

GH DPA Model Solutions

Spring 2020

1. Learning Objectives:

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

Learning Outcomes:

- (5a) Understand the risks and opportunities associated with a given coverage, eligibility requirement or funding mechanism.
- (5c) Recommend strategies for minimizing or properly pricing for risks.
- (5e) Recommend retention (administrative expenses, claims expenses, profit margin, etc.) when underwriting a group.

Sources:

Individual Health Insurance, Chapter 4 Managing Antiselection

Commentary on Question:

This question tests the candidates' general understanding of antiselection. Including the three different types, policy mechanisms to control for antiselection, an understanding of the causes, how to measure its impact, and ultimately the separation of a members' decisions with regards to their policy choices and eventual claims. Candidates generally did well on understanding the basic concepts of antiselection, but generally struggled with the calculation in part b.

Solution:

- (a) Create a table that describes the various types of antiselection. For each type of antiselection, the table should include:
- Definition
 - Example
 - Ways in which it can be controlled

Commentary on Question:

Candidates generally did well on this part of the question. Some candidates provided options of how to price for antiselection, rather than listing policy features to control antiselection. Other examples and control mechanisms were accepted if they demonstrated an understanding of the concept.

1. Continued

	External	Internal	Durational
Definition	Antiselection which occurs when an insured seeks health coverage for the first time	Antiselection which occurs within an in-force block of business	Antiselection driven by higher risk individuals being less likely to allow coverage to lapse, especially over the course of multiple policy periods
Example	Following a recent diagnosis, a previously uninsured person enrolls in health insurance	Following a rate increase, healthier members tend to buy down to leaner coverage, while unhealthy members remain in richer benefit plans	Following a large rate increase the lapse rate will typically jump, and there is a parallel jump in antiselection
Ways it can be controlled	Individual underwriting, pre-existing condition limits, minimum participation percentages	Requiring additional underwriting for those wishing to increase benefits, limiting differences across plan options	Coverage mandates, premium stabilization programs

(b) Calculate:

- (i) The amount of premium leakage per member
- (ii) The buy-down effect per member

Show your work.

Commentary on Question:

Candidates generally did well calculating the buy-down effect, but candidates in general struggled with tracking the member movement in health status in the scenario and how it created differences in Expected and Actual Pure Premiums.

Premium Leakage = Difference in Actual Pure Premium and Expected Pure Premium

Expected Pure Premium (levels based on prior health status):

- Level 1 = $\$3,500 \times (1 - 10\%) \times (1 + 20\%) = \$3,780$
- Level 2 = $\$3,500 \times (1 + 20\%) = \$4,200$
- Level 3 = $\$3,500 \times (1 + 20\%) = \$4,200$
- Total = $(\$3,780 \times 7750 + \$4,200 \times 2000 + \$4,200 \times 250) / 10000 = \$3,875$

1. Continued

Actual Pure Premium:

- Level 1 = $(1-10\%)*((7750-250)*\$1,000+250*\$55,000)/7750=\$2,468$
- Level 2 = $\$10,000*(1+0\%)=\$10,000$
- Level 3 = $\$1,000*(1+0\%)=\$1,000$
- Total = $(\$2,468*7750+\$10,000*2000+\$1,000*250)/10000=\$3,938$

Premium Leakage = $\$3,938-\$3,875=\$63$

Buy-Down Effect = Expected Premium Increase – Actual Premium Increase
 $=20\% - (\$3,875/\$3,500-1) = 9.3\%$
 $=(\$4,200-\$3,875)/\$3,500=\$325/\$3,500=9.3\%$

- (c) Describe the causes of premium leakage and buy-down effect.

Commentary on Question:

Candidates did well on this section of the question, several different causes were accepted. Candidates who were able to tie together the examples of causes of antiselection from part a with the mathematical implications of part b performed the best.

Higher risk policyholders or those who just experienced an adverse event, are much less likely to opt for higher deductible plans than are lower risk policyholders. However, the predicted average value of a change in benefit plan is based on the average cost of a population with higher and lower risks combined. Premium leakage is the difference between the expected pure premiums if a random sample of members had migrated to the leaner plan and the actual pure premium that results from antiselection. The buy-down effect is the impact from policyholders choosing leaner plans at time of renewal resulting in collecting less premium than the priced rate increase. While policyholders are typically more knowledgeable of their health status which drives these effects, there is always an element of risk.

2. Learning Objectives:

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

Learning Outcomes:

- (4a) Calculate provider payments under various reimbursement methods.
- (4c) Understand contracts between providers and insurers.
- (4d) Understand accountable care organizations and medical patient home models and their impact on quality, utilization and costs.

Sources:

Provider Payment Arrangements, Provider Risk, and Their Relationship with the Cost of Health Care

Commentary on Question:

In general candidates did well on parts b(i), b(ii) and c(i) that required lists and examples found in the required reading. Candidates did not do as well on parts a and c(ii) that required synthesis of the reading and the material given in the question.

Solution:

- (a) List provider payment arrangements in order from least risk to most risk to the provider group.

Commentary on Question:

This question tested candidates' ability to distinguish various types of provider payment arrangements and the degree of risk associated with the payment arrangements. Overall, candidates who attempted the question received at least some credit.

