CURATED PAST EXAM ITEMS
- Solutions -

GH 101 – Benefits and Pricing

Important Information:

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 The inclusion in these curated past exam questions of material that is no longer current does not bring such material into scope for current assessments.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

Group and Health 101
Curated Past Exam Solutions
Learning Objective #1: Plan and Product Provisions
Applicable SOA Questions: Fall 2020 to Fall 2024
Model Solutions

Contents

1. Fall 2020 DP-C #4 2
2. Fall 2021 DP-C #1 4
3. Spring 2023 DP #1a-b 6
4. Spring 2023 DP #4a 8

1. Fall 2020 DP-C #4

Part a:

Source(s): Skwire 3 (8th ed.)

Question: List and describe three drivers of product ideas.

SOA Commentary on Question:

Most candidates did well as many were able to list and describe at least three drivers of product ideas. Partial credit was given to candidates who only listed the drivers but did not provide description or did not provide accurate description. Credit was also given for reasonable answers not included in the model solution. Note that only three of the following bullets (with corresponding descriptions) were needed to earn full credit.

SOA Answer:

- **Innovator for Follower** – There are companies that successfully innovate, and there are companies that successfully follow the market. The company that innovates must invest in the development of concepts, while the company that follows can learn from their competitors by observing what works and does not work for the products that their competitors bring to the market.
- **Changing Laws and Regulations** – When new laws or regulations are created, or existing laws or regulations are changed, products are developed to operate within these new sets of rules.
- **Consumer Demand** – It is very important that companies remain attentive to the needs and desires of consumers. Companies interested in remaining competitive must constantly seek consumer feedback and market intelligence.
- **Marketing and Sales Demand** – Marketing and sales teams have direct access to the market, and are often aware of the demand from the market. They can spot gaps in the product spectrum where consumer demand is not being fully met. This insight may lead to new ideas. Incorporating sales feedback into the product development process is essential to gaining a comprehensive understanding of market needs.
- **Leveraging Insurer's Capabilities** – While insurers are looking for ideas to develop new products and even acquire other companies to grow in new areas, product development does not necessarily need to encourage growth into new product areas. There are efficiencies gained by leveraging the insurer's existing capabilities.
- **Social Need** – Products are developed to address specific social needs.
- **Changing Demographics** – With the aging baby boomers and people generally living longer, the demographics in the insurance markets are changing. Changing demographics means a shift in the types of products that will be marketable and saleable.
- **Changing Economy and Financial Markets** – Shifts in the economy and financial markets change purchasers' views of their need for insurance. Insurance products that do not appear critical to the market may lose members during downward swings in the economy and financial markets. However, insurance products that purchasers believe will increase their financial stability may gain members.
- **Competitive Advantage:** Insurers often have a competitive advantage in one or more areas. Any competitive advantage should be utilized to its fullest extent, and thus should influence product development ideas.

Part b:

Source(s): Skwire 6 (8th ed.)

Question: Compare and contrast the following dental provider reimbursement methods: Fee-for-service (FFS), Preferred Provider Organization (PPO), Capitation

SOA Commentary on Question:

Most candidates received partial credit on this question as they simply described the three reimbursement methods without providing further contrast.

SOA Answer:

	FFS	PPO	Capitation
Method of reimbursement	A dentist performs a service for a covered member and is paid for that service	Contracts with a limited number of dentists in each region and agrees to list the dentist in its network in exchange for a reduced fee schedule, above which the dentist may not bill	The dentist is paid a fixed amount per member enrolled, or a per capita amount.
Maximum reimbursement level	Lower of a high percentile of nationally charged fees; a high percentile of the locally charged fees This stat provides a R&C fee that varies by geography	Typically set by insurers based on an analysis of the distribution of fee levels in the local community, similar to the analysis of R&C maximum schedules but with lower percentile, thus lower maximum.	No maximum fee schedule established
Balance bill	Permitted	Not permitted	Not permitted
Network restriction	Least restrictive	Narrower than FFS, may use tiered network and reward providers with lower cost, best outcome at the lowest cost or higher ACO scores	Usually associated with Dental HMO plans. Network is a narrowest subset of providers.

Part c:

Sources: Skwire 22 (8th ed.)

Question: Calculate the dampening effect on trend of a $1,500 annual maximum. Show your work.

SOA Commentary on Question:

Most candidates received at least partial credit. Some candidates did not correctly recall the definition of the dampening effect. Instead, they calculated the 2020 cost with the maximum compared to the 2019 costs without the maximum.

SOA Answer:

Percent Insureds	Expected Claim Cost	No Maximum		$1,500 Maximum	
		Before Trend	After Trend	Before Trend	After Trend
30.0%	$0.00	$0.00	$0.00	$0.00	$0.00
25.0%	$20.00	$20.00	$21.00	$20.00	$21.00
20.0%	$70.00	$70.00	$73.50	$70.00	$73.50
15.0%	$250.00	$250.00	$262.50	$250.00	$262.50
9.0%	$800.00	$800.00	$840.00	$800.00	$840.00
1.0%	$2000.00	$2000.00	$2100.00	$1500.00	$1500.00
Average claims		$148.50	$155.93	$143.50	$149.93
Cost Increase			5.0%		4.5%

Dampening effect = 5.0% - 4.5% = 0.5%

2. Fall 2021 DP-C #1

Part a:

Source(s): Skwire 5 – Medical Benefits (US)
Question: Describe the three dimensions of medical benefit plans. List two examples for each dimension.

SOA Commentary on Question:
Candidates generally did well on this part of the question and received full credit for providing the numbered items below along with two examples (lettered items) for each.

SOA Answer:
The three dimensions of medical benefit plans, including examples, are as follows:

1. The definition of services covered and conditions under which they are covered
   Definition of incurral date, Covered services (limitations and exclusions), Covered facilities, Covered professional services, Other covered services
2. The degree to which the insured shares in the cost of medical services (commonly referred to as cost sharing)
   Deductible, Coinsurance, Copay, UCR charge levels, Paying at a fee schedule or per diem, Daily limits on specified services, Limits on the number of days covered

3. The relationship between providers and the health plan, including the breadth of the provider network and the degree to which the provider participates in the cost
   Discounts from billed charges, Fee schedules and maximums, Per diem reimbursements, Hospital DRG reimbursement, ambulatory payment classifications, or global payments, Bonus pools based on utilization, Capitation, Integrated delivery system

Part b:

Source(s): Skwire 5 – Medical Benefits (US)
Question: Explain how the three dimensions of medical benefit plans interact within: (i)Managed Indemnity (ii) Health Maintenance Organization (HMO) (iii) Preferred Provider Organization (PPO)

SOA Commentary on Question:
Most candidates received partial credit on part (b), and provided stronger responses for HMO and PPO. Credit was given for reasonable answers not included here.

SOA Answer:
(i) Managed indemnity is a traditional indemnity plan with managed care overlays. The most common types of managed care overlays are general utilization management, large case management, specialty utilization management, disease management, rental networks, and workers' compensation utilization management. Members have few provider restrictions; however, cost sharing is typically higher since members are balance billed for the amount not paid by insurance companies. Providers are typically paid based on billed charges.

(ii) HMOs typically have restrictive networks with low cost sharing for members. Primary care physicians (PCPs) act as gatekeepers (i.e., members must see their PCP to receive access to specialty care). Most providers are paid via capitation so there is incentive for the providers to control utilization.

(iii) PPOs provide more freedom of choice for members via two networks: in network and out of network. Cost sharing varies by the two networks with lower cost sharing for using in network providers and higher cost sharing for using out of network providers. In network providers negotiate large discounts on services in order to have more members steered to them.

Part c:

Source(s): Skwire 5 – Medical Benefits (US)
Question: Explain the purpose of required cost sharing between the plan and the insured.

SOA Commentary on Question:

Candidates generally did well on this part of the question and received full credit for explaining the purpose of cost sharing.

SOA Answer:

Generally, requiring the insured to share in the cost of services serves the following purposes:

Control of Utilization: It is widely believed that 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.

Control of Costs: Requiring the covered individual to share in the cost lowers the premium and thus provide more affordable coverage.

Control of Risk to the Insurer: Increased cost sharing results in a benefit program that more truly represents an insurable risk.

Part d:

Source(s): Skwire 5 – Medical Benefits (US)
Question: Propose strategies an insurance company can use to manage insured spend at non-preferred providers.

SOA Commentary on Question:

Most candidates received partial credit on part (d). Credit was given for reasonable answers not included here.

SOA Answer:

Strategies an insurance company can use to manage insured spend at non-preferred providers include: Limiting reimbursement using usual, customary, and reasonable maximums or using fee schedules. Reduce plan benefits between in network and out of network. Exclude claims at out of network providers

3. Spring 2023 DP #1a-b

Part a:

Source(s): Skwire 3 – Product Development
Question: Describe advantages and disadvantages to PQR of introducing an innovative product design.

SOA Commentary on Question:

This section was asking the candidate to describe advantages and disadvantages to being the first to introduce a product.

SOA Answer:

Advantages

Leading the competition in a new product and thus gaining large membership
Meeting a need of members that is not already being met
Financial benefits, if successful

Disadvantages

The expenses that come with innovation of a product design from the staff needed to implement, the infrastructure, the marketing material, the education of the sales organization, and others
Risk of mispricing, since there are no current pricing standards

Part b:

Source(s): Skwire 6 – Dental Benefits (US)
Question: PQR has aggressive individual ACA membership growth targets. The product team proposes offering dental coverage embedded within a bronze plan targeted at families to help achieve these targets. Critique this proposal.

SOA Commentary on Question:

This section was asking the candidate to consider the appropriateness of adding dental coverage to a bronze plan. The emphasis was on understanding the structure and membership for bronze plans and being able to explain why dental coverage might or might not make a good ancillary benefit with these plans. Candidates struggled with this part because they focused more on dental benefit features rather than bronze plan features and failed to tie the two concepts together. Specifically, the question was not trying to address the anti-selection that can occur with dental products, because this is not material in bronze plans.

SOA Answer:

This proposal may not have the intended effect of increasing membership, for several reasons:

- Bronze plans have high combined deductibles that must be fulfilled before non-preventive dental coverage is provided.
- In a given year, few individuals or families hit this deductible, so the dental benefit might have little value.
- The ACA already provides pediatric dental coverage, lessening the value of this benefit.
- The infrastructure of dental and medical plans is different which could make administration of the plan challenging.

- Requires addition of dental providers to the network
- The clientele for bronze plans is usually healthier and more cost conscious. Adding dental coverage may increase the cost of the plan, which is contrary to what the clientele may want.

4. Spring 2023 DP #4a

Part a:

Source(s): Skwire 7 – Pharmacy Benefits (US)

Question: List and describe the entities in the prescription drug benefits system framework.

SOA Commentary on Question:

Candidates generally performed well on Part (a). Candidates received full credit for outlining the main entities and describing their roles in the prescription drug benefit system.

SOA Answer:

There are seven entities in the prescription drug benefits system framework:

Pharmaceutical Manufacturers research, obtain approval for, produce, and distribute pharmaceutical products and prescription drugs.

Pharmaceutical Wholesalers purchase prescription drugs from manufacturers and distribute drugs to pharmacies.

Pharmacies dispense prescription drugs directly to beneficiaries and purchase prescription drugs either from pharmaceutical wholesalers or directly from pharmaceutical manufacturers.

Pharmacy Benefit Managers (PBMs) administer prescription drug benefit programs. PBMs are either affiliated with an insurance company or operate independently.

Third-Party Payers are insurance companies, employers, or government programs that fund the prescription drug benefit. In some instances, third party payers may assume the risk associated with fluctuations in pharmacy claims.

Beneficiaries are consumers of prescription drugs.

Prescribing Health Care Providers diagnose and prescribe drugs for beneficiaries.

Group and Health 101
Curated Past Exam Solutions
Learning Objective #2: Manual Rates
Applicable SOA Questions: Fall 2020 to Fall 2024
Solutions

Contents

1. Fall 2020 DP-C #2 2
2. Fall 2020 DP-C #5 4
3. Spring 2021 DP-C #1 6
4. Spring 2021 DP-C #2 10
5. Fall 2021 DP-C #2 12
6. Spring 2022 DP #6 17
7. Spring 2022 DP #7 22
8. Spring 2022 DP #9 25
9. Fall 2022 DP #8 30
10. Fall 2022 DP #10 32
11. Fall 2022 DP #12 36
12. Spring 2023 DP #5 41
13. Spring 2023 DP #7 44
14. Spring 2023 DP #8 47
15. Fall 2023 DP #5b-c 50
16. Fall 2023 DP #8 53
17. Spring 2024 DP #7 57
18. Spring 2024 DP #9 58
19. Fall 2024 DP #1 61
20. Fall 2024 DP #3 63
21. Fall 2024 DP #4 66

1. Fall 2020 DP-C #2

Part a:

Source(s): Skwire 7 – Pharmacy Benefits (US)

Question: Describe four factors that influence prescription drug costs and benefit offerings

SOA Commentary on Question:

Candidates generally performed well on part (a). This model solution describes 4 items as requested, but any of the 10 options identified in the text received credit provided the item was described and not merely listed.

SOA Answer:

Prescription Drug Pipeline – Research and development (R&D) brings powerful new drugs to market, providing new solutions for patients.

Brand Patent Protection – New drugs are covered by patents that protect the original manufacturer from competition for a period of time.

Direct-to-consumer advertising – Marketing to consumers has increased consumer awareness of new, high cost drugs.

Aging population – Older people typically have more medical conditions.

Part b:

Source(s): Skwire 23 – Pharmacy Claim Costs

Question: Describe analytical pricing considerations in developing prescription drug plan premiums.

SOA Commentary on Question:

Many candidates listed important rating factors instead of the analytic pricing considerations requested. Both appear in the same chapter of the Group Insurance text.

SOA Answer:

Timing of Rebates – Plans typically collect rebates from the PBM quarterly or semi-annually, which creates a lag between when rebates are earned and when the plan receives the rebate payment.

Credibility – Some plans may not have sufficient experience to use when projecting future claims.

Integrated Plans – Many plans integrate the medical and drug benefit designs.

Fixed Cost Leveraging – Trend in plan liability will be greater than the trend in allowed costs whenever deductibles or copays are part of the plan design.

Part c:

Source(s): Skwire 23 – Pharmacy Claim Costs

Question: Calculate the change in plan liability from 2018 to 2019 for the generic drug tier. Show your work.

SOA Commentary on Question:

Candidates generally performed well on part (c). Common mistakes included using the wrong assumptions (discount, copay, or dispensing fee) from the case study or applying the discount incorrectly.

SOA Answer:

2018 Ingredient Cost = (100% - Discount) X AWP
= (1 - 0.75) x 50 = 12.50
2018 Allowed Amount = Ingredient Cost + Dispensing Fee + Vaccine Fee + Sales Tax
= 12.50 + 1.50 + 0 + 0 = 14.00
2018 Expected Plan Liability = Allowed Amount – Effective Cost Share
= 14.00 – 10 = 4.00
2019 Ingredient Cost = (100% - Discount) X AWP
= (1 - 0.75) x 55 = 13.75
2019 Allowed Amount = Ingredient Cost + Dispensing Fee + Vaccine Fee + Sales Tax
= 13.75 + 2 + 0 + 0 = 15.75
2019 Expected Plan Liability = Allowed Amount – Effective Cost Share
= 15.75 – 10 = 5.75
Expected Plan Liability Change = 2019 Expected Plan Liability - 2018 Expected Plan Liability
= 5.75 – 4.00 = 1.75

Part d:

Source(s): Skwire 23 – Pharmacy Claim Costs
Question: Calculate the price protection rebate required to maintain the same net plan liability for the remainder of 2018. Show your work.

SOA Commentary on Question:

Candidate performance on part (d) was mixed. The most common mistake was not realizing that the discount on AWP, the dispensing fee, and the member copay would not change for the final month of 2018.

SOA Answer:

Before the Change

Discounted Cost = AWP x (1-Discount) = $2,675 x (1-0.08) = $2,461
Member Copay = $150
Net Plan Liability = Discounted Cost + Dispensing Fee – Member Copay – Price Protection Rebate + Sales Tax + Vaccine Fee = $2,461 +$1.50 - $150 - $0 + $0 + $0 = $2,312.50

After the Change

Discounted Cost = AWP x (1-Discount) = $2,700 x (1-0.08) = $2,484
Member Copay = $150
Net Plan Liability = Discounted Cost + Dispensing Fee – Member Copay – Price Protection Rebate + Sales Tax + Vaccine Fee = $2,484 +$1.50 - $150 – Price Protection Rebate + $0 + $0 = $2,312.50
= $2,335.5 – Price Protection Rebate = $2,312.50
Price Protection Rebate = $23

2. Fall 2020 DP-C #5

SOA Commentary on Question:

Candidates struggled with parts (a) and (b) but performed well on part (c). Parts (a) and (b) required the candidate to perform a series of calculations in order to arrive at the answer. Partial credit was given if candidates performed some of the calculations correctly, even if the final answer was incorrect.

Part a:

Source(s): Skwire 21 – Medical Claim Costs
Question: Calculate the value of the following deductibles in 2020: $50 , $100

SOA Commentary on Question:

Candidates struggled more with the $100 deductible than the $50 deductible. Many candidates attempted to calculate the value of the $100 deductible directly by making assumptions about the claims within the $50-$150 corridor. Instead, candidates should have calculated the value of a $150 deductible and then interpolated between the $50 and $150 deductible values.

SOA Answer:

Range of Claims	Percent Insureds	2019 Expected Claim Cost	2020 Expected Claim Cost	Annual Cost	Accumulated Frequency	Accumulated Annual Cost
	(a)		(b)	(c) = (a)*(b)	(d)	(e)
$0	15.0%	$0.00	$0.00	$0.00	100.0%	$162.00
$0.01 - $50	25.0%	$19.05	$20.00	$5.00	85.0%	$162.00
$50.01 - $150	30.0%	$66.67	$70.00	$21.00	60.0%	$157.00
$150.01 - $500	20.0%	$238.10	$250.01	$50.00	30.0%	$136.00
$500.01 - $1500	9.5%	$761.90	$800.00	$76.00	10.0%	$86.00
>$1,500.01	0.5%	$1,904.76	$2,000.00	$10.00	0.5%	$10.00

Value of claims with no deductible: $162
Value of claim cost in excess of $50 = $157 – ($50 x 60%) = $127
Value of claim cost in excess of $150 = $136 – ($150 x 30%) = $91

Value of $50 deductible = $162 - $127 = **$35**

Value of $150 deductible = $162 - $91 = $71
Value of $100 deductible = $35 + ½ x ($71 - $35) = **$53**

Part b:

Source(s): Skwire 22 – Dental Claim Costs
Question: Calculate the 2020 net benefit cost. Show your work.

SOA Commentary on Question:

Most candidates performed poorly on this part of the question. Many candidates did not back out the 2019 provider discount (35%) from the 2019 average costs before applying the 2020 provider discount (40%). Some candidates also struggled to correctly apply the utilization rates in calculating

the net benefit cost, perhaps not realizing that utilization was provided at an annual rate per 1,000 members.

SOA Answer:

	(1) Annual Services per 1k Members	(2) Avg Cost per Service	(3) New Cost Per Service= (2) * (1 - 40%) / (1 - 35%)	(4) New Gross PMPM Benefit Cost= (1) / 1k * (3) / 12	(5) Preferred Provider Coins	(6) Value of Cost sharing= (4) * (5)	(6) Net Benefit Cost PMPM= (4) - (6)
Class I	4,500	$75	$69.23	$25.96	0%	$0.00	$25.96
Class II	1,500	$238	$219.69	$27.46	20%	$5.49	$21.97
Class III	500	$2,500	$2,307.69	$96.15	50%	$48.08	$48.08
Subtotal				$149.58		$53.57	**$96.01**

Part c:

Source(s): Skwire 6 – Dental Benefits (US)

Question: Recommend cost mitigation strategies to limit antiselection risk for dental insurance. Justify your response.

SOA Commentary on Question:

Most candidates performed well on this part of the question. For full credit, candidates needed to provide at least 3 strategies with definitions or explanations about how the strategies mitigate antiselection. Credit was given for strategies found in the source material beyond those listed here.

SOA Answer:

I recommend the following mitigation strategies:

- Extend waiting period. Typically 3 months, might extend it to 6-9 months to further reduce antiselection.
- Increase cost sharing for certain procedures. Introduce deductible to class II and class III to avoid patients choosing to have higher level services performed unless necessary.
- Introduce some lower cost benefits, such as oral cancer screening to have early detection and lower the overall treatment cost
- Introduce benefit max, so the increased liability will deter the patients from seeking services rendered when not medically necessary.

3. Spring 2021 DP-C #1

Part a:

Source(s): Skwire 7 – Pharmacy Benefits (US)
Question: Describe the duties of a pharmacy benefit manager.

SOA Commentary on Question:

Candidates generally did well on this part of the question and received full credit for providing the items below along with a brief description of each.

SOA Answer:

The duties of a pharmacy benefit manager are as follows:

1. Administrative duties – Adjudicate claims per the plan document and make payments to providers
2. Member services – manage call center, issue insurance cards, and resolve member issues
3. Negotiator – negotiate rebates with manufacturers, negotiate discounts with pharmacies, and manage relationships with third party payers
4. Utilization management – implement utilization / clinical management programs, offer benefit feature incentives, manage drug adherence programs, and maintain/update formulary

Part b:

Source(s): Skwire 23 – Pharmacy Claim Costs
Question: List and describe the components of a pharmacy allowed amount.

SOA Commentary on Question:

Most candidates received full credit for this question for listing the items below and providing a brief description. Candidates who did not provide a brief description for an item received partial credit.

SOA Answer:

The components of the pharmacy allowed amount are as follows:

1. Discounted ingredient cost – this is also known as the Average Wholesale Price (AWP) less discount. The cost of the prescription drug after negotiated discount.
2. Dispensing fee – the fee charge by a pharmacy to fill a pharmacy script.
3. Vaccine fee – the charge for administering vaccines.
4. Sales tax – the charge associated with the sales of a prescription drug. Only a few states require sales tax for the sale of prescription drugs.

Part c:

Source(s): Skwire 23 – Pharmacy Claim Costs
Question: Describe formulary management programs that can impact a plan's expected cost and utilization.

SOA Commentary on Question:

Candidates who listed the items below with a brief description received full credit. Some candidates provided a list of items not applicable to formulary management programs and received no credit.

SOA Answer:

Formulary management programs deployed by pharmacy benefit managers to impact a plan's expected cost and utilization include the following:

Prior authorization – requires approval from the pharmacy benefit manager (PBM) prior to filling a prescription. This is the most restrictive formulary management program and restricts the use of certain drugs.

Step therapy – requires a patient to try a lower cost drug (that is clinically or therapeutically equivalent) or a series of drugs before providing coverage for a specific drug. For example, patients diagnosed with hypertension may be required to try first-line drug therapies like diuretics or beta blockers prior to beginning treatment with newer, more expensive and often riskier medications like calcium channel blockers or ACE inhibitors.

Quantity limit – restricts the number of days supply or the number of units per day dispensed for a given prescription. This might be done as a safety measure, to avoid waste, or a savings measure. For example, some pain medications have a limit on the number of pills per day that can be dispensed to avoid overuse.

Part d:

Source(s): Skwire 23 – Pharmacy Claim Costs
Question: Calculate the change in ABC's allowed cost per member per month (PMPM) from 2020 to 2022. Show your work.

SOA Commentary on Question:

Candidates generally performed well on this question and received full credit. Some candidates made minor calculation errors and received partial credit (e.g., did not correctly calculate the PMPM using scripts / utilization information and allowed amount)

SOA Answer:

The calculations of the allowed amount in 2020 and 2022 are shown below.

2020

Drug	Scripts / 1,000	AWP	Discount	Dispensing Fee	Allowed / Script	Allowed PMPM
A	6,000	$50	80%	$2.00	$12.00	$6.00
B	7,200	$60	85%	$2.00	$11.00	$6.60
C	2,400	$250	60%	$2.00	$102.00	$20.40
D	1,800	$300	60%	$2.00	$122.00	$18.30
E	3,600	$400	40%	$2.00	$242.00	$72.60
F	36	$10,000	25%	$2.00	$7,502.00	$22.51
PMPM						**$146.41**

Scripts per 1000: information is given
AWP: information is given
Discount: information is given
Dispensing Fee: information is given

Course GH 101 – Benefits and Pricing

Learning Objective 2: Manual Rates

Allowed / Script = AWP * (1 – Discount) + (Dispensing Fee)
PMPM = sumproduct of (Scripts and Allowed) / 12,000

2022

Drug	Scripts / 1,000	AWP	Discount	Dispensing Fee	Allowed / Script	Allowed PMPM
A	6,000	$50	80%	$2.00	$12.00	$6.00
B	7,200	$60	90%	$2.00	$8.00	$4.80
C	2,400	$250	65%	$2.00	$89.50	$17.90
D	1,800	$300	65%	$2.00	$107.00	$16.05
E	3,600	$400	35%	$2.00	$262.00	$78.60
F	36	$10,000	25%	$2.00	$7,502.00	$22.51
PMPM						**$145.86**

Change in PMPM = $145.86 - $146.41 = ($0.55)
PMPM decreased by $0.55

The allowed amount calculated without the dispensing fee also resulted in a decrease in the PMPM of $0.55 – candidates also received full credit for this calculation.

Part e:

Source(s): Skwire 23 – Pharmacy Claim Costs
Question: Calculate the change in the 2022 net plan cost PMPM due to the formulary revisions.

SOA Commentary on Question:

Many candidates made minor calculation errors and did not receive full credit for this part. There was a change in formulary / tiering (i.e. a difference in the copay amount between the current formulary and the new formulary); many candidates calculated the change in the PMPM cost that is only reflective of the introduction of the rebates and not the change in formulary tiering.

SOA Answer:

2022 Current Formulary

Drug	Tier	Scripts	Allowed	Rebates	Copay	Plan Cost
A	1	6,000	$12.00	$0.00	$5.00	$7.00
B	1	7,200	$8.00	$0.00	$5.00	$3.00
C	2	2,400	$89.50	$0.00	$25.00	$64.50
D	3	1,800	$107.00	$0.00	$50.00	$57.00
E	3	3,600	$262.00	$0.00	$50.00	$212.00
F	4	36	$7,502.00	$0.00	$2,250.60	$5,251.40
	Plan Paid PMPM					**$106.10**

Allowed: Calculated in part d)
Rebates: Information is given
Copay: Information is given; for Drug F, copay = Allowed * 30% coinsurance
Plan Cost = Allowed Amount – Rebates – Copay

Plan Paid PMPM = sumproduct of (Scripts and Plan Cost) / 12,000

2022 New Formulary

Drug	Tier	Scripts	Allowed	Rebates	Copay	Plan Cost
A	1	6,000	$12.00	$0.00	$5.00	$7.00
B	1	7,200	$8.00	$0.00	$5.00	$3.00
C	2	2,400	$89.50	$25.00	$25.00	$39.50
D	2	1,800	$107.00	$25.00	$25.00	$57.00
E	2	3,600	$262.00	$25.00	$25.00	$212.00
F	4	36	$7,502.00	$0.00	$2,250.60	$5,251.40
	Plan Paid PMPM					**$101.10**

Change in PMPM = $101.10 - $106.10 = ($5.00)
PMPM decreased by $5.00

Candidates who calculated the difference in PMPM between 2020 formulary vs. 2022 new formulary and arrived at a decrease of $5.55 in PMPM also received full credit for this question.

