers to reduce costs (aligning incentives) through shared savings and capitation arrangements.
 - VBC improves the population's health by directing members to higher quality providers, and assigning large member pools to providers encouraging patient engagement.
- (b) Compare and contrast VBC and Tiered Network Health Plans (TNHP).

Commentary on Question:

Most candidates did well on part (b). To receive full credit, candidates needed to both compare and contrast. Credit was given for a range of additional responses beyond those provided below.

- Both VBC and TNHP differentiate preferred providers, while addressing costs in health care and rewarding high quality providers.
 - TNHP directly involves the member, whereas VBC contracts are wide ranging in their complexity and often unknown to the patient.
- (c) Recommend a VBC or TNHP in each of the following scenarios. Justify your response.
- (i) Market with limited PCP competition
 - (ii) New market for ABC with unknown costs
 - (iii) Mature market where PCPs are efficient with costs

Commentary on Question:

Part (c) required the candidate to think critically through the implications of each scenario and apply a thorough understanding of VBC and TNHP to the scenario. Credit was given for any recommendation provided with an appropriate justification. Most candidates did well on (i).

5. Continued

- (i) VBC: with limited PCP competition, there may not be enough providers to build out a tiered network.
- (ii) TNHP: in a new market where existing provider baseline costs are unknown it would be difficult to establish benchmarks for shared savings and other VBC arrangements. A TNHP built off negotiated fee schedules using an independent fee schedule is simpler and less risky to ABC.
- (iii) VBC: In a mature market where all PCPs are efficient, there would not be enough of a variance in costs across the PCPs to establish a TNHP. A VBC focusing on driving quality would be the most appropriate.
- (d) Calculate Tier 1 and 2 coinsurance amounts that generate 5% savings through the TNHP. State your assumptions. Show your work.

Commentary on Question:

Part (d) could be solved in two manners: first principles (often with goal seek) or formulaic. Both methods were given full credit for a correct response. Most candidates kept Tier 1 at the current 20% coinsurance. However, full credit was given if the final solution provided for Tier 1 coinsurance less than Tier 2, and the new coinsurance amounts resulted in a 5% savings on the shifted membership.

Formulaic: Assume **Tier 1 remains at 20%**

Formula: Savings = % Claims for non-pref physicians * [change in member liability + shift*(cost diff between providers - change in member liability)]
' 5% = N * Shift * P + N * (1-S) * M = N * (M + Shift * (P - M))

Formula for cost diff between providers: P% = 1 - pref cost/non-pref cost = 1 - (2,500,000/300)/(4,900,000/500) = 15%=14.97%

%N = % claims for non-pref physicians = NonPreferred allowed/Total Allowed = 4.9M/(2.5M+4.9M)=66.2%

Solving for %M = 5.08%

M% = (1 - non-pref benefit/pref benefit)

Coins lower Tier: 1 - (1-Coins Top)*(1-(1/(1-Shift))*((Savings/N%) - Shift*P%))
= 1 - (1 - M) * (1 - 20%) = **24.06%**

5. Continued

First Principles:

	Total Allowed Claims	Members Assigned (Pre-Shift)	Allowed Claims PMPY	Coinsurance	Reimbursed
Tier 1: Preferred Providers	\$2,500,000	300	$\$8,333.33 = \$2.5M/300$	20%	$\$6,666.67 = (1-20%)*\$8,333.33$
Tier 2: Non-Preferred Providers	\$4,900,000	500	$\$9,800.00 = \$4.9/500$	20%	$\$7,840.00 = (1-20%)*\$9,800$
Total	\$7,400,000	800			$\\$7,400.00 = (\\$6,666.67*300+\\$7,840*500)/800$

	Post – Shift Members	Allowed Claims PMPY	Coinsurance	Reimbursed
Tier 1: Preferred Providers	425	\$8,333.33	20.00%	\$6,666.67
Tier 2: Non-Preferred Providers	375	\$9,800.00	24.06% $=1-\$7,442.12/\$9,800$	$\$7,442.12 = (\$7,030*800-425*\$6,666.67)/375$
Total	800			$\\$7,030 = .95*\\$7,400$

6. Learning Objectives:

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

Learning Outcomes:

(2c) Calculate and recommend assumptions.

(2d) Calculate and recommend a manual rate.

Sources:

Group Insurance, Chapter 21: Estimating Medical Claim Costs

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a) Describe the allowable rating factors for small groups under the Affordable Care Act (ACA).

Commentary on Question:

Candidates generally performed well on part (a). Credit was only given for responses including a description of the allowable rating factors. No credit was given for simply listing the allowable rating factors.

- Age: Limitation of 3:1 for adults 21 to 64. Separate rating factors for children. States may use their own age curve.
- Geographic Area: Typically defined by county, 3 digit zip or MSA. Insurers are allowed to vary rates by geographic zones to address: expected claim cost variation; provider payment arrangements; area variation in the impact of managed care, marketing and administrative expense difference; competitive cost relationship. Cannot use morbidity variance to develop factors.
- Benefit Plan: Premium rates for benefit plan may differ only by the amount attributable to plan design and may not vary due to the expected health status for groups selecting particular benefit plans.
- Managed Care and Negotiated Discounts: Network arrangement and anticipated managed care protocols.
- Family Composition: For children under 18, only the first 3 children are charged the per member premium rate. Allowed to charge based on composite premium methodology.
- Tobacco Use: Under ACA small group premiums are allowed to use tobacco rating factor up to 50% (some states may be more restrictive).

6. Continued

- (b) Calculate the:
- (i) Claim cost factors for rating areas 1, 2, and 3 using 2019 experience.
 - (ii) Composite geographic area factors for 2019, 2020, and 2022 projection.

Show your work.

Commentary on Question:

Candidates generally performed well on part (i), but some struggled with the development of the composite factors on part (ii). Full credit responses demonstrated the use of the factors developed from 2019 experience in developing the composite factors for 2019, 2020, and the 2022 projection.

The solution to part (i) involves the following steps:

1. Summarize 2019 member months and allowed claims by area and in total
2. Calculate 2019 allowed claims PMPM by area and in total
3. Develop the area factors by dividing each area's 2019 allowed claims PMPM by the total 2019 allowed claims PMPM

Area	2019 MM	2019 Allowed	PMPM	Factors
1	4,800	2,092,292	435.89	1.038
2	8,000	3,027,042	378.38	0.901
3	3,200	1,602,430	500.76	1.192
Total	16,000	6,721,764	420.11	

The solution to part (ii) involves the following steps:

1. Summarize the 2019, 2020, and 2022 member months by area and in total
2. Calculate the distribution of membership represented in each area for 2019, 2020, and 2022
3. Multiply the distribution of membership in each area for each year by the area factor calculated in part (i) above and sum across all areas for each year

6. Continued

Area	2019 MM	2020 MM	2022 MM	Distribution			Factors from (i)
				2019	2020	2022	
1	4,800	5,000	4,000	30.0%	25.0%	20.0%	1.038
2	8,000	11,000	11,000	50.0%	55.0%	55.0%	0.901
3	3,200	4,000	5,000	20.0%	20.0%	25.0%	1.192
Total	16,000	20,000	20,000	100.0%	100.0%	100.0%	
Composite Area Factors				1.000	0.993	1.001	

(c) Calculate the:

- (i) Claim cost factors for each age and gender combination from the combined States B and C data.
- (ii) Composite age and gender factors for:
 - 2019 claims experience
 - 2020 claims experience
 - Manual experience from States B and C
 - 2022 projection

Show your work.