The risk continuum moves from low risk FFS arrangements to highest risk with full risk global capitation models.

- FFS (fee for service)
- DRG/case rates
- Bundle payments
- ACOs including Patient Centered Medical Homes (PCMH)
- Shared Savings
- Global Capitation

2. Continued

- (b) For each category of risk that provider groups face as part of a risk contract with a payer:
- (i) Describe the category
 - (ii) State an example

Commentary on Question:

Candidates did well in listing, defining, and providing examples of the risk categories outlined in the required reading. Only one example per risk was needed to receive full credit.

Part b(i)

- **Utilization risk:**
 - The impact of changes in utilization (volumes) on provider profitability depends on the relationship of payment changes to operating cost changes (variable costs).
 - Volume-related payment changes differ among models
- **Insurance risk:**
 - This type of risk is related to the normal variation in demand for medical services over time and differences in utilization within segments of insured populations.
 - When providers and payers consider the level of risk (or risk spectrum) for the different payment arrangements, they are usually referring to the amount of insurance risk in the model.
- **Technical risk:**
 - Appropriately structuring technical elements of a contract to match population and circumstances.
 - Models with low technical risk are easy to design, implement and monitor.
- **Performance risk:**
 - Performance risk relates to inefficiency, suboptimal quality, and high cost of care.
 - Elements of reducing performance risk can include attainment of care efficiency gains and quality targets, and reduction of operating costs resulting from efficient work.

2. Continued

Part b (ii)

- **Utilization risk:**

- Under a global cap arrangement, increased utilization represents risk to the provider. For providers, their profit increases with decreasing utilization and decreases with increasing utilization.
- For admission-based rates, the utilization risk is similar to an FFS environment. For length of stay, the provider is incentivized to reduce the length of stay for a hospitalization and replace it with another admission (if latent demand is sufficient to replace volume lost to utilization declines). If the length of stay gets too long, the provider has to pay out additional variable costs without any additional reimbursement.
- Utilization risk for a bundled payment can be separated into the number of episodes and the number of services given during the episode. When the number of episodes increases, provider profits can increase. The provider will also need to decrease medically unnecessary or preventable services such as readmissions during an episode in order to make a profit.

- **Insurance risk:**

- Age/gender/acuity differences
- Number of high-cost cases vs. average
- Year-to-year variation in patient demand for services
- Proportion that has zero claims in a year.

- **Technical risk:**

- Bundled payments require many steps to calculate the allowed amount, which includes determining the index event, allowed time periods, exclusion criteria, etc., and thus has high technical risk.
- Technical risk for global capitation is quite high. Typically, the organization will receive one fee for all of the services provided; therefore, there will need to be complex structures in place to allocate the money among various physicians and other providers. The provider will also be responsible for paying claims.
- In shared savings arrangements the providers are typically still paid on an FFS basis, and there is not the same level of infrastructure needed to pay claims. However, distributing savings or losses among providers may still be technically complex.
- DRGs have been around for a while and there are two established groupers, the MS-DRG and the APR-DRG, technical risk is low to medium for DRG/case rates.

2. Continued

- **Performance risk:**

- For example, in the Medicare Shared Savings Program (MSSP) the ability to earn a bonus is dependent on both the MSSP's ability to reduce utilization as well as meet quality targets.
- In addition, fraud, waste and abuse inherent in the health care system can contribute to performance risk.
- For DRGs, the hospital has to be cautious of discharging patients too early as the risk of readmissions may increase
- Performance risk not only varies by payment model, but also within payment models. It is highly dependent on how the contract is written.

(c)

- (i) Propose questions for ABC to consider in advance of entering the ACO.
- (ii) Recommend actions for ABC to take to mitigate potential risks.

Commentary on Question:

Candidates generally did well in listing questions for ABC to consider. The list of questions below is not exhaustive and credit was given for reasonable questions not found on the list. Candidates did not do as well in providing actions to mitigate potential risks.

(i) Examples of questions include:

- **Risk adjustment:**

- Has the risk adjustment of targets been addressed to reflect the morbidity of ABC members in the performance year (year1)?

- **Trend:**

- Will the baseline costs be trended?
- Will the measurement year be trended?
- What is the appropriate trend to use?

- **Shared savings:**

- What are the savings rate and loss rate? Are they achievable for the provider to meet using utilization management?
- Will it mean marginal pricing for the provider?
- Will the contract eventually move to capitation?
- Is the ACO prepared for that?
- Are quality metrics reasonable for shared savings payout?

- **Attribution:**

- Has a fair attribution method has been set up for year 1

2. Continued

- **Random variation:**
 - Does the number of members attributed to the provider group or ACO offer enough of a baseline that gains and losses will not just be due to statistical fluctuation? If not, should the ACO be upside only?
 - Are there enough member incentives to choose a narrower network plan, thus driving more members to the ACO?
 - Does the ACO have a large enough physician network to get the number of attributed members it needs and satisfy geographical access requirements?
 - Has accurate data & methodology been used in setting ABC's benchmarks?
- **Stop loss:**
 - How is risk associated with high cost services and members during the performance year addressed?
- **Data and reports:**
 - Is the payer in a position to provide all of this information?
 - Does the ACO have capabilities to receive and analyze the data once it has it?
- **Quality:**
 - Are there a sufficient number of measures with an adequate number of occurrences to ensure reliable results and reasonably determined benchmarks and targets?
 - Do the providers also have other quality measures they are reporting through other programs (MSSP, etc.) that will make it easier or simpler to set up and comply? Are there any network inadequacy or narrow network concerns?
- **Infrastructure cost support:**
 - Will there be a care coordination fee to help the ACO get up and running with its infrastructure?
 - Is there any reimbursement for administrative expenses or care coordination fees?