Part f:

Source(s): Skwire 7 – Pharmacy Benefits (US)
Question: Recommend actions ABC can take to further reduce its costs. Justify your response.

SOA Commentary on Question:

Candidates performed well on this part; most candidates provided a subset of the items below with justification and received full credit.

SOA Answer:

The following actions (along with justification) can be pursued by ABC to further reduce its costs.

1. **Formulary** – modify the formulary list to favor drugs with a lower cost for a comparable clinical efficacy
2. **Rebates / discounts** – renegotiate for higher rebates /discounts for drugs on the formulary list.
3. **Drug tiers** – place lower cost, therapeutically equivalent drugs at lower tiers
4. **Formulary management / utilization management** – implement programs such as step therapy (mandate use of lower cost drugs first), prior authorization (require clinical review/approval for use of drug), and quantity limits (limit the quantity dispensed to reduce waste)
5. **Exclusion** – do not cover certain drugs on the plan
6. **Cost share** – increase cost share and shift cost to members (e.g., higher deductible, copays, and coinsurance)
7. **Mail order –** incent members to use mail order especially for maintenance medication

4. Spring 2021 DP-C #2

Part a:

Source(s): Skwire 29 – Group UW

Question: Describe characteristics of successful health plan underwriting and rating.

SOA Commentary on Question:

Candidate performance was mixed on part (a). Most candidates listed information gathered during underwriting and items taken into consideration for rating.

Additional Comments on Question:

The original source material used for this answer is no longer on the syllabus thus this exact answer would be expected, however some general knowledge about underwriting and rating would be expected.

Answer:

- Rates are high enough to generate sufficient revenue to cover all claims and other plan expenses and to yield an acceptable return on equity.
- Rates are low enough to sell enough policies and enroll enough members to meet health plan volume and growth targets.
- Rates will approximate any given group's costs without an unreasonable amount of cross-subsidization among groups. Equitable rates are achieved through applying various rating factors appropriately and result in higher persistency.

Part b:

Source(s): Skwire 20 – Pricing Group Insurance

Question: (i) Critique the rate calculation. (ii) Propose adjustments to the calculation. Justify your response.

SOA Commentary on Question:

Many candidates critiqued what was missing from the rate calculation without critiquing the listed components of the rate calculation.

Most candidates did well on part (b)(ii). Credit was given for reasonable answers not included in the model solution.

SOA Answer:

(i) **Manual Rate** – The starting rate of $399.50 is a PMPM rate for PPO500. This rate does not align with the given tier structure (EE only / EE + Family). Recommend converting manual rate into two-tier structure. The rate also needs to be adjusted for the effective date of the policy and the fact that the policy being quoted is for 18 months vs. the typical 12-month period.

Final Rate – The final rate needs to incorporate non-claim expenses and should be rounded to two decimal places.

(ii) **Retention** – Add expense load since one was not included in the calculation.
Actual Experience – Company XYZ has 500 enrolled employees. A group this size is large enough to include their actual experience in the calculation.
Geographic/Area Factor – Add area factor to the calculation since one was not included in the calculation.
Trend – A trend factor should be included to account for the 18-month policy period.

Part c:

Source(s): Skwire 20 – Pricing Group Insurance
Question: Create a data request. Justify each element included in the request.

SOA Commentary on Question:
Most candidates received partial credit on part (c) as they listed data elements needed but did not justify inclusion of the data elements. Credit was given for reasonable answers not included in the model solution.

SOA Answer:
Monthly Medical/Rx Claims & Enrollment – This information will be used to determine trend for PMPM claims and the level of historical claims.
Large Claim Report – This information will be used to determine if a pooling adjustment is necessary.
Plan Designs – Historical and current plan designs will be used to adjust historical experience to the current plan design.
Historical Claim Lag Triangles – This information will be used to create completion factors which will be applied to paid claim amounts.

Part d:

Source(s): Skwire 20 – Pricing Group Insurance
Question: Propose adjustments to the rate calculation to incorporate XYZ's claims experience. Justify your response.

SOA Commentary on Question:
Most candidates received partial credit on part (d) for providing adjustments without justification. Credit was given for reasonable answers not included in the model solution.

SOA Answer:
The rate calculation should:
Switch from community-rated to experience-rated.
Credibility weight claims with manual rate.
Adjust claims to align with proposed plan design.

These adjustments will ensure the premium for XYZ more closely mirrors XYZ's experience and expected level of claims and allow Royale Health to have a more competitive offering in this market.

5. Fall 2021 DP-C #2

Part a:

Source(s): Skwire 35 – Medical Claim Cost Trend

Question: Describe the following components of core cost trend and provide an example for each: (i)Unit cost trend, (ii)Severity and (iii)Mix of services.

SOA Commentary on Question:

Most candidates were able to describe the trend components and provide examples.

SOA Answer:

(i) The year-over-year change in the cost of a fixed basket of services, holding utilization constant. It is similar to a Consumer Price Index (CPI) calculation, a common measure of inflation. For example, a provider increases their physician fee schedules for a visit by 5% in order to keep pace with inflation.

(ii) Severity: This part refers to the change in the intensity of treatment. An example would be a shift away from 15-minute office visits to more 30-minute office visits.

(iii) Component refers to high-level changes such as the overall distribution between inpatient, outpatient, professional, and other services. Because of the complexity involved in analyzing all possible changes due to mix of services, it is often thought of as a balancing item. An example would be an overall shift in utilization from Inpatient settings to Outpatient settings.

Additional Answer:

(iii) The mix component measures the impact from the changes in utilization and the changes in cost per service **NOT** being independent across service category. An example would be if cost per service increase was 5% for all service categories except for inpatient services **AND** utilization/1,000 increased 3% for all service categories except for inpatient services. Because inpatient services have different cost per service and utilization/1,000 changes than all of the other service categories, this will cause the mix component to become none zero.

Part b:

Source(s): Skwire 35 – Medical Claim Cost Trend

Question: Calculate the components of core cost trend for 2021. Show your work.

SOA Commentary on Question:

Candidates struggled to calculate the components of core cost trend. Many candidates were unable to calculate Severity (a cost trend component calculated using changes in utilization weights) and Core Utilization (higher-level adjustments based on economic impacts, workdays/holidays, and pent-up demand). Partial credit was given to candidates who were able to demonstrate the key concepts of each component, holding utilization constant to calculate unit cost, holding unit cost constant to calculate severity, and calculating service mix as a balancing item.

SOA Answer:

Column	Description
A	2020 Utilization/1000
B	2020 Cost Per Service
C	2021 Projected Utilization/1000
D	2021 Projected Cost Per Service
E	2020 Utilization Weight
F	2021 Utilization Weight

Column:	A	B	C	D	E	F
	2020		**2021**		**2020**	**2021**
Medical Subcategory	Given	Given	Given	Given	=A/(Sum of Col A)	=C/(Sum of Col C)
Inpatient - Medical	100	4,000	110	4,100	0.6%	0.6%
Inpatient - Surgical	80	9,000	85	9,100	0.5%	0.5%
Inpatient - Maternity	25	3,500	35	3,600	0.1%	0.2%
Inpatient - Mental Health	20	1,000	25	1,050	0.1%	0.1%
Inpatient - Other	20	600	25	620	0.1%	0.1%
Outpatient - ER	150	1,200	155	1,220	0.8%	0.9%
Outpatient - Radiology	300	600	195	610	1.7%	1.1%
Outpatient - Pathology	350	200	355	220	2.0%	2.0%
Outpatient - Surgery	120	3,400	125	3,450	0.7%	0.7%
Outpatient - Other	500	250	520	260	2.8%	2.9%
Office Visit - 15 minutes	5,300	60	5,350	70	29.8%	30.0%
Office Visit - 30 minutes	2,800	80	2,805	85	15.8%	15.7%
Other	170	300	175	320	1.0%	1.0%
Ambulance	15	1,400	20	1,410	0.1%	0.1%
Rx	7,000	75	7,005	80	39.4%	39.3%
Physical Therapy	700	115	705	120	3.9%	4.0%
Other	120	200	125	200	0.7%	0.7%
Unit Cost Trend	4.50%	=(SUMPRODUCT of columns D & E) / (SUMPRODUCT of columns B & E) - 1				
Severity	2.87%	=(SUMPRODUCT of columns B & F) / (SUMPRODUCT of columns B & E) - 1				
Service Mix (Balancing)	-0.05%	=(1+Core Cost Trend) / ((1+Unit Cost Trend)*(1+Severity Trend))-1				
Core Cost Trend	7.45%	=((SUMPRODUCT of columns C & D)/sum(D)) / ((SUMPRODUCT of columns A & B)/sum(B)) - 1 Or =(SUMPRODUCT of columns F & D) / (SUMPRODUCT of columns E & B) - 1				

Part c:

Source(s): Skwire 35 – Medical Claim Cost Trend

Question: Calculate the components of the final trend projection and complete the table below. Show your work.

Trend Component	**Projected 2021 Trend**
Core Cost Trends	
Core Utilization Trends	
One-Time Changes	
Population Shifts	
Structural Changes	
Alternative Payment Models	
Allowed Trend	
Leveraging	
Net Paid Trend	

SOA Commentary on Question:

Candidate performance on this part was mixed. Many candidates were able to calculate the workday adjustment. Credit for Core Cost Trends was given based on each candidate's calculation from part (b). Partial credit was given to candidates who summed trends rather than using multiplicative factors.

SOA Answer:

Day Counts			
	2020	**2021**	**Weights**
Weekdays	252	251	1.00
Weekends and Holidays	114	114	0.45

Weighted Sum, 2020	303.3	=252*1.00+114*0.45
Weighted Sum, 2021	302.3	=251*1.00+114*0.45
Workday Trend Impact	-0.3%	=302.3/303.3-1

Trend Component	Projected 2021 Trend	Source	Formula
Core Cost Trends	7.45%	*candidate answer from part (b)*	=(1+Unit Cost)*(1+Severity)*(1+Service Mix)-1
Core Utilization Trends	-0.3%	*calculated using Day Counts table*	*calculation shown above*
One-Time Changes	2.0%	*given in question*	One-Time Pandemic Adjustment
Population Shifts	0.8%	*calculated from question*	Product of Demographic Changes & Geographic Changes =(1+.003)*(1+0.005)-1
Structural Changes	0.6%	*calculated from question using Benefit, Clinical, Network components*	Product of Benefit Changes & Clinical Program Changes & Network Changes =(1+0.005)*(1-0.002)*(1+0.003)-1
APM Trend Impact	0.1%	*given in question*	Capitation Impact
Allowed Trend	**10.9%**	*calculated using above components*	=(1+0.745) * (1-0.003) * (1+.020) * (1+0.008) * (1+0.006) * (1+0.001) - 1
Leveraging	0.5%	*given in question*	Expected Impact of Leveraging
Net Paid Trend	**11.44%**	*calculated using components in this table*	=(1+0.109)*(1+0.005)-1

Part d:

Source(s): Skwire 35 – Medical Claim Cost Trend

Question: Calculate the revised 2021 trend. Show your work. Explain differences between the projected and current estimates.

SOA Commentary on Question:

Most candidates were able to calculate the current trend estimate and compare it to the projection. Candidate explanations varied with many candidates listing differences in trends without explanation of the overall projection and possible reasons for variance.

SOA Answer:

Trend Component	Projected 2021 Trend	Revised 2021 Estimate	Difference
Core Cost Trends	7.4%	3.4%	-4.0%
Core Utilization Trends	-0.3%	3.0%	3.3%
One-Time Changes	2.0%	3.0%	1.0%
Population Shifts	0.8%	0.5%	-0.3%
Structural Changes	0.6%	0.5%	-0.1%
APM Trend Impact	0.1%	0.2%	0.1%
Allowed Trend	**10.9%**	**11.0%**	**0.1%**
Leveraging	0.5%	0.6%	0.1%
Net Paid Trend	**11.4%**	**11.7%**	**0.2%**

The current Allowed trend is within 0.1% of the projected. The net paid trend (11.7%) is just slightly higher than projected (11.4%).

In the allowed trend there are offsetting differences between components. Core cost trends were significantly overstated, which were offset by understated utilization trends.
Core cost trends could have been overstated due to an unforeseen contract negotiation that resulted in a smaller than expected increase in the unit cost trends. There could have also been a systematic overstatement of the core cost trends.

Utilization trends were significantly understated, which may be because they were calculated only using workday and weekend weights. There could have been a new drug introduced or loss of patent protection of an existing drug, resulting in higher-than-expected utilization.

Part e:

Source(s): Skwire 35 – Medical Claim Cost Trend
Question: Recommend modifications to improve the trend projection process. Justify your response.

SOA Commentary on Question:

Candidates needed to provide multiple trend process modifications with justification in order to receive full credit. Credit was given for reasonable answers not included here.

SOA Answer:

I recommend performing a detailed analysis to calculate utilization trends on a book-of-business level and then using those for all sub-groups. Utilization changes should be tracked over time and should incorporate more than just workdays and weekends/holidays. The detailed study should include a pipeline analysis of new drugs coming to the market or losses of patent protections on existing drugs. This additional detail will help the company understand more about what is driving trend to help make more informed assumptions.

I also recommend developing core cost trends using more than just one year of experience data. Using multiple years of data may help smooth out potential outliers and noise, leading to a more accurate forecast.

6. Spring 2022 DP #6

Part a:

Source(s): Skwire 21 – Medical Claim Costs

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

SOA 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.

SOA Answer:

- 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).

Part b:

Source(s): Skwire 21 – Medical Claim Costs

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

SOA 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.

SOA Answer:

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

				Distribution			
Area	2019 MM	2020 MM	2022 MM	2019	2020	2022	Factors from (i)
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**	

Part c:

Source(s): Skwire 21 – Medical Claim Costs

Question: 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.

SOA 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.

SOA Answer:

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

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

						Distribution				
Gender	Age	2019 MM	2020 MM	Manual	2022 MM	2019	2020	Manual	2022	Factors from (i)
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**	

Part d:

Source(s): Skwire 21 – Medical Claim Costs

Question: Calculate the credibility blended allowed PMPM claim cost for 2022 using the 2019 and 2020 experience and manual rates. Show your work.

SOA 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.

SOA Answer:

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**		

Part e:

Source(s): Skwire 21 – Medical Claim Costs

Question: 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. And (ii) The claim cost factor varies by gender. Assess each statement. Justify your response.

SOA 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).

SOA Answer:

(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. Spring 2022 DP #7

Part a:

Source(s): Skwire 6 – Dental Benefits (US), Skwire 21 – Medical Claim Costs

Question: 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				

SOA 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.

SOA Answer:

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 credentialling 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 credentialling 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.

Part b:

Source(s): Skwire 22 – Dental Claim Costs
Question: Describe financial risks and benefits employers address by offering group dental insurance.

SOA Commentary on Question:

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

SOA Answer:

- 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.

Part c:

Source(s): Skwire 22 – Dental Claim Costs
Question: Calculate (i) The expected per member per month (PMPM) claim costs. (ii) The gross monthly premium. Show your work.

SOA 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.

SOA Answer:

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

Part d:

Source(s): Skwire 22 – Dental Claim Costs

Question: Describe methods an insurer can use to lower expected dental claim costs without changing the cost sharing provisions.

SOA Commentary on Question:

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

SOA Answer:

- 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. Spring 2022 DP #9

SOA 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 interpretating the results.

Part a:

Source(s): Skwire 5 – Medical Benefits (US)
Question: Describe the purpose of cost sharing in a medical benefit plan.

SOA Commentary on Question:

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

SOA Answer:

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.

Part b:

Source(s): Skwire 21 – Medical Claim Costs
Question: Calculate the minimum claims in 2021 required to reach the OOPM. Show your work.

SOA Commentary on Question:

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

SOA Answer:

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	

Part c:

Source(s): Skwire 21 – Medical Claim Costs

Question: Calculate the 2021 PEPY claim liability for: (i) Employees (ii) ABC Consulting. Show your work.

SOA 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.

Some candidates used the Claim Probability Distribution (CPD) method following Group Insurance Chapter 21 to calculate the PEPY liabilities.

SOA Answer:

(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
$,1001 to $3,000	15%	$1,600	$240	$480	$1,120
$3,001 to $7,200	10%	$4,000	$400	$960	$3,040
$7,201 to $20,000	5%	$11,000	$550	$1,600	$9,400
$20,001 to $40,000	3%	$25,000	$750	$1,600	$23,400
$40,001 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.

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
$,1001 to $3,000	15%	$1,600	$240	35%	$3,140	$3,000	$2,300
$3,001 to $7,200	10%	$4,000	$400	20%	$2,900	**$7,200**	**$1,780**
$7,201 to $20,000	5%	$11,000	$550	10%	$2,500	$20,000	$950
$20,001 to $40,000	3%	$25,000	$750	5%	$1,950	$40,000	$400
$40,001 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% x $3,090 + 20% x $1,780 = **$2,828**. The leftover claims of $3,220 - $2,828 = **$392** is borne by employee.

Part d:

Source(s): Skwire 21 – Medical Claim Costs

Question: 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.

SOA 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.

SOA Answer:

(i) 2022 PEPY claim liability for employees in the PPO plan is $551. Detailed calculations are 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
$,1001 to $3,000	12.0%	21.66%	$1,600	$347	$480	$1,120
$3,001 to $7,200	8.0%	14.44%	$4,000	$578	$960	$3,040
$7,201 to $20,000	4.0%	7.22%	$11,000	$794	$1,600	$9,400
$20,001 to $40,000	2.4%	4.33%	$25,000	$1,083	$1,600	$23,400
$40,001 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:

(1) Column a "Proportion of PPO in Total Claims", is calculated as percentage of policies x proportion of PPO 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.

(ii) 2022 PEPY claim liability for employees in the HDHP plan is $556. Detailed calculations are 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
$,1001 to $3,000	3.0%	6.73%	$1,600	$108	$1,600	$0
$3,001 to $7,200	2.0%	4.48%	$4,000	$179	$3,250	$750
$7,201 to $20,000	1.0%	2.24%	$11,000	$247	$5,000	$6,000
$20,001 to $40,000	0.6%	1.35%	$25,000	$336	$8,500	$16,500
$40,001 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.

(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% x $4,500 + 44.6% x $390 = $2,667.

Part e:

Source(s): Skwire 21 – Medical Claim Costs

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

SOA 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.

SOA Answer:

(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% x $1,200 + 44.6% x $900 = $1,067. In addition, the cost of ABC's contribution to HSA accounts was $100 x 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.

9. Fall 2022 DP #8

Part a:

Source(s): Skwire 7 – Pharmacy Benefits (US)

Question: Describe the following layers of the pharmacy distribution channel and the typical payment mechanism used in each layer: (i) Manufacturer, (ii) Wholesaler, (iii) Retailer, (iv) Consumer.

SOA Commentary on Question:

Candidates did well on this section, with most candidates get full credits if they described the distribution channel and mentioned the payment mechanism (AWP, WAC, U&C). Candidates will get partial credit if they don't give payment mechanism.

SOA Answer:

(i) Manufacturer

- Develops and manufactures drugs. They incur significant R&D costs in this process, and are rewarded with a 12 year brand patent protection period. They also set the WAC (wholesale acquisition cost), which is a suggested price for sale to wholesalers. They typically sell to wholesalers, but may also sell directly to pharmacies or hospitals.
- Negotiate rebates with PBMs to get brand drugs included on formularies.

(ii) Wholesaler

- Purchases drugs from the manufacturer at the WAC.
- Acts as a middleman between wholesalers and retailers (pharmacies)
- Typically sell based on WAC plus a markup or a discount off of AWP (average wholesale price).

(iii) Retailer

- Purchases drugs from wholesalers (or sometimes directly from manufacturer) and sells to consumers.
- The price they purchase at could be the WAC plus a markup or discount off of AWP.
- They sell to consumers at a usual and customary price if they are uninsured. Insured members pay their copay or other defined cost sharing.
- The price charged to insurers is a discount off of AWP.

(iv) Consumer

- Purchases drugs from pharmacies/retailers that are prescribed to them by their physician.
- Pay a usual and customary (U&C) price if uninsured, or their copay if insured.

Part b:

Source(s): Skwire 7 – Pharmacy Benefits (US)

Question: Describe ways the Affordable Care Act (ACA) impacted pharmacy benefits.

SOA Commentary on Question:

Candidate performance was mixed on this question. Most candidates mentioned Rx coverage being EHB but did not provide enough for full credit.

SOA Answer:

- Coverage gap in Medicare Part D plans is phased out under ACA.
- Qualified Health Plans, as defined by the ACA, have mandatory out-of-pocket limits on combined medical and pharmacy spending.
- The ACA mandates 0% member cost sharing on preventative drugs as well as on contraceptives.
- Prescription drug coverage is additionally listed as an Essential Health Benefit (EHB) under the ACA, making it part of the set of health care service categories that must be covered by certain plans.

Part c:

Source(s): Skwire 23 – Pharmacy Claim Costs
Question: Calculate the Year 4 average per-script: (i) Net plan liability, (ii) Member liability. Show your work.

SOA Commentary on Question:

Candidate performance was mixed. Candidates received partial credit if an error was made at some point of the calculation. Common mistakes candidates made on this part includes

- *Most candidates did not apply x3 multiplier to Mail claims*
- *When calculating member liability, many candidates applied coinsurance % to Allowed minus Rebate. It should be applied to Allowed amount, as rebates are not shared with members and are not reflected in price of drugs at point of sale.*
- *In part d, most candidates did not calculate the claim frequencies correctly after 10% of retail scripts shifted to Mail.*
- *Some candidates did not apply $0 dispensing fee for mail claims.*
- *Some candidates apply discount % to AWP instead of Allowed amount.*

SOA Answer:

See the accompanying Excel file for the full solution

Part d:

Source(s): Skwire 23 – Pharmacy Claim Costs
Question: Calculate the Year 5 average per-script: (i) Net plan liability, (ii) Member liability. State your assumptions. Show your work.

SOA Commentary on Question:

In addition to the common mistakes mentioned in part (c),

- *In part d, most candidates did not calculate the claim frequencies correctly after 10% of retail scripts shifted to Mail.*
- *Trends calculation in part d should be different by drug type (Generic/preferred Brand/non-preferred Brand/Specialty)*

SOA Answer:

See the accompanying Excel file for the full solution

10. Fall 2022 DP #10

SOA Commentary on Question:

Candidates generally did well. There were many opportunities for partial credit and many candidates received high scores overall despite potentially poor performance on one section. Candidates were expected to interpret the information available and use that information to respond to a specific question. The best performing candidates recognized that the question was not looking for opinion statements, but was looking for the candidate to identify important elements in the data and use them to respond to a specific scenario.

Part a:

Source(s): Skwire 21 – Medical Claim Costs

Question: Describe rating variables to consider when normalizing historical data to estimate medical claim costs.

SOA Commentary on Question:

Candidates generally did well. Many answers were accepted so long as they included a reasonable description. Simply listing factors received no credit, and descriptions had to be more than a restatement of the item to receive credit.

The list of responses below is not exhaustive, and four acceptable items would receive full credit.

SOA Answer:

Age and Gender – Older individuals tend to have higher medical costs.

Geographic Area - differences in costs by geography can vary by as much as +/- 50%

Benefit Plan - different plans can have different utilization patterns depending on the degree of cost sharing

Group Characteristics - claim experience can vary by group size or industry

Utilization Management Programs - changes in UM programs during or after the experience period. Impact can vary significantly between health plans

Provider Reimbursement Arrangements - adjust for changes or differences in provider compensation, such as removing capitation or entering into a risk-sharing arrangement with a provider

Other Risk Adjusters - risk adjustments based on claim, diagnosis, encounter or Rx claim data

Part b:

Source(s): ASOP #25 – Credibility Procedures

Question: Describe recommended practices for credibility procedures according to ASOP 25.

SOA Commentary on Question:

Candidate performance was mixed on this item. The items below are the general items graders were looking for while grading, but additional answers were accepted.

SOA Answer:

Selection or development of credibility procedure - whether the procedure is expected to produce reasonable results, if it is appropriate for the intended use, and whether it is practical to implement
Selection of relevant experience - should have similar characteristics to subject, like demographics, coverages, frequency or severity.
Professional judgement -the use of credibility procedures is not always a precise process
Homogeneity of data - Consider the similarities and differences between the subject experience and relevant experience

Part c:

Source(s): Skwire 21 – Medical Claim Costs
Question: Calculate the projected Year 6 PMPM cost for the PPO plan using the current credibility assumptions. Show your work.

SOA Commentary on Question:

Candidates generally did well. Candidates received partial credit even if errors were made. Common errors included pulling data from the wrong table, using the wrong number of trend years, and dropping a factor for normalization.
The solution below assumes the normalization factors are applied multiplicatively, which is consistent with the source material. Full credit was given to candidates who divided by the factors.

SOA Answer:

	PPO	
	Year 3	Year 4
Trend	4.5% per year	
Age/Gender	0.99	0.98
Area	0.99	1.00
Plan	1.00	1.00
Provider Reimbursement	1.00	1.00
Current Credibility	40%	60%

Claims PMPM	$ 232.18	$ 249.05	Taken from PPO Small Group table
Trend Factor	1.141	1.092	= 1.045 ^3 for Year 3, 1.045^2 for Year 2
Normalization Factor	0.980	0.980	= Age/Gender x Area x Plan x Provider Reimbursement
Projected Claims PMPM	$ 259.68	$ 266.53	= Claims PMPM x Trend Factor x Normalization Factor
Composite Projected Claims (PPO Only)		$ 263.79	= 259.68 x 40% + 266.53 x 60%

Part d:

Source(s): Skwire 21 – Medical Claim Costs

Question: Calculate the projected Year 6 PMPM cost for the PPO plan using the proposed credibility assumptions. Show your work.

SOA Commentary on Question:

Candidates generally did well here, and the commentary for part c is applicable,

SOA Answer:

	PPO		HMO	
	Year 3	Year 4	Year 3	Year 4
Trend	4.5% per year			
Age/Gender	0.99	0.98	1.03	1.03
Area	0.99	1.00	0.98	0.99
Plan	1.00	1.00	0.98	0.99
Provider Reimbursement	1.00	1.00	1.05	1.05
Proposed Credibility	30%	40%	15%	15%

Claims PMPM			$ 223.21	$ 230.17	Taken from HMO Small Group table
Trend Factor			1.141	1.092	= 1.045 ^3 for Year 3, 1.045^2 for Year 2
Normalization Factor			1.039	1.060	= Age/Gender x Area x Plan x Provider Reimbursement
Projected Claims PMPM	$ 259.68	$ 266.53	$ 264.57	$ 266.43	= Claims PMPM x Trend Factor x Normalization Factor
	Composite Projected Claims (PPO and HMO)	$ 264.16			= 259.68 x 30% + 266.53 x 40% + 264.57 x 15% + 266.43 x 15%

Part e:

Source(s): Skwire 21 – Medical Claim Costs

Question: Evaluate the CEO's proposal. Justify your response.