Commentary on Question:

Candidates generally performed well on part (i), but some struggled with the development of the composite factors on part (ii). Full credit responses demonstrated the use of the factors developed from the manual experience in developing the composite factors for 2019, 2020, manual experience from States B and C, and the 2022 projection.

The solution to part (i) involves the following steps:

1. Summarize manual experience member months and allowed claims by gender/age band combination and in total
2. Calculate manual experience allowed claims PMPM by gender/age band combination and in total
3. Develop the age and gender factors by dividing each gender/age band combination's manual experience allowed claims PMPM by the total manual experience allowed claims PMPM

6. Continued

Gender	Age	2019 MM	2019 Allowed	PMPM	Factors
Child	0-9	17,600	6,088,319	345.93	0.793
Child	10-19	22,000	3,402,296	154.65	0.355
Male	20-39	55,000	10,967,927	199.42	0.457
Male	40+	35,200	28,650,911	813.95	1.867
Female	20-39	55,000	24,621,876	447.67	1.027
Female	40+	35,200	22,204,456	630.81	1.447
Total		220,000	95,935,785	436.07	

The solution to part (ii) involves the following steps:

1. Summarize the 2019, 2020, manual experience, and 2022 member months by gender/age band combination and in total
2. Calculate the distribution of membership represented in each gender/age band combination for 2019, 2020, manual experience, and 2022
3. Multiply the distribution of membership in each gender/age band combination for each scenario by the age and gender factor calculated in part (i) above and sum across all gender/age band combinations for each scenario

Gender	Age	2019 MM	2020 MM	Manual	2022 MM	Distribution				Factors from (i)
						2019	2020	Manual	2022	
Child	0-9	1,600	1,600	17,600	1,600	10.0%	8.0%	8.0%	8.0%	0.793
Child	10-19	1,600	2,400	22,000	2,000	10.0%	12.0%	10.0%	10.0%	0.355
Male	20-39	3,200	4,000	55,000	4,000	20.0%	20.0%	25.0%	20.0%	0.457
Male	40+	3,200	3,200	35,200	3,600	20.0%	16.0%	16.0%	18.0%	1.867
Female	20-39	3,200	4,400	55,000	4,000	20.0%	22.0%	25.0%	20.0%	1.027
Female	40+	3,200	4,400	35,200	4,800	20.0%	22.0%	16.0%	24.0%	1.447
Total		16,000	20,000	220,000	20,000	100.0%	100.0%	100.0%	100.0%	
Composite Age/Gender Factors						1.074	1.040	1.000	1.079	

- (d) Calculate the credibility blended allowed PMPM claim cost for 2022 using the 2019 and 2020 experience and manual rates. Show your work.

Commentary on Question:

Candidates tended to perform less well on part (d) with very few earning full credit. Partial credit was awarded to candidates for demonstrating the correct development of adjustment factors and/or the correct application of those adjustment factors in developing the credibility blended allowed PMPM claim cost for 2022.

6. Continued

The solution involves the following steps:

1. Calculating the total allowed claims PMPM for 2019 experience, 2020 experience, and the manual experience
2. Applying trend to each of the scenarios
 - a. 3 years of trend should be applied for 2019 experience and manual experience
 - b. 2 years of trend should be applied for 2020 experience
3. Calculating an area adjustment factor for each scenario as the ratio of the 2022 composite area factor to each scenario's composite area factor
4. Calculating an age and gender adjustment factor for each scenario as the ratio of the 2022 composite age and gender factor to each scenario's composite age and gender factor
5. Calculating an induced utilization adjustment factor for each scenario as the ratio of the 2022 composite induced utilization factor to each scenario's composite induced utilization factor
6. Calculating a provider reimbursement adjustment factor for the manual experience as the ratio of the 2022 provider reimbursement to States B's and C's provider reimbursement (i.e., the manual experience)
7. Multiplying the total allowed claims PMPM for each scenario (step 1) by the adjustment factors (steps 2 through 6) to develop projected adjusted allowed claims PMPM for each scenario
8. Multiplying each scenario's credibility weight by the projected adjusted allowed claims PMPM for each scenario
9. Summing the results from step 8 to arrive at the credibility blended allowed PMPM claim cost for 2022

	2019 Experience	2020 Experience	Manual
Allowed Claims PMPM	420.11	416.05	436.07
Trend	1.158	1.103	1.158
Area Adjustment	1.001	1.008	1.039
Age and Gender Adjustment	1.004	1.037	1.079
Induced Utilization Adjustment	0.993	0.995	0.984
Provider Reimbursement Adjustment	1.000	1.000	0.957
Projected Allowed PMPM Claim Cost	485.67	477.18	533.13
Weighting	20%	20%	60%
Credibility Blended Allowed PMPM Claim Cost for 2022	512.45		

6. Continued

- (e) An actuarial student is reviewing the rate development and is concerned:
- (i) The claim cost factors by age are not the same as the allowable rating factors.
 - (ii) The claim cost factor varies by gender.

Assess each statement. Justify your response.

Commentary on Question:

Candidate performance on part (e) was mixed. Some candidates were able to differentiate claim cost factors used in developing average claim costs and the allowable rating factors used in premium rate development. No credit was given to candidates who repeated their response to part (a).

- (i) We are developing the average claim cost for the entire block of small group business, not the premium rates for a particular small group, and we are allowed to recognize the true age factors. It's expected that the claim cost will vary by age more than the allowable rating factors in practice. When setting the final premium rates charged to a small group, the allowable rating factors will need to be used.
- (ii) Similarly, we are allowed to recognize the true gender factors when developing the average claim cost for the entire block of small group business. When setting the final premium rates for a small group, rating by gender is not permitted.

7. Learning Objectives:

1. The candidate will understand how to describe plan provisions typically offered under:
 - Group and Individual medical, dental and pharmacy plans.
 - Group and Individual long-term disability plans.
 - Group and Individual short-term disability plans.
 - Group and Individual long-term care insurance.
 - Group life insurance plans.
 - Supplementary plans, like Medicare Supplement.
2. The candidate will understand how to calculate and recommend a manual rate for each of the coverages described in Learning Objective 1.

Learning Outcomes:

- (1b) Describe each of the coverages listed above.
- (1c) Evaluate the potential moral hazard and financial and legal risks associated with each coverage.
- (2d) Calculate and recommend a manual rate.

Sources:

Group Insurance, Chapters 6, 21, 22

Individual Health Insurance Chapter 5

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a) Compare and contrast types of dental plans by completing the table below.

Plan Type	Relative Premium	Patient Access	Quality Assurance	Cost Management
Indemnity				
HMO				
PPO				

Commentary on Question:

Candidates generally did well on relative premium and patient access but often weren't able to fully explain quality assurances or approaches to cost management. Answering only with "high/medium/low" did not earn full credit.

7. Continued

Indemnity

- Premium – Most expensive due to lack of discount provider network and utilization/cost controls
- Patient Access – May receive care from any dentist.
- Quality Assurance – Dental indemnity plans allow for patients to receive covered care from any provider, and thus do not offer any significant assurances regarding care quality
- Cost Management - Indemnity programs manage cost through UCR limits, LEAT, clinical logic, and predetermination of dental necessity for certain procedures.

HMO

- Premium – Lowest cost due to utilization management and care coordination
- Patient Access – Generally restrict access to the contracted provider network, allowing out-of-network coverage only for specified situations such as emergencies
- Quality Assurance – Provider credentialing process, which screens and reviews the practices of contracted providers to help assure quality. Most managed care plans recredential providers every three years
- Cost Management - Dental HMO plans control utilization and costs via the primary care dentist gatekeeper and the referral process for specialty dental care.