(ii) Examples of actions include:

- Evaluate the attribution process outlined for fairness between provider groups, existing gaps and process for handling exceptional situations.
- Review the \$267 PMPM benchmark calculation process based on historical experience and projection to the performance year.
- Ensure that the target is risk adjusted at end of the year based on ABC's actual enrollment as follows: \$ 267 *(risk score assessment for performance year1/1.02).

2. Continued

- Consider taking risk only on medical benefits for year 1 and phasing in additional risk exposure on pharmacy services.
- Assess ABC's network adequacy and any contractual gaps to prevent leakage and excessive out of network utilization.
- Review quality metrics versus from last year's performance to identify action steps for quality improvement as needed.
- Evaluate purchase of individual and/or aggregate stop loss coverage for high cost services/members.
- Review cash flow needs, care management or other fees needed for ACO services that are not part of typical provider responsibilities

3. Learning Objectives:

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

Learning Outcomes:

- (5a) Understand the risks and opportunities associated with a given coverage, eligibility requirement or funding mechanism.
- (5c) Recommend strategies for minimizing or properly pricing for risks.
- (5d) Describe and apply approaches to claim credibility and pooling.

Sources:

A Practical Approach to Assigning Credibility for Group Medical Insurance Pricing

The Role of the Actuary in Self-Insurance

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

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a) Describe considerations for the application of credibility in the context of the group medical insurance environment.

Commentary on Question:

Many candidates did well and received full or partial credit.

- Since most individuals have claims throughout a policy year, it is reasonable to assume that all individuals will have a claim.
 - An individual with high claims costs in one year will tend to have high claims costs in subsequent years, therefore a group the size of one is significant.
 - The group medical market is competitive and insurers using inappropriate credibility levels could experience losses.
 - Group experience versus the manual can be significantly different and therefore inappropriate credibility applied to experience could impact a group's financial performance.
- (b) Calculate the experience trend for Abeesee for each calendar year. Show your work.

3. Continued

Commentary on Question:

Some candidates either incorporated pooled claims or change in IBNR, however fewer incorporated both into their trend calculation. Credit was given for those that calculated trend both as a PMPM or in total.

	CY2016	CY2017	CY2018
Avg Members	4,106	4,118	4,378
IBNR	125	625	1,300
Paid Claims (in \$000)	11,125	12,750	13,950
less pooled claims	-275	-550	-625
plus Delta IBNR	125	500	675
Incurred Claims	10,975	12,700	14,000
Experienced trend		15.7%	10.2%

(c) Calculate the accumulated surplus or deficit as of December 31, 2019:

- (i) From Abeesee's perspective.
- (ii) From Royale Health's perspective.

Show your work.

Commentary on Question:

Some candidates stated that Abeesee was fully insured and therefore the surplus/deficit was irrelevant, however an accumulated surplus could still be calculated.

(i)

	CY2016	CY2017	CY2018	Total
Paid Premiums	13,550	14,825	17,075	45,450
less Pooled Premiums	(1,152)	(1,260)	(1,451)	(3,863)
Experienced Premiums	12,398	13,565	15,624	41,587
less General Admin	(976)	(1,067)	(1,229)	(3,272)
less Profit Margin	(407)	(445)	(512)	(1,364)
less Premium Taxes	(244)	(267)	(307)	(818)
less ACA Health Insurance Tax	(271)	(297)	(342)	(909)
less Broker Load	(203)	(222)	(256)	(682)
	(2,101)	(2,298)	(2,646)	(7,045)
Net Premium	10,297	11,267	12,978	34,542
Paid Claims	11,125	12,750	13,950	37,825
less Pooled Claims	(275)	(550)	(625)	(1,450)
plus Delta IBNR	125	500	675	1,300
Incurred Claims	10,975	12,700	14,000	37,675
Surplus / Deficit	(678)	(1,433)	(1,022)	(3,133)

3. Continued

(ii)	
Profit/loss from account experience	-3,133
Profit/loss from pooled experience	2,413
Risk & Profit (3%) embedded in paid premiums	1,364
Total profit/loss for this account	643.8
% of total premium	1.42%

- (d) Calculate the credibility level in each reporting period. Show your work.

Commentary on Question:

Some candidates interpreted the turnover rate as $1 - 0.8 = 20\%$. Full credit was awarded if they defined this assumption.

Formula: $z = ((p \times k_1) + ((n-p) \times k_2)) / (1 + ((n-1) \times k_3))$

$k_1 = 0.25$; $k_2 = k_3 = 0.01$; $p = 80\%$

	CY2016	CY2017	CY2018
n = number of individuals in the group	4,106	4,118	4,378
z = credibility level; assumes 80% stay	98.10%	98.11%	98.22%

- (e) Critique the credibility assumption Royale Health uses in its pricing. Justify your response.