SOA Commentary on Question:

Many candidates received at least partial credit on this section. Full credit was awarded to a candidate who commented on the impact of proposal, incorporated the results of parts c and d in their response and relied on details from part c and d to highlight or illustrate other concerns.

The response below would receive full credit, but a wide range of responses were accepted for full credit.

SOA Answer:

The CEO's proposal is not correct because the membership bases that were combined had very different risk profiles. This negated any gains from increased membership attempting to increase the credibility. The HMO product had a more expensive demographic and provider reimbursement factor which offset the lower PMPM.

11. Fall 2022 DP #12

SOA Commentary on Question:

In general, candidates who provided a response to each section performed well. A fair number of candidates either skipped the calculation part of the question or skipped the question in its entirety.

Part a:

Source(s): Skwire 6 – Dental Benefits (US)

Question: Describe cost share and benefit plan provisions used to limit financial and selection risk in dental plans.

SOA Commentary on Question:

Majority of Candidates scored well on this section and were able to identify and explain both cost share and benefit provisions that would limit the financial and/or selection risk. The question asked candidates to describe so candidates who only provided a list received partial credit. Full credit does not require the list / description of all the items listed below.

SOA Answer:

Cost share provisions used to limit the financial and selection risk in dental plan may include:

- Deductible: Usually ranging from $50, $75 or $100, will deter members from using highly discretional procedures.
- Coinsurance and Copay: class III should have higher coinsurance than Class II than Class I. Level of coverage for one class significantly affect the utilization of other class.
- Maximum / Annual Limits: Annual Maximum is common for Class II and III services. Lifetime maximum applies to orthodontics.
- Interactions with Medical plans: Dental can have integrated deductible and out of pocket maximum limit with Medical plans.
- Benefit plan provisions used to limit the financial and selection risk in dental plan may include:
- Care management enable members receive appropriate treatment at a reasonable cost, including Preauthorization and Self-management under capitation
- Preauthorization requires insured to submit a treatment plan to the plan for review before services are delivered.
- Self-management under Capitation, if well designed, will cost 15-40% less than FFS. Providers under capitation arrangement have no incentives to performance more services or elect less expensive treatment.
- Waiting Period: it discourages prospects from enrolling with the intention of having significant dental problems treated in the first year, and then drop coverage.
- Frequency limits: For example, two cleanings per year and one set of diagnostic images per year are common provisions.

Part b:

Source(s): Skwire 22 – Dental Claim Costs

Question: Calculate the Year 4 member cost and plan liability. Show your work.

SOA Commentary on Question:

Candidates generally were able to calculate the member and plan liability before applying annual maximums. The deductible generally applies to all services incurred by the member unless noted otherwise. Many candidates applied the deductible for each service incurred by Member #3. Only a few candidates applied the annual maximum correctly – the annual benefit maximum applies to the plan liability and not the member liability.

Candidates who mapped the procedure codes to different dental classes than the ones noted below credit if the calculations were correct and assumptions were stated.

Candidates who correctly expressed the plan liability on a PMPM basis also received full credit.

SOA Answer:

Allowed = Billed x (1-Discount)

Plan Liability = (Allowed – Deductible) x (1-Coinsurance)

Member Liability = Allowed – Plan Liability

Plan Liability is capped at Annual maximum per member

Mem	Network	Prov	Procedure	Billed	Class	Disc	Allow	Ded	Coins	ML	PL
1	Preferred	Tight	Oral Evaluation	$80	Class I	35%	$52	$0	0%	$0	$52
1	Preferred	Tight	Extraction	$600	Class II	35%	$390	$50	10%	$84	$306
2	Preferred	Broad	Fluoride Treatment	$50	Class I	20%	$40	$0	0%	$0	$40
3	Preferred	Broad	Periodontics	$750	Class II	20%	$600	$50	10%	$105	$495
3	Preferred	Broad	Root Canal	$1,000	Class II	20%	$800	$0	10%	$80	$720
3	Preferred	Broad	Crown	$1,400	Class III	20%	$1,120	$0	40%	$448	$672
3	Preferred	Broad	Bridges	$1,600	Class III	20%	$1,280	$0	40%	$512	$768
4	Non-Preferred	90th	Fluoride Treatment	$50	Class I	5%	$48	$20	20%	$26	$22
4	Non-Preferred	90th	Restoration	$250	Class II	5%	$238	$75	40%	$140	$98
5	Preferred	Broad	Oral Surgery	$800	Class II	20%	$640	$50	10%	$109	$531
6	Preferred	Broad	Fluoride Treatment	$50	Class I	20%	$40	$0	0%	$0	$40
7	Preferred	Tight	Orthodontic Care	$5,000	Class III	35%	$3,250	$50	40%	$1,330	$1,920
8	Preferred	Broad	Oral Surgery	$150	Class II	20%	$120	$50	10%	$57	$63
8	Preferred	Broad	Anesthesia	$300	Class II	20%	$240	$0	10%	$24	$216
8	Preferred	Broad	Denture Repair	$1,000	Class III	20%	$800	$0	40%	$320	$480
9	Preferred	Broad	Onlays	$1,100	Class III	20%	$880	$50	40%	$382	$498

Member	Total Member Liability Before Annual Max	Total Plan Liability before Annual Max	Total Member Liability After Annual Max	Total Plan Liability After Annual Max
1	$84.00	$358.00	$84.00	$358.00
2	$0.00	$40.00	$0.00	$40.00
3	$1,145.00	$2,655.00	$2,300.00	$1,500.00
4	$165.50	$119.50	$165.50	$119.50
5	$109.00	$531.00	$109.00	$531.00
6	$0.00	$40.00	$0.00	$40.00
7	$1,330.00	$1,920.00	$1,750.00	$1,500.00
8	$401.00	$759.00	$401.00	$759.00
9	$382.00	$498.00	$382.00	$498.00
Total	**$3,616.50**	**$6,920.50**	**$5,191.50**	**$5,345.50**

The year 4 member cost and plan liability was $5,191.50 and $5,345.50 respectively.

Part c:

Source(s): Skwire 6 – Dental Benefits (US)

Question: Compare and contrast dental preferred provider organizations (PPO) and dental health maintenance organizations (DHMO) by completing the chart below:

	PPO	DHMO
Cost Management		
Fraud Potential		
Provider Contracting		
Benefit Richness		
Utilization		

SOA Commentary on Question:

Many candidates were able to compare and contrast the differences between a PPO and DHMO. Candidates who received full credit explained the differences and similarities; candidates that provided terse responses without an explanation received partial credit only.

SOA Answer:

	PPO	DHMO
Cost Management	PPO plans use UCR limits, clinical logic and predetermination of necessity to help control costs	DHMO plans use a primary care gatekeeper with a referral process
Fraud Potential	PPO plans are more susceptible to fraud as dentist may up code for services. Insurers can employ methods of tracking provider claim submissions and comparing to industry norms to identify outliers	Dental HMOs and their capitation approach minimize many of the incentives to commit fraud from either the dentist or insured.
Provider Contracting	Use contracts to arrange for services at agreed-upon rates	DHMO contracts can be capitated and spell out specialty referral guidelines
Benefit Richness	Tend to utilize deductibles and coinsurance for covered services.	DHMOs typically have copays for covered services
Utilization	PPOs use a fee-for-service approach that may encourage overutilization of services by providers.	DHMO models, using a capitated model, restrict these incentives.

Part d:

Source(s): Skwire 22 – Dental Claim Costs

Question: (i) Calculate the expected difference in plan liability. Show your work. (ii) Assess whether Your Eyes will be able to achieve its benefit expense reduction target. Justify your response.

SOA Commentary on Question:

Most candidates who responded to this question performed similar calculations as in part b. Many candidates recognized and incorporated the zero-dollar deductible, the tight network with a 35% discount and that member 4 would be treated at a preferred provider. However, many candidates failed to apply the annual maximum limits correctly – annual benefit maximum limits the plan liability and not the member liability. Candidates who had an incorrect response in part b) were still able to get full credit if the calculations for part d were done correctly.

SOA Answer:

Mem	Network	Prov	Procedure	Billed	Class	Disc	Allow	Ded	Coins	ML	PL
1	Preferred	Tight	Oral Evaluation	$80	Class I	35%	$52	$0	0%	$0	$52
1	Preferred	Tight	Extraction	$600	Class II	35%	$390	$0	10%	$39	$351
2	Preferred	Tight	Fluoride Treatment	$50	Class I	35%	$33	$0	0%	$0	$33
3	Preferred	Tight	Periodontics	$750	Class II	35%	$488	$0	10%	$49	$439
3	Preferred	Tight	Root Canal	$1,000	Class II	35%	$650	$0	10%	$65	$585
3	Preferred	Tight	Crown	$1,400	Class III	35%	$910	$0	40%	$364	$546
3	Preferred	Tight	Bridges	$1,600	Class III	35%	$1,040	$0	40%	$416	$624
4	Preferred	Tight	Fluoride Treatment	$50	Class I	35%	$33	$0	0%	$0	$33
4	Preferred	Tight	Restoration	$250	Class II	35%	$163	$0	10%	$16	$146
5	Preferred	Tight	Oral Surgery	$800	Class II	35%	$520	$0	10%	$52	$468
6	Preferred	Tight	Fluoride Treatment	$50	Class I	35%	$33	$0	0%	$0	$33
7	Preferred	Tight	Orthodontic Care	$5,000	Class III	35%	$3,250	$0	40%	$1,300	$1,950
8	Preferred	Tight	Oral Surgery	$150	Class II	35%	$98	$0	10%	$10	$88
8	Preferred	Tight	Anesthesia	$300	Class II	35%	$195	$0	10%	$20	$176
8	Preferred	Tight	Denture Repair	$1,000	Class III	35%	$650	$0	40%	$260	$390
9	Preferred	Tight	Onlays	$1,100	Class III	35%	$715	$0	40%	$286	$429

Member	Total Member Liability Before Annual Max	Total Plan Liability before Annual Max	Total Member Liability After Annual Max	Total Plan Liability After Annual Max
1	$39.00	$403.00	$39.00	$403.00
2	$0.00	$32.50	$0.00	$32.50
3	$893.75	$2,193.75	$1,587.50	$1,500.00
4	$16.25	$178.75	$16.25	$178.75
5	$52.00	$468.00	$52.00	$468.00
6	$0.00	$32.50	$0.00	$32.50
7	$1,300.00	$1,950.00	$1,750.00	$1,500.00
8	$289.25	$653.25	$289.25	$653.25
9	$286.00	$429.00	$286.00	$429.00
Total	**$2,876.25**	**$6,340.75**	**$4,020.00**	**$5,197.00**

Difference in Plan Liability is: $5,197 - $5,345.50 = -$148.50
Savings: 148.50 / 5,345.50 = 2.8%

No Yours Eyes is only expected to save about 2.8%, which is short of the 10% desired target.

12. Spring 2023 DP #5

SOA Commentary on Question:

This question focused on dental benefits, and tested candidates understanding of key components of this benefit that vary to some degree from other group health benefits. The question specifically evaluated the candidate's understanding of dental claims cost data sources, how ASOP 23 (data quality) applies to dental data, adjudication of dental benefits using standard dental benefit structures, and determination of dental premiums. Candidates who understood how dental benefit structures are different from major medical benefit structures performed better on this question than other candidates.

Part a:

Source(s): Skwire 22 – Dental Claim Costs
Question: Describe sources of data that can be used to estimate dental claim costs.

SOA Commentary on Question:

Most candidates were able to list several sources of dental claims data, but many candidates failed to provide any description of these data sources

SOA Answer:

Valid responses include:

- Insurer's own historical data may be best to estimate future dental claims.
- FAIR Health/National Dental Advisory Service; American Dental Association Survey of Fees. These are fee level information available for sale, but typically do not contain detailed utilization.
- Actuarial memorandum and carrier rate filings.
- Third party administrators or reinsurers.
- Consulting firms that sell data sets.

Part b:

Source(s): ASOP #23 – Data Quality
Question: Describe data quality considerations when selecting, analyzing, and relying on data for the purposes of developing dental claim costs.

SOA Commentary on Question:

This question evaluated whether candidates understood how ASOP 23 (on data quality) applies to dental claims costs. While candidates generally demonstrated a basic understanding of some parameters that may need to be considered when projecting claims costs from dental data, most candidates failed to identify that this question was a direct application of the ASOP and failed to address the full scope of ASOP 23.

SOA Answer:

- Data to be selected with due consideration of the appropriateness of the data for its intended use. If available and credible, an insurer's own historic data may well be the best experience base.

- The reasonableness and comprehensiveness of the data - Things that need to be considered include benefit plans, negotiated fee levels, and population demographics, specific business practices in critical areas such as underwriting, claims adjudication, and utilization management.
- Limitations of the data - a carrier may plan to enter a new geographical area or market segment, may develop an unusual benefit plan, or simply may not believe that its own data is credible.
- Modifications or assumptions needed to use the data and the feasibility of alternatives - There are publicly available Cost data, such as FAIR Health, National Dental Advisory Service, etc. Utilization data can come from consulting firm or rate filings.
- The sampling methods used to collect the data.

Part c:

Source(s): Skwire 22 – Dental Claim Costs
Question: Calculate the 20X2 PPO member and plan liability for: (i) Member A (ii) Member B. Show your work.

SOA Commentary on Question:

Candidate performance was mixed on this question and appeared to align with candidate understanding of dental benefit structures. Candidates generally were able to apply the correct discount to billed charges to determine an allowed amount. Most candidates also were successfully able to determine the correct deductible and coinsurance to apply based on the provider and service class. Many candidates did apply the 1,500 plan maximum as a member out of pocket spending limit, while other candidates did not apply the maximum at all.

Candidates struggled to adjudicate the claims correctly, not earning full credit. For member B several candidates did not realize the member had not met the elimination period for the class III claim, which was not covered by the plan. Some candidates recognized that this claim was not covered by the plan but applied the plan maximum as a maximum out of pocket and accumulated this claim toward the maximum, which would not occur.

SOA Answer:

Member A

a		b	c	d	e = a x (1 - c)	*f = b + (e - b) x d	g = e - f
Billed Charges	**Service Type**	**Deductible**	**Discount**	**Member coinsurance**	**Total allowed**	**ML before Max**	**PL before Annual Max**
80	Class I	0	35%	0%	52.00	-	52.00
50	Class I	0	35%	0%	32.50	-	32.50
150	Class II	50	35%	10%	97.50	54.75	42.75
300	Class II	0	35%	10%	195.00	19.50	175.50
1100	Class III	0	20%	40%	880.00	352.00	528.00
2500	Class III	0	35%	40%	1,625.00	650.00	975.00
					2,882.00	**1,076.25**	**1,805.75**
						1,382.00	**1,500.00**

* Once deductible is reached b = 0
** h -1 is the previous Accumulated PL

PL cap at $1500 Annual Max ^

Member B

a		b	c	d	e = a x (1 - c)	*f = b + (e - b) x d	g = e - f
Billed Charges	**Service Type**	**Deductible**	**Discount**	**Member coinsurance**	**Total allowed**	**ML before Max**	**PL before Annual Max**
80	Class I	0	35%	0%	52.00	-	52.00
600	Class II	50	35%	10%	390.00	84.00	306.00
50	Class I	0	20%	0%	40.00	-	40.00
1500	Class III	N/A	5%	40%	1,425.00	1,425.00	-
750	Class II	75	5%	40%	712.50	330.00	382.50
					2,619.50	**1,839.00**	**780.50**
						1,839.00	**780.50**

* Once deductible is reached b = 0
** h -1 is the previous Accumulated PL
Elimination period not met for root canal

PL below $1500 Annual Max ^

ML: Member Liability
PL: Plan Liability

Part d:

Source(s): Skwire 22 – Dental Claim Costs
Question: Calculate the 20X4 HMO premium. Show your work.

SOA Commentary on Question:

Candidates did well trending forward the utilization and unit cost. Several candidates failed to apply the Provider and Network discount to get the allowed amount. Most candidates failed to apply cost sharing to get to a net benefit cost. However, almost all candidates were able to successfully convert claims costs to premiums using the expense ratios specified in the problem. Many candidates lost points through failure to anchor references to trends in their Excel worksheets. In many cases, this resulted in unreasonable trends – for example, if the trend for the broad network was not anchored, candidates would end up applying 80% annual cost trend to class III services, significantly inflating overall costs. Some candidates calculated a composite block-wide premium, but did not make any membership assumption, so that this composite premium had no meaning and lost points as a result.

SOA Answer:

See the acompanining Excel file for the full solution

13. Spring 2023 DP #7

Part a:

Source(s): Skwire 3 – Product Development
Question: List and describe the steps of the product development cycle.

SOA Commentary on Question:

Most candidates did quite well on this retrieval question. Candidates that only listed the steps without describing did not receive full credit. Listing all steps below was not required to obtain full credit.

SOA Answer:

- Innovate: Understand why the company is looking to offer the product. Will this be innovative in their industry or will they be following the market? Are there laws and regulations that make it beneficial for company to offer this product? Is there a demand for the product among their employees? Is there a social need or changing demographics that makes this appealing. Screen ideas and understand feasibility for the company. Assess what options are available for employees
- Design: Determine product structure that would fit needs of employees; analyze variables in design and scope of coverage; consider contribution requirements; determine regulatory compliance.
- Build: Project enrollment and take-up among employees, price the product given projections; provide finance passement of product; implement infrastructure; get senior management approval at company.
- Sell: If feasible, test the market through employee surveys, incorporate feedback, mass market product during enrollment period.
- Assess: track financial results, review preliminary enrollment information, actual to expected, ongoing consumer and market feedback.
- Revise: based on ongoing assessment, determine if revisions to product are necessary for the company based on consumer demand, sales, update, and financials.

Part b:

Source(s): Skwire 11 – Group Life Benefits
Question: Describe plan provisions that help mitigate moral hazard and financial risks in basic group term life insurance plans.

SOA Commentary on Question:

Candidates' performance on this part was mixed. The question required comprehension of the syllabus material. Candidates who listed provisions without providing descriptions did not receive full credit. Additional responses also received points.

SOA Answer:

- Plan design where insurance amounts that vary by company position, which are designed to preclude individual selection of amount.
- Eligibility provisions where premiums are non-contributory (no employee contributions towards cost of coverage) and require 100% participation among eligible employees.

Part c:

Source(s): Skwire 11 – Group Life Benefits
Question: Describe tax implications in basic group term life for the: Employer and Employee

SOA Commentary on Question:
Candidate performance was mixed and most candidates did not earn full credit on this section.

SOA Answer:
Employer: Premiums paid by employer are generally deductible on the employer's federal income tax return.

Employee: Death benefits are excluded from a beneficiary's gross income.
Insurable amounts over $50,000 create imputed income to employee.

Part d:

Source(s): Skwire 20 – Pricing Group Insurance
Question: Describe considerations for the following elements of gross premium development: (i) Estimated claims cost (ii) Administrative costs (iii) Commissions (iv) Risk and profit charges

SOA Commentary on Question:
Candidates generally performed well on this part. Additional acceptable answers received credit based on quality of the response.

SOA Answer:
(i) What is the insurable amount and demographics of the group?

(ii) Since the product is new, how should overhead cost be developed? How will expenses be different between first year and renewal year?

(iii) Will commissions need to be higher in order to achieve target sales?

(iv) As a new product, will margin need to be higher to reflect the degree of risk?

Part e:

Source(s): Skwire 24 – Life Claim Costs
Question: Calculate the: (i) Net manual claim cost. (ii) Gross premium claim cost. Show your work.

SOA Commentary on Question:
On this part of the question, candidates could obtain up to full credit based on a variety of responses including PEPM or annualized response figures, etc. Many candidates did not consider that the expense target was a % of net premium and therefore missed available points.

SOA Answer:
(i) Set up Rate * Volume divided by total volume = Monthly Claim Rate per $1,000 Coverage * Company Insured Amount ('000s) for all ages / Sum of Company Insured Amount ('000s) for all ages. The average expected claim rate is approximately $0.401. The net manual claim cost

= the sum product of the Pricing Factors (0.8708 = 0.90 * 0.97 * 1.05 * 0.95) times $0.401 = approximately $0.349.

(ii) Gross premium claim cost = Net manual claim cost * (1 + Expense target) / (1-(Commissions + Profit + Premium tax)) = $0.349 * (1 + 15%) / (1- (10% + 5% + 2%)) = Approximately $0.483

Part f:

Source(s): Skwire 24 – Life Claim Costs

Question: Recommend two improvements to the rate development. Justify your response.

SOA Commentary on Question:

Candidates performance was mixed. Candidates needed to give reasonable justification to receive full credit. Additional acceptable answers received credit based on the quality of the response.

SOA Answer:

Recommend using separate male and female claim cost rates as industry data distribution will not match company's distribution.

Recommend completing a study to understand any changes in mortality since 2013 to price more competitively.

14. Spring 2023 DP #8

Part a:

Source(s): Skwire 23 – Pharmacy Claim Costs

Question: List and describe rating factors used when projecting pharmacy experience.

SOA Commentary on Question:

Candidates generally performed well. Candidates needed to describe the rating factors rather than list in order to receive full credit.

SOA Answer:

Demographics - The types and quantities of drugs used vary by age and gender.

Area - Drug costs and utilization vary by geographical region.

Benefit design - Changes in benefits may affect the number of prescriptions filled by each member.

Formulary, including brand patent expirations - The list of covered drugs, tier placement of drugs, formulary management programs, and brand patent expirations all affect a plan's expected cost and utilization. Formulary management programs may include prior authorization requirements, step therapy, or quantity limits.

Brand patent expirations - as drugs come off patent, members often switch from using an expensive brand name drug to a less expensive generic equivalent.

Contracting (discounts and dispensing fees) - Discounts (the reduction in cost that a pharmacy is willing to provide from a price reference like AWP) and dispensing fees are negotiated with pharmacies by PBMs.

Other Factors - Other potential differences between the experience period and projection period that should be accounted for when projecting allowed costs include changes in mail order utilization, changes in the generic dispensing rate, and changes in utilization management or cost management programs.

Part b:

Source(s): Skwire 23 – Pharmacy Claim Costs

Question: Explain how an increased discount on Average Wholesale Price (AWP) can have a varying impact on member cost share and plan liability.

SOA Commentary on Question:

Candidate performance was mixed. Candidates were expected to explain the varying impact on member cost sharing and plan liability between different member cost sharing structures, copay vs coinsurance. Many candidates incorrectly generalized there would be a drop in member cost sharing and plan liability.

SOA Answer:

If there is a change in contracting (discounts and dispensing fees), the impact on drug cost will vary depending on whether member cost sharing is structured as member coinsurance or a copay. For example, increased discounts result in greater plan savings when copays are used compared to member coinsurance. When coinsurance is applicable, a portion of the cost reduction due to the more favorable discount is shared with the member. When a copay is applicable, the member's cost-sharing remains unchanged while the plan realizes the entire discount savings (assuming no change to the copay and the copay is less than the allowed amount).

Part c:

Source(s): Skwire 23 – Pharmacy Claim Costs

Question: Calculate the change in the allowed amount due to the changes in contracting. Show your work.

SOA Commentary on Question:

Candidate performance was mixed. Common errors included candidates incorrectly applying the discount and dispensing fees.

SOA Answer:

Ingredient cost = $100 - $5 = $95
AWP = $95 / (1 – 73%) = $351.85
Adjusted ingredient cost = $351.85 * (1 – 75%) = $87.96
Final adjusted allow amount = $87.96 + $3 = $90.96
Change in the allowed amount = $90.96 - $100 = $-9.04

Part d:

Source(s): Skwire 23 – Pharmacy Claim Costs

Question: Calculate the change in the effective member cost sharing due to the changes in contracting. Show your work.

SOA Commentary on Question:

Partial credit was awarded if the member coinsurance was applied to an incorrect allowed amount from part (c).

SOA Answer:

Original effective member cost sharing = $100 * 20% = $20
Revised effective member cost sharing = $90.96 * 20% = $18.19
Change in effective member cost sharing = $18.19 - $20 = -$1.81

Part e:

Source(s): Skwire 23 – Pharmacy Claim Costs

Question: Calculate the 20X3 premium PMPM. Show your work.

SOA Commentary on Question:

Candidates' performance was mixed. Partial credit was awarded when starting with an incorrect allowed amount.

SOA Answer:

Projected allowed amount PMPM = $90.96 * 1.10 = $100.06
Expected member cost sharing = $100.06 * 20% = $20.01
Expected rebate PMPM = 3% * $100.06 = $3.00
Projected claim cost PMPM = $100.06 - $20.01 - $3.00 = $77.05
Projected premium PMPM= $77.05 / (1-15%-5%) = $96.31

Part f:

Source(s): Skwire 23 – Pharmacy Claim Costs

Question: (i) List formulary management programs that can impact expected cost and utilization. (ii) Describe the advantages and disadvantages for each program.

SOA Commentary on Question:

Candidates generally performed well on this section.

SOA Answer:

(i) **Prior Authorization**: Prior authorization requires approval from the PBM prior to filling a prescription for a specific drug. This is the most restrictive formulary management method.
Step Therapy: Step therapy requires a patient to try a different drug or a series of drugs before providing coverage for the drug in question. For example, patients newly diagnosed with hyperlipidemia may be required to try first-line drug therapies, such as a statin, prior to beginning treatment with newer, more costly, and often riskier medications, such as PCSK9 inhibitors.
Quantity Limit: Quantity limits restrict the number of days supply or the number of units per day dispensed for a given prescription. This might be done as a safety measure, to avoid waste, or as a cost savings measure. For example, some pain medications have a limit on the number of pills per day that can be dispensed to avoid overuse.

(ii) **Prior auth**: most restrictive and will reduce the premium the most. May have member abrasion and additional administrative burden that could reduce member experience.
Step therapy: cost savings by stepping through therapy before moving to the more expensive drug. A member may have to experience various side effects or drugs that do not work before getting to a more expensive option.
Quantity limit. Reduces cost by restricting the number of days or units per day. May require members to go to the pharmacy more.

Part g:

Source(s): Skwire 23 – Pharmacy Claim Costs

Question: Recommend a formulary management program for DEF. Justify your response.

SOA Commentary on Question:

Full credit was awarded for a recommendation from one of the formulary management programs listed in part (f) if the justification supported the recommendation and management's concerns. Some candidates provided a recommendation without justification and did not receive full credit.

SOA Answer:

I recommend implementing quantity limits as a formulary management program. Quantity limits can bring cost savings from members utilizing less prescriptions and also can be applied as a safety measure, avoiding waste. The reduction in prescription utilization should help reduce costs without being overly burdensome on employees.

15. Fall 2023 DP #5b-c

Part b:

Source(s): Skwire 23 – Pharmacy Claim Costs

Question: Calculate the change in QRS's cost from Year 1 to Year 2. Show your work.