PPO

- Premium – Middle due to OON dental access
- Patient Access – Allow patients to receive coverage regardless of which dentist provides the care, but in-network discounts and often richer in-network benefits make visiting in-network dentists more appealing.
- Quality Assurance – Provider credentialing process, which screens and reviews the practices of contracted providers to help assure quality. Most managed care plans recredential providers every three years. Quality assurance is generally not available for non-contracted dentists.
- Cost Management - Dental PPOs generally use the same techniques as HMOs, and additionally reap the benefits of the credentialing programs that are set up to contract with cost-effective, quality dentists. Contracted dentists usually provide a discount/negotiated rate.

- (b) Describe financial risks and benefits employers address by offering group dental insurance.

Commentary on Question:

Candidates did well on this part and were able to describe many benefits.

7. Continued

- Employee contributions are often purchased with pre-tax dollars, giving the employee financial advantage over independently purchasing a policy
- Provides a budgeting mechanism by paying steady monthly premiums rather than paying for services when they occur
- Employees have access to a contracted network of dental providers who agree to provide services at a discount. Generally subject to a credentialing process ensuring quality of care
- Better oral health leads to better overall health which can reduce overall medical expenses
- Dental is subject to significant anti-selection and there may be an influx of claims if this is a newly offered benefit.

(c) Calculate:

- (i) The expected per member per month (PMPM) claim costs.
- (ii) The gross monthly premium.

Show your work.

Commentary on Question:

The most common mistakes were incorrectly using utilization per 1,000 or coinsurance when calculating a PMPM claim cost. Monthly per-member premium or monthly group premium were both accepted for full credit.

In-Network Claim Costs: [Utilization/1000 * cost per service * (1 – in network discount) * (in network penetration) * (in network coinsurance) / 12000] = \$14.63

Out-of-Network Claim Costs: [Utilization/1000 * cost per service * (1 - in network penetration) * (Out of network coinsurance) / 12000] = \$7.93

PMPM claim costs = \$14.63 + \$7.93 = **\$22.57** (rounded)

Gross monthly premium = [(PMPM claim costs) * (1+20%) + \$10/12] / (1 – 5% - 2%) = **\$30.01**

(d) Describe methods an insurer can use to lower expected dental claim costs without changing the cost sharing provisions.

Commentary on Question:

Candidates performed well on this part and most received full credit.

7. Continued

- Waiting periods - Carriers use waiting periods to discourage prospects from enrolling with the intention of having significant dental problems treated in the first year, and then dropping coverage. The waiting period is the period between enrollment and eligibility to receive benefits.
- Covered Benefits - There is often a wide range of options available for treating a specific dental disease. Could only cover lower cost options or incentivize preventive care.
- Pre-authorization – Preauthorization requires insureds to submit a treatment plan to the insurer for review and prior authorization before services are delivered, whenever costs are projected to exceed some specified level
- Provider Reimbursement - can renegotiate contracts with dental providers to lower expected costs
- Other options include: frequency limitations, pre-existing conditions, LEAT, exclusions, and annual maximums

8. Learning Objectives:

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

Learning Outcomes:

- (5a) Understand the risks and opportunities associated with a given coverage, eligibility requirement or funding mechanism.
- (5c) Recommend strategies for minimizing or properly pricing for risks.

Sources:

Individual Health Insurance, Chapter 4.

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a) Define:
- (i) Antiselection acuity
 - (ii) Involuntary lapse rate
 - (iii) Lapse elasticity
 - (iv) Partition models

Commentary on Question:

Candidate performance on part (a) was mixed. Most candidates were able to define lapse elasticity and partition models, but few candidates were able to define antiselection acuity and the involuntary lapse rate.

- (i) The insured's ability to predict their own claims. This varies by size of claim; high cost claims are on average more predictable than low cost claims.
- (ii) The underlying probability of lapsing that is constant across all risk classes. These are thought of as random life circumstances that force a lapse, such as accidental death, which is independent of health status.
- (iii) The ability and willingness of the insured population to take action after a rate increase. It varies based on health status (example: higher elasticity for healthy lives and lower elasticity for unhealthy lives).
- (iv) A forecast technique in which the population is separated into subsets based on perceived health status (example: active vs. impaired).

8. Continued

- (b) Compare and contrast deterministic and stochastic antiselection models.

Commentary on Question:

Candidates who performed well were able to state common characteristics between the models, as well as valid contrasts. Those who performed poorly simply stated facts about each model without contrasting them.

Common characteristics (Compare):

Both are used by actuaries to model policyholder behavior.

Both use past history, define it in detail, and project into the future.

Differing characteristics (Contrast):

Deterministic models are based on mean expected values and do not provide the distributions of potential values. Stochastic models provide the full distributions of potential values and attempt to distinguish between purely random statistical fluctuation and the risk of choosing wrong assumptions.

Deterministic models are much simpler in their approach and can be reasonably accurate without advanced computing power. Stochastic modeling is complex and requires advanced computing power.

- (c) State the formula for defining lapses in the Cumulative Antiselection Theory (CAST) model.

Commentary on Question:

Candidates struggled to state the formula for defining lapses in the CAST model. Credit was also given for those who stated the shock lapse formula, since it is also used in CAST models.

$$i q_{[x]+t} = k_1 (a q_{[x]+t} - u) + u$$

or simply stated:

“the probability of lapse for an unhealthy life = k_1 parameter * (probability of lapse for healthy life – involuntary lapse rate) + involuntary lapse rate”

- (d) Calculate the gross premium per member per year (PMPY) by applying the CAST model. Show your work.

Commentary on Question:

Candidates were unable to apply the CAST model and performed poorly on part (d). Partial credit was given for correct partitions of lives and correctly trended costs.

8. Continued

Column	A	B	C	D	E	F	G	H	I	J	K	L
Duration	# of Healthy Lives	# of Unhealthy Lives	Avg. Cost for Healthy Lives	Actual Claims	$q^{(ai)}_t$	${}_a q_t$	$q^{(ai)}_t$	${}_a q_t$	Avg. Cost for Unhealthy Lives	${}_i q_t$	kl	u
0	10,000	0	95.00	900,000	0.100	0.20				-		
1	7,000	1,000	95.50	1,200,000	0.090	0.15			531.50	-		
2	5,320	1,630	96.30	1,300,000			0.03	0.15	483.24	0.060	0.10	0.05
3	4,362	1,692	98.23	1,303,278			0.03	0.10	517.07	0.055	0.10	0.05
4	3,795	1,730	100.19	1,337,189			0.03	0.09	553.26	0.054	0.10	0.05
5	3,340	1,750	102.19	1,377,348			0.03	0.09	591.99	0.054	0.10	0.05
6	2,939	1,756	104.24	1,418,525					633.43			

COLUMN A (Healthy Lives)

= Healthy Lives in Prior Duration * (1 - Transition Rate - Healthy Lapse Rate)

Transition Rate = Column G (Given)

Healthy Lapse Rate = Column H (Given)

Duration 3 = $5,320 * (1 - 0.03 - 0.15) = 4,362$

Duration 4 = $4,362 * (1 - 0.03 - 0.10) = 3,795$

Duration 5 = $3,795 * (1 - 0.03 - 0.09) = 3,340$

Duration 6 = $3,340 * (1 - 0.03 - 0.09) = 2,939$

COLUMN B (Unhealthy Lives)

= Healthy Lives in Prior Duration * Transition Rate + Unhealthy Lives in Prior Duration * (1 - Unhealthy Lapse Rate)