Commentary on Question:

Candidates' responses needed to align with part d above to receive full credit.

- Although the credibility assumptions for K1, K2, and K3 in part (d) above follow industry standards, the turnover rate of 20% does not align with the growing population demonstrated in Abeesee's data.
- Royal should consider using multi-year credibility where $z = \text{Sum}(\text{prior years } z) \times Z_{t-1}$, to maximize the use of available data.
- The current credibility calculation indicates that Abeesee is almost 100% credible, which aligns with their experience data as their premium is lower than the manual rate indicated for their plan choice.

- (f) Recommend whether or not this account should move to a self-insured arrangement. Justify your response.

Commentary on Question:

Most candidates recommended a move to a self-insured arrangement, however points were awarded for those that suggested otherwise if their recommendation was supported by previous observations throughout the question.

3. Continued

I recommend a move to a self-insured arrangement for the following reasons:

- The group is almost 100% credible on a consistent basis.
- The group seems to have an experienced rate lower than the manual rate, so it should get some savings on premiums paid based on its own experience.
- The group could also avoid some retention items, i.e. the insurer profit margin of 3% and the premium tax of 1.8%.
- The group could obtain stop-loss coverage with Royale Health.

4. Learning Objectives:

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

Learning Outcomes:

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

Sources:

GHDP-135-20: Value Based Pharmacy: A Canadian Example

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a) Describe the objectives associated with implementing a Value Based Pharmacy Initiative.

Commentary on Question:

Some candidates were able to provide generic commentary relating to reducing costs, improving quality, etc., but credit was awarded only to those candidates who articulated pharmacy-specific objectives.

Objectives associated with implementing a Value Based Pharmacy Initiative:

- Assist pharmacies in identifying their most high-need patients who would benefit from intervention and additional support
- Support the evolution of the pharmacy profession, from fee-based dispensing of prescription drug products to the delivery of high-quality patient-centered pharmacy care

- (b) List four examples of a medication-use quality measure.

Commentary on Question:

In general, most candidates were able to provide several of the measures listed below.

Example of medication-use quality measures:

- Proportion of Days Covered (PDC) for Hypertension disease state
- Proportion of Days Covered (PDC) for Cholesterol (statins) disease state
- Proportion of Days Covered (PDC) for Diabetes disease state
- Statin use in persons with diabetes
- Suboptimal control of asthma
- Absence of a controller inhaler in asthma patients
- Pharmacist health coaching
- High risk medication use in the elderly

4. Continued

- (c) Describe reasons medication-use quality measures were used in the Value Based Pharmacy Initiative launched by Green Shield Canada.

Commentary on Question:

Most candidates struggled to provide full-credit responses. Similar to part (a), some candidates were able to provide generic commentary, but credit was awarded only to those candidates who articulated the objectives described below.

Reasons why these medication-use quality measures were used in the Value Based Pharmacy Initiative launched by Green Shield Canada:

- They address areas of high priority in the health care system, in terms of both disease management and patient safety
 - They can be directly impacted by pharmacists' activities. Evidence has shown that using performance metrics results in increased pharmacist interventions, which positively impacts the quality of patient care, patient outcomes, and reduces overall health care costs.
 - They're easy to track and understand, and pharmacists understand the steps necessary to improve them.
 - They align with performance indicators tracked by various provincial quality organizations.
- (d) Calculate each pharmacy's star rating. Show your work.

Commentary on Question:

Candidates generally performed very well on this item with the majority achieving full credit.

This solution requires:

- 1) Determining the star rating associated with each measure for each pharmacy:

Pharmacy	Star Rating		
	Measure #1	Measure #2	Measure #3
1	3	4	3
2	4	5	3
3	1	3	4
4	4	5	5
5	4	4	4

4. Continued

2) Developing an overall weighted-average star rating for each pharmacy by applying the provided weights:

Pharmacy	Star Rating			Overall Star Rating
	Measure #1	Measure #2	Measure #3	
1	3	4	3	$= (3 + 4 + 4 + 3) / (1 + 2 + 1) = 3.5$
2	4	5	3	4.25
3	1	3	4	2.75
4	4	5	5	4.75
5	4	4	4	4
Weight	Single	Double	Single	

(e)

- (i) Design a reimbursement framework for Quantum with the following attributes:
 - Dispensing fees for average and low performing pharmacies are reduced to fund increased dispensing fees for high performing pharmacies
 - No changes to Quantum's overall cost or prescription drug utilization
- (ii) Calculate the total increase in dispensing fees that will be paid to high performing pharmacies. Show your work.

Commentary on Question:

Candidate performance on part (e) was mixed. Candidates who provided a cost-neutral design that resulted in an increase to Pharmacy 4's dispensing fees funded by decreases in the other pharmacies' dispensing fees generally received full credit. Proposing increases in dispensing fees for any pharmacy other than Pharmacy 4 and/or designing a framework that resulted in a change to Quantum's overall cost were the most common reasons for not obtaining full credit on part (e). Partial credit was awarded to candidates who proposed valid reimbursement frameworks but failed to calculate the total increase in dispensing fees (ii).