SOA Commentary on Question:

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

SOA Answer:

In year 1 begin with the given cost share and back into AWP

In year 2 trend forward AWP and then calculate pieces needed to arrive at the incurred cost

Note that administrative fees are not included in drug cost amounts shown

Brand		
Year 1	**Year 2**	
$60.00	$65.22	Cost share
$150.00	$163.05	Allowed
$149.00	$161.99	Ing. Cost
$173.26	$190.58	AWP
80,000	80,000	Scripts
$8,000	$8,800	Admin
$7,200,000	$7,826,601	Inc claims

Generic		
Year 1	**Year 2**	
$7.00	$6.93	Cost share
$70.00	$69.34	Allowed
$69.50	$68.81	Ing. Cost
$231.67	$254.83	AWP
400,000	400,000	Scripts
$40,000	$44,000	Admin
$25,200,000	$24,960,600	Inc claims
$32,448,000	$32,840,001	Total combined cost
	$392,001	Cost difference
	1.2%	% difference

Part c:

Source(s): Skwire 7 – Pharmacy Benefits (US)

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

SOA Commentary on Question:

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

SOA Answer:

(i) **Formulary Design:**

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

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

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

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

16. Fall 2023 DP #8

Part a:

Source(s): Skwire 35 – Medical Claim Cost Trend
Question: Describe the major purposes of trend analyses.

SOA Commentary on Question:

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

SOA Answer:

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

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

Part b:

Source(s): Skwire 35 – Medical Claim Cost Trend
Question: Describe the advantages and disadvantages of using the component method approach to developing pricing trends.

SOA Commentary on Question:

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

SOA Answer:

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

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

Part c:

Source(s): Skwire 35 – Medical Claim Cost Trend
Question: Define: (i) Unit cost trend (ii) Severity (iii) Mix of services

SOA Commentary on Question:

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

SOA Answer:

(i) Unit cost is the change due to contracting changes all else being equal.

(ii) Severity is the change due to the change in the intensity of the treatment.

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

Part d:

Source(s): Skwire 35 – Medical Claim Cost Trend

Question: Calculate: (i) Unit cost trend (ii) Change in severity (iii) Change in mix of services. State your assumptions. Show your work.

SOA Commentary on Question:

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

SOA Answer:

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

Unit Cost:

Description	**20X1 Weight**	**20X1 Fee Schedule**	**20X2 Fee Schedule**
CPT Code 1	45%	$95	$105
CPT Code 2	22%	$145	$140
CPT Code 3/5	8%	$1,750	$1,900
CPT Code 4	20%	$230	$265
CPT Code 6	5%	$3,500	$2,800
		=sumproduct(20X1 Weights, 20X1 Fee Schedule)	=sumproduct(20X1 Weights, 20X2 Fee Schedule)
Unit Cost		$435.65	$423.05

Unit Cost = 423.05/435.65-1 = -2.9%

Severity:

Description	20X1 Weight	20X2 Weight	20X1 Fee Schedule
CPT Code 1	45%	40%	$95
CPT Code 2	22%	18%	$145
CPT Code 3/5	8%	12%	$1,750
CPT Code 4	20%	25%	$230
CPT Code 6	5%	5%	$3,500
	=sumproduct(20X1 Fee Schedule, 20X1 Weights)	=sumproduct(20X1 Fee Schedule, 20X2 Weights)	
Severity	$423.65	$506.60	

Severity = 506.60/423.65 – 1 = 16.3%

Mix in Services

Description	20X1 Weight	20X2 Weight	20X1 Fee Schedule	20X2 Fee Schedule
CPT Code 1	45%	40%	$95	$105
CPT Code 2	22%	18%	$145	$140
CPT Code 3	8%	0%	$1,750	$1,750
CPT Code 4	20%	25%	$230	$265
CPT Code 5	0%	12%	$1,900	$1,900
CPT Code 6	5%	5%	$3,500	$2,800
			=sumproduct(20X1 weights, 20X1 Fee Schedule)	=sumproduct(20X2 weights, 20X2 Fee Schedule)
Total			$435.65	$501.45

Total Trend = 501.45/435.65 -1 = 15.1%

Mix in Services = (1.151)/(1.163*0.971) – 1 = 1.9%

Part e:

Source(s): Skwire 35 – Medical Claim Cost Trend

Question: Identify four additional trend components ABC should consider when developing prospective pricing trends.

SOA Commentary on Question:

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

SOA Answer:

Utilization
One-time
Population shifts
Leveraging

Part f:

Source(s): Skwire 35 – Medical Claim Cost Trend

Question: Recommend whether DEF should pursue APMs. Justify your response.

SOA Commentary on Question:

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

SOA Answer:

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

Part g:

Source(s): Skwire 35 – Medical Claim Cost Trend

Question: Describe the impact behavioral changes arising from this announcement may have on trends.

SOA Commentary on Question:

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

SOA Answer:

The announcement of the change to a HDHP will result a 'rush-hush-crush' cycle.

The rush is the result of members rushing to receive preference-sensitive services before the change. This leads to higher trends in the period preceding the TPA change.

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

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

17. Spring 2024 DP #7

Part a:

Source(s): Skwire 3 – Product Development

Question: List and describe the steps in the group medical product development cycle.

SOA Commentary on Question:

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

SOA Answer:

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

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

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

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

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

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

Part b:

Source(s): Skwire 23 – Pharmacy Claim Costs, Skwire 21 – Medical Claim Costs

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

SOA Commentary on Question:

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

SOA Answer:

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

18. Spring 2024 DP #9

Part a:

Source(s): Skwire 5 – Medical Benefits (US)

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

SOA Commentary on Question:

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

SOA Answer:

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

Part b:

Source(s): ASOP #23 – Data Quality

Question: Describe data quality considerations and disclosures needed when using claims experience provided by the employer group.

SOA Commentary on Question:

Most candidates performed well and received full credit.

SOA Answer:

The actuary should rely on guidance from ASOP 23.

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

Part c:

Source(s): Skwire 35 – Medical Claim Cost Trend

Question: (i) Calculate the annual and quarterly year-over-year claims PMPM trends. Show your work. (ii) Explain the patterns in both annual and quarterly year-over-year claims PMPM trends.

SOA Commentary on Question:

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

SOA Answer:

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

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

Part d:

Source(s): Skwire 26 – Exp. Rating & Funding
Question: Recommend adjustments when using the experience data. Justify your response.

SOA Commentary on Question:

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

SOA Answer:

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

Part e:

Source(s): Skwire 5, 21, and 35
Question: Describe considerations for setting reserves when there is a material change in plan design.

SOA Commentary on Question:

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

SOA Answer:

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

Part f:

Source(s): ASOP #41 – Act. Communications
Question: Identify disclosures required when issuing an actuarial report to the group.

SOA Commentary on Question:

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

SOA Answer:

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

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

19. Fall 2024 DP #1

Part a:

Source(s): Skwire 23 – Pharmacy Claim Costs
Question: Describe the layers of the prescription drug distribution channel.

SOA Commentary on Question:

Candidates generally performed well on this question.

SOA Answer:

Manufacturer - produce drugs and distribute through wholesalers. Sometimes sell directly to pharmacy, hospitals, or others.
Wholesaler - middlemen between manufacturers and retailers. Retailers prefer to purchase from one source rather than negotiating with individual manufacturers. Warehouse drugs.
Retailer - Pharmacies. Dispense drugs to consumers.
Consumer - individuals or entities who purchase the drugs.
PBMs whom own mail service or specialty pharmacy services and directly dispense drugs

Part b:

Source(s): Skwire 7 – Pharmacy Benefits (US)
Question: Describe types of formulary-related benefit designs in the prescription drug coverage market.

SOA Commentary on Question:

Candidates generally performed well on this question.

SOA Answer:

Closed: only drugs listed on formulary are covered. A process for non-formulary medications is in place when medically necessary.
Open: Do not restrict but do usually vary cost sharing. Some have fixed percent coinsurance, while other have tiered cost sharing.
Tiered (Incentive): More than one cost sharing tier. Tiers may be assigned copays, coinsurance, or a combination of the two.

Part c:

Source(s): Skwire 23 – Pharmacy Claim Costs
Question: Calculate: (i) The brand ingredient cost per script for 20X1 and 20X2. (ii) The generic ingredient cost per script for 20X1 and 20X2. (iii) XYZ's expected paid claims for 20X2. Show your work.

SOA Commentary on Question:

Many candidates did not calculate the correct answer, typically due to not understanding the ingredient cost formula. Partial credit was awarded when the candidates perform some of the necessary steps in their Excel work.

SOA Answer:

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

Part d:

Source(s): Skwire 7 – Pharmacy Benefits (US)

Question: Propose a revised tier structure for the PBM to implement. Justify your answer.

SOA Commentary on Question:

Some candidates did not propose tier structure changes and instead discussed value based insurance design or other program changes. Full credit was award for candidates proposing a tier structure change and justifying how that tier structure change could result in cost savings to XYZ.

SOA Answer:

I propose the following three tier formulary design:

Tier	Drugs	Copay
Tier 1	Generic	Low
Tier 2	Preferred Brand	Medium
Tier 3	Non-Preferred Brand	High

This design can manage costs better over a 2 tier system by encouraging patients and physicians to use preferred tier of drugs through higher cost sharing than non-preferred drugs. Introduction of preferred brand tier creates opportunity for PBM to negotiate rebates with drug manufacturers in exchange for preferred brand tier placement. Preferred band tier placement offers lower out of pocket cost share and incentivizes members to use lower cost, preferred brand drugs.

20. Fall 2024 DP #3

Part a:

Source(s): Skwire 21 – Medical Claim Costs

Question: Describe the Affordable Care Act (ACA) modified community rating variables for non-grandfathered individual and small group coverage.

SOA Commentary on Question:

Candidates generally did well on this question. To receive full credit a candidate needed to 'describe' the modified community rating variables rather than only 'listing' them.

SOA Answer:

The modified community rating variables are:

1. Age - Carriers must use standard age rating factors which vary by no more than 3:1 from the oldest to the youngest adult ages
2. Tobacco - Limited to no more than a 50% surcharge for users
3. Area - Rating areas are prescribed by the state, but factors are unlimited unless limited by state law
4. Family Tier/Structure - Family rates must generally equal the sum of member level rates, with the number of child dependents capped at three (unless limited by state law)
5. Plan - Rating variables may include benefits, cost sharing, and network

Part b:

Source(s): GH101-100-25 – Setting Premium Rates; Skwire 21 – Medical Claim Costs

Question: (i) Evaluate the appropriateness of using each data source for developing the individual ACA pricing for the upcoming year. (ii) Recommend which data source(s) to use. Justify your response.

SOA Commentary on Question:

Many candidates did well on this question. Reasonable evaluations other than those listed below were given credit.

SOA Answer:

(i) Individual ACA claims on incurred basis: Best to use same state as it will follow utilization patterns, costs and experience. This dataset is appropriate to use.

Individual ACA claims on reported basis: Want to use incurred basis as it will align with experience period. It shouldn't matter when the claims were reported; this dataset is not appropriate to use.

Individual ACA national industry claims data bought from external consultant: Since own company data is credible, no need to use national data set; this dataset is not appropriate to use.

Small group ACA claims on incurred basis: Individual ACA experience is credible so there is no need to use group experience. This dataset is not appropriate to use.

Individual ACA premiums received: You do not want to use premiums received as it may include premiums outside of the experience period. This dataset is not appropriate to use.

Individual ACA premiums earned: You want to use this data set for premiums, as it aligns with the experience period. This dataset is appropriate to use.

(ii) Recommend using individual ACA claims on incurred basis; doing so ties the values to the experience period whereas reported claims may be outside of the experience period.

Recommend using individual ACA premiums earned; doing so ties the values to the experience period whereas received premiums may be outside of the experience period.

Part c:

Source(s): GH101-100-25 – Setting Premium Rates; Skwire 21 – Medical Claim Costs
Question: Describe how plan design can affect claim cost trends.

SOA Commentary on Question:

Candidate generally did well on this one. The intent of this question is to test candidates on trend leveraging effect. But all other reasonable answers are also accepted.

SOA Answer:

Plan designs can affect claim cost trends in the following ways:

1. Deductible leveraging
   a. Occurs when a deductible remains constant as the underlying claims trend increases. Because the deductible has remained constant, the insurance carrier is actually paying more each year for claims of a similar nature.
2. Out of pocket maximum and Copay leveraging
   a. Similar to deductible leveraging in that when out of pocket maximums and copay remain constant, the underlying claims trend increases.
3. A percent based benefit like coinsurance will not have leverage effect on claim trends.

Part d:

Source(s): GH101-100-25 – Setting Premium Rates; Skwire 21 – Medical Claim Costs
Question: Calculate the gross premium PMPM. Show your work.

SOA Commentary on Question:

Candidate performance on this question was mixed. For the most part, candidates were able to calculate the in-network costs. Many candidates struggled with calculating the out-of-network costs. Some candidates did not use the Claim Probability Distribution (CPD) appropriately in calculations. Some candidates struggled with distinguishing between member liability and total liability.

SOA Answer:

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

Part e:

Source(s): GH101-100-25 – Setting Premium Rates; Skwire 21 – Medical Claim Costs

Question: (i) Describe reasons for these cost and utilization patterns. (ii)Assess how you can reflect these utilization patterns in the premium development.

SOA Commentary on Question:

Candidate performance on this question was mixed. To answer this question correctly, candidates needed to address induced utilization and morbidity when selecting an ACA plan option. Additionally, candidates needed to illustrate how to address these patterns in the premium development. Reasonable assessments of the premium development other than those listed below were given credit.

SOA Answer:

(i)

1. Induced utilization/induced demand: Different benefit plans are likely to experience different utilization patterns depending on the degree of insured cost sharing.
2. Plan selection/morbidity: Costs will also be affected since members who are more or less healthy will select certain benefit plans because they are aware of the services they will or will not need.

(ii)

Under the ACA, one cannot reflect plan selection or morbidity at the plan level, this impact is required to be spread across the entire risk pool. One can normalize the experience period data to reflect a common benefit plan, which will account for induced utilization.

21. Fall 2024 DP #4

SOA Commentary on Question:

This question was intended to evaluate the candidates' understanding of the value of employee benefits in the context of dental coverage, ability to compute manual rates by correctly applying rating factors, ability to discern insurance consumers behaviors, evaluate plan designs and recommend changes to limit insurance risks.

Part a:

Source(s): Skwire 22 – Dental Claim Costs

Question: Calculate the annual claim cost PMPY for Company ABC for 20X5. Show your work.

SOA Commentary on Question:

Candidates needed to demonstrate an ability to compute manual rates by correctly applying information. Candidates received full credit if they correctly identified the applicable trend period, applied the correct age and area factors, and then deducted the value of the coinsurance, deductible, and plan maximum from the projected allowed cost. The solution provided assumes all values provided are PMPMs; candidates who interpreted values as PMPYs but otherwise approached the solution as illustrated received full credit.

Common areas where candidates struggled were identifying the appropriate midpoints of the experience and projection periods, identifying that age and area adjustment factors are to be applied to allowed costs and not plan liabilities, and applying the value of the deductible and plan maximum to the projected allowed spend. In particular, candidates should be aware that the value of the deductible is computed based on the insurer's expectations for what a deductible is worth for a distribution of members/claimants. Since not every member will have claims that exceed the deductible, it is not appropriate to deduct the full deductible value from the projected allowed spend.

SOA Answer:

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

Part b:

Source(s): Skwire 6 – Dental Benefits (US)

Question: Describe the advantages of a voluntary employee-pays-all PPO dental plan over a pay-as-you go dental care.

SOA Commentary on Question:

Candidates should demonstrate comprehension of the value of employee benefits in the context of dental coverage. In particular, there are benefits to an employee of being able to purchase a group insurance policy – even if the employee needs to pay the entire premium. Full credit was given to candidates who identified at least four relevant advantages.

SOA Answer:

A voluntary employee-pays-all PPO dental plan has the following advantages over pay-as-you go dental care (where the employee visits a dentist and pays cash based on services received):

1. Employee contributions may be on a pre-tax basis, thus giving the employee a financial advantage.
2. Dental Insurance provides a budgeting mechanism, particularly beneficial to low-waged employees.
3. Contracted dental network providers charge discounted fees
4. Insurers generally credential network providers helping ensure quality of care.
5. Dental insurance encourages dental care. Oral health links to overall health.

Part c:

Source(s): Skwire 6 – Dental Benefits (US)

Question: (i) Critique the plan design for Company ABC if offered on a voluntary basis. (ii) Recommend modifications to the proposed plan design if offered on a voluntary basis. Justify your response.

SOA Commentary on Question:

Candidates were expected to demonstrate an ability to discern insurance consumer behaviors, evaluate plan designs and recommend changes. Most candidates realized this type of coverage is susceptible to anti-selection. Few candidates, fully critiqued and proposed sufficient alternatives that would mitigate the anti-selection risks. Most candidates received partial credit on this part. Common candidate errors included treating the plan maximum as a member out of pocket maximum or confusing plan coinsurance with member coinsurance.

SOA Answer:

(i) Voluntary Dental Coverage is subject to significant anti-selection particularly for the first two years of coverage. This plan design is too rich. The Payer Coinsurance is too high for a new voluntary plan. The annual maximum is too high - the $4,000 maximum has minimal or no effect because dental cost is low and is higher than typically offered for this type of coverage. The annual deductible is too low inviting immediate utilization of services. There is no mention of preventing employees immediately enrolling and using benefits and then disenrolling.

(ii) The plan design needs anti-selection risk mitigation. Recommend:

- Adjust the coinsurance values over time: start with relatively low payer coinsurance, e.g., 70/60/50, in the first year and grade up to 100/80/50 over three years .
- Adopt a lower annual maximum in the first year, e.g. $1,000 and grade up to $2,500. This limits what will be spent on enrollees with large dental coverage needs.
- Apply a higher deductible for Class II and Class III services: potentially $100 for Class II and $500 for Class III. This limits what is paid for higher cost services (making premiums more affordable) while not discouraging enrollees from seeking preventive services.
- Adopt additional risk mitigation features including
  - Waiting period of Class II and Class III services (e.g. 3 months and 6 months respectively – which ensure the insurer collects some amount of premium before needing to pay for these costly services.
  - Minimum participation requirement such as 25%

- A reduced network with favorable network discount.
- Pre-authorization or pre-determination provision for expense procedures exceeding a certain threshold
- Frequency limits (e.g. 2 cleanings a year)
- Pre-Existing Condition exclusions (e.g. missing tooth exclusion)
- Least Expensive alternative treatment
- Additional coverage/coinsurance tiers to differentiate risk and cost sharing

- Risk margins and additional adjustment factors
  - Occupation/Income Adjustment factors
  - A load for pre-announcement of upcoming coverage (e.g. around 5% for each month of pre-announcement)

Group size adjustment - the underlying experience is based on large groups. Small groups could be 30%-40% more costly than large groups. Employee Turnover effect is magnified in the small groups. Explicit margins could be warranted.

Group and Health 101
Curated Past Exam Solutions
Learning Objective #3: Underwriting and Funding
Applicable SOA Questions: Fall 2020 to Fall 2024
Solutions

Contents

1. Fall 2020 DP-A #1 2
2. Spring 2021 DP-A #3 5
3. Spring 2021 DP-A #5 8
4. Fall 2021 DP-A #7 11
5. Fall 2021 DP-A #8b-d 14
6. Spring 2022 DP #4 16
7. Spring 2022 DP #13 19
8. Fall 2022 DP #5 21
9. Fall 2022 DP #9c-f 24
10. Spring 2023 DP #3 27
11. Spring 2023 DP #9 30
12. Fall 2023 DP #3a,d-e 33
13. Fall 2023 DP #6 36
14. Fall 2023 DP #7b-c 40
15. Spring 2024 DP #3 42
16. Spring 2024 DP #6 44
17. Fall 2020 DP-A #5d-e 46
18. Fall 2024 DP #2 48
19. Fall 2024 DP #6 51

1. Fall 2020 DP-A #1

SOA Commentary on Question:

This question assesses the candidate's ability to describe risk classes and the risk adjustment mechanisms allowable for health plans, as well as calculate appropriate risk relativities for an industry with two insurers of different risk profiles. The question brings these ideas together for the candidate to assess and recommend (which would require substantiation and/or reasoning for the recommendation) whether risk factors should be implemented in this simple two-insurer scenario.

Additional Comments on Question:

The chapter from which this question arises (Skwire 34) has a specific focus for the topic of health risk adjustment. The "chapter focuses on the use of risk adjustment for payment purposes and discusses applications under which the risk adjustment methodology is used to move money from organizations with lower than average risk to organizations with higher than average risk." The answers provided (especially parts b-d) have that focus in mind.

Part a:

Source(s): Skwire 34 – Health Risk Adjustment
Question: Describe criteria used in risk classification schemes.

SOA Commentary on Question:

The majority of candidates provided appropriate descriptions, which afforded them full credit.

SOA Answer:

1. Demographics – criteria include age, gender, geographic location factors
2. Diagnosis and pharmacy codes – use CPT codes to differentiate co-morbidities
3. Biometric measurements – criteria such as height, weight, BMI are used to differentiate risks
4. Functional health status – criteria include the ability to perform activities of daily living (ADLs) such as bathing, dressing, eating and toileting
5. Perceived health status – this bases risk classification on responses to health questionnaires
6. Utilization – criteria include historical claims and utilization data. However, this is not a widely-accepted method, since this could reward insurers for historical inefficiencies.
7. Lifestyle factors – criteria include diet, exercise habits, lifestyles, substance use, smoking status
8. Combinations of the above schemes – the most common combination is combining demographics with diagnosis and pharmacy codes

Part b:

Source(s): Skwire 34 – Health Risk Adjustment
Question: Calculate the normalized relative risk factors for Insurers A and B. Show your work.

SOA Commentary on Question:

The approach described in the Group Insurance reading is to adjust the claim costs to be on a consistent risk score (in the example below, a 1.00 basis), for each insurer, and then determine the average weighted average claim cost for each insurer. The weighted average for a particular insurer is compared to the industry in order to determine the insurer's relative risk score.

Many candidates were unable to recreate the calculation described in the reading, and attempted calculations that do not obtain a consistent basis for comparing risk-normalized claims (ex: calculating and comparing weighted average risk score for each insurer)

SOA Answer:

	Members	Average Claim (Normalized to 1.00 Risk Score)
Insurer A	400	$142.86
	500	$166.67
	100	$454.55
Insurer B	200	$153.85
	250	$157.89
	50	$416.67

A: Weighted Average Claim Cost (WACC) at 1.00	$185.93
B: WACC at 1.00	$182.15
Total: WACC at 1.00	$184.67
Relativity A ($WACC_A/WACC_{TOTAL}$)	**1.007**
Relativity B ($WACC_B/WACC_{TOTAL}$)	**0.986**

Part c:

Source(s): Skwire 34 – Health Risk Adjustment
Question: Describe the need for health risk adjustment

SOA Commentary on Question:

Candidates who simply noted that health risk adjustment is a regulatory component of particular lines of business (ex: ACA public exchange, Medicaid) did not address the underlying need for health risk adjustment, and therefore did not receive credit.

SOA Answer:

1. The use of health risk adjustment reflects the desire to provide equitable payments to health insurers and health care providers and make fair comparisons among insurers and providers.
2. Risk adjustment is necessary, since the health status of enrollees can vary significantly across health insurers and health care providers.
3. Preserve choice for consumers, and have consumers pay an appropriate price for their choice of insurer or provider.
4. Allow insurers to compete on the basis of efficiency and quality, not on risk selection

Part d:

Source(s): Skwire 34 – Health Risk Adjustment
Question: Recommend whether or not to implement health risk adjustment. Justify your response.

SOA Commentary on Question:

Candidates were able to receive credit for either recommending and justifying the implementation of health risk adjustment, or not implementing it. If the recommendation was clear and justification was appropriate, the candidate received full credit, which many did.

SOA Answer:

Example 1:

I recommend implementing risk adjustment for Insurers A and B:

1. Although both Insurer A and B have equal amounts of insureds in each risk class, the risk factors for each risk class fluctuate. For example, the risk factor for Insurer A's low risk class is 0.7, which is higher than Insurer B's low risk class (0.65).
2. Risk adjustment should be used in order to even out expected claims and premiums between Insurer A and B due to varying morbidity risks. This is needed to ensure a competitive market that competes on quality and efficiency, not risk selection.

Example 2:

I do not recommend implementing risk adjustment for Insurers A and B:

1. The relative risk factors of the two insurers are notably similar, and the additional administrative complexity of monitoring risk and transferring funds is not practical for this scenario.

2. Spring 2021 DP-A #3

Part a:

Source(s): Skwire 30 – Managing Selection
Question: Describe how to measure selection and health status.

SOA Commentary on Question:

Candidates generally did well on this part. The most common mistake was to simply write a list without describing.

SOA Answer:

Traditionally, use age/gender factors
More recently, new mechanisms:
Health risk assessments - questionnaire completed by insured to answer questions regarding their health status / conditions
Risk adjusters - use a members' claim history to predict future claims costs

Part b:

Source(s): Skwire 30 – Managing Selection
Question: Describe the impact employee contributions have on selection.

SOA Commentary on Question:

Many candidates identified one or more correct items, which received partial credit, but very few included enough detail to receive full credit.

SOA Answer:

The monthly employee contribution amount has a significant impact on employee selection
Employees will pay more monthly for what they perceive to be a more valuable plan
Could be better benefits, broader network, lower cost sharing
Many employers use a defined contribution model, offering employees a fixed amount towards premiums, and allowing employee to choose among several plan options

Part c:

Source(s): Skwire 30 – Managing Selection
Question: Create a table showing the following Year 1 values for PQR for each plan and in aggregate: Total Monthly Premium, Total Monthly Cost, Cost as a Percent of Premium, Antiselection Risk. Show your work.

SOA Commentary on Question:

Most candidates did well on this part. The most common mistakes were not expressing aggregate antiselection as a percentage & mis-interpreting the "Monthly Cost" as the cost to XYZ, as opposed to PQR.

SOA Answer:

Health Plan	Number of Enrollees	Monthly Premium	Monthly Cost	Cost as % Premium
A	75	$37,500	$18,750	50%
B	100	$60,000	$60,000	100%
C	25	$17,500	$43,750	250%
Total	200	$115,000	$122,500	106.5%

Aggregate anti-selection risk is 106.5% - 100% = **6.5%**
Monthly premium = number of enrollees in plan * rate for plan
Monthly cost = monthly premium for plan * relative health status for plan

Part d:

Source(s): Skwire 30 – Managing Selection
Question: Calculate the: total cost and total premium for years 2 through 5 and the aggregate antiselection risk. Show your work.

SOA Commentary on Question:

Candidate responses were mixed on this part. Candidates who kept their calculations organized, as opposed to trying to do all calculations in a few cells, tended to do well. Common mistakes were similar to mistakes in part (c). In addition, many candidates neglected to calculate the aggregate antiselection risk across all years, and instead just calculated the value for each year separately. For the movement between plans from year-to-year, candidates who assumed something reasonable were not penalized. The solution below is one such reasonable interpretation.

SOA Answer:

See the Excel solutions file for the detailed solution

Part e:

Source(s): Skwire 30 – Managing Selection
Question: Describe how the antiselection spiral can be prevented.