Duration 3 = $5,320 * 0.03 + 1,630 * (1 - 0.060) = 1,692$

Duration 4 = $4,362 * 0.03 + 1,692 * (1 - 0.055) = 1,730$

Duration 5 = $3,795 * 0.03 + 1,730 * (1 - 0.054) = 1,750$

Duration 6 = $3,340 * 0.03 + 1,750 * (1 - 0.054) = 1,756$

COLUMN C (Avg. Cost for Healthy Lives)

= (1 + Healthy Trend) * Prior Duration Avg. Cost for Healthy Lives

Duration 3 = $96.30 * 1.02 = 98.23$

Duration 4 = $98.23 * 1.02 = 100.19$

Duration 5 = $100.19 * 1.02 = 102.19$

Duration 6 = $102.19 * 1.02 = 104.24$

8. Continued

COLUMN D (Total Claims)

= Healthy Lives * Healthy Avg. Cost + Unhealthy Lives * Unhealthy Avg. Cost

= Column A * Column C + Column B * Column I

Duration 3 = $98.23 * 4,362 + 517.07 * 1,692 = 1,303,278$

Duration 4 = $100.19 * 3,795 + 553.26 * 1,730 = 1,337,189$

Duration 5 = $102.19 * 3,340 + 591.99 * 1,750 = 1,377,348$

Duration 6 = $104.24 * 2,939 + 633.43 * 1,756 = 1,418,525$

COLUMNS E, F, G, H, K, and L are given.

COLUMN I (Avg. Cost for Unhealthy Lives)

Duration 1 = $(1,200,000 - 95.50 * 7,000) / 1,000 = 531.50$

Duration 2 = $(1,300,000 - 96.30 * 5,320) / 1,630 = 483.24$

Duration 3 = $483.24 * 1.07 = 517.07$

Duration 4 = $517.07 * 1.07 = 553.26$

Duration 5 = $553.26 * 1.07 = 591.99$

Duration 6 = $591.99 * 1.07 = 633.43$

COLUMN J (Lapse Rate for Unhealthy Lives)

${}_i q_{[x]+t} = k_1(aq_{[x]+t} - u) + u$

= COLUMN K * (COLUMN H - COLUMN L) + COLUMN L

Duration 2 = $0.1 * (0.15 - 0.05) + 0.05 = 0.060$

Duration 3 = $0.1 * (0.10 - 0.05) + 0.05 = 0.055$

Duration 4 = $0.1 * (0.09 - 0.05) + 0.05 = 0.054$

Duration 5 = $0.1 * (0.09 - 0.05) + 0.05 = 0.054$

Gross Premium Per Member Per Year

= Claims / Lives / Loss Ratio

= Sum of Column D / Sum of Columns A & B / 0.70

= $8,836,341 / 46,314 / 0.70$

= **272.56**

- (e) Critique Lucky 7's CAST model assumptions and propose revisions to the assumptions. Justify your response.

Commentary on Question:

Candidates performed poorly on part (e). Many simply stated opinions about Lucky 7's assumptions without proposing revisions or justifying their recommendations. Candidates needed to propose revisions and justify their responses with valid critiques in order to receive full credit.

8. Continued

It is important to calibrate the CAST model based on actual experience. Since we have three years of actual experience, I recommend changing two model assumptions to align closer to experience:

The claims trend assumption for healthy members (2%) is much higher than experience so far (less than 1% trend in the first two years). The claims trend assumption for unhealthy members (7%) is also much higher than experience so far. I recommend lowering the claims trend assumption for each risk class by 1%. This is closer to actual experience and would allow Lucky 7's rates to be more competitive and potentially lower lapse rates.

The assumed probability of a healthy life becoming unhealthy (3%) is much lower than the first two years of experience (9-10%). I recommend increasing this assumption slightly, from 3% to 5%, to align closer to actual experience and help protect Lucky 7 from underestimating claims.

9. Learning Objectives:

1. The candidate will understand how to describe plan provisions typically offered under:
 - Group and Individual medical, dental and pharmacy plans.
 - Group and Individual long-term disability plans.
 - Group and Individual short-term disability plans.
 - Group and Individual long-term care insurance.
 - Group life insurance plans.
 - Supplementary plans, like Medicare Supplement.
2. The candidate will understand how to calculate and recommend a manual rate for each of the coverages described in Learning Objective 1.

Learning Outcomes:

- (1b) Describe each of the coverages listed above.
- (1c) Evaluate the potential moral hazard and financial and legal risks associated with each coverage.
- (2a) Identify and evaluate sources of data needed for pricing, including the quality, appropriateness and limitations of each data source.
- (2d) Calculate and recommend a manual rate.
- (2e) Identify critical metrics to evaluate actual vs. expected results.
- (2f) Describe the product development process including risks and opportunities to be considered during the process.

Sources:

Group Insurance, Chapters 5 and 21

Commentary on Question:

Generally, candidates did well on this question. Most candidates were able to describe the purpose of cost sharing and calculate the minimum claims to reach OOPM. Many candidates correctly calculated the 2021 PEPY liabilities but struggled with the 2022 introduction of HDHP and interpreting the results.

Solution:

- (a) Describe the purpose of cost sharing in a medical benefit plan.

Commentary on Question:

Most candidates did well on this part. Candidates did not receive full credit for just listing the three items.

9. Continued

- 1) Control of Utilization: It is widely believed requiring a covered individual to share in the cost of medical services significantly controls utilization. Several studies have shown drastic reductions in utilization when an insurance plan is subject to deductibles, copays, or coinsurance.
 - 2) Control of Costs: Requiring the covered individual to share in the cost lowers the premium and thus provides more affordable coverage.
 - 3) Control of Risk to the Insurer: Many covered benefits, although valuable, do not truly meet the definition of an insurable risk. Increased cost sharing results in a benefit program that more truly represents an insurable risk.
- (b) Calculate the minimum claims in 2021 required to reach the OOPM. Show your work.

Commentary on Question:

Most candidates performed well. The most common errors were not counting deductible towards OOPM or not counting deductible towards claims cost.

OOPM of \$1,600 could be reached by the combination of deductible and coinsurance. The minimum claims required to reach the OOPM is \$7,200.

	Employee Maximum Cost Sharing	Total Claim Cost	
Deductible Range	\$200	\$200	
Coinsurance Range	\$1,400	\$7,000	= 1,400 / 20%
Total	\$1,600	\$7,200	

- (c) Calculate the 2021 PEPY claim liability for:
- (i) Employees
 - (ii) ABC Consulting

Show your work.

Commentary on Question:

Many candidates calculated the correct weighted average employee cost sharing and ABC liability. However, some candidates struggled with calculating the correct employee cost sharing in the coinsurance range.

9. Continued

Some candidates used the Claim Probability Distribution (CPD) method following Group Insurance Chapter 21 to calculate the PEPY liabilities. To correctly apply the method there, candidates need to be aware that there is no claim between \$6,000 and \$9,000 range, so the \$3,001-\$6,000 range needs to be modified to \$3,001 - \$7,200 to get value of claim cost in excess of deductible.

- (i) 2021 PEPY claim liability for employee is \$392.
- (ii) 2021 PEPY claim liability for ABC Consulting is \$2,828.