4. Continued

This solution requires:

1) Identifying the high performing pharmacies according to Quantum's methodology (4.5 to 5.0 stars):

Pharmacy	Overall Star Rating	High Performing?
1	3.5	No
2	4.25	No
3	2.75	No
4	4.75	Yes
5	4	No

2) Determining the current total dispensing fees:

Pharmacy	Prescription Drug Utilizations	Avg Dispensing Fee	Total Dispensing Fees
1	200	\$4.00	\$800.00
2	500	\$5.00	\$2,500.00
3	100	\$3.00	\$300.00
4	300	\$3.50	\$1,050.00
5	400	\$6.50	\$2,600.00
Total	1500	\$4.83	\$7,250.00

3) Modifying the average dispensing fees such that Pharmacy 4 receives an increase and all other Pharmacies receive a decrease. Total dispensing fees should remain unchanged. One possible solution would be to increase Pharmacy 4's dispensing fee by \$2 to \$5.50 and reduce all other Pharmacies' dispensing fees by \$0.50:

Pharmacy	Prescription Drug Utilizations	Avg Dispensing Fee - New	Total Dispensing Fees - New
1	200	\$3.50	\$700.00
2	500	\$4.50	\$2,250.00
3	100	\$2.50	\$250.00
4	300	\$5.50	\$1,650.00
5	400	\$6.00	\$2,400.00
Total	1500	\$4.83	\$7,250.00

4) Calculating the total bonus paid as the difference between Pharmacy 4's initial total dispensing fees and their new total dispensing fees:

$$\text{Bonus} = \$1,650.00 - \$1,050.00 = \$600.00$$

5. Learning Objectives:

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

Learning Outcomes:

- (5a) Understand the risks and opportunities associated with a given coverage, eligibility requirement or funding mechanism.
- (5d) Describe and apply approaches to claim credibility and pooling.

Sources:

[Level Funding: An Alternative to ACA for Small Groups, Health Watch](#), May 2016

Commentary on Question:

This question was designed to test the understanding of pricing and underwriting challenges faced by insurers when offering a level funding product to small groups. In addition, candidates were asked to calculate paid claims fund surplus PMPM and were asked to opine if full credibility should be assigned to the group's experience based on information supplied. Most candidates were able to get full or partial credit on challenges faced by insurers as well as opining whether full credibility should be assigned to the group's experience. However, not all candidates were able to follow all the calculation steps to calculate the paid claims fund surplus PMPM. Candidates either missed points on not being able to blend manual and group experience PMPM rates or they missed points by not multiplying the aggregate stop loss corridor by the blended projected annual paid claims below the SSL deductible PMPM.

Solution:

- (a) Describe challenges that an insurance carrier may encounter when offering a level funding product to a small group.

Commentary on Question:

Candidates received credit for providing a description for the items listed below. Most candidates didn't earn full credit on this part of the question.

- May impact carrier's ACA block depending upon groups risk level by moving from ACA to Level Funding / Impact to other block of business
- Level funding products can be a challenge to price, sell and administer / Group size is not credible
 - The carrier needs resources and skills to properly project the expected claim costs of the small group.
 - It requires risk rating tools such as medical underwriting and the expertise and time to examine details behind high cost claimants.
- A carrier offering level funding products requires stop-loss coverage.
 - Need a stop-loss rating model and/or hire experts familiar with stop-loss insurance.
 - Need legal expertise to understand the regulations in the state.
- Carrier sales staff is properly trained and have marketing tools in place to help small groups understand product
 - Most small groups do not have familiarity with self-funding or stop-loss.

5. Continued

- (b) Calculate the actual paid claims fund surplus PMPM for this group. Show your work.

Commentary on Question:

Full credit was given to candidates who followed all the steps below and got the right answer (surplus expressed in PMPM or total amount is acceptable). Partial credit given for missing steps. Not all candidates were able to follow all the calculation steps to calculate the paid claims fund surplus PMPM. Candidates either missed points on not being able to blend manual and group experience PMPM rates or they missed points by not multiplying the aggregate stop loss corridor by the blended projected annual paid claims below the SSL deductible PMPM.

First, determine the projected annual paid claims below the specific stop-loss (SSL) deductible for each member.

This is the minimum of the member's projected claims and the SSL.

Member	Projected Annual Paid Claims	Projected Annual Paid Claims Below SSL Deductible
A	\$1,000	\$1,000
B	\$30,000	\$25,000
C	\$40,000	\$25,000
D	\$2,000	\$2,000
E	\$200	\$200

Group-specific projected annual paid claims below the SSL deductible PMPM, $(\$1,000 + \$25,000 + \$25,000 + \$2,000 + \$200) / 5 = \886.67 or \$53,200 $(\$886.67 \times 5 \times 12)$.