SOA Commentary on Question:

A variety of correct answers earned credit for this part. Candidates who received partial credit generally did not provide enough detail or made incorrect statements.

SOA Answer:

To compensate for the antiselection cost, an insurer needs to anticipate the mix of subscribers choosing each respective plan option and include a selection load in the premium rate for each plan. The selection load can be spread as an even percentage load across all plans or the percentage load may vary by plan, with a greater load for the higher cost plans and lower load for the least costly plans. This tends to encourage subscribers to choose the lower cost plans and imposes a penalty on subscribers choosing the higher cost plans, but can exacerbate an antiselection spiral.
Additional items to consider are limiting the spread between options (to disincent buying down) & limiting the frequency of plan changes (reducing opportunities for buying down).

Part f:

Source(s): Skwire 30 – Managing Selection

Question: Design an employee contribution strategy that reduces the antiselection spiral. Justify your response.

SOA Commentary on Question:

A variety of correct answers earned credit for this part. Candidates who received partial credit generally did not provide enough detail or proposed a solution that did not make sense.

SOA Answer:

In order to reduce the antiselection spiral, I propose to vary employer contributions to premium by benefit option. In particular, I propose XYZ subsidize each plan by 70% (which is the current aggregate subsidy percentage across plans). This will reduce the spread in contributions, giving less incentive to buy down, which will slow the antiselection spiral.

3. Spring 2021 DP-A #5

Part a:

Source(s): Level Funding; Actuary's Role in Self-Insurance

Question: Describe: (i) The advantages and disadvantages of self-funding, (ii) How level funding products benefit from the advantages of self-funding. (iii) How do level funding products mitigate the disadvantages of self-funding.

SOA Commentary on Question:

This question required a solid understanding of the source article & most candidates seemed to have a good understanding. Candidates had more difficulty earning significant credit on the numerical solution parts, especially parts (c) and (e).

SOA Answer:

(i) 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. Disadvantages: Less predictable cash flows. The bearing of financial responsibility for unfavorable claims experience. Need for the group to obtain & pay for advice of insurance professionals to help manage their plan

(ii) Avoid ACA community rating rules. Group receives a refund from favorable experience

(iii) Fixed Monthly Costs, Specific and Aggregate stop-loss coverage mitigates financial responsibility

Part b:

Source(s): Level Funding

Question: Describe the insurer's considerations when deciding to offer level funding products.

SOA Commentary on Question:

Candidates typically did well on this part. Descriptions of the considerations, as opposed to a list, were required to earn full credit. Some candidates provided a related but not appropriate list of considerations.

SOA Answer:

Carriers desire better risk small groups to migrate to their small group ACA blocks, because better risk groups are profitable to insurers under the ACA's community rating rule.

Additionally, the migration of better risk groups to small group ACA plans will help lower the carrier's small group ACA rates while strengthening the long-term prospects of this block of business.

For these reasons, an insurance carrier would probably not want to offer a level funding plan to a good risk group that would choose an ACA plan otherwise because doing so could lead to the potential cannibalization of the insurer's small group ACA block.

Further, good risk small groups will seek alternatives to the ACA's small group community rating rules and one or more insurance carriers will offer alternatives to those groups including level funding products.

Part c:

Source(s): Skwire 34 – Health Risk Adjustment

Question: Calculate the Relative Risk Factor for each company. Show your work.

SOA Commentary on Question:

Credit was also given when the relative risk factor was determined assuming just these two companies comprised the entire Small Group market.

	Company A		**Company B**		
	Individuals	Avg Cost	Individuals	Avg Cost	
Low Risk	650	$50	250	$125	
Med Risk	300	$250	625	$450	
High Risk	50	$2,250	125	$3,500	Base Rate
Combined	1000	$220.00	1000	$750.00	$400.00
Relative Risk Factor		**0.550**		**1.875**	
		=(220/400)		=(750/400)	

Part d:

Source(s): Level Funding

Question: Calculate for each company: The ACA small group premium rate and the level funding premium rate. Show your work.

SOA Commentary on Question:

Credit was given for assigning the correct formulas, inputting variables within the formulas and obtaining the correct answer. Candidates had the most success on this numerical response compared to parts (c) and (e).

SOA Answer:

ACA Small Group Pricing:

	Company A	Company B
Base Prem	$400	$400
Average Age Factor	0.90	1.10
Average Area Factor	1.00	1.15
Average Tobacco Factor	1.00	1.275
Premium	**$360**	**$645**

Level Funding:

	Company A	Company B
ASO Fee	$50	$50
Specific Stop Loss	$90	$182
Aggregate Stop Loss	$18	$75
Paid Claims Fund	$150	$520
Reserve Fund	$24	$89
ACA Fees	$3	$3
Level Funding Premium	**$335**	**$919**

Part e:

Source(s): Level Funding

Question: Calculate the refund owed to Company A under the level funding product if the actual claims experience below Specific Stop Loss is: (i) $223 PMPM (ii)$177 PMPM (iii) $304 PMPM. Show your work. Explain your results.

SOA Commentary on Question:

Alternate solutions were awarded full credit if the candidate demonstrated an understanding of the refund calculation.

SOA Answer:

refund = claims paid fund - claims below specific stop loss, where claims paid fund is the estimation of claims below specific stop loss deductible times the aggregate attachment factor

	Scenario 1	Scenario 2	Scenario 3
Paid Claims Fund Maximum Liability	$150.00	$150.00	$150.00
Actual Claims	$223.00	$177.00	$304.00
Surplus/Refund	**$0.00**	**$0.00**	**$0.00**

The paid claims fund is the insurer's projection of what the small group's expected claims (times the aggregate attachment factor) below the specific stop loss deductible will be. If the actual experience is lower than Company A's $150 PMPM Paid Claims Fund, a refund is owed to the group. In all three cases above, the actual claims PMPM exceeded the paid claims fund level and therefore no refund will be issued.

4. Fall 2021 DP-A #7

SOA Commentary on Question:

Candidates generally did well on Parts b and c, often earning full credit on the calculation portions of this question. For Parts a and d, candidates' responses often didn't tie to the questions asked. For parts e and f, candidates who performed well on Part e did well on Part f.

Part a:

Source(s): Skwire 29 – Group UW

Question: Describe how claims experience is evaluated for the following insurance products: Group Life and Medical *(Disability Income was included originally but it is no longer in the syllabus of this exam)*

SOA Commentary on Question:

On this part, candidates often described types of experience rather than how the claims experience is evaluated.

SOA Answer:

(i) Group Life: Group life claim experience tends to be relatively volatile, due to a low frequency and high severity of loss, so looking at several years of data is appropriate in evaluating the experience.

(ii) Medical: For larger groups, typically one year of experience is sufficient to evaluate experience. Adjustments are made for trend.

Part b:

Source(s): Skwire 30 – Managing Selection

Question: Calculate the expected 2021 medical claims cost per employee for DEF. Show your work.

SOA Commentary on Question:

Most candidates earned full credit on this part. Common errors include over-trending and forgetting to apply selection factors.

	Calculation	HMO	PPO	POS
(a) 2020 Claims per Employee		$10,000	$10,000	$10,000
(b) Relative Benefit Level		0.80	0.95	1.05
(c) Provider Discount		0.85	0.95	1.10
(d) Utilization Savings		0.80	0.90	1.15
(e) Annual Trend		1.10	1.12	1.15
(f) Selection Factor		0.80	0.95	1.20
(g) 2021 claims prior to Mix	=(a)*(b)*(c)*(d)*(e)*(f)	$4,787	$8,642	$18,330
(h) Projected Enrollment Mix		25%	50%	25%
(i) 2021 claims per employee	=sumproduct(g,h)	**$10,100**		

Part c:

Source(s): Skwire 30 – Managing Selection

Question: Calculate the revised medical claims cost per employee for DEF based on the actual enrollment. Show your work.

SOA Commentary on Question:

Like part b, most candidates earned full credit on part c.

SOA Answer:

	Calculation	HMO	PPO	POS
(a) 2021 Claims before Enrollment Mix	(g) from Part B	$4,787	$8,642	$18,330
(b) Actual Enrollment Mix		20%	40%	40%
2021 claims per employee	=sumproduct(a,b)	**$11,746**		

Part d:

Source(s): Skwire 29 – Group UW

Question: Describe elements of a well-designed risk-sharing agreement.

SOA Commentary on Question:

Few candidates earned full credit on this part. Many focused on risk transfer between the three products, quality metrics, or funding type. Partial credit was earned by describing a gain/loss formula and a claims benchmark.

SOA Answer:

A well-designed risk-sharing agreement should include a fair formula and reasonable caveats, such as:

- Adjustments for changes in demographics, or similar factors that are beyond the control of the administrator or network manager,
- A symmetric gain/loss sharing formula
- A risk-free corridor around the target claim cost (such as 3%), and
- Some form of pooling of experience

Part e:

Source(s): Skwire 29 – Group UW

Question: Propose a risk-sharing agreement for 2021.

SOA Commentary on Question:

Candidates who performed well on this part incorporated elements from their response to part d, such as a gain/loss percentage and a benchmark. A common mistake was focusing on shifting members from one product to another in order to lower claims cost instead of risk-sharing.

SOA Answer:

Benchmark equal to the Projected Claims PMPM in Part B
Minimum shared savings/loss rate of 2% of Benchmark
Shared savings and loss rate of 50%

Part f:

Source(s): Skwire 29 – Group UW

Question: Calculate the risk-sharing agreement results for 2021 based on your proposal in part (e). Show your work. State your assumptions.

SOA Commentary on Question:

Candidates who had an acceptable proposal in part e generally scored full credit on this part, as long as they followed their proposal. Candidates who failed to answer part e didn't do well on part f.

SOA Answer:

Benchmark	$10,100	
Actual Cost	$11,746	
Savings/(Loss)	-$1,646	Benchmark-Actual
Minimum Savings/Loss	-$202	Benchmark * 2%, threshold met
Shared Savings/Loss %	50%	
Shared Losses	**-$823**	

5. Fall 2021 DP-A #8b-d

Part b:

Source(s): Level Funding

Question: Describe advantages and disadvantages of level funded arrangements for employer groups.

SOA Commentary on Question:

Candidates had the most difficulty listing the disadvantages. If candidates mistakenly cited the list of disadvantages for self-insured arrangements, credit was not awarded. Other valid advantages and disadvantages cited outside of the below were awarded credit as well.

SOA Answer:

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

The group will pay fixed monthly payments that mimic a fully insured product

Disadvantages:

Level funded products are not necessarily easy for the group to understand or for the insurer to administer

Competition and choice is limited. A significant number of insurers do not currently offer stop-loss coverage and/or have very little experience offering stop-loss coverage to smaller groups

Most of the small groups that would potentially benefit from a level funded product will not have much, if any, familiarity with self-funding or stop loss.

Level funded arrangements are relatively immature for smaller groups, and may be constrained or prohibited by regulators.

Part c:

Source(s): Level Funding; General knowledge

Question: Calculate the change in reimbursement for Drug A in 2022 under the alternative reimbursement arrangement. Show your work.

SOA Commentary on Question:

Some of the common issues observed with responses were as follows:

- *Cost per member: Not applying trend to correct year; Not using 5 members; Assuming a cost per script*
- *Cost per script: Incorrect trend; Multiplying by number of employees*

SOA Answer:

Current Arrangement:

Year	Members	Cost Per Member	Total Cost
2020	5	$3,000	$15,000
2021	5	$3,150	$15,750
2022	5	$3,308	**$16,538**

2022 Cost per Member = $3,000 * 1.05^2 = $3,308
Total Cost = Members * Cost Per Member

Proposed Arrangement:

Year	Scripts	Cost per Script	Total Cost
1H2022	45	$46.80	$2,106
2H2022	45	$48.67	$2,190
		2022 Total Costs =	**$4,296**

2H2020 Cost per Script = $46.80 * 1.04 = $48.67
2022 Total Costs = $2,106 + $2,190 = $4,296

Change in costs under the proposed arrangement =
$4,296 - $16,538 = **-$12,241**

Part d:

Source(s): Level Funding
Question: Assess how the change in reimbursement for Drug A will impact LMN's: (i) Paid claims fund. (ii) Specific stop loss. (iii) ASO fee.

SOA Commentary on Question:

To receive credit, responses must be based on the candidate's answer to part (c). Candidates were expected to provide justification for their answer.

SOA Answer:

(i) A decrease in expected claims will cause the paid claims fund to decrease. The paid claims fund is used to cover the costs of the group's expected non-stop loss claim costs. In order to calculate the paid claims fund, the group's projected paid claim costs include expected changes in costs due to annual trend and contract changes.

(ii) The cost of specific stop loss may decrease. Moving to the proposed arrangement will cause a 74% decrease in each utilizing member's costs for Drug A. This means they will be less likely to hit the specific attachment point which may generate a reduction in stop loss premiums.

(iii) A change in expected claim costs will have no impact on the ASO fee.

6. Spring 2022 DP #4

Part a:

Source(s): GH101-101-25 – Exp. Rating & Funding

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

SOA Commentary on Question:

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

SOA Answer:

(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

(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.

Part b:

Source(s): GH101-101-25 – Exp. Rating & Funding

Question: Calculate the accumulated surplus or deficit as of June 30, 2018 from the client perspective. Show your work.

SOA 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.

SOA Answer:

	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	($875,000)	($910,000)	($1,080,000)	($2,865,000)
= 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]	($259,584)	($177,120)	($320,813)	($757,517)
= 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	$112,000	$429,000	$691,000	$1,232,000
= Incurred Claims	$9,852,000	$10,474,000	$14,022,000	$34,348,000
surplus / deficit	**$435,112**	**($3,767,840)**	**($1,307,050)**	**($4,639,778)**

Part c:

Source(s): GH101-101-25 – Exp. Rating & Funding

Question: Calculate the accumulated surplus or deficit as of June 30, 2018 from the insurer perspective. Show your work.

SOA Commentary on Question:

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

SOA Answer:

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)**

Part d:

Source(s): GH101-101-25 – Exp. Rating & Funding

Question: Calculate the total premium rates for the period July 1, 2019 to June 30, 2020. State your assumptions. Show your work.

SOA 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.

SOA Answer:

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

	Trended Claims	Membership	Claims PMPM	Credibility Weight
July 1 2015 - June 1 2016	$9,852 x 1000 x 1.05^4 = $11,975,168	4,160	$239.89	1/14 = 7%
July 1 2016 - June 1 2017	$10,474 x 1000 x 1.05^3 = $12,124,964	4,100	$246.44	4/14 = 29%
July 1 2017 - June 1 2018	$14,022 x 1000 x 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**			

7. Spring 2022 DP #13

Part a:

Source(s): Level Funding

Question: Describe the advantages and disadvantages of entering into a self-funding arrangement.

SOA Commentary on Question:

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

SOA Answer:

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

Part b:

Source(s): Level Funding

Question: Calculate the group's transitional premium. Show your work.

SOA 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.

SOA Answer:

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

Part c:

Source(s): Level Funding

Question: Calculate the expected cost components of the level funded premium equivalent. Show your work.

SOA Answer:

	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

Part d:

Source(s): Level Funding

Question: Calculate the level funded surplus or deficit at the end of the settlement. Show your work.

SOA 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.

SOA Answer:

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

Part e:

Source(s): Level Funding

Question: Recommend next steps for infrastructure to make sure the level funding approach is successful.

SOA Answer:

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

8. Fall 2022 DP #5

Part a:

Source(s): Skwire 30 – Managing Selection

Question: Calculate the selection load needed in Year 2 for PQR to break even under Strategy 1. Show your work.

SOA Commentary on Question:

Candidates performed well on part (a). Candidates received full credit for calculating the correct selection load with work shown. Partial credit was given for candidate answers showing correct approaches with minor calculation errors. Candidates who performed poorly failed to use the morbidity factors, incorrectly applied member migration, or did not understand how to calculate a selection load.

SOA Answer:

Given	Given	Given	Given	Given		
Risk Group	# of Employees	Relative Health Status	Year 1 Plan	Year 2 Plan	Monthly Insurer Premium Rates	Premium Calculation
1	600	50%	A	A	$525	=500*1.05
2	200	70%	B	A	$525	=500*1.05
3	300	100%	B	B	$630	=600*1.05
4	200	225%	C	B	$630	=600*1.05
5	50	320%	C	C	$735	=700*1.05

Monthly Insurer Premium, Year 2, Strategy 1
Plan A =525*600+525*200 = 420,000
Plan B =630*300+630*200 = 315,000
Plan C =735*50 = 36,750

Monthly Insurer Cost (Pure Premium), Year 2, Strategy 1
Plan A =525*600*0.5+525*200*0.7 = 231,000
Plan B =630*300*1+630*200*2.25 = 472,500
Plan C =735*50*3.2 = 117,600
Total Insurer Cost = 231,00 + 472,500 + 117,600 = 821,100
Selection Load = 821,100 / 771,750 – 1 = 6.4%

Part b:

Source(s): Skwire 30 – Managing Selection

Question: Calculate the selection load needed in Year 2 for PQR to break even under Strategy 2. Show your work.

SOA Commentary on Question:

Candidates did not perform as well on part (b) as on part (a). Candidates who performed well were able to correctly calculate the Premium and Insurer Cost under Strategy 2, which included the introduction of a new plan. Partial credit was given for candidate answers showing correct approaches with minor calculation errors. Candidates who performed poorly failed to use the morbidity factors, incorrectly applied member migration, or did not understand how to calculate a selection load.

SOA Answer:

Given	Given	Given	Given	Given		
Risk Group	# of Employees	Relative Health Status (Morbidity)	Year 1 Plan	Year 2 Plan	Monthly Insurer Premium Rates	Premium Calculation
1	300	50%	A	A	$525	=500*1.05
1	300	50%	A	NEW	$450	Given
2	200	70%	B	NEW	$450	Given
3	300	100%	B	B	$630	=600*1.05
4	200	225%	C	C	$735	=700*1.05
5	50	320%	C	C	$735	=700*1.05

Monthly Insurer Premium, Year 2, Strategy 2
Plan A =525*300 = 157,500
Plan B =630*300 = 189,000
Plan C =735*200+735*50 = 187,500
Plan D (New Plan) =450*300+450*200 = 225,000
Total Monthly Insurer Premium = 157,500 + 189,000 + 187,500 + 225,000 = 755,250

Monthly Insurer Cost (Pure Premium), Year 2, Strategy 2
Plan A =525*300*0.5 = 78,750
Plan B =630*300*1 = 189,000
Plan C =735*200*2.25+735*50*3.2 = 448,350
Plan D (New Plan) =450*300*0.5+450*200*0.7 = 130,500
Total Insurer Cost = 78,750 + 189,000 + 448,350 + 130,500 = 846,600
Selection Load = 846,600 / 755,250 -1 = 12.1%

Part c:

Source(s): Skwire 30 – Managing Selection
Question: Evaluate each strategy from the perspective of: (i) Employees at XYZ, (ii) PQR Insurance, (iii) XYZ Company's CEO. Justify your response.

SOA Commentary on Question:

Candidates performed poorly on part (c). The verb 'Evaluate' calls for an opinion and may include making a conclusion from a given perspective. Candidates who performed well included an opinion

about each strategy from each perspective. Candidates who did not perform well simply stated facts about each strategy but did not opine on which strategy would be preferred by the stakeholder. Additional answers with appropriate justification were also accepted.

SOA Answer:

(i) Strategy 1 is unfavorable to Employees at XYZ since they must pay a higher contribution in addition to the premium increase. Strategy 2 is favorable since employer contributions do not decrease and employees have more choice which allows them to switch to a lower-cost plan. Employees at XYZ would prefer Strategy 2.

(ii) PQR Insurance is protected against some risk of antiselection through the selection load. However, Strategy 2 results in a greater impact of member migration and necessitates a higher selection load. Strategy 1 is likely preferred by PQR Insurance since there is less plan migration and less choice, there is less risk of a future rate spiral.

(iii) XYZ Company CEO is concerned about expenses, which are only reduced under Strategy 1 since XYZ pays a flat contribution towards premium. In Strategy 2, XYZ adds another plan but does not change its contribution. Strategy 1 is likely preferred by the CEO because it reduces direct costs.

9. Fall 2022 DP #9c-f

Part c:

Source(s): The Role of the Actuary in Self-Insurance

Question: Describe the underwriting considerations applicable to a level funding product.

SOA Commentary on Question:

The list of considerations can come from Chapter 29 of Group Insurance or The Role of the Actuary in Self-Insurance reading. Applicable descriptions must accompany each item in order to get any points.

SOA Answer:

Items from Group Insurance Chapter 29:

- Age and gender
- Location or area
- Type of Industry
- Financial strength
- Ease of administration
- Level of participation
- Prior persistency
- Items from *Role of the Actuary in Self-Insurance:*
- Eligibility and enrollment information, including the location of the self-insured plan and its members' residences;
- Underlying health benefit plan design, which might consist of the benefit schedule, the SPD or, if available, the plan document;
- Competition, which might include current rates, proposed renewal rates and name of the incumbent;
- Past stop-loss experience, including both premiums and claims;
- Claimants with high claims costs, typically any member exceeding one-half the specific stop-loss deductible; and
- Claimants with diagnoses (trigger diagnoses) and/or prognoses that indicate a high likelihood of a large claim.

Part d:

Source(s): Skwire 29 – Group UW

Question: Describe ways that Quantum can mitigate the risk of high cost claims if the group selects a: (i) Fully insured small group HMO product, (ii) Level funding product, (iii) Self-funded product.

SOA Commentary on Question:

Candidates should describe the risk mitigation method for Quantum, not the client group. Many candidates confused the stop-loss mechanism in level-funding product with risk mitigation methods for high cost claims.

SOA Answer:

(i) Reinsurance and renewal rate increase, otherwise carrier retain all risk.

(ii) Reinsurance and renewal rate increase, otherwise carrier retain all risk.

(iii) For ASO contracts, client retain all risks. If stop loss exists, lasering and aggregating specific stop loss deductible can help mitigate the risk.

Part e:

Source(s): Level Funding

Question: Calculate the base premium for Company REF in their Year 5 renewal under: (i) Fully insured ACA small group HMO product, (ii) Level funding product. State your assumptions. Show your work.

SOA Commentary on Question:

Candidates generally performed better on fully insured ACA SG HMO product pricing.

SOA Answer:

(i)

From part (b), base claim costs = $300.47
Base premium = Incurred claims cost + All Administrative Expenses (Quality Improvement Expense and General) - Pharmacy Rebate + State Risk Adjustment Transfer Payment + Broker Commission + Premium Tax
Base Premium = (300.47+20+100-5+15)/(1-0.02-0.03) = $453.12

(ii)

Given, base claim costs = $300.47
Determine the paid claims fund/maximum liability PMPM:
Claims costs over the SSL threshold need to be deducted from the base claims cost

Year 3:
25,000
5,000

Year 4:
5,000
25,000

Total claims cost above SSL: 60,000
Total Member Month for 2 years: 90*24 = 2,160
Total claims cost above SSL PMPM: 60,000/2,160 = $27.28
Paid claims fund/Maximum liability PMPM = (300.47-27.28)*1.2 = $327.23

Base Premium = Paid Claims Fund + All Administrative Expenses (Quality Improvement Expense and General) - Pharmacy Rebate + Broker Commission
Base Premium = (327.23+20+100-5)/(1-0.02) = $451.25

*Note that based on the reading, level funding products have 5 cost components; however, costs of stop loss coverages and reserve fund are not given in the question. It is not necessary to assume them in the calculations.

Part f:

Source(s): Level Funding

Question: Recommend a product offering to Quantum. Justify your recommendation.

SOA Commentary on Question:

The recommendation must be made from Quantum's perspective.

SOA Answer:

I recommend Quantum to offer fully insured ACA Small Group HMO product to the group.

The historical experience of the group indicates that they may have a few high costs members. Their overall annual claims are also much higher than the average fully insured small group HMO population. These are not the desired characteristics of the groups that Quantum wants in a level funding product.

The pricing outcomes indicate that the level funding premium is only marginally lower than the fully insured premium. In general, low risk groups get better deal on level funded product due to experience rating and no state premium tax. Quantum would offer level funded products as a retention tool to keep them on company's book of business rather than losing it to competitors. In this case however, the pricing difference would not make level funded products very attractive to the group.

10. Spring 2023 DP #3

SOA Commentary on Question:

This question was focused around level funding arrangements and understanding how they work. The question dug into not just the definition of a level funding arrangement, but touched on how to develop a rate, how to handle pooled claims and how to measure profitability.

Candidate performance was middling and many earned at least partial credit for most sections attempted.

Part a:

Source(s): Level Funding

Question: Compare and contrast level funding and ACA community rating from a rate development perspective.

SOA Commentary on Question:

The question specifically asks the candidate to "Compare and Contrast", not "Describe". Points were awarded for articulating comparisons, and credit was awarded if candidates clearly described similarities and differences.

Additional responses were accepted, although the answers below are the most common.

SOA Answer:

Compare:

Both ACA community rating and level funding provide a level, monthly premium

Share several rating factors

Both limit the risk and volatility for the policyholder

Contrast:

Level funding allows the policyholder to share in the risk, ACA rating has the insurer taking on all of the risk

ACA rating is only allowed to use a limited set of rating factors, level funding can use more factors

Level funding is more complex to rate, it involves stop loss coverage

Level funding avoids ACA taxes and fees that are required in ACA rating

Part b:

Source(s): GH101-101-25 – Exp. Rating & Funding

Question: Calculate the accumulated surplus or deficit at June 30, 20X4 including XYZ's acquisition of Employer ABC from (i) The client perspective. (ii) The insurer perspective. Show your work.

SOA Commentary on Question:

The question was ambiguous on whether the companies should be combined before calculating the surplus, or after. Ultimately, both approaches were accepted. Additionally, the paid premium could be taken directly from the information given or calculated from the given membership and premium PMPM. Both options were accepted.

The solution below combines both entities before calculating the surplus or deficit and relies on the given paid premiums.

Partial credit was awarded, with a focus on correct handling of pooled premiums and claims, changes in IBNR and retention.

Many candidates made technical errors that led to the wrong answer. Partial credit was awarded where the intent was clearly articulated.

SOA Answer:

(i) The client perspective

See the accomining Excel file for the full solution

(ii) The insurer perspective

Profit/loss from account experience:	($1,866,600)
Profit/loss from pooled experience:	$1,415,000
Risk & Profit from embedded in paid premiums:	$1,247,250
Total profit/loss for this account:	$795,650

Part c:

Source(s): GH101-101-25 – Exp. Rating & Funding

Question: Calculate the PMPM rates for the period July 1, 20X5 to June 30, 20X6. Show your work.

SOA Commentary on Question:

Many candidates attempted to incorporate the July 1 20X4 – June 30 20X5 premiums into the calculation, or to calculate a rate increase. These were not disqualified if handled properly, but were unnecessary to the request and generally led to more confusion in the calculation.

One common mistake was to weight the claims before converting to a PMPM. This approach fails to normalize for differences in membership across time periods and was penalized.

Partial credit was available, with a focus on using the correct incurred claims, trends, credibility weighting, retention and adding in pooled premiums. Since this is a unilateral arrangement, no deficit recovery is necessary.