Please see the table below for detailed calculation.

	a	b	c = a x b	d	e = b - d
PEPY range	% of Policies	Average claims	Total Spend	Employee Liability	ABC Liability
\$0	10%	\$0	\$0	\$0	\$0
\$1 to \$50	20%	\$25	\$5	\$25	\$0
\$51 to \$200	15%	\$100	\$15	\$100	\$0
\$201 to \$1,000	20%	\$300	\$60	\$220	\$80
\$1,001 to \$2,000	15%	\$1,600	\$240	\$480	\$1,120
\$3,001 to \$6,000	10%	\$4,000	\$400	\$960	\$3,040
\$9,001 to \$15,000	5%	\$11,000	\$550	\$1,600	\$9,400
\$20,001 to \$35,000	3%	\$25,000	\$750	\$1,600	\$23,400
\$50,001 to \$100,000	2%	\$60,000	\$1,200	\$1,600	\$58,400
	100%		\$3,220	\$392	\$2,828

Calculation Note: Totals for columns d and e are equal to sum-product of column a and columns d and e, respectively.

9. Continued

Alternative method (CPD method):

	a	b	c = a x b	e	f	g	h
PEPY range	% of Policies	Average claims	Total Spend	Backsum %	Backsum Spend	Cutoff	Value excess Ded
\$0	10%	\$0	\$0	100%	\$3,220	\$0	\$3,220
\$1 to \$50	20%	\$25	\$5	90%	\$3,200	\$50	\$3,180
\$51 to \$200	15%	\$100	\$15	70%	\$3,215	\$200	\$3,090
\$201 to \$1,000	20%	\$300	\$60	55%	\$3,200	\$1,000	\$2,790
\$1,001 to \$2,000	15%	\$1,600	\$240	35%	\$3,140	\$2,000	\$2,500
\$3,001 to \$7,200	10%	\$4,000	\$400	20%	\$2,900	\$7,200	\$1,780
\$9,001 to \$15,000	5%	\$11,000	\$550	10%	\$2,500	\$15,000	\$1,200
\$20,001 to \$35,000	3%	\$25,000	\$750	5%	\$1,950	\$35,000	\$500
\$50,001 to \$100,000	2%	\$60,000	\$1,200	2%	\$1,200	\$100,000	\$0

Calculation Note: Columns e and f are backsum of columns b and c, respectively. Column g is upper cutoff of each range. Column h = (column f next row) – (column e next row) x column g.

Now, the plan covers 80% of cost in excess of deductible \$200, plus 20% of cost in excess of deductible \$7,200. Therefore, ABC consulting liability is $80\% \times \$3,090 + 20\% \times \$1,780 = \mathbf{\$2,828}$. The leftover claims of $\$3,220 - \$2,828 = \mathbf{\$392}$ is borne by employee.

- (d) Calculate the estimated 2022 PEPY claims liability for:
- (i) Employees in the PPO plan
 - (ii) Employees in the HDHP plan
 - (iii) ABC Consulting

Show your work.

Commentary on Question:

Many candidates did not get the correct weighted average PEPY for each of the plans. Many were able to calculate the correct number for ABC Consulting, but not for the employees in the PPO/HDHP plan.

9. Continued

- (i) 2022 PEPY claim liability for employees in the PPO plan is \$551.
Detailed calculation is listed below.

PPO	a	b	c	d = b x c	e	f = c - e
PEPY range	Proportion of PPO in Total Claims	% of PPO (Column a /total of Column a)	Average claims	Total Spend	Employee Liability	ABC Liability
\$0	2.0%	3.61%	\$0	\$0	\$0	\$0
\$1 to \$50	4.0%	7.22%	\$25	\$2	\$25	\$0
\$51 to \$200	9.0%	16.25%	\$100	\$16	\$100	\$0
\$201 to \$1,000	12.0%	21.66%	\$300	\$65	\$220	\$80
\$1,001 to \$2,000	12.0%	21.66%	\$1,600	\$347	\$480	\$1,120
\$3,001 to \$6,000	8.0%	14.44%	\$4,000	\$578	\$960	\$3,040
\$9,001 to \$15,000	4.0%	7.22%	\$11,000	\$794	\$1,600	\$9,400
\$20,001 to \$35,000	2.4%	4.33%	\$25,000	\$1,083	\$1,600	\$23,400
\$50,001 to \$100,000	2.0%	3.61%	\$60,000	\$2,166	\$1,600	\$58,400
Medical	55.4%	100%		\$5,051	\$551	\$4,500

Calculation Note:

- Column a "Proportion of PPO in Total Claims", is calculated as percentage of policies x proportion of PPO plan by each claim PEPY range.
- Totals for columns e and f are equal to sum-product of column b and columns e and f, respectively.

Alternative method (CPD method):

	a	b	c = a x b	e	f	g	h
PEPY range	% of Policies	Average claims	Total Spend	Backsum %	Backsum Spend	Cutoff	Value excess Ded
\$0	3.61%	\$0	\$0	100.00%	\$5,051	\$0	\$5,051
\$1 to \$50	7.22%	\$25	\$2	96.39%	\$5,051	\$50	\$5,004
\$51 to \$200	16.25%	\$100	\$16	89.17%	\$5,049	\$200	\$4,887
\$201 to \$1,000	21.66%	\$300	\$65	72.92%	\$5,032	\$1,000	\$4,455
\$1,001 to \$2,000	21.66%	\$1,600	\$347	51.26%	\$4,968	\$2,000	\$4,029
\$3,001 to \$7,200	14.44%	\$4,000	\$578	29.60%	\$4,621	\$7,200	\$2,952
\$9,001 to \$15,000	7.22%	\$11,000	\$794	15.16%	\$4,043	\$15,000	\$2,058
\$20,001 to \$35,000	4.33%	\$25,000	\$1,083	7.94%	\$3,249	\$35,000	\$903
\$50,001 to \$100,000	3.61%	\$60,000	\$2,166	3.61%	\$2,166	\$100,000	\$0

9. Continued

Calculation Note: Columns e and f are backsum of columns b and c, respectively. Column g is upper cutoff of each range. Column h = (column f next row) – (column e next row) x column g.

Now, the plan covers 80% of cost in excess of deductible \$200, plus 20% of cost in excess of deductible \$7200. Therefore, ABC consulting liability is $80\% \times \$4887 + 20\% \times \$2952 = \mathbf{\$4500}$. The leftover claims of $\$5051 - \$4500 = \mathbf{\$551}$ is borne by employee.

- (ii) 2022 PEPY claim liability for employees in the HDHP plan is \$556.
Detailed calculation is listed below.

HDHP	a	b	c	d = b x c	e	f = c - e
PEPY range	Proportion of HDHP in Total Claims	% of HDHP (Column a /total of Column a)	Average claims	Total Spend	Employee Liability	ABC Liability
\$0	8.0%	17.94%	\$0	\$0	\$0	\$0
\$1 to \$50	16.0%	35.87%	\$25	\$9	\$25	\$0
\$51 to \$200	6.0%	13.45%	\$100	\$13	\$100	\$0
\$201 to \$1,000	8.0%	17.94%	\$300	\$54	\$300	\$0
\$1,001 to \$2,000	3.0%	6.73%	\$1,600	\$108	\$1,600	\$0
\$3,001 to \$6,000	2.0%	4.48%	\$4,000	\$179	\$3,250	\$750
\$9,001 to \$15,000	1.0%	2.24%	\$11,000	\$247	\$5,000	\$6,000
\$20,001 to \$35,000	0.6%	1.35%	\$25,000	\$336	\$8,500	\$16,500
\$50,001 to \$100,000	0%	0%	\$60,000	\$0	\$14000	\$0
Medical	44.6%	100%		\$946	\$556	\$390

Calculation Note:

- (1) Column a “Proportion of HDHP in Total Claims”, is calculated as percentage of policies x proportion of HDHP plan by each claim PEPY range.
- (2) Totals for columns e and f are equal to sum-product of column b and columns e and f, respectively.