Blended group specific annual paid claims below SSL (40% weight) and manual rate (60% weight)

$$\$886.67 \times 40\% + \$1,000 \times 60\% = \$954.67$$

Calculate maximum liability: Blended rate x the aggregate stop loss corridor

$$\$954.67 \times 120\% = \$1,145.60$$

Calculate surplus: Maximum liability PMPM - Blended Group specific cost x actual to expected rate

$$\text{Expected Group Specific Cost: } \$954.67 \times 90\% = \$859.20$$

$$\text{Surplus: } \$1,145.60 - \$859.20 = \$286.40 \text{ PMPM}$$

- (c) Recommend whether the pricing actuary should assign full credibility to this group's experience or leave the credibility at its current level. Justify your response.

5. Continued

Commentary on Question:

Most candidates were able to recommend whether to assign full credibility to the group's experience. Full credit was given for recommendations provided with appropriate justification. The solution here is one example of an acceptable response.

Full credibility should be given to the group's experience. The net cost to the group is the paid claims cost PMPM below the SSL deductible minus the actual paid claims fund surplus PMPM.

From (b): the net cost to the group would be equal to $\$954.67 - \286.40 (expected cost - surplus), which is $\$668.27$

Revised scenario, group-specific annual paid claims cost below the SSL deductible is $\$886.67$. Revised Maximum liability PMPM $\$1,064.00$ ($\$886.67 \times 120\%$);

Surplus is $\$266.00$ ($\$1064.00 - 886.67 \times 90\%$); Net Cost $\$620.67$ ($\$886.67 - \266.00)

Recommendation would be to switch to 100% of the small group's experience

6. Learning Objectives:

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

Learning Outcomes:

- (4b) Evaluate standard contracting methods from a cost-effective & quality perspective.
- (4c) Understand contracts between providers and insurers.

Sources:

GHDP-102-13 Evaluating Bundled Payment Contracting

Provider Payment Arrangements, Provider Risk, and Their Relationship with Cost of Health Care

GHDP-122-19: Episode Based Physician Profiling: A Guide to the Perplexing

Commentary on Question:

Commentary listed underneath question component.

Solution:

- (a) Describe the considerations in contracting for bundled payments.

Commentary on Question:

Candidates generally performed well on part a. Since the problem requested a description, credit was only given to candidates who provided an explanation of each item that demonstrated understanding of the item. Some candidates listed items without explanation, which did not receive credit.

- Defining the episode – The “bundled” episode must be clearly defined because it defines contractual obligations. Which services are included?
- Evaluating catastrophic risk – The bundled payment generally reflects the average per patient cost for a set of services, but few cases are average. An outlier risk analysis that includes a classical stop loss analysis can evaluate the financial risk to the sponsoring organization.
- Financial stability for low case loads – Financial risk that is due to random fluctuations may be greater for provider groups with low case loads.
- Determining provider allocation of funds – The bundled rate negotiated between providers and payors is typically lower than the total the payor would have spent piecemeal, which means some combination of more efficient care, lower-expense care, and retaining more care within the system is necessary for a provider to maintain current profit margins.
- Distinguishing case severity – In general, the more severe the case, the higher the costs and reimbursement, but also the higher the outlier risk. Higher severity patients could be excluded from the agreement.

6. Continued

- Quality outcome requirements – Patients and payors may be concerned that quality could be compromised if providers reduce needed services to reduce expenses.
- Administrative complexity – All parties will compare the benefits of the contract to the administrative expenses of supporting the contract.
- Risk-sharing alternatives – Risk sharing contracts may be more viable than “pure” bundled contracts. For example, a target could be set and parties could share specified portions of the risk above and below that target.

(b) Describe bundled payment risks from the perspective of a provider group.

Commentary on Question:

Candidates performed very well on part b, including providing a description. Since the problem requested a description, credit was only given to candidates who provided an explanation of each item that demonstrated understanding of the item.

- Utilization – Utilization risk can be separated into the number of episodes and the number of services given during the episode. When the number of episodes increases, provider profits can increase. The provider will also need to decrease medically unnecessary or preventable services such as readmissions during an episode in order to make a profit.
- Technical – Bundled payment technical risk is quite high. Choosing conditions, defining conditions, analyzing the conditions, standardizing treatment, coordinating care, and partnering with post-acute providers bring with them a lot of technical risk. Gain-sharing between the physicians and hospitals also involves technical risk.
- Insurance – The provider is at risk for members who have higher allowed costs than the average episode, have complicated cases, or are at risk for readmissions.
- Performance - A successful bundled payment strategy requires consistent messaging from physicians, discharge planning, and proper communication between the patients and the providers after the hospital discharge. If the gain-sharing is based on quality outcomes, that also involves performance risk.

(c) Critique the proposal from the perspective of:

- (i) XYZ
- (ii) The cardiologists

6. Continued

Commentary on Question:

Part c tests a candidate's ability to apply the concepts they have read about to a hypothetical scenario. The list of possible answers is extensive and credit was given for a wide range of options. Some candidates performed well, while others struggled to apply the concepts to the scenario. Generally, candidates' comments should center on the favorability of the deal for XYZ and the numerous risks for the cardiologists.