SOA Answer:

	Incurred Claims	Years of Trend	Trended Claims	Membership	Claims PMPM	Credibility Weight
July 1, 20X1 – June 30, 20X2	$9,861,000	4	$12,925,759	4,187	$257.26	0.11
July 1, 20X2 – June 30, 20X3	$10,587,000	3	$12,969,530	4,132	$261.57	0.33
July 1, 20X3 – June 30, 20X4	$13,996,000	2	$16,024,020	4,276	$312.29	0.56
Credibility Weighted PMPM					$289.27	
Required Premium					$336.36	
Pooled Premium (given)					$27.50	
Deficit Recovery Premium					$0.00	
Total Premium					$363.86	

Part d:

Source(s): GH101-101-25 – Exp. Rating & Funding

Question: Evaluate whether a deficit recovery, unilateral, or bilateral arrangement would have been most beneficial to the insurance carrier. Justify your response.

SOA Commentary on Question:

The response below reflects the most common answer to receive full credit, although other answers would be accepted with a good – and accurate – justification. Partial credit was awarded for other answers with a reasonable justification.

Many candidates misunderstood the mechanics of the three arrangements listed, and answers that were inaccurate on these mechanics could not receive full credit

SOA Answer:

A bilateral arrangement would be most beneficial to the insurer because in a bilateral agreement the client takes on both the surplus and the deficit of the account experience.

In a deficit recovery arrangement, rates would need to be increased in future periods in order to regain losses. The client could drop coverage with the insurer or their members could leave for other options, leaving the insurer at some risk.

In a unilateral arrangement, the insurer takes on the deficit and not the surplus, so this is not ideal for the insurer.

11. Spring 2023 DP #9

Part a:

Source(s): The Role of the Actuary in Self-Insurance

Question: Recommend whether each of the following businesses should fully insure or self-insure their health benefits. Justify your response.

(i) A chain store with locations across the country, with more than 500 retail and corporate employees.

(ii) A small boutique with a dozen employees looking to reduce costs.

(iii) A company with over 500 employees and seasonal spikes in revenue.

SOA Commentary on Question:

Candidates generally performed well on this section. Many candidates understand that the larger the group is, the more credible and less volatile the claim costs are.

SOA Answer:

(i) Recommend self-insurance, as it allows for lower cost, as the group can avoid, state mandated benefits, fees associated with risk margin, and profit loads. Overall, the claims should be relatively stable given the size and diversity of the group.

(ii) Recommend Fully Insure. Despite wanting to reduce costs, given a small number of employees, it can create significant volatility, where one claimant can bankrupt the business or create significant financial pressure on the business.

(iii) A company with over 500 employees and seasonal spikes in revenue. Recommend Fully Insured. Seasonal spikes in revenue compared with volatility in costs can create a large exposure for cash flow issues.

Part b:

Source(s): The Role of the Actuary in Self-Insurance

Question: Describe the effects which magnify the trend for stop-loss coverage compared to overall trend.

SOA Commentary on Question:

Many candidates were able to identify the impact of trend leveraging, but unable to describe it.

SOA Answer:

There are two major effects that magnify the trend for stop-loss coverage compared to overall trend.

Severity effect: The full amount of the claims that exceeded the specific deductible in year 1 increases by trend, but because the specific deductible does not change, the portion in excess of the specific deductible goes up by more than trend.

Frequency effect: Claims that were close to but less than the specific deductible in year 1 will exceed the specific deductible in year 2. That is, the number of claims in excess of the specific deductible increases from year to year.

The net effect is that the effective trend for the claims cost above the specific deductible will be higher than first dollar trend. That is, trend has been "leveraged" at the fulcrum represented by the specific deductible.

Part c:

Source(s): The Role of the Actuary in Self-Insurance
Question: Calculate the maximum annual trend for Specialty Drugs to meet Big Customer's rate increase target. Show your work.

SOA Commentary on Question:

Many candidates struggled on this section as they did not consider the $100,000 stop loss threshold into their calculations.

SOA Answer:

Solution:
Step 1 – Calculate the stop loss payment for each of the claim ranges (before trend), given $100,000 deductible threshold.

Range of Claims PEPY (A)	Frequency (B)	Total (C)	Estimated Stop Loss Payment (D)
0	0.18987	$0	$0
1-100	0.05	$51	$0
101-500	0.2328	$241	$0
501-1,000	0.15	$722	$0
1,001-5,000	0.14	$2,655	$0
5,001-10,000	0.124	$5,164	$0
10,001-25,000	0.0451	$16,879	$0
25,001-50,000	0.0375	$37,942	$0
50,001-100,000	0.02275	$77,480	$0
100,001-250,000	0.00627	$169,000	$69,000
250,001-500,000	0.001	$386,471	$286,471
500,001-1,000,000	0.0007	$768,375	$668,375
1,000,000+	0.00001	$1,625,514	$1,525,514

Step 2 –
Calculate the Stop Loss PEPY based on Frequency x Stop Loss Payment =sumproduct(A,D) = 1,202 PEPY or 100.18 PEPM

Step 3 – Calculate target PEPY: $1202*1.1 = $1322.44 or $110.20 PEPM

Step 4a – Trend the CPD for Inpatient, Outpatient, Professional, and Non-Specialty Drug claims. Goal seek trend for Specialty Drug, such that the average PEPY of the stop loss reimbursement x frequency is $1322.

Range of Claims PEPY	Frequency	Inpatient (3% trend)	Outpatient (4% trend)	Physician (4% trend)	Non-Specialty Drugs (1% trend)	Specialty Drugs (17% trend)	Total	Estimated Stop Loss Reimburse	Stop Loss Reimburse x Frequency
0	0.18987	$0	$0	$0	$0	$0	$0	$0	$0
1-100	0.05	$0	$16	$24	$13	$0	$53	$0	$0
101-500	0.2328	$26	$93	$69	$45	$19	$251	$0	$0
501-1,000	0.15	$280	$151	$118	$88	$123	$759	$0	$0
1,001-5,000	0.14	$849	$560	$550	$247	$607	$2,813	$0	$0
5,001-10,000	0.124	$1,959	$998	$1,248	$356	$878	$5,439	$0	$0
10,001-25,000	0.0451	$10,132	$3,054	$2,048	$488	$1,935	$17,657	$0	$0
25,001-50,000	0.0375	$21,985	$7,939	$4,705	$881	$4,175	$39,685	$0	$0
50,001-100,000	0.02275	$37,514	$9,734	$7,490	$1,278	$27,192	$83,208	$0	$0
100,001-250,000	0.00627	$76,768	$43,239	$14,154	$2,989	$42,515	$179,665	$79,665	$499
250,001-500,000	0.001	$211,523	$108,386	$17,998	$5,679	$63,162	$406,748	$306,748	$307
500,001-1,000,000	0.0007	$449,443	$149,932	$25,513	$12,760	$176,379	$814,027	$714,027	$500
1,000,000+	0.00001	$896,364	$262,770	$31,799	$36,687	$509,964	$1,737,584	$1,637,584	$16
Average PEPY									$1,322

Part d:

Source(s): The Role of the Actuary in Self-Insurance

Question: Recommend two changes to policy provisions that could reduce the rates. Justify your response.

SOA Commentary on Question:

Some candidates identified ways to lower overall claim costs instead of recommending changes to the policy provisions that would reduce the renewal.

SOA Answer:

A couple examples of policy provisions that would reduce the overall rates are:

Introduction of lasers - Exclude known high-cost claimants from the stop loss insurance pool or higher deductible for lasered individuals.

Increase the specific deductible or add an aggregating deductible to the policy.

Introduce a maximum benefit amount or exclude certain types of coverages.

12. Fall 2023 DP #3a,d-e

Part a:

Source(s): Skwire 26 – Exp. Rating & Funding
Question: (i) Contrast manual and experience rating. (ii) Contrast prospective and retrospective rating.

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

SOA Answer:

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

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

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

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

Part d:

Source(s): Skwire 26 – Exp. Rating & Funding
Question: Calculate renewal rates for Groups 1, 2, and 3 on a composite per employee basis using the prospective rating method. Show your work.

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

SOA Answer:

Group 1
Manual Claims
Base Claim Rate (includes pooling charge) = (30*175+10*350)/40 = 218.75
Trend Factor for Manual Rate = 1.0000 (no trend, rate starts at the effective date)
Manual Claim Rate = Base Rate*Trend*Age/Sex*Plan Design*Region Factors
= 218.75 * 1.000 * 0.90 * 0.70 * 0.90 = 124.03

Experience Claims
Claims < $50,000 = 74,000
Starting PMPM = 74,000 / 40 / 12 = 154.17
Trend = (1.009)^12 * (1.015)^6 = 1.2176
Experience Rate before pooling charge = 154.17 * 1.2176 = 187.71
Pooling Charge = $40
Experience Claim Rate = 187.71 + 40 = 227.71

Credibility
Min(40*12/6000,1) = 8%

Blended Rate
227.71 * 8% + 124.03 * (1-8%) = 132.33

Gross Premium (Renewal Rate) Build
(Blended Claims + Admin Expenses) / (1 – Commission – Risk Load)
(132.33 + 18) / (1 - 10% - 7%) = **181.11**

Group 2
Manual Claims
Not Needed, 100% Credible group

Experience Claims
Claims < $50,000 = 3,170,000
Starting PMPM = 3,170,000/ 1850 / 12 = 142.79
Trend = (1.009)^12 * (1.015)^6 = 1.2176
Experience Rate before pooling charge = 142.79 * 1.2176 = 173.86
Pooling Charge = $40
Experience Claim Rate = 173.86 + 40 = 213.86

Credibility
Min(1850*12/6000, 1) = 100%

Blended Rate
213.86 * (100%) = 213.86

Gross Premium (Renewal Rate) Build
(Blended Rate + Admin Expenses) / (1 – Commission – Risk Load)
(213.86 + 10) / (1 - 6% - 4%) = **248.73**

Group 3
Manual Claims
Base Claim Rate (includes pooling charge) = (125*175+200*350)/325 = 282.69
Trend Factor for Manual Rate = (1.015)^3 = 1.0457 (3 months of trend needed)
Manual Claim Rate = 282.69 * 1.0457 * 1.10 * 0.75 * 1.20 = 292.65

Experience Claims
Claims < $50,000 = 667,000
Starting PMPM = 667,000 / 325 / 12 = 171.03
Trend = (1.009)^12 * (1.015)^9 = 1.2732
Experience Rate before pooling charge = 171.03* 1.2732= 217.75
Pooling Charge = $40 * 1.015^3 = 41.83
Experience Claim Rate = 217.75 + 41.83 = 259.57

Credibility
Min(325*12/6000,1) = 65%

Blended Rate
259.57 * 65% + 292.65* (1-65%) = 271.15

Gross Premium (Renewal Rate) Build
(Blended Rate + Admin Expenses) / (1 – Commission – Risk Load)
(271.15+ 12) / (1 - 7% - 5%) = **321.76**

Part e:

Source(s): Skwire 26 – Exp. Rating & Funding

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

SOA Commentary on Question:

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

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

SOA Answer:

Formula Balance Item	**Calculation**	**Value**
Prior Formula Balance	Given	875,000
Premium	Given	4,152,000
Investment Earnings	Not Given, assume 0	0
(Claims charged)	Claims Less than $50k + Pooling Charge (trended back to experience period) * Employees * 12 months	(3,170,000 + 40*(1.009^-12)*(1.015^-6)*1850*12) = (3,899,328)
(Monthly admin fee per employee)	$10 * Employees * 12 months	(222,000)
(Commission % of gross premium)	6% * Premium	(249,120)
(Risk load % of gross premium)	4% * Premium	(166,080)
(Contribution to rate stabilization reserve % of gross premium) 3.0%	3%* Premium	(124,560)
Refund	Sum of the above	365,912

13. Fall 2023 DP #6

SOA Commentary on Question:

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

Part a:

Source(s): The Role of the Actuary in Self-Insurance
Question: Describe the advantages and disadvantages of self-funding.

SOA Commentary on Question:

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

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

SOA Answer:

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

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

Part b:

Source(s): The Role of the Actuary in Self-Insurance
Question: Describe drivers of cash-flow volatility when self-funding.

SOA Commentary on Question:

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

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

SOA Answer:

- Nature of claims: Acute claims tend to be more volatile, chronic conditions may be more stable month-to-month

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

Part c:

Source(s): The Role of the Actuary in Self-Insurance
Question: Explain cash flow considerations for newly self-funded groups focusing on the following areas: (i) Claims patterns in the first year (ii) Claims seasonality (iii) Establishing a claims reserve

SOA Commentary on Question:

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

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

SOA Answer:

(i) Since the plan is either new or was fully-insured, there are no claims incurred before the start of the plan year that are being reported and paid in the first few months. These will be much lower than the remainder of the year, and will be different from future years

(ii) Once claims experience is established, they'll start to show patterns over time. These patterns can be caused by benefit design decisions, such as higher utilization late in the year when members have satisfied their deductibles and out-of-pocket maximums

(iii) The plan sponsor will need to establish an IBNR or IBNP reserve to account for the lag between claims being incurred and paid. The low relative claims early in the year are a good time to put away excess funds to build this fund

Part d:

Source(s): The Role of the Actuary in Self-Insurance
Question: (i) Sketch how specific stop loss and aggregate stop loss mitigate claims risk by completing the chart provided in the Excel spreadsheet. (ii) Explain how each stop loss arrangement impacts the distribution of exposures.

SOA Commentary on Question:

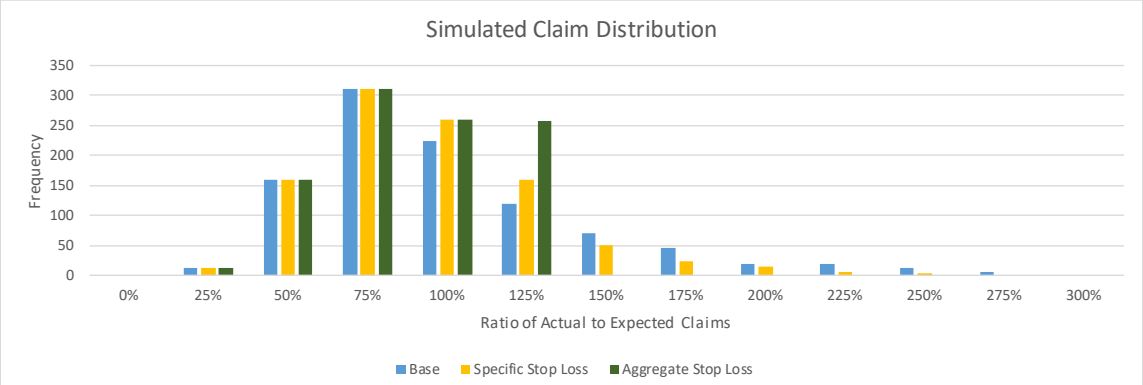
Candidates did poorly on this question. This question tested candidates on their understanding of risk transference mechanisms and how they will impact both volatility and results. Sketching and describing how those mechanics impact a risk distribution is expected to test a candidate's understanding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

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

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

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

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



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

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

Part e:

Source(s): The Role of the Actuary in Self-Insurance

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

SOA Commentary on Question:

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

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

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

SOA Answer:

(i) The CFO is choosing the highest expected cost option of $19.6M. While claims volatility is minimized, cost is not. As attachment points increase, premiums decrease faster than expected claims over the specific level. Selecting a higher attachment point would reduce costs without a significant increase in claims volatility. A degree of claims volatility is unavoidable and may be better managed by maintaining higher reserves or using an aggregate stop loss policy.

(ii) A $100,000 attachment point would reduce expected costs by $1.36M, or 9% of expected retained claims. This would be a significant cushion to the overall plan budget and absorb a significant amount of claim volatility.

14. Fall 2023 DP #7b-c

Part b:

Source(s): ASOP #12 – Risk Classification

Question: Describe considerations under ASOP 12 for: (i) Establishing risk classes (ii) Testing the risk classification system

SOA Commentary on Question:

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

SOA Answer:

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

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

a. Adverse Selection
b. Credibility
c. Practicality

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

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

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

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

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

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

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

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

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

Part c:

Source(s): Skwire 34 – Health Risk Adjustment
Question: Calculate each insurer's relative risk factor. Show your work.

SOA Commentary on Question:

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

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

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

SOA Answer:

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

15. Spring 2024 DP #3

Part a:

Source(s): Skwire 30 – Managing Selection

Question: Describe (i) Reasons a benefits package costs more when individuals are given choices. (ii) Four factors that influence employee choice.

SOA Commentary on Question:

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

SOA Answer:

(i)

Individuals know more about their health than an insurance company, thus they will use this advantage to select a benefits package that is most advantageous for themselves at the cost of the insurer.

Additionally, communications with employees are more complex and administratively expensive and there is an impact to economies of scale within a product impacting negotiating leverage.

(ii)

a. Inertia – employees tend to stay with their existing plan selection unless new information becomes available or something significant changes to compel them to consider other options.
b. Plan provisions and costs – the services covered, employee cost sharing and premiums, and other provisions of the benefit package will influence and employee's choice as they determine the best value for themselves.
c. Provider network attributes – such as provider availability, access restrictions, pharmacy formularies, and other access related items will influence an employee's choice as they consider where they would like to receive care.
d. Insurer – Insurer reputation and administration issues may influence an employee's choice when choosing a benefit package.

Part b:

Source(s): Skwire 30 – Managing Selection

Question: Calculate the effective premium change for the HSA in 20X2 using the following scenarios: (i) 2-Choices insures both the PPO and the HSA (ii) 2-Choices insures the HSA while the PPO is insured by a competitor. Show your work.

SOA Commentary on Question:

Candidates generally did poorly on Part B. Candidates were required to evaluate the employer's contribution % in both years to determine enrollment mix and corresponding health statuses between products and calculate the impact of selection. Many candidates only did this for either 20X1 or 20X2 but not both as needed to calculate a trend, and many candidates failed to correctly identify that the selection load needed for Part b(i) was the combined impact to both products. Candidates who correctly identified in Part b(ii) that Insurer 2-Choices did not have to consider the impacts of the PPO product in the pricing change of the HSA product received points regardless of their response to Part b(i).

Note due to the ambiguity in rounding candidates were given full points if they correctly calculated the trend without a change in enrollment mix between years.

SOA Answer:

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

Part c:

Source(s): Skwire 30 – Managing Selection

Question: Calculate the amount of buy-down effect per employee that occurs in 20X2. Show your work.

SOA Commentary on Question:

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

SOA Answer:

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

16. Spring 2024 DP #6

Part a:

Source(s): GH101-101-25 – Exp. Rating & Funding

Question: Compare and contrast prospective experience rating and retrospective experience rating.

SOA Commentary on Question:

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

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

Part b:

Source(s): GH101-101-25 – Exp. Rating & Funding

Question: List and describe the three retrospective experience rating methods.

SOA Commentary on Question:

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

SOA Answer:

Deficit Recovery Method

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

Unilateral Arrangement

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

Bilateral Arrangement

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

Part c:

Source(s): GH101-101-25 – Exp. Rating & Funding

Question: Calculate the accumulated surplus or deficit as at June 30, 20X3 from the perspective of the: (i) Client and (ii) Insurer. Show your work.

SOA Commentary on Question:

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

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

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

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

SOA Answer:

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

Part d:

Source(s): GH101-101-25 – Exp. Rating & Funding

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

SOA Commentary on Question:

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

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

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

SOA Answer:

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

17. Fall 2020 DP-A #5d-e

Part d:

Source(s): GH101-101-25 – Exp. Rating & Funding
Question: Calculate the renewal rate for January 1, 2020 to December 31, 2020. Show your work.

SOA Commentary on Question:

Many candidates received partial credit on part (d). Although trend assumptions were provided in the case study, credit was given for any reasonable trend assumption used in the calculation. Credit was given for each correct step taken regardless of whether earlier steps were missed.

SOA Answer:

Using the fully credible 2018 experience:
2018 Paid Premiums ($14,825) – Pooled Premiums ($1,260) = Experience Premiums (13,565)

Paid 2019 Premium PMPM (325.00) – Pooled Premium PMPM (27.62) = 2019 Experience Rate (297.38)

Experience Premiums (13,565) x 2019 Experience Rate (297.38)/2018 Experience Rate (274.50) = Adjusted Premiums (14,696)

Paid Claims (12,750)-Pooled Claims (550) + Change in IBNR (500) = Incurred Claims (12,700)
Incurred Claims (12,700) x 2019 Trend (1.067) x 2020 Trend (1.055) = 14,296

Trended Claims (14,296)/Adjusted Premiums (14,696) = Loss Ratio 97.3%

Loss Ratio (97.3%) x Credibility 100% = 97.3%

General Admin + Profit Margin + Taxes + etc. = 1 - 0.155 = Target Loss Ratio 84.5%

Weighted Loss Ratio (97.3%) / Targeted Loss Ratio (84.5%) - 1 = Renewal Rate Increase (15.1%)

Base Rate 2019 (297.38) * Renewal Rate Increase (15.1%) + 2020 Pooled Premium ($33) = Paid Premium 2020 **($375.37**)

Renewal Rate Increase (15.5%) = 2020 Paid Premium ($375.37) / 2019 Paid Premium ($325.00) - 1

Part e:

Source(s): GH101-101-25 – Exp. Rating & Funding; Actuary's Role in Self-Insurance
Question: Recommend whether or not Abeesee should move to a self-insured plan. Justify your response.

SOA Commentary on Question:

Candidates generally did well on part (e) with many earning full credit. Credit was given for appropriate rationale for recommendations, including responses not mentioned below. Candidates were able to earn credit regardless of their recommendation if proper justification for the recommendation was provided.

SOA Answer:

Yes, Abeesee should move from an insured basis to a self-insured basis. Abeesee has an experience rate lower than the manual rate, so this group can obtain some savings on premiums based on its own experience. Abeesee would gain some flexibility in plan design, and can avoid some retention items, i.e. the insurer profit margin and premium tax.

18. Fall 2024 DP #2

SOA Commentary on Question:

Candidates generally did well on the question, with many opportunities for partial credit available. The general idea of the question was built around risk selection and the idea of antiselection in particular, and candidates that identified and understood that concept tended to perform better than those that did not. A common issue was that candidates were confused by the concept of offering two different plans that had different risk pools, as opposed to shifting from one plan to another.

Part a:

Source(s): Skwire 30 – Managing Selection

Question: Describe factors that influence employees' choice of medical plans.

SOA Commentary on Question:

The answer below is longer than what is expected for this question. A candidate would receive full credit if they described at least four items similar to those below.

SOA Answer:

- Inertia - employees tend to stay with their current plan unless new information becomes available. Moderate premium increases are not enough to drive movement
- Plan provisions and costs - covered services, cost sharing, employe premiums, OON benefit design
- Employee and dependent demographics - age, gender, health status, family size, income, risk aversion, education
- Employer actions and attitudes - employer contributions, attitude towards managed care, communications and support for enrollment process
- Eligibility for other health insurance coverage - such as through a spouse or from a government program
- Information available about options - Employee communications, both official and unofficial. This is especially important for CDHPs, and private exchanges offer decision-support tools. This can increase antiselection
- Provider Network Attributes - provider availability, access restrictions, reputation, fees, quality and medical management restrictions
- Insurer and administration issues - claim service, customer service, online tools and reputation

Part b:

Source(s): Skwire 30 – Managing Selection

Question: Calculate the following using the information given: (i) The expected PEPY cost for each benefit plan option. (ii) The total expected claims cost for Company ABC. Show your work.

SOA Commentary on Question:

Candidates generally did well here. Common mistakes included ignoring the risk factors or not being able to calculate a PEPY for each plan. Partial credit was awarded.

SOA Answer:

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

Part c:

Source(s): Skwire 30 – Managing Selection
Question: Calculate the savings from the CFO's proposal. Show your work.

SOA Commentary on Question:

Candidates generally did well. One common mistake was to assume the plan was introducing a narrow network or moving from just the broad to just the narrow network.

SOA Answer:

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

Part d:

Source(s): Skwire 30 – Managing Selection
Question: Critique the CFO's statement.

SOA Commentary on Question:

To receive full credit a candidate had to 1) comment on the CFO's expected results, ideally referencing part (c), 2) identify the reason why the savings would not materialize and 3) discuss other considerations. Most candidates received at least partial credit.

SOA Answer:

- The savings from eliminating the existing plan is less than a million, not millions.
- The cost of the plan per person increases when the existing plan is eliminated because unhealthier beneficiaries would have stayed in the existing plan, driving up costs when the existing plan is eliminated.
- There are also other effects from eliminating the existing plan such as employee dissatisfaction from having to go to a narrower network and having their benefits managed more closely.

Part e:

Source(s): Skwire 30 – Managing Selection; Skwire 3 – Product Development
Question: (i) Describe stages of the product development cycle by completing the tables below: (ii) Recommend an action to mitigate antiselection using one of the phases from the table in part (i).

Design Stage	Description
Product Structure	
Variables in Design	
Contribution Requirements	

Build Stage	Description
Project Enrollment	
Price the Product	
Financial Assessment	

SOA Commentary on Question:

One common error in part (i) was to restate the name of the stage instead of describing it (e.g. in "Project enrollment" – "this is where you do enrollment projections" would not receive credit). The other most common error was to fail to describe the stage in the product development cycle. These are not mechanical activities or calculations, but stages and steps in the development of the product. For example, pricing a product can be a calculation, but in the context of product development it has to do with developing a price point, testing it against the market, balancing it against enrollment, etc.

For part (ii), full credit required a candidate to support their recommendation. Partial credit was awarded if a candidate only described their recommendation.

SOA Answer:

Design Stage	Description
Product Structure	This can refer to how the networking is structured (PPO vs HMO) or the type of plan such as Traditional vs CDHP.
Variables in Design	The cost sharing (deductible, coinsurance, out of pocket maximum). Waiting periods and service maximums.
Contribution Requirements	The minimum amount the employer needs to contribute to the plan. Higher employer contributions means that more members will enroll in the plan which will mitigates antiselection

Build Stage	Description
Project Enrollment	This helps determine if the product is worth pursuing. If there aren't many members expected to enroll, leadership may not be able to justify developing the product
Price the Product	Price the product based on the benefit design and variables described above. A price sensitivity test should be performed as well as market assessments to see if prices are competitive. Enrollment should be projected again after this step is finished
Financial Assessment	These should be performed to see if the product is able to meet company profit goals such as ROI or ROE

The plan can balance benefit offerings between multiple plans to mitigate antiselection. By covering similar services in all plans offered, you avoid creating a plan that attracts high risk members, riskier members. For example, if only one plan offered a fertility benefit or broader formulary, members that need or want that coverage and would utilize more would opt into that plan.

19. Fall 2024 DP #6

Part a:

Source(s): Calculated Risk – Driving Decisions
Question: Describe the key findings in the Total Risk Analysis research results.

SOA Commentary on Question:

Many candidates either left section blank or only described one or two key findings of the Total Risk Analysis research results. For full credit, candidates need to describe at least four key findings.