9. Continued

Alternative method (CPD method):

	a	b	c = a x b	e	f	g	h
PEPY range	% of Policies	Average claims	Total Spend	Backsum %	Backsum Spend	Cutoff	Value excess Ded
\$0	17.94%	\$0	\$0	100.00%	\$946	\$0	\$946
\$1 to \$50	35.87%	\$25	\$2	82.06%	\$946	\$50	\$914
\$51 to \$200	13.45%	\$100	\$16	46.19%	\$937	\$200	\$858
\$201 to \$1,000	17.94%	\$300	\$65	32.74%	\$924	\$1,000	\$722
\$1,001 to \$3,000	6.73%	\$1,600	\$347	14.80%	\$870	\$3,000	\$520
\$3,001 to \$6,000	4.48%	\$4,000	\$578	8.07%	\$762	\$6,000	\$368
\$9,001 to \$15,000	2.24%	\$11,000	\$794	3.59%	\$583	\$15,000	\$135
\$20,001 to \$47,000	1.35%	\$25,000	\$1,083	1.35%	\$336	\$47,000	\$0
\$50,001 to \$100,000	0%	\$60,000	\$2,166	0.00%	\$0	\$100,000	\$0

Calculation Note: Columns e and f are backsum of columns b and c, respectively. Column g is upper cutoff of each range. Column h = (column f next row) – (column e next row) x column g.

Now, the plan covers 75% of cost in excess of deductible \$3000, plus 25% of cost in excess of deductible \$47000. Therefore, ABC consulting liability is $75\% \times \$520 + 25\% \times \$0 = \$390$. The leftover claims of $\$946 - \$390 = \$556$ is borne by employee.

(iii) 2022 PEPY claim liability for ABC Consulting is \$2,667, the weighted average cost from both the PPO and the HDHP plans.
 $55.4\% \times \$4,500 + 44.6\% \times \$390 = \$2,667$.

(e)

- (i) Calculate ABC Consulting's savings or cost from adding the HDHP. Show your work.
- (ii) Interpret the results. Justify your response.

Commentary on Question:

Most candidates received partial credit for this question. Many were able to identify the impact of selection and higher member cost sharing on the HDHP plans. In calculating savings for ABC Consulting, some candidates forgot to consider employee contribution and/or ABC contribution to employee's HSA account.

9. Continued

- (i) In 2021, ABC Consulting's claims liability was \$2,828 PEPY but employee contributions were \$1,200 PEPY, so ABC Consulting's net cost was $(\$2,828 - \$1,200) = \$1,628$ PEPY.

In 2022, ABC Consulting's claims liability was \$2,667 PEPY. Employee contributions were $55.4\% \times \$1,200 + 44.6\% \times \$900 = \$1,067$. In addition, the cost of ABC's contribution to HSA accounts was $\$100 \times 44.6\% = \45 . So ABC Consulting's net cost was $\$2,667 - \$1,067 + \$45 = \$1,645$ PEPY.

Cost impact from adding the HDHP: $\$1,645 - \$1,628 = \$17$ PEPY increase.

- (ii) The addition of the HDHP does not lead to cost savings. Selection leads the higher cost members to the PPO Plan, but the monthly contributions for the PPO do not change, leading to much higher net costs after contribution. Savings are seen on HDHP; however, additional HSA contributions increase costs. Net costs end up rising.

10. Learning Objectives:

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

Learning Outcomes:

(5c) Recommend strategies for minimizing or properly pricing for risks.

(5d) Describe and apply approaches to claim credibility and pooling.

Sources:

Issues in Applying Credibility to Group Long-Term Disability Insurance
GHDP-137-20: Short Term Disability Example

Commentary on Question:

This model solution provides an example of a response that would receive full credit – this is not necessarily the only solution. When appropriate, partial credit is given for minor calculation errors.

Solution:

(a) Describe:

- (i) Factors used to analyze LTD experience.
- (ii) Ways to estimate the credibility of experience used to develop LTD manual rates.

Commentary on Question:

Candidates performed well on the first part of the question. The question asks the candidate to describe the factors so candidates who listed the factors without providing a description received partial credit. The second part of the question was more challenging for candidates – most candidates only received partial credit for this part of the question.

- (i)
 - Gender – incidence rate of disability varies by gender
 - Age – incidence of disability varies by age (higher incidence rate of disability for a group with an older population)
 - Industry / Occupation – there is a difference in the incidence rate of disability by industry / occupation of the group (e.g., higher incidence rate of disability for blue collar workers)
 - Geography – there is a correlation between incidence rate of disability and geographic location of the group
 - Benefit Level – a higher incidence rate of disability is generally observed for groups with a richer disability benefit as it provides a greater incentive to claim disability benefits

10. Continued

- (ii) The credibility of experience used to develop LTD manual rates can be evaluated using subjective and objective methods.

Subjective methods - pricing actuaries make educated judgements to decide if the experience is credible. Thresholds can be incorporated to make the process more objective, for example, by requiring a minimum number of policies or a minimum number of claims for the experience to be deemed credible. The advantages of using subjective methods include simplicity and flexibility.

Objective methods include formal processes and may include the use of credibility formulas (e.g., the application of limited fluctuation credibility concepts). Starting with a pre-determined confidence interval, a block of LTD experience could be considered fully credible for rate making if observed LTC claims are within a certain percentage of expected claims for a pre-determined percent of time.

- (b) Calculate the credibility weight. Show your work.

Commentary on Question:

Candidates either performed well on this part of the question and received full credit or applied an incorrect method / formula to arrive at an incorrect answer and received no credit.

First, we calculate the number of claims needed to obtain full credibility. The formula to calculate this figure is given as follows:

$$\text{Number of Claims Needed} = (1.96 / 0.05)^2 * (1 + (\text{STDEV} / \text{MEAN})^2)$$

- MEAN = Expected claims = \$100,000
- STDEV = Standard deviation = \$40,000

$$\text{Number of Claims Needed} = 1,783$$

Second, the formula to calculate the credibility weight is given as follows:

$$\text{Credibility} = \text{Min} (100\%, (\text{Expected \# Claims} / \text{Claims Required for Full Credibility})^{0.5})$$

- Expected # Claims = 1,000
- Claims Required for Full Credibility = 1,783

$$\text{Credibility} = 74.9\%$$

10. Continued

- (c) Calculate the 2022 area rating factors. Show your work.

Commentary on Question:

A minority of candidates received full credit for this part of the question. A lot of candidates had formulaic errors and received partial credit only. The question only asks for the area rating factors and a fair number of candidates calculated the rating factors by age/gender and industry.

The observed actual loss ratio = 77%

Calculate the area factor as follows: (Current Rating Factor) * (2020 Loss Ratio) / (Actual Loss Ratio)

East = 1.07

Central = 1.04

West = 0.82

Region	GIVEN			CALCULATION		
	Current Factor	2020 Exp	Weight	Factor	Weight	2022 Area Factors
East	1.10	0.75	50%	1.07	50%	1.09
Central	1.00	0.80	50%	1.04	50%	1.02
West	0.90	0.70	50%	0.82	50%	0.86

The 2022 area factors are derived by applying 50% credibility to the Current Factor and 50% credibility to the calculated Factor.

- (d)
- (i) Describe rating factor discrimination concerns.
 - (ii) Recommend an action to reduce discrimination concerns.

Commentary on Question:

Most candidates received only partial credit for this part of the question. Full credit was awarded to candidates who described discrimination concerns and provided a recommendation to reduce discrimination concerns.