(i)

- Term and payment – Favorable for XYZ to negotiate a flat amount being paid all years, making planning easier.
- Term and payment - No trend is very favorable for XYZ since it is highly probable that medical costs will increase each year.
- Physician profiling – efficiency score – easy to administer with the collection of patient surveys
- Physician profiling – efficiency score - physicians are incentivized to 'redirect' to more 'efficient' (lower cost) facilities and implants
- Physician profiling – quality score – contract should also have some specifications on outcomes
- Physician profiling – quality score - No comments on HEDIS, Rand or other possible metrics that could also be relied upon
- Bundled period and services included in payment - would want all services included in bundled payment to prevent providers from manipulating the system
- Bundled period and services included in payment – since payment is prospective, XYZ is at risk if a member backs out prior to the surgery or disenrolls.
- Data - Claims data is easy to get at since XYZ is using their own data and it is more transparent for them
- Margins - Bundled payment inherently passes risk to provider so a positive for XYZ

(ii)

- Term and payment - No trend is not good for the cardiologists, they are likely to need adjustments for inflation, etc.
- Term and payment - Since the contract includes all services, cardiologists should be concerned due to co-morbidities and not focusing on just the pacemaker
- Physician profiling – efficiency score - can misidentify high and low performing physicians
- Physician profiling – efficiency score - Comorbid conditions can create biases; there should be an adjustment to reflect patient risk level.
- Physician profiling – quality score - Large variations in scores when there are few members

6. Continued

- Physician profiling – quality score - Typically don't have the data for comparing against other physicians
- Bundled period and services included in payment - 90 days pre and post op wide is a window that leaves provider at risk for performing services not typical of pacemaker episode since all services are included in the contract
- Bundled period and services included in payment - cardiologists allocate dollars to other providers for services. This could work well for them if they are able to effectively pick their working partners and agree upon rates.
- Data - Prospective payment system requires provider to have administrative system. Since cardiologists are in single offices that may be a small practice, this may be difficult.
- Financial risk - No adjustment for outliers adds risk to inpatient and post-discharge (yet facility payments may include this)

7. **Learning Objectives:**

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

Learning Outcomes:

- (4a) Calculate provider payments under various reimbursement methods.
- (4b) Evaluate standard contracting methods from a cost-effective & quality perspective.
- (4c) Understand contracts between providers and insurers.

Sources:

- Design and Pricing of Tiered Network Health Plans, Health Watch, May 2009
- Provider Payment Arrangements, Provider Risk, and Their Relationship with Cost of Healthcare (excluding Appendices)

Commentary on Question:

To receive full credit on parts a and b, candidates had to describe elements of DRG as well as the risks. Naming the elements was not sufficient to receive credit; a description was required. Part c required a calculation that could be done in two different ways.

Solution:

- (a) Describe typical elements of a diagnostic-related group (DRG) reimbursement contract.

Commentary on Question:

Most candidates did well on this question and provided sufficient elements in order to receive partial credit. Only a handful of candidates were able to provide the full list to receive the full credit for this question.

7. Continued

A DRG / case rate schedule – In some cases, use the CMS MS-DRG weight for each MS-DRG. If it does not use the MS-DRG weights, they are developed based off of the Medicare cost reports and can produce weights that may be high in areas such as maternity.

Maximum days – If a given case exceeds the maximum number of days defined for the particular DRG / case rate, there may be a per diem rate, which will be paid for each day exceeding the maximum number of days.

Carve-outs for specialty drugs and implant devices – Can be a part of the inpatient payment schedule.

Stop loss – A contract may also have a stop loss to be applied on a case level.

Transplants – Transplants are usually negotiated separately.

Readmissions – Should readmission be included or excluded from being paid? This may depend upon the underlying population.

- (b) Describe risks associated with DRG contracts.

Commentary on Question:

The majority of candidates received full credit on this question.

Utilization risk – For admission rates, the utilization risk is similar to an FFS environment (i.e. admission goes up; profit goes up). For length of stay, the provider is incentivized to reduce the length of stay for a hospitalization and replace it with another admission.

Technical risk – Because DRGs have been around for a while and there are two established groupers, the MS-DRG and the APR-DRG, technical risk is low to medium for DRG / case rates.

Insurance risk – The provider is at risk for members who have higher than average inpatient lengths of stay because the provider is reimbursed at a single rate for the entire admission. This does not contain incidence risk.

Performance risk – The hospital has to be cautious of discharging patients too early as the risk of readmissions may increase.

7. Continued

- (c) Calculate the minimum member coinsurance for Hospital B such that the health plan achieves 10% savings net of member coinsurance. Show your work.

Commentary on Question:

Full credit was given to either solution as long as the final answer is calculated correctly. Most candidates did well on this question and received the full credit. For candidates who followed the TNHP savings formula, a majority used N% = 50% instead of 52.4%.