SOA Answer:

Key findings from the Total Risk Analysis research:

The 5/50 principle - similar to the Pareto principle in that ***spend is concentrated in a relatively small percentage of the population***. Several published studies have shown that for the overall population about 50% of U.S. health care spend can be attributed to roughly 5% of the population. This study shows that the 5/50 principle applies, but the concentration percentages vary by population. In 2017 the top 5% accounted for 63% of the spend for the Commercial population and 43% for the Medicare Advantage population

Consistency - The cost distributions, transition probabilities and source distributions for a specific population were ***consistent year over year during the study period***. That said, the data may not be as consistent in the future because of changes in reimbursement methodologies, treatment patterns and the COVID-19 pandemic.

Coefficient of Variation - defined as the standard deviation divided by the mean, is ***relatively stable*** for both the commercial and Medicare populations. The coefficient of variation is a key element in determining the RV risk.

Leveraging - Health care costs increase every year, so the percentage of costs above or below a specified dollar amount changes every year. This concept is referred to as leveraging or the iceberg effect.

Part b:

Source(s): Calculated Risk – Driving Decisions
Question: Interpret: (i) Expected variance to budget (ii) Chance of exceeding budget

SOA Commentary on Question:

Some candidates defined these terms instead of interpreting the results and providing a numeric solution. Also, some candidates only considered one scenario instead of all scenarios when interpreting the results.

SOA Answer:

(i) Expected variance to budget - $12.87 (or $12.87M)
(ii) Chance of exceeding budget - 22.7%

Part c:

Source(s): Calculated Risk – Driving Decisions

Question: Recommend a different budget. Justify your answer.

SOA Commentary on Question:

Candidates who performed well recognized that scenarios 4 and 5 yielded catastrophic results (high probability of exceeding budget and/or catastrophic loss)

SOA Answer:

Given an initial budget of $512.50, there is a significant likelihood that of exceeding budget and having a catastrophic loss based on scenario 4 & 5. A recommended budget of $525, would lower the likelihood of exceeding the budget and catastrophic loss.

Group and Health Course 101
Curated Past Exam Solutions
Learning Objective #4: Employee Benefits
Applicable SOA Questions: Fall 2020 to Fall 2024
Solutions

Contents

1. Fall 2020 DP-C #3 2
2. Fall 2020 DP-C #6 5
3. Spring 2021 DP-C #4 8
4. Spring 2021 DP-C #5a 11
5. Spring 2022 DP #2 12
6. Fall 2022 DP #1a-b 16
7. Fall 2022 DP #4 17
8. Spring 2023 RM #8d 19
9. Fall 2023 RM #3 20
10. Fall 2023 RM #6 23
11. Spring 2024 RM #3 26
12. Spring 2024 RM #8 31
13. Fall 2024 RM #1 33
14. Fall 2024 RM #4 35

1. Fall 2020 DP-C #3

Part a:

Source(s): GH101-106-25 – Handbook of EE Ben.
Question: List reasons a holistic and functional approach to employee benefits is needed.

SOA Commentary on Question:

Candidates who responded with steps of the functional approach instead of the rationale for why it is necessary did not receive full credit.

SOA Answer:

Employee benefits represent a significant part of the total compensation for employees and a significant portion of total labor costs. Therefore, effective planning and hence avoidance of waste in providing benefits can be an important cost-control measure for employers. It is important to determine where overlapping benefits may exist and costs can be saved, and where gaps in benefits may exist and new benefits or revised benefits may be in order. A functional approach allows you to keep your benefits program current, competitive, and in compliance with regulations.

Part b:

Source(s): GH101-103-25 – Health Plan Payroll Contribution Strategies and Development for Employers
Question: Identify consequences of transitioning from an employer cost-subsidized model to a fully employee-paid benefits approach

SOA Commentary on Question:

Many candidates were able to identify items from the bulleted list below.

SOA Answer:

- There may be negative response from employees, as this would represent a significant cost increase for them.
- The participation in the employee benefits plans may drop, as employees seek more affordable coverage through a spouse or elsewhere.
- Anti-selection may occur, where higher-risk employees would continue to remain in the benefits program, and lower-risk employees drop out to avoid paying the full cost of premiums.
- Costs would be directly reduced for the employer, since employees would pay for the benefits in full.
- The benefits may be deemed unaffordable to employee (more than 9.5% of total payroll) and the employer may face penalty under the ACA's employer shared responsibility rule (ESR)
- It may not be consistent with employers' total compensation philosophy. Employers might need to increase pay in order to offset the benefit reduction at a less tax advantaged level.

Part c:

Source(s): Consumers to the Rescue? A Primer on HDHPs and HSAs
Question: List the defining characteristics of a Health Saving Account (HSA) compatible High Deductible Health Plan (HDHP)

SOA Commentary on Question:

Many candidates described Health Savings Accounts rather than the attached HDHP medical plan.

SOA Answer:

- HDHPs must meet a specific definition from the IRS in order to be offered with HSAs.
- There is a minimum deductible set by the IRS.
- IRS also sets an upper limit on the out-of-pocket maximum (OOPM).
- There is limited first dollar coverage, except for preventive care.
- Plan design promotes consumerism: save for healthcare, select more appropriate venues (urgent care vs ER), avoid unnecessary care, generic instead of brand, compare provider quality, negotiate prices, etc.

Part d:

Source(s): GH101-106-25 – Handbook of EE Ben.

Question: Identify the advantages and disadvantages to ABC of offering a single medical plan vs. multiple plan options.

SOA Commentary on Question:

Most candidates were able to provide both advantages and disadvantages

SOA Answer:

Advantages of multiple options

- Employees may like having multiple options and may pick a plan better suited for their needs.
- Having multiple options makes ABC's benefits in-line with competitors.

Disadvantages of multiple options

- Offering choice often leads to anti-selection.
- Offering multiple choices may be more complex to administer.

Part e:

Source(s): Consumers to the Rescue? A Primer on HDHPs and HSAs

Question: Describe two sources of financial savings and two concerns that might arise from ABC offering an HSA-compatible HDHP.

SOA Commentary on Question:

Many candidates provided savings and/or concerns from the member's perspective instead of ABC's perspective

SOA Answer:

Sources of financial savings:

- Lower utilization due to more member cost sharing with a HDHP. Causes members to avoid unnecessary care.
- Members become better consumers and try to find least expensive providers for treatments, opt for generic Rx, etc.

Concerns:

- High cost sharing means members might not get care they need and cause higher claims down the line when they get very sick.
- Amount of employer HSA contributions can affect the savings impact of an HDHP. The larger the contributions to the HSA, the more the impact is lowered

Part f:

Source(s): Consumers to the Rescue? A Primer on HDHPs and HSAs
Question: Recommend strategies for ABC to ensure implementation of a new HDHP will be successful. Justify your response

SOA Commentary on Question:

Many candidates made recommendations around plan pricing or design, though the question asks for strategies around the implementation phase, after design and pricing is finalized.
Many candidates did not provide sufficient justification to their recommendations to receive full credit

SOA Answer:

I recommend that ABC introduce the new HDHP plan with several communication campaigns. ABC should send emails, have a town hall meeting, and put flyers around the office to get their employees educated on the new plan offering and what the changes mean. This targeted campaign should start well before open enrollment. The more educated employees are, the better they will be able to decide which plan they should enroll in.

I recommend that ABC also pre-fund some of the HSA. This will encourage employees to enroll in the HDHP plan and become consumers of their medical benefit. ABC should communicate to employees what HSA dollars can be used for and how they can contribute to their account.

Part g:

Source(s): Skwire 35 – Medical Claim Cost Trend
Question: Explain the impact on employee behavior and claims utilization
(i) After the change is announced
(ii) During the first plan year following the change
(iii)During the second plan year following the change

SOA Commentary on Question:

Candidates only received full credit if they defined explicitly what happens to utilization and member behavior in each phase. Simply referencing "rush-hush-crush" received no credit.

SOA Answer:

(i) After the change is announced, there will be a rush to use the rich benefits of the PPO compared to what they may get with the HDHP and claims utilization will be higher than usual.
(ii) During the first year the HDHP is offered, there will be a hush or reduction in utilization as members learn how best to use the new plan and after receiving all their elective services the prior year while using the PPO.
(iii) During the second year, utilization and cost will go back to normal, but this will cause a crush in trend as there was such low usage in the prior year.

2. Fall 2020 DP-C #6

SOA Commentary on Question:

This question tested the candidate's strategic knowledge of employer benefit offerings.

Part a:

Source(s): GH101-104-25 – EE Benefits Strategy

Question: Describe strategies for designing a total benefits package offered to each of: (i) Highly skilled employees in a tight labor market (ii) Less skilled employees with a high turnover rate

SOA Commentary on Question:

Candidates provided general considerations for these groups of employees. Not many candidates drew directly from the text, but most provided reasonable responses based on knowledge of the material. Most candidates received at least partial credit.

SOA Answer:

(i) If competing for highly skilled employees in a tight labor market, they may wish to offer benefits comparable to what their competitors are offering, and offer some additional perks such as 401(k) match, to attract and retain high performing employees.

(ii) On the other hand, if your client is in a business requiring a less skilled workforce with a relatively high turn-over rate, they may wish to offer benefits that have low out-of-paycheck costs and minimize investment in wellness programs, which don't have an immediate return on investment.

Part b:

Source(s): GH101-103-25 – ER Cont. Strategies

Question: Describe adverse selection considerations for the current benefits package.

SOA Commentary on Question:

Although there was limited information to provide a full critique of the benefit structure, candidates needed to note the point value and provide a more in-depth response than the other parts of the question. Candidates were also expected to draw on information from multiple source materials

SOA Answer:

- Medical – XYZ offers this to their employees with no contribution to premiums. This may create antiselection, as only those who need medical coverage will sign up. However, with only 1 plan offering, there may be less spread in the health needs and antiselection because there is no choice.
- Dental – Dental has a considerable problem with antiselection. Claims costs are generally higher with small groups, but this is even more true when the coverage is voluntary and there is no minimum participation requirement.
- Vision – Antiselection will likely occur with this offering as well, as only employees who wish to use the benefit are likely to sign up

Part c:

Source(s): GH101-104-25 – EE Benefits Strategy

Question: Calculate the minimum annual employer payroll contribution for a single employee such that XYZ's coverage will be considered affordable under the Affordable Care Act. State your assumptions. Show your work

SOA Commentary on Question:

Most candidates did well on this section. Any affordable percentage published for the past 7 years was deemed a reasonable assumption, though the example will use the 9.56% from the text. Credit was given for clearly showing work.

SOA Answer:

Affordable percentage: 9.56%

Salary * Affordable Percentage = Affordable Employee Premium
$70,000 * 9.56% = $6,692

Employer Minimum Contribution =
Current Employee Premium - Affordable Employee Premium
$8,700 - $6,692 = $2,008 minimum contribution

Part d:

Source(s): Skwire 5 – Medical Benefits (US)

Question: Describe the purpose of cost sharing in group medical insurance.

SOA Commentary on Question:

Many candidates recalled the list of purposes, but full credit required providing a description of each item. Responses that did not utilize this list were given credit if the information was detailed and correct.

SOA Answer:

- Control of utilization – members who share in cost are more aware of the cost of services, causing them to avoid unnecessary care
- Control of cost – requiring cost sharing reduces the necessary premiums charged by insurers, which improves affordability of the plan for employees, and reduces the plan liability for employers
- Control of risk to insurer – requiring cost sharing creates a benefit plan that more closely resembles an insurable risk (an insurable event requires a degree of uncertainty of costs and limited control by the insured)

Part e:

Source(s): GH101-103-25 – ER Cont. Strategies

Question: Compare defined benefit and defined contribution employee benefit strategies

SOA Commentary on Question:

Candidates often defined each term without comparing them. Comparisons were needed to receive full credit

SOA Answer:

Defined benefit strategies pay a percent of total premium for each employee. Defined contribution strategies pay a fixed amount of the total premium for each employee.

- Both are used to determine contribution strategies for an employee benefit plan.
- Both help reduce the employee's cost in the employee benefit plan. However, defined contribution may help predict future employer costs by providing an exact amount of subsidy.
- Both will be required to increase over time to prevent offloading too much cost onto employees (burden of inflation). For DB plans, this will be automatic, and the employer subsidy will increase proportionally. For DC plans, this will need to be manually updated.

Part f:

Source(s): GH101-103-25 – ER Cont. Strategies

Question: Recommend a payroll contribution strategy for XYZ. Justify your response

SOA Commentary on Question:

Many candidates did not attempt this part of the question. Candidates needed to make a relevant recommendation and provide a clear justification of the recommendation to receive full credit. The recommendation did not need to use the terms from (d), but needed to be specific to payroll

SOA Answer:

I recommend XYZ offer a defined contribution. Since they are a small plan (only 55 employees) their costs can be very volatile, so a defined contribution will help keep cost increases in line. XYZ will need to increase the defined contribution over time, but they can do that at their own discretion.

3. Spring 2021 DP-C #4

Part a:

Source(s): GH101-103-25 – ER Cont. Strategies
Question: Compare and contrast defined benefit and defined contribution strategies from the employer's perspective.

SOA Commentary on Question:
Most candidates knew the difference between defined benefit and defined contribution.

SOA Answer:
"Defined Benefit": employee's contribution is either a specified percentage of premium or some other amount determined by the employer.
"Defined contribution": employer provides a defined dollar subsidy regardless of plan choice.
Defined contribution approach produces equal employer subsidy across employees, insulating employer from budget variation occurring due to unexpected enrollment across the plans.
Defined contribution approach reduces a bigger percentage of premium for leaner plans. It results in greater enrollment in leaner plans when compared to defined benefit.

Part b:

Source(s): GH101-103-25 – ER Cont. Strategies
Question: List and describe considerations for an employer's payroll contribution strategy.

SOA Commentary on Question:
Candidates who knew the source material generally did well on this part. Some only listed considerations without including descriptions that were needed for full credit.

SOA Answer:
Total compensation philosophy. Employer (ER) needs to consider how compensation is divided between salary and benefits and what types of benefit are offered.
Benefit budget. ERs are often faced with benefits budgets that do not keep pace with increase in cost of healthcare.
Benefit competitiveness. ER needs to consider total benefit structure compared to their competitors with whom they compete for talent. The benefit levels and employee (EE) contribution may vary by region, job class, ER size, industry and between EE vs dependent coverage.
Collective Bargaining. Union groups that have collective bargaining may have better health coverage and subsidization than non-union groups at the same company.
Legislative and Regulatory Issues. The impact of Legislation and/or regulation can influence payroll contribution level. Under ACA, ER with more than 50 EEs will have to provide "affordable" coverage.

Part c:

Source(s): GH101-103-25 – ER Cont. Strategies
Question: Describe advantages and disadvantages of a spousal surcharge from the employer's perspective.

SOA Commentary on Question:

Candidates needed to list both advantages and disadvantages for full credit.

SOA Answer:

Advantages: Balance program cost and continue to provide meaningful and equitable coverage to employees; Align compensation among employees regardless of marital status

Disadvantages: Negative impacts on employee relations; Potential for anti-selection as healthier dependents/spouses drop off the plan with many employers opting to subsidize dependents less, employers that do not follow the same approach risk becoming "employer of choice" for dependents and may experience a greater percentage of employees enrolling their dependents on their plans

Part d:

Source(s): GH101-103-25 – ER Cont. Strategies

Question: Calculate the change in Dr. No's average premium contribution per employee relative to the current 2021 subsidy if Dr. No adopts: (i) a defined benefit approach where Dr. No contributes 22% toward premium(ii) the income-based payroll contribution strategy provided above. Show your work. State your assumptions.

SOA Commentary on Question:

Candidates generally did well on the calculation portion and were able to successfully calculate the change in premium contribution.

SOA Answer:

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

Sex	Age	# of Employees	Annual Salary	Family Composition	Premium	Defined Contribution Premium	Defined Benefit Premium	DB-DC	Income Based Contribution Premium		IBC-DC
					From Case Study	Premium - 170	Premium * (1-22%)	Difference	Based on Salary	Premium * (1-prior column)	Difference
F	<25	0	N/A								
F	25-29	2	$28,500	Single	$351	$181	$274	$93	25.0%	$263	$82.25
F	30-34	5	$33,000	EE + Spouse	$705	$535	$550	$15	25.0%	$529	($6.25)
F	35-39	7	$37,500	Family	$857	$687	$668	($19)	22.5%	$664	($22.82)
F	40-44	3	$48,400	Family	$857	$687	$668	($19)	22.5%	$664	($22.82)
F	45-49	2	$55,900	Family	$857	$687	$668	($19)	20.0%	$686	($1.40)
F	50-54	1	$66,700	Family	$857	$687	$668	($19)	20.0%	$686	($1.40)
F	55-59	1	$79,300	EE + Spouse	$705	$535	$550	$15	20.0%	$564	$29.00
F	60-64	1	$91,700	EE + Spouse	$705	$535	$550	$15	17.5%	$582	$46.63
M	<25	1	$22,000	Single	$351	$181	$274	$93	25.0%	$263	$82.25
M	25-29	0	N/A								
M	30-34	5	$33,000	EE + Spouse	$705	$535	$550	$15	25.0%	$529	($6.25)
M	35-39	6	$37,000	Family	$857	$687	$668	($19)	22.5%	$664	($22.82)
M	40-44	6	$46,750	Family	$857	$687	$668	($19)	22.5%	$664	($22.82)
M	45-49	1	$55,400	Family	$857	$687	$668	($19)	20.0%	$686	($1.40)
M	50-54	2	$67,600	Family	$857	$687	$668	($19)	20.0%	$686	($1.40)
M	55-59	1	$78,250	EE + Spouse	$705	$535	$550	$15	20.0%	$564	$29.00
M	60-64	1	$90,500	EE + Spouse	$705	$535	$550	$15	17.5%	$582	$46.63
	Total	45			$775.98	$605.98	$605.26	**($0.72)**		$602.09	**($3.89)**

Dr. No's monthly contribution is reduced by $0.72 per employee with Option (i) and $3.89 per employee with Option (ii).

Part e:

Source(s): GH101-103-25 – ER Cont. Strategies

Question: Critique the income-based payroll contribution strategy provided above.

SOA Commentary on Question:

Many candidates did not critique the specific strategy outlined in the prior section. Credit was given for reasonable answers not included in the model solution.

SOA Answer:

Income based contribution varies contribution by income level, producing a more equitable distribution of cost across employees.

Income based contribution could significantly increase contribution for employees in the upper income band when first implemented.

It could create a "cliff" in contribution for EE moving from one band to another.

EE in lower income bands may experience a significant increase in contribution as they are brought to a single average level.

It is administratively complex and difficult to unwind should an employer want to revert back to a single salary band.

Part f:

Source(s): GH101-103-25 – ER Cont. Strategies

Question: Recommend a payroll contribution strategy for Dr. No. Justify your response.

SOA Commentary on Question:

Candidates did well in recommending a strategy, though the level of justification varied.

SOA Answer:

I recommend Dr. No Herbal Tea to maintain the current Defined contribution approach.

From the calculation in part d, we see that in both Defined benefit and income-based contribution scenarios, single employees are "punished" with a large increase in premium, of $93 and $82 respectively.

The single employees have the lowest salaries, so the large increase in premium impacts them more significantly than those at higher salary levels.

4. Spring 2021 DP-C #5a

Part a:

Source(s): GH101-106-25 – Handbook of EE Ben.

Question: List the steps in a functional approach to designing a benefit plan.

SOA Commentary on Question:

Most candidates performed well on this part.

SOA Answer:

1. Classify employee (and dependent) needs
2. Classify the categories of persons (e.g., employees, some former employees, and dependents)
3. Analyze the benefits presently available
4. Determine any gaps in benefits or overlapping benefits
5. Consider recommendations for changes in the employer's present employee benefit plan to meet any gaps
6. Estimate the costs or savings from each of the recommendations
7. Evaluate alternative methods of financing or securing the benefits
8. Consider other cost-saving techniques in connection with the recommended or existing benefits
9. Decide upon appropriate benefits, methods of financing, and sources of benefits
10. Implement the changes
11. Communicate benefit changes to employees
12. Periodically reevaluate the employee benefit plan.

The remaining parts of this question are no longer on the syllabus

5. Spring 2022 DP #2

Part a:

Source(s): Consumers to the Rescue? A Primer on HDHPs and HSAs
Question: List characteristics of a high deductible health plan (HDHP).

SOA 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.

SOA Answer:

- 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.
- 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

Part b:

Source(s): Consumers to the Rescue? A Primer on HDHPs and HSAs
Question: Describe examples of consumer behaviors demonstrated by individuals enrolled in HDHPs

SOA Commentary on Question:

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

SOA Answer:

- 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.

Part c:

Source(s): Consumers to the Rescue? A Primer on HDHPs and HSAs
Question: Recommend actions to make the HDHP more attractive to employees.

SOA Commentary on Question:

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

SOA Answer:

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.

Part d:

Source(s): Consumers to the Rescue? A Primer on HDHPs and HSAs
Question: Calculate the family's total out-of-pocket cost for each of the following Moonraker plan types: (i) PPO (ii) HDHP. Show your work.

SOA 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.

SOA Answer:

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

SOA Answer:

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

			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	$300	$300	$300	Subject to Deductible
Employee	January	Preventive 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	$150	$500	$800	Subject to Deductible
Spouse	April	Preventive Care	$0	$500	$800	Preventive
Spouse	May	Chiropractic	$150	$650	$950	Subject to Deductible
Spouse	June	Emergency Care	$2,350	$3,000	$3,300	Spouse hits deductible
Spouse	July	Chiropractic	$0	$3,000	$3,300	100% covered
Spouse	September	Chiropractic	$0	$3,000	$3,300	100% covered
Employee	October	Preventive Dental	$0	$300	$3,300	Does not count towards OOP
Spouse	November	Chiropractic	$0	$3,000	**$3,300**	100% covered
TOTAL			**$3,300**			

6. Fall 2022 DP #1a-b

Part a:

Source(s): GH101-106-25 – Handbook of EE Ben.

Question: Describe the need for a functional approach in designing an employee benefits plan.

SOA Commentary on Question:

The question asked to describe the need for a functional approach. Many candidates focused on what the functional approach is and not the need. Successful candidates included several facets of needs, including but not limited to efficiency, cost, and talent management.

SOA Answer:

Employee benefits are a significant portion of compensation and cost of labor. A functional approach ensures gaps and overlaps between benefits are identified, avoids waste, ensures benefits are current and compliant with laws. The approach also ensures benefits are competitive, tax efficient, and in alignment with the employer's benefit philosophy.

Part b:

Source(s): Consumers to the Rescue? A Primer on HDHPs and HSAs

Question: (i) Compare and contrast the features of Health Savings Accounts (HSA) and Health Reimbursement Accounts (HRA). (ii) Describe the impact of these features on an employee.

SOA Commentary on Question:

Most candidates answered part (i) correctly, recalling several key features that are similar or different between the two types of accounts. Most candidates then had difficulty with part (ii), either failing to identify significant impacts to employees, commenting on impacts to the employer, or discussing impacts from health plans without connecting it with the accounts themselves.

SOA Answer:

(i) Owner: HSA is the employee, HRA is the employer
Contribution: HSA both the employer and employee can contribute, HRA only the employer can contribute
Tax Deductibility: Contributions are tax deductible for both
Contribution Limits: HSA has limits set the IRS, HRA has no limit
Rollover of Funds: HSA – yes, HRA can rollover, but usually is forfeited
Distributions: Both are tax free if used for qualified expenses
HDHP: HSA – required to have HDHP, HRA is not required, but can be paired with one.

(ii) Since the funds in a HSA belong to the employee, they will behave as better health care consumers seeking out lower cost care, generic prescriptions. The HSA will enable consumers to save for future health expenditures since the funds can be rolled over and invested. Since an HRA is forfeited when you leave your employer or in many cases at the end of the year – this creates a use it or lose it scenario that employees will utilize more health care.

7. Fall 2022 DP #4

Part a:

Source(s): GH101-106-25 – Handbook of EE Ben.

Question: Describe reasons why an employee benefit program is of strategic importance to ABC from the perspective of: (i) Human resources, (ii) Risk management

SOA Commentary on Question:

Overall, candidates did well on Part A. The below represents an example answer, other reasons were considered and given credit.

SOA Answer:

(i) An employee benefit program is instrumental in attracting and retaining a skilled workforce, which allows company to be competitive with in its industry, as the designs of the retirement plan and health benefits can have a direct impact on the replenishment of the work force.

(ii) There are significant costs associated with employee benefit programs creating significant financial risk. Additionally, organizations that effectively manage their employee benefits program risks can have a competitive advantage in product and service pricing by reducing internal costs and having a healthier work force will create additional efficiencies.

Part b:

Source(s): GH101-103-25 – ER Cont. Strategies

Question: List and describe factors ABC should consider when determining its level of contributions to employee benefit premiums.

SOA Commentary on Question:

Candidates were given points for both listing and describing the factors. While most candidates earned partial credit, some candidates limited their responses to different aspects of the overall compensation philosophy or focusing on factors to consider for developing rates as opposed to factors to consider when determining level of contributions.

SOA Answer:

Overall compensation philosophy - How total compensation is divided between salary and benefits and what types of benefits are offered.

Benefits budget – If the employer cost to provide benefits does not keep pace with increases in cost of healthcare, employers must modify benefits program, including payroll contributions, to fit within budgetary constraints.

Desired level of benefit competitiveness - Consider total benefit structure compared to other employers with whom they compete for talent. Benefit levels and EE contributions may vary by region, job class (management vs. labor), employer size, industry, and even between EE-only and dependent coverage.

Collective bargaining - Collectively bargained groups negotiate both benefits covered and payroll contribution levels as part of union contracts with employers.

Regulatory impacts – Regulations can influence payroll contribution levels (e.g., PPACA affordability for large employers) and benefits offered (PPACA MEC, mandated benefits).

Part c:

Course GH 101 – Benefits and Pricing

Learning Objective 4: Employee Benefits

Source(s): GH101-103-25 – ER Cont. Strategies; GH101-104-25 – EE Benefits Strategy
Question: Calculate ABC's total monthly contribution to employees' premiums in 2022.

SOA Commentary on Question:
Candidates did very well on part C, most earning full credit.

SOA Answer:
See the accompanying Excel file for a full solution

Total **$22,929**

Part d:
Source(s): GH101-103-25 – ER Cont. Strategies; GH101-104-25 – EE Benefits Strategy
Question: Calculate the percentage change in ABC's total contributions, compared to 2022, for each of the above scenarios. Show your work.

SOA Commentary on Question:
Candidates generally did well on parts of (d), with some misses on interpretations of scenarios. While partial credit was given, candidates who provided their answers leveraging Excel formulas and organized did better with not losing points to mathematical mistakes.

SOA Answer:
See the accompanying Excel file for a full solution

(i) Total $24,261 / $22,929 = **5.8%**
(ii) Total $22,349 / $22,929 = **-2.5%**
(iii) Total $23,383 / $22,929 = **2.0%**
(iv) Total $22,438 / $22,929 = **-2.1%**

Part e:
Source(s): GH101-103-25 – ER Cont. Strategies; GH101-104-25 – EE Benefits Strategy
Question: Recommend a 2023 medical benefit contribution strategy for ABC. Justify your response.