10. Continued

(i)

- Rating factors for the West Region and the Finance industry are favorable to the product as a whole – 70% loss ratio for the West Region compared to 77% loss ratio in aggregate
- 90% of the finance industry is in the West Region and is young and male; it is difficult to determine if the favorability is due to the industry, age/gender, or the region
- The favorable factors for area, age/gender, and industry may result in double counting if applied independently, resulting in premiums set too low. Low premiums can lead to anti-selection, default, and eventual insolvency if not addressed.
- The lack of age/gender uniformity across industries and regions may lead to discrimination concerns if females are charged more due to double counting. For example, women in finance can be charged more than their male peers because the higher rate of disability in the hospital industry is conflated resulting in higher disability rates for women

(ii)

- Conduct an analysis of co-variance across the rating factors
- Perform a calculation of rating factors for different cross-sectional populations
- Test for credibility of the rating factors for smaller populations

11. Learning Objectives:

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

4. The candidate will understand how to evaluate the effectiveness of different provider reimbursement methods from both a cost and quality point of view.

Learning Outcomes:

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

- (4a) Calculate provider payments under various reimbursement methods.

- (4c) Understand contracts between providers and insurers.

- (4d) Understand accountable care organizations and medical patient home models and their impact on quality, utilization and costs.

Sources:

Group Insurance, Chapter 45

Commentary on Question:

Candidates did well on the written response parts of the question – especially those that required providing lists. The differentiating part of the question was correctly trending revenue and claims in parts (e) and (g).

Solution:

- (a) List the elements required of a health plan to manage a provider network.

Commentary on Question:

Most candidates performed well on this question

- Articulate goals of the network
- Comply with applicable regulations
- Ensure quality standards are met
- Manage cost
- Manage risk
- Evaluate network on an ongoing basis

11. Continued

- (b) Describe the goals for the provider network from the perspective of:
- (i) Health plans
 - (ii) Employers
 - (iii) Consumers
 - (iv) Providers

Commentary on Question:

To receive full credit for this question, candidates needed to describe at least two items for each of the stakeholder's perspectives. This is an illustrative response – other valid responses received credit. Most candidates did well on this part and provided 1 or 2 responses for each.

- (i) Health plans
 - Financial stability – identify providers with stable practices who will be able to provide care for health plan's members
 - Membership growth – network needs to be broad enough and include desirable providers so the plan's products are attractive to purchasers
- (ii) Employers
 - Balancing costs with employee satisfaction - narrow networks come with better discounts, thus lower costs, but fewer options for care
 - Provider disruption/continuity of care if moving carriers – employers generally want a network that includes providers their employees are currently using
- (iii) Consumers
 - Having the providers in network – consumers generally don't want to change doctors but may be willing to trade reduced future access for lower premiums/costs
 - No surprise bills – consumers want a broad enough network that they can get care (surgeries, ER, etc.) without being exposed to OON providers for ancillary services
- (iv) Providers
 - Earn a fair, predictable source of income while getting access to a large member base
 - Minimizing time on administrative functions and reimbursement appeals

11. Continued

(c) Complete the following table for the member's claim:

	In-Network	Out-of-Network
Health Plan Liability		
Member Cost Sharing		
Provider Reimbursement		

Show your work.

Commentary on Question:

The majority of candidates successfully completed the table for in-network and out-of-network. However, most candidates did not include the additional member cost sharing or the provider reimbursement for the balance billing that would take place with the out of network provider

	In-Network	Out-of-Network
Health Plan Liability	\$1,120	\$1,080
Member Cost Sharing	\$280	\$920
Provider Reimbursement	\$1,400	\$2,000

	In-Network		Out-of-Network	
Billed	\$2,000		\$2,000	
Allowed	\$1,400	= Billed x 70%	\$1,800	= Billed x 90%
Cost-Share	\$280	= Allowed x 20%	\$720	= Allowed x 40%
Plan Paid =	\$1,120	= Allowed - Cost-Share	\$1,080	= Allowed - Cost-Share
		Difference in Plan Paid	\$40	
		Balance Billed Amount	\$200	= Allowed - Billed
Member Paid =	\$280		\$920	
		Difference in Member Paid	\$640	= Cost-Share + Balance Bill
Provider Receives	\$1,400	= Allowed	\$2,000	= Billed
		Difference in Provider Receives	\$600	

11. Continued

- (d) An intern heard on the news that the COVID-19 pandemic was disruptive to provider networks and their administrators.

Identify these disruptions.

Commentary on Question:

Most candidates were able to identify at least a few of the below items in how the COVID-19 pandemic was disruptive to provider networks and their administrators. Acceptable items not listed in the source material received credit.

- Quarantines
- Hospital systems were overwhelmed
- New treatment protocols were rolled out
- How to reimburse for services attributable to COVID
- Increased use of Telehealth
- How to deal with deferred care
- Income losses

- (e) Calculate the projected 2022 gain sharing amount. Show your work.

Commentary on Question:

Most candidates recognized the need to trend the revenue and claims forward to 2022. A majority of candidates did not recognize the need to translate the dollars to a PMPM/PMPY basis before doing so. Most candidates understood how to provide the gain share once the 2022 revenue, claims, and admin were calculated. Some candidates referred to ACO benchmarking to answer this question which was not the intent.

2021 Rev PMPM	\$1,040.00	1,248M / (12*100,000)
2021 Claims PMPM	\$965.00	1,158M / (12*100,000)
2022 Rev PMPM	\$1,081.60	1,040 * (1+4.0%)
2022 Claims PMPM	\$993.95	965 8 (1+3.0%)
Admin Fee PMPM	\$70.00	
Gain/(Loss) PMPM	\$17.65	1,081.60 – 993.95 – 70.00
Gain Share @50% PMPM	\$8.83	Take 50% for gain share
Avg Members	105,000	100,000 * (1+5.0%)
Gain Share \$	\$11,119,500	8.83 * 12 * 105,000

11. Continued

- (f) Recommend actions that can be taken to improve gain sharing performance by:
- (i) DH
 - (ii) ARBT

Justify your response.

Commentary on Question:

Most candidates were able to identify one or two actions that either DH or ARBT could implement to improve the gain sharing performance. Most candidates were not able to give a more comprehensive response.

DH
Introduce new medical management programs – One of the goals of a gain sharing arrangement is for providers to deliver the most efficient care possible. DH should review how care is managed and coordinated for its patients and ensure no duplicative or unnecessary care is provided.
Improve risk adjustment (since MA) – By ensuring all diagnosis codes are correctly reported and documented, DH can maximize ARBT’s revenue and ultimately the profitability of this arrangement.
ARBT
Inform retirees about health improvement programs – the plan sponsor is a key constituent and can work to educate/incent the plan enrollees to use the most appropriate care given individual needs. This will help lower overall medical costs, direct care to higher-performing providers, and increase the gain sharing that DH may receive.
Encourage retirees to utilize efficient, high quality providers – ARBT should educate its enrollees on the value provided by DH and encourage enrollees to use those providers. Doing so will increase volume at DH which may allow DH to more efficiently handle ARBT’s enrollees

- (g) Assess whether or not ARBT should accept DH’s offer. Show your work. Justify your response.

Commentary on Question:

Acceptance or rejection of the offer was given credit so long as it was consistent with the calculations and justified.