Solution 1 – Direct Calculation:

Total current cost = $(1,000 * \$10,000 + 1,000 * \$11,000) * (1 - 20\%) = \$16,800,000$

10% of savings = $10\% * \$16,800,000 = \$1,680,000$

Target total cost after savings = $\$16,800,000 - \$1,680,000 = \$15,120,000$

New admit for Hospital A = $1,000 * (1 + 30\%) = 1,300$

New admit for Hospital B = $1,000 * (1 - 30\%) = 700$

New cost of Hospital A = $1,300 * \$10,000 * (1 - 20\%) = \$10,400,000$

New cost for Hospital B = $\$15,120,000 - \$10,400,000 = \$4,720,000$

New coinsurance for Hospital B = X

$\$4,720,000 = 700 * \$11,000 * (1 - X)$

X = 38.7%

The new member cost share is equal to 38.7%

Solution 2 – Using TNHP Savings Formula

TNHP savings formula = $N\% * [M\% + \text{Shift} * (P\% - M\%)]$

N% = claims under the control of non-preferred providers = the % of total claims controlled by providers segmented to the tier receiving additional cost share

$N\% = 1,000 * \$11,000 * (1 - 20\%) / [1,000 * \$10,000 * (1 - 20\%) + 1,000 * \$11,000 * (1 - 20\%)] = 52.4\%$

P% = cost differential between tier providers = 1 – ratio of average preferred cost per unit to average non-preferred cost per unit

$P\% = 1 - \$10,000 / \$11,000 = 9.1\%$

7. Continued

M% = member liability differential = change in actuarial value of benefits of non-preferred providers due to the additional member liability

$$M\% = 1 - (1 - X\%) / 80\%$$

Shift = shift assumption = the consumerism impact of a TNHP, which is the assumed % of non-preferred users reacting to increased member liability by switching to preferred providers

$$\text{Shift} = 30.0\% \text{ (given in question)}$$

$$\text{TNHP savings} = 10.0\% \text{ (given in question)}$$

Putting everything into the formula

$$10.0\% = 52.4\% * [M\% + 30\% * (9.1\% - M\%)]$$

$$M\% = 23.4\%$$

$$23.4\% = 1 - (1 - X\%) / 80\%$$

$$X\% = 38.7\%$$

The new member cost share is equal to 38.7%

8. Learning Objectives:

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

Learning Outcomes:

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

Sources:

Group Insurance, Ch. 31: Managing Selection in a Multiple-Choice Environment

Commentary on Question:

This question tested candidate's knowledge of antiselection calculations and employer considerations for managing these costs. Generally candidates seemed prepared for this question.

Solution:

- (a) Describe reasons why an employer may offer choice.

Commentary on Question:

Candidates often listed reasons for offering choice, but needed a full description of the reason to receive full credit.

- They could benefit from favorable selection when healthier members enroll in a more expensive/richer plan
- If they want to introduce a new product, it would be ideal to phase it in as a choice
- If they want to implement a defined contribution approach, this would be a good time to test while multiple options are available
- Offering choice encourages consumerism, making employees more aware of their benefits which leads to better/lower cost choices

- (b) Describe how insurers can manage selection and the impact of antiselection cost.

Commentary on Question:

Similar to the above, candidates who fully described their listed items received full credit.

- Employers could add a premium load to cover the anticipated antiselection costs
- Employers could utilize plan design limits to manage selection, such as:
 - Limit the spread in employee contribution between options
 - Limit the spread in benefit options
 - Mix favorable and unfavorable benefit provisions so that one plan isn't labeled as the "best plan"

8. Continued

- Employers could utilize participation requirements
 - For one insurer, offset unfavorable selection by requiring 75% participation among the group
- For multiple insurers, can use risk adjustment to redistribute income according to expected risk pool

(c) Calculate the antiselection risk. Show your work.

Commentary on Question:

Most candidates did well on this section, as it was similar to examples from the source material. Partial credit was given if calculation errors resulted in incorrect numbers, but the methodology used was correct.

Plan	Monthly Insurer Premium Rates (a)	Number of Employees (b)	Monthly Employer Contribution (c)	Relative Health Status (Morbidity) (d)	Monthly Insurer Total Premiums e= (a) x (b)	Monthly Insurer Total Actual Cost* (f) = (a) x (b) x (d)
A	\$500	10	\$500	50%	\$5,000	\$2,500
B	\$600	50	500	100%	\$30,000	\$30,000
C	\$700	15	500	133%	\$10,500	\$13,965
Total					\$45,500	\$46,465
					Antiselection (f) / (e) - 1	2.12%

(d) Calculate the insurer's cost as a percent of premium in Year 2 for each plan. Show your work.

Commentary on Question:

This question challenged candidates to calculate the new mix of morbidity on each plan. Partial credit was given for getting pieces of the calculation correct.

8. Continued

Plan	Year 2 Prem (trend 20%) (g) = (a)*1.2	Members (h)	Morbidity (i)	Insurer cost (j) = g x i	Cost as % of prem (d) / (a)
A	600	20	$10 (0.5) + 10 (1) / 20 = 0.75$	450	75%
B	720	50	$40 (1) + 10 (1.33) / 50 = 1.066$	767.52	107%
C	840	5	1.33 (no change)	1117.2	133%
Total (weighted avg)	696			706.16	101.46%

- (e) Recommend alternative plan benefit design elements to mitigate the antiselection risk.

Commentary on Question:

Candidates needed to provide design element recommendations and defend them or relate them to the specific scenario. Many candidates simply repeated answers from Part b, which did not earn full credit.

I recommend the insurer works with the employer to adjust their defined contribution strategy. They could contribute a percent of premium, rather than a flat \$500. This would further incentivize healthy members to choose the richer plan and balance risk.