SOA Commentary on Question:
Candidates did well on Part (e). Any recommendation was accepted for full credit if sufficiently justified, with considerations for ABC's budget and impact on employees both from a cost and receptiveness perspective.

SOA Answer:
I would recommend using the same strategy as in 2022. Although this represents a 5.8% increase to ABC, its EEs would also experience a 6% increase in their payroll deductions, so it is at least equitable and ABC could make a point to communicate this clearly. The other potential changes proposed would result in lower increases, or even a decrease, in ABC's costs, but doing so would shift even more of the cost increase to the EEs or remove employee choice in plans, which could hurt morale and increase retention risk.

8. Spring 2023 RM #8d

Part d:

Source(s): Consumers to the Rescue? A Primer on HDHPs and HSAs

Question: Describe proposed legislative improvements for expanding HSAs in the following areas: (i) Contributions to HSAs (ii) Major medical use of HSA funds (iii) Nonmajor medical use of HSA funds

SOA Commentary on Question:

Most candidates were able to list proposed improvements, but very few expanded upon them with a description.

SOA Answer:

(i)

- Allow Contributions to Match the Out-of-pocket Maximum
  - The maximum contribution amount for an HSA is about half of the maximum out-of- pocket limitation for HDHPs. This means an individual enrolled in a lean HDHP may be paying for a significant portion of costs with dollars that are not tax-advantaged.
- Allow Spousal Catch-up Contributions in Family HSAs
  - Currently, only one spouse can make contributions to an HSA starting at age 55 when both spouses are enrolled in the same plan. Allowing both spouses to make catch-up contributions would remove this "marriage penalty" and allow for greater savings.

(ii)

- Allow use of HSAs for Health Care Premiums
  - Currently, HSAs cannot fund premium payments. However, the ability to use HSA funds to pay for other coverage could result in increased uptake of insurance in the individual market.
- Allow use of HSAs for Over-the-counter Health Supplies
- Allow use of HSAs for Direct Primary Care Arrangements

(iii)

- Allow use of HSAs for Fitness Equipment
  - In theory, allowing individuals to use HSA funds to encourage wellness would be offset by significantly reduced health expenses associated with healthier living.
- Allow use of HSAs to Pre-fund Long-term Care Needs
  - If HSAs can be expanded to accommodate LTC costs, they may be able to be part of the solution to a pressing need.

9. Fall 2023 RM #3

SOA Commentary on Question:
In general, a lot of candidates knew the material at a high level. Very few candidates gave enough detail or understood the simplified underwriting calculation well enough to receive full credit on any of the three parts.

Part a:

Source(s): GH101-104-25 – EE Benefits Strategy
Question: Calculate the claims PEPM if the parent company transitions all subscribers to Carrier A's CDHP with HSA, using simplified underwriting. Show your work.

SOA Commentary on Question:
Many candidates understood the need to adjust the plans for different actuarial values and cost of care values. Despite the problem being presented in an almost identical way to the study note (Table 9), very few candidates applied the simplified underwriting calculations correctly.

SOA Answer:
First, calculate a combined row for the table using sum for subscriber counts and sumproduct for the other columns.

Current Design	Subscribers	Claims PEPM	AV Without Account Funding	Cost of Care Adj to Patient Carrier
CDHP with HSA	6,300	765	79.00%	1
CDHP with HRA	5,750	694	77.00%	1
PPO High	2,100	1,150	86.00%	0.98
PPO Core	6,300	709	77.00%	0.98
Combined, Company A CDHP with HSA	**20,450**	**767.32**	**78.54%**	**0.992**

Second, calculate the AV Adjustment to CDHP with HSA design.
Formula: CDHP with HSA's AV without Account Funding divided by Current Design's Actuarial Value Without Account Funding.
CDHP with HSA = 79%/79% = 1.000
CDHP with HRA = 79%/77% = 1.026
PPO High = 79%/86% = .919
PPO Core = 79%/77% = 1.026
Combined sumproduct with subscriber count = 1.007

Third, calculate the Claims Adjusted to CDHP with HSA.
Formula: Claims per Employee per Month * AV Adjustment to CDHP with HSA * Cost of Care Adjustment to Parent Carrier.
CDHP with HSA = 765*1.000*1.000 = 765
CDHP with HRA = 694*1.026*1.000 = 712.03

PPO High = 1150*0.919*0.98 = 1035.27
PPO Core = 709*1.026*0.98 = 712.87
Combined, CDHP with HSA = 767.32*0.992*1.007 = **766.30**

Part b:

Source(s): Consumers to the Rescue? A Primer on HDHPs and HSAs
Question: Evaluate reasons for and against the parent company offering alternative plan design options besides only a CDHP with HSA.

SOA Commentary on Question:

Most candidates performed well on this part of the question and generally provided a few reasons for and against offering alternate plan designs.

SOA Answer:

Reasons For an HRA

Contributions made by the employer are excluded from gross income
Doesn't require an HDHP
Fewer limitations on contribution limits

Reasons Against an HRA

An HRA is not portable, i.e. funds are forfeited upon employee termination
Only employer funded

Reasons For other options

Greater plan selection
Only about 30% of subscribers are in the existing HSA option today

Reasons Against other options

CDHPs encourage individuals to take greater responsibility of their health care choices (i.e. consumerism)
Potential for adverse selection
Added administrative burden with multiple options

Part c:

Source(s): GH101-104-25 – EE Benefits Strategy
Question: Assess whether each Division is subject to penalties under the Employer Shared Responsibility rules included in the Patient Protection and Affordable Care Act. Justify your response.

SOA Commentary on Question:

Most candidates knew the two potential penalties. Some of the more detailed aspects of the regulations were lost on most candidates. Few candidates demonstrated the ability to correctly apply the regulation to the information given in the question.

SOA Answer:

- If an employer has at least 50 full-time employees, it is an applicable large employer (ALE), and is therefore subject to the employer shared responsibility provisions and the employer information reporting provisions.

- Companies with a common owner are generally combined and treated as a single employer for determining ALE status. If the combined number of full-time employees for the group is large enough to meet the definition of an ALE, then each employer in the group is part of an ALE and is subject to the employer shared responsibility provisions, even if separately the employer would not be an ALE.

- Divisions X and Y are separate members of an ALE for purposes of PPACA.
- A U.S. Code Section 4980H(a) penalty may apply if an employer does not offer MEC (Minimum Essential Coverage) to at least 95% of its full-time employees and at least one full-time employee enrolls in an Exchange plan and receives a federal subsidy.
- Division X offered cover to 92% (24,000 / 26,000) of FTEs. This is less than 95%, therefore X is subject to a penalty.
- A U.S. Code Section 4980H(b) penalty applies if an employer offers MEC to at least 95% of full-time employees but coverage is either "unaffordable," or does not provide "minimum actuarial value" (60%). So, if contributions are less than 9.66% x $11,880 (FPL for single person in continental United States) / 12 = $95.63, the plan is considered "affordable".
- Division X's lowest cost plan has an actuarial value of 79.0%, which exceeds the 60% minimum actuarial value threshold. The plan is also considered affordable since the monthly contribution for single coverage for Division X's plan is $92. Division X would not be subject to any 4980H(b) penalties.
- Since Division Y does not subsidize coverage, its coverage may not be considered "affordable" for all employees. The seven employees enrolled in the Exchange plans all had household incomes of less than $30,000 per year, so the monthly contribution for single coverage exceeded 9.66% of the household income and is therefore not considered affordable. So, Division Y is subject to the 4980H(b) penalty.

10. Fall 2023 RM #6

SOA Commentary on Question:

This question tests the candidate's understanding of the functional approach in evaluating benefits, along with demonstrating knowledge of core considerations in evaluating plans. This includes understanding the plan offerings of both the private and public exchanges, unique characteristics of HDHPs, and how employee contributions could influence plan enrollment.

Part a:

Source(s): GH101-106-25 – Handbook of EE Ben.
Question: Explain why a functional approach is needed when planning, designing, and administering employee benefits.

SOA Commentary on Question:

Candidates who were able to adequately express three or more of the points below generally received full credit on this part of the question.

SOA Answer:

- Employee benefits are a significant element of total employee compensation. Therefore, it is vital that this element of compensation be planned and organized to be effective in meeting employee needs.
- Employee benefits currently represent a large item of labor cost for employers. Therefore, effective planning and avoidance of waste in providing benefits can be an important cost-control measure for employers.
- Benefit plans may have been adopted on a piecemeal basis in the past without coordination with existing benefit programs. The functional approach reviews existing benefits to determine any overlaps, cost savings, and gaps in benefits.
- New benefits and coverages and changes in tax laws, regulatory environment, and other developments in employee benefit planning. Need a systematic approach to planning benefits and staying current/competitive/compliant.
- A program can relate to several employee needs or loss exposures. Functional approach can analyze plan so that various programs can be integrated properly.

Part b:

Source(s): A Practical Guide to Private Exchanges
Question: (i) Describe common attributes central to private exchanges. (ii) Compare and contrast elements of public and private exchanges

SOA Answer:

(i)

- Employee Choice - Private exchanges often offer more plan design options than traditional employer-sponsored plans. Depending on the private exchange, the available plan design options may be standardized.
- Employer Subsidies - Employers will subsidize the cost of coverage, often through a defined-contribution approach where the employee can "buy-up" for lower-cost-sharing provisions or "buy-down" for lower premiums.

- Ancillary Product Offerings - The private exchange will often offer ancillary products like dental and vision alongside the medical and pharmacy benefits via the exchange so that it's a complete "one-stop-shop" for health-related benefits.
- Online Enrollment and Decision-Making Tools - Online tools are becoming more sophisticated and user-friendly, allowing for members to evaluate their health care needs, understand their employer's subsidy, and elect benefits that meet their needs.

(ii)

Element	Public Exchange	Private Exchange
Who sponsors	Government	Employer
Who can enroll	Individuals and small groups	Employees and retirees of sponsoring employer
Types of coverage available	Medical and prescription drug	Medical, prescription drug, dental, vision and other voluntary benefits at the employer's discretion
Plan designs available	• Plans must provide actuarial values of 90, 80, 70, or 60 percent as defined by the federal Actuarial Value Calculator. • Individuals may be eligible for income-based reduced cost-sharing.	Exchange operator or employer defines the plan designs.
Who pays for coverage	• Individuals and small employer groups pay the premiums for coverage. • Individuals may be eligible for income-based government subsidies. • Small employers may be eligible for small business tax credits.	Employers provide a subsidy toward the cost of coverage and covered members pay the balance.

Part c:

Source(s): Consumers to the Rescue? A Primer on HDHPs and HSAs
Question: Describe how high deductible health plan (HDHP) enrollees' behavior is modified by membership in a HDHP.

SOA Commentary on Question:
Most candidates performed well on this part of the question.

SOA Answer:

- Saving for health care services - Since unused funds are owned by the HSA enrollee and are not lost, this encourages regular deposits into the account.

- Selecting a more appropriate treatment venue, such as using urgent care instead of the emergency room.
- Avoiding unnecessary care - Similarly, "shopping" may lead an enrollee to forgo treatment for minor ailments or avoid those treatments that have marginal benefit.
- Selecting generic prescription drugs instead of higher- cost, brand- name prescription drugs.
- Comparing quality ratings of providers - Online tools for quality rankings of providers are also growing and becoming more sophisticated.
- Negotiating prices with providers, particularly for costs under the deductible.
- Improving their own health and taking other illness avoidance measures - Enrollees make the connection between better health and lower out- of- pocket costs due to the combination of the HDHP and an HSA as incentives for the enrollee to reap the benefits of any health improvement activities.

Part d:

Source(s): GH101-106-25 – Handbook of EE Ben.

Question:

(i) Calculate the monthly employee payroll contribution for each of the following contribution approaches. Show your work.
   1. Defined benefit at 75% employer subsidy
   2. Defined contribution at $150 employer subsidy

(ii) Recommend which contribution approach ABC should use. Justify your response.

SOA Commentary on Question:

Most candidates performed well on this part of the question.

SOA Answer:

i. Defined benefit at 75% employer subsidy

	Plan A	Plan B
Employer Subsidy	0.75 * 200 = 150	0.75 * 400 = 300
Payroll Contribution	200 – 150 = 50	400 – 300 = 100

ii. Defined contribution at $150 employer subsidy

	Plan A	Plan B
Employer Subsidy	150	150
Payroll Contribution	200 – 150 = 50	400 – 150 = 250

ABC should choose the defined contribution approach since:

- Employer will contribute equally across employees regardless of employee enrollment in each plan, thus keeping budget stable.
- The wider difference in employee contributions results in cost transparency, thus incentivizing enrollment in leaner plans (Plan A).

11. Spring 2024 RM #3

SOA Commentary on Question:

Most candidates performed well on this question. For parts of the question asking the candidate to provide a description, some candidates did not receive full credit if a clear description was not provided. Many candidates also struggled to correctly account for the manufacturer drug coupon in part (e).

Part a:

Source(s): Consumers to the Rescue? A Primer on HDHPs and HSAs

Question: Write a response to each question and for each savings account by completing the following table:

Feature	Health Savings Account (HSA)	Health Reimbursement Arrangement (HRA)	Flexible Spending Account (FSA)
Who owns the account?			
Who can contribute?			
Are contributions tax-deductible?			
Are there contribution limits?			
Can the funds roll over to the next year?			
What distributions are tax-free?			
What distributions are not eligible?			
Is a High Deductible Health Plan (HDHP) required?			

Feature	Health Savings Account (HSA)	Health Reimbursement Arrangement (HRA)	Flexible Spending Account (FSA)
Who owns the account?	EE/Individual	ER	ER
Who can contribute?	EE/Individual and ER	ER	ER and EE
Are contributions tax-deductible?	Yes	Yes	Yes, except LTC ER contributions
Are there contribution limits?	Yes	No, unlimited	Yes
Can the funds roll over to the next year?	Yes	Yes	Yes, but not required
What distributions are tax-free?	Med, Rx, dental, vision, LTC prem, Medicare prem	Med, Rx, dental, vision, HI prems, LTC prems, expenses	Med, Rx, dental, vision
What distributions are not eligible?	Amounts covered under another health plan	Amounts covered under another health plan	HI prems, LTC prems or expenses, amounts under another health plan
Is a High Deductible Health Plan (HDHP) required?	Yes	No	No

Part b:

Source(s): Consumers to the Rescue? A Primer on HDHPs and HSAs
Question: Describe examples of consumer behavior for individuals enrolled in HDHPs.

SOA Commentary on Question:

The below responses received full points on the exam. Other responses not listed here but relevant to the question were also acceptable.

SOA Answer:

- Saving for health care services.
  Because unused funds are owned by the HSA enrollee and are not lost, this encourages regular deposits into the account even if future health care expenses are not anticipated.

- Avoiding unnecessary care.
  Similarly, "shopping" may lead an enrollee to forgo treatment for minor ailments or avoid those treatments that have marginal benefit.

- Selecting generic prescription drugs instead of higher cost, brand-name prescription drugs.
  In addition to the direct impact of lower costs, generic drug prices tend to grow more slowly than brand drug prices, so continued use of generic substitutes can lead to compounded savings.

- Comparing quality ratings of providers.
  Online tools for quality rankings of providers are also growing and becoming more sophisticated.

- Negotiating prices with providers, particularly for costs under the deductible.
  Lower cost-sharing requirements under many plans do not encourage enrollees to investigate or question provider charges as they have little stake in the outcome. In contrast, enrollees with HDHPs are exposed to potentially more out-of-pocket costs and "own" the money in their HSA (though not money in their HRA) so their interest in the outcome of a discussion with providers related to their charges is likely much greater.

- Improving their own health and taking other illness avoidance measures.
  If enrollees make the connection between better health and lower out-of-pocket costs, the combination of the HDHP and an HSA provides incentives for the enrollee to reap the benefits of any health improvement activities they might undertake.

Part c:

Source(s): Consumers to the Rescue? A Primer on HDHPs and HSAs
Question: Describe factors that could make HDHPs more effective.

SOA Commentary on Question:

The below responses received full points on the exam. Other responses not listed here but relevant to the question were also acceptable.

SOA Answer:

- Cost transparency
  - Costs in the health care system are not always transparent, and it is difficult for members to price shop in the current market.
- Discussions between providers and patients
  - Providers and patients should have discussions about the costs of potential treatments or prescription drugs.
- Pre-funding of HSAs.
  - Both employers and employees are eligible to contribute to HSAs. In most cases, HSA contributions are made evenly throughout the year. If medical services are incurred early in the year, individuals may not have enough HSA funds available to cover the costs. Allowing employers and employees to contribute funds in lump sums may ease this concern.
- Allowing more first dollar coverage.
  - The high deductible on all services is a blunt instrument that might cause people to forgo necessary services. Suggestions include paying for most primary care services (not just preventive care services) and paying for certain chronic condition supplies and testing, such as those related to diabetes.

- Lengthened consumerism.
    - HDHPs could be redesigned to increase an individual's "skin in the game." One way would be through different plan designs, such as allowing higher out-of-pocket maximums but lower deductibles, so the "consumerism" effects are felt longer by way of coinsurance.

Part d:

Source(s): Consumers to the Rescue? A Primer on HDHPs and HSAs

Question: You are an employee at Company ABC. You will be electing family coverage and have the following plan options:

	PPO-HDHP	HMO-Major Med
Family Deductible	$3,000	$1,000
Coinsurance	30%	20%
Max Out of Pocket	$6,000	$1,500

You are expecting three claims to occur in the following order:

- Claim #1: Employee outpatient surgery with allowed cost of $1,000
- Claim #2: Dependent pharmacy claim for Drug X with allowed cost of $5,000
- Claim #3: Employee specialist visit with allowed cost of $500

Calculate the difference in total cost sharing between the two plans. Show your work.

SOA Commentary on Question:

Most candidates performed well on this part of the question.

SOA Answer:

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

Part e:

Source(s):

Question: (i) Calculate the revised difference in total cost sharing between the two plans. Show your work. (ii) Describe additional considerations in deciding which plan option to choose.

SOA Commentary on Question:

The below responses for part (ii) received full points on the exam. Other responses not listed here but relevant to the question were also acceptable.

SOA Answer:

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

(ii)

- With the drug card, out of pocket expense is nearly identical for the high deductible plan and the major medical plan. This is important as the major medical plan likely has a much higher monthly premium.
- How much of the monthly premium is employer paid vs. employee paid for the two plans?

- Network differences may be important as the member could incur expenses for claims that end up out of network under the HMO. What if the PCP won't refer to a specialist that is planned for claim #3?
- Medical management practices may come into play for both, but likely to be tighter for the HMO. So, what if the outpatient procedure in claim #1 isn't approved under the HMO plan?

12. Spring 2024 RM #8

SOA Commentary on Question:

This question was testing the candidate's understanding of the structure, components, and constraints of employee benefit programs. It specifically asked about vendor summits and Summary Plan Descriptions (SPDs).

Part a:

Source(s): GH101-106-25 – Handbook of EE Ben.
Question: Describe factors that impact the level of complexity of administering an employee benefits program.

SOA Commentary on Question:

Candidates generally did well on this part of the question and were able to describe at least a few factors impacting complexity. Other responses not listed below but relevant to the question were also acceptable.

SOA Answer:

- The complexity and comprehensiveness of the benefit design and coverage
- The size of the employee group covered
- The uniformity of the program for different categories of employees
- The geographic dispersion of employees

Part b:

Source(s): GH101-106-25 – Handbook of EE Ben.
Question: Identify constraints a benefits manager must consider in the design of employee benefit plans.

SOA Commentary on Question:

Candidates also did well on this section, with many receiving full credit. A list of constraints was sufficient. Other responses not listed below but relevant to the question were also acceptable.

SOA Answer:

- Cost considerations
- The culture/philosophy of the organization
- Competition
- Local market/regulatory conditions

Part c:

Source(s): GH101-106-25 – Handbook of EE Ben.
Question: (i) Define vendor summits. (ii) Describe purposes of vendor summits.

SOA Commentary on Question:

Candidates generally understood vendor summits at a very high level. Candidates who were able to provide a more comprehensive definition and description of vendor summits received more points.

SOA Answer:

(i) "Vendor summits" involve -

- Periodic meetings (annually)
- All the various service providers assisting in plan administration
- Discuss administrative processes
- Discuss client policies

(ii) Purpose

- They allow the various providers to meet each other and form a personal relationship
- They provide education on the entire administrative process
- They provide a forum in which the plan sponsor can explain its underlying benefit's philosophy, customer service expectations, and specific policy clarifications.
- They promote good communication amongst the various vendors involved in the administrative process.

Part d:

Source(s): GH101-106-25 – Handbook of EE Ben.
Question: (i) Define a Summary Plan Description (SPD) (ii) Describe components of an SPD.

SOA Commentary on Question:

Candidates performed well on part (i) but struggled with part (ii). Some candidates described additional types of plan descriptions rather than describing components of a SPD.

Summary plans descriptions (SPDs) are communication materials that provide a summary of the benefit plan's provisions in language that is supposed to be understandable to the average plan participant.

SOA Answer:

The following information must be included in the SPD:

- How to make a claim for benefits
- The procedure for appeal if a claim for benefits is denied
- The name and address of the person or persons to be served with legal process should a legal action be instituted against the plan

13. Fall 2024 RM #1

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

Part a:
Source(s): GH101-103-25 – ER Cont. Strategies
Question: Describe strategy considerations related to payroll contributions.

SOA Answer:
Total compensation philosophy – Employee benefits are a significant part of the total compensation. The employer's compensation philosophy and goals for employee retention need to be taken into consideration when setting payroll contributions.

Benefits competitiveness – The benefits and the contributions should be competitive compared to the employer's peers in the market to ensure the employees are receiving market level benefits to retain talent pool and support employee needs.

Benefits Budget – As healthcare costs are rising, the employer has budget limitation on how much they can spend on benefits. The employee payroll contributions should consider budget available for benefits.

Collective Bargaining - Usually unions have collective bargaining agreements with employers. These unions typically have richer benefits/lower employee contributions than non-union employees. The contribution setting strategy should consider the presence of unions and the related contracts before setting contributions.

Legislative and regulatory impacts – State and federal laws need to considered for employer sponsored plans in not only designing the benefits but also when deciding on the employee contributions. For example, the ACA requires contributions to be affordable i.e., less than 9.5% of household income or meet safety threshold.

Part b:
Source(s): GH101-103-25 – ER Cont. Strategies
Question: Contrast defined benefit and defined contribution approaches for an employee benefits program.

SOA Answer:
Defined Benefit – The employer contributes a fixed percentage of premium as employer contribution to the benefits.
Defined Contribution – The employer contributes a fixed dollar amount per employer as employer contribution for health premium. This approach can have a different fixed dollar subsidy based on the employee tier – Single & Family.

Contrast:

- The defined benefits approach provides higher subsidy for more expensive plans whereas the defined contribution approach has a fixed dollar subsidy, so employees electing richer plans need to pay higher amounts out of pocket
- On the other hand, defined contribution approach incentivized employees to choose less generous plans
- Defined contribution approach is easier to budget for and is more popular especially with private exchanges

The defined benefits approach is more equitable between plan selection

14. Fall 2024 RM #4

SOA Commentary on Question:

Most candidates performed well on parts (a) and (b) but some struggled on parts (c) and (d).

Part a:

Source(s): GH101-106-25 – Handbook of EE Ben.

Question: (i) Describe the functional approach in designing and evaluating employee benefits.(ii) List the usefulness of the functional approach in designing and evaluating employee benefits

SOA Answer:

(i)

The functional approach is structured way of classifying and analyzing benefits to make sure that benefits are allocated in a way that best meet the needs of employees. This can involve analyzing the risks/benefits to be covered, the classes of people (active, retired, dependents, etc) as well as where there may be overlaps or coverage gaps. This can help make sure the benefit plan is structured to best meet the needs of employees while minimizing employer costs (by reducing wasteful spending) and remain compliant.

(ii)

- A structured approach helps analyze the benefits to keep them current, competitive, and compliant
- With all of the different benefits an employer offers, a structured approach is needed to make sure the benefits can be integrated with each other properly
- The functional approach can help map out benefits to see where there overlaps that offer opportunities to reduce cost
- The functional approach can help identify coverage gaps that can be addressed to better align with company goals and employee needs.
- Benefits are a significant part of labor costs, and a structured approach can help ensure the benefits are as effective for employees as possible

Part b:

Source(s): GH101-106-25 – Handbook of EE Ben.

Question: Company ABC is a large, well-established employer in a mature industry and is considering the benefits offered to its employees. The company has not updated benefits since it was founded 15 years ago. ABC's current approach is to measure its benefit offerings relative to those provided by growth companies and developing industrial firms. Evaluate ABC's current approach.

SOA Answer:

ABC is already well-established, and its approach is comparing itself to companies that are growing and developing. There are a few considerations with this approach:

- How different are benefits from established companies' vs developing companies. Developing companies may not be investing as much in benefits given that their budgets for employee benefits are likely not as large as developed companies.
- Developed companies are also more likely to have pension benefits vs a developing company and ABC would not be able to make comparisons on level of benefits.
- There could be also regulatory differences between what is required from a large employer vs a small developing employer
- Large employers usually evaluate a self-insured approach given their size, but developed companies are more likely to choose a fully insured approach to benefits. These differences may not be caught with ABCs approach.
- It should review benefit against its direct competitors to make sure benefit are comparable to those companies to be able to attract and retain top talent

Part c:

Source(s): GH101-106-25 – Handbook of EE Ben.
Question: Summarize how ABC would analyze their current employee benefits against the objectives and current criteria under the functional approach.

SOA Answer:

1. Type of benefit- look at what benefit is payable to a representative employee under given circumstance
2. Level of benefit- what amount of benefits are available? How much do they cost?
3. Probationary periods- how long must employee wait to be eligible
4. Eligibility- who is eligible for benefits?
5. Current participation levels- at what rate do employees choose to participate? When coverage is waived, it may reflect benefits are not sufficient
6. Employee contributions- what does the employee owe for benefits? Is it defined benefit or defined contributions?
7. Flexibility given to employees to choose benefits that best meet their needs and goals

Part d:

Source(s): GH101-106-25 – Handbook of EE Ben.
Question: Compare and contrast the compensation/service-oriented benefit philosophy and the benefit-or-needs-oriented philosophy.

SOA Answer:

Compensation/service-oriented benefits: These are benefits that are focused more on employee compensation or the number of years they have worked for the company. This is most common in life or retirement benefits, as these are often a percent of salary or based on the number of years of service. These benefits are provided to reward employees for their service to the company. Companies with this philosophy tend to prioritize salary and other compensation-related benefits

rather than health and other benefit needs. They would be likely to attract younger, healthier people who are focused more on compensation.

Benefit-or-needs-oriented benefits: These are benefits that are designed to meet employee needs, rather than compensation-based. These are often related to health benefits, as those are not based on salary or service, but on need. These benefits are provided to attract talent, as need-based benefits are an important consideration for employees when deciding where they want to work. Companies with this philosophy tend to prioritize benefits over salary and spend more of their money on ensuring employee needs are met over employees getting very high salaries. They are likely to attract older, more unhealthy people who need benefits and care less about compensation, which is on the contrary to compensation based.