11. Continued

2021 Rev PMPM	\$1,040.00
2021 Claims PMPM	\$965.00
2022 Rev PMPM	\$1,081.60
	\$984.30 = 965 *
2022 Claims PMPM	(1+2.0%)
Admin Fee PMPM	\$75.00
Gain/(Loss) PMPM	\$22.30
Gain Share @50% PMPM	\$11.15
Avg Members	105,000
Gain Share \$	14,049,000
Additional Admin Fee	\$ 6,300,000
Increase in G/S	2,929,500

- ARBT should not accept the offer since the increase in amount paid for the admin fee exceeds the price in gain sharing. This arrangement will serve to increase ARBT's costs by \$3.4M / year.

12. Learning Objectives:

3. The candidate will understand how to evaluate and recommend an employee benefit strategy.

Learning Outcomes:

- (3a) Describe structure of employee benefit plans and products offered and the rationale for offering these structures.
- (3b) Describe elements of flexible benefit design and management.

Sources:

The Handbook of Employee Benefits 7th Edition, Rosenbloom, Chapter 25, "Cafeteria Plan Design and Administration" (pp. 671-680, 686-699)

Commentary on Question:

The question was attempting to gauge the candidate's understanding of the design of cafeteria plans, with particular focus on non-discrimination testing. Parts c-e, which focused on non-discrimination testing, were taken from Chapter 25 of Rosenbloom, but were addressed on pages outside those specified on the syllabus. Consequently, this portion of the question was deemed to be "defective" and all candidates were given full credit for parts c-e.

Solution:

- (a) Describe reasons an employer offers benefits through a cafeteria plan.

Commentary on Question:

Candidates were expected to describe multiple reasons why an employer would offer cafeteria plans in their benefit package. Acceptable responses included those provided below.

- Most benefits are non-taxable or tax favored for employees
- Cafeteria plans may help attract or retain top talent
- Some benefits may hasten an employee's return to work after illness or injury
- Employees have clearer visibility into the value of their benefits
- Employers will not waste money on benefits that aren't needed or are duplicative
- Employees have increased flexibility in benefit selection
- Employees demonstrate increased consumerism
- Tax benefits for employers (tax deductions, FICA/FUTA, worker's compensation)
- Employers can offer a broader range of voluntary benefits
- Employers can offer boutique benefits that appeal to limited numbers of employees
- Employers can define a fixed benefit contribution, aiding in budgeting

12. Continued

- (b) Identify which cafeteria plan benefits would be a top priority for:
- (i) Employees
 - (ii) Employers

Commentary on Question:

Candidates were given credit for listing benefits that employers and employees desired in a cafeteria plan.

Benefits or benefit rationales that were accepted include:

- Employees want non-taxable benefits
- Employees want benefits that are meaningful given their individual situation. This includes various types of insurance if not provided through a family member's (typically spouse's) coverage. PTO and cash also are desired.
- Employers want to offer benefits that provide tax advantages
- Employers want to offer benefits that help maintain employee productivity – such as medical and disability insurance.
- Life insurance
- Health insurance – medical and drug
- Dental benefits
- Vision benefits
- Supplemental Accident coverage
- Long term disability insurance
- Short term disability insurance
- Long term care insurance
- 401K contributions
- Cash
- PTO

- (c) Describe:
- (i) Cafeteria plan tests a plan must pass to be deemed nondiscriminatory.
 - (ii) The focus of the nondiscriminatory treatment of each test.

Commentary on Question:

This question referenced pages of the textbook that fell outside the syllabus. Thus, all candidates received credit for this part.

12. Continued

Eligibility test – measures whether or not a cafeteria plan discriminates in favor of highly compensated individuals and their dependents with regard to their ability to participate in the plan.

Contribution and Benefits test – Contributions and benefits must be non-discriminatory in regards to benefit availability and utilization.

Key employee concentration test – Non-taxable benefits provided to key employees must not exceed 25% of the aggregate benefits provided to all employees. The focus here is that the Cafeteria Plan benefits all employees and not predominantly the key employees.

- (d) Explain consequences to participants of a cafeteria plan failing the nondiscrimination test.

Commentary on Question:

This question referenced pages of the textbook that fell outside the syllabus. Thus, all candidates received credit for this part.

If a cafeteria plan fails the non-discrimination tests:

1. Highly compensated and key employees are taxed on the value of their benefits.
2. Non-highly compensated employees are unaffected.

- (e) Evaluate whether or not the plan passes the Section 125 key employee concentration test. Show your work.

Commentary on Question:

This question referenced pages of the textbook that fell outside the syllabus. Thus, all candidates received credit for this part.

Based on the testing threshold of \$185,000 salary given in the question

Key employees: CEO, CFO, CIO, CRO, CHRO

Testing should be performed on the sum of benefits provided to key employees versus the sum of all employee benefits.

Test measures key employee benefits divided by total benefits = $121,850/470,350$
= 26%

The test fails because the ratio exceeds 25%.

13. Learning Objectives:

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

Learning Outcomes:

- (5a) Understand the risks and opportunities associated with a given coverage, eligibility requirement or funding mechanism.
- (5b) Understand, evaluate and apply various risk adjustment mechanisms.
- (5c) Recommend strategies for minimizing or properly pricing for risks.

Sources:

Level Funding: An Alternative to ACA for Small Groups, Health Watch, May 2016

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a) Describe the advantages and disadvantages of a level-funded approach.

Commentary on Question:

This comes from the list on the first page of the article.

Advantages:

- The group will avoid premium taxes, state health coverage mandates and certain ACA-related fees
- The group will directly benefit from its favorable claims experience
- The group will forgo paying insurance company risk charges.

Disadvantages:

- Less predictable cash flows
- The bearing of financial responsibility for unfavorable claims experience
- The need for the group to obtain and pay for the advice of insurance professionals to help manage their plan
- The potential need for the group to buy stop-loss insurance

- (b) Calculate the group's transitional premium. Show your work.

Commentary on Question:

This is based on Table 4 from the article. The key was to remember that expenses are additive and added before the application of the Group Specific Risk Adjustment Factor.

13. Continued

Base Net Prem Rate	\$300.00	a
Avg Age Factor	0.85	b
Industry Factor	0.9	c
Area Factor	1	d
Group Specific Net Prem	\$229.50	$e=a*b*c*d$
Expenses	\$75.00	f
Gross Prem	\$304.50	$g = e+f$
Group Specific Risk Adj Factor	0.87	h
Transitional Prem	264.92	$i=g*h$

- (c) Calculate the expected cost components of the level funded premium equivalent. Show your work.

	PMPM	Total \$
Level Funded Premium	\$400	\$460,800
ASO Fee	\$55	\$63,360
Stop Loss Premium	\$100	\$115,200
Paid Claims Fund	\$245	\$282,240

Paid Claims Fund = Level funded premium equivalent – ASO Fee – Stop Loss Premium

- (d) Calculate the level funded surplus or deficit at the end of the settlement. Show your work.

Commentary on Question:

This required the answer to Part C. It was important to understand that surplus was the difference between claims paid after SL and what was in the fund.

Total Claims	\$733,000	
Claims Paid by Stop loss	\$475,000	$(450k - 25k) + (75k - 25k)$
Claims Paid by Insurer	\$258,000	$733k - 475k$
Paid claims fund	\$282,240	From c
Surplus	\$24,240	$282.24k - 258k$

13. Continued

- (e) Recommend next steps for infrastructure to make sure the level funding approach is successful.

GEX needs to develop:

- Reporting tools, materials, and training so customers understand:
 - Their stop loss performance
 - Details on high cost claims and any future projected liability
 - Drivers of any surplus or deficit
- UW tools to ensure groups are properly rated and administered
- Training for the Sales Team to ensure details on the product and advantages/disadvantages are appropriately communicated
- Systems to administer the product and reconcile/process settlements