GH DPA Model Solutions
Spring 2021

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.

Sources:
Issues in Applying Credibility to Group Long-Term Disability Insurance

Commentary on Question:
This question evaluated candidates' understanding of the unique issues associated with credibility and the application of the 2012 GLTD valuation standard to address volatility within Group Long-Term Disability Insurance. Candidates generally did well on this question.

Solution:

(a)   Explain how each of the following complicate the application of traditional credibility models to Long Term Disability (LTD) Coverage:

    (i)   Non-independence of claims

    (ii)   Heterogeneous risk classes

    (iii)   Claim duration

Commentary on Question:
For part A, candidates needed to explain how each item complicated credibility, and what specific characteristics of LTD coverage created the complexity to earn full credit.

Non-Independence of Claims - LTD exposures, which are often measured in terms of claims, are not believed to be completely independent despite this assumption in most credibility models. For instance, external factors such as work conditions or the state of the economy can affect many if not all of the members of a group, and these factors are correlated with disability incidence.

1. Continued

Heterogeneous Risk Classes - The underlying assumption is that claims experience will emerge similarly as it had in the past. There are a number of reasons why this assumption may not be true: Changes in the demo mix of employees, external factors like economic recessions, changes in underwriting or claim management practices, changes in plan design.

Claim Duration - LTD claim durations can range from one year to several decades long, depending on diagnosis, definition of disability, limitations and many other factors. This in and of itself creates challenges with applying credibility in LTD. On top of this, LTD claim experience tends to be more volatile in the early durations of claims due to reasons of changing definitions from own occupation to any occupation, other revenue sources, limits on mental health diagnoses, and early durations being dominated by recoveries versus death.

(b) Calculate the Credibility Adjusted Reserve for Policy A. Show your work.

Commentary on Question:
For part B, while partial credit was given for correct steps and knowledge of formulas/process, many candidates calculated the correct reserve and earned full credit.

1. Assign given variance factors to each durational year
2. Calculate the expected number of terms needed for full credibility for each year: =Variance Factor*(1.44/0.05)^2
3. Calculate the Credibility Factor for each year: = min(100%, (Expected number of Claim Terms/Needed Number of Claim Terms)^0.5)
4. Calculate the needed reserve for each year: = Cred Factor*Comp Experience + (1-Cred Factor)*Manual Rate
5. Sum for a total reserve: $501,310

Duration Year	Expected Claim Terminations	Policy A Experience Rate	Manual Rate	Variance Factor (1)	Expected Claim Terminations for Full Credibility (2)	Credibility (3)	Reserve (4)
1	3,450	$50,000	$45,000	4.0	3,318	100%	$50,000
2	3,500	$52,500	$45,200	4.0	3,318	100%	$52,500
3	2,750	$52,500	$49,900	3.0	2,488	100%	$52,500
4	2,250	$55,000	$42,900	3.0	2,488	95%	$54,406
5	1,750	$35,000	$34,000	3.0	2,488	84%	$34,839
6	1,500	$35,000	$33,300	2.5	2,074	85%	$34,746
7	1,250	$35,000	$32,600	2.5	2,074	78%	$34,463
8	1,000	$35,000	$31,500	2.5	2,074	69%	$33,931

9	850	$30,000	$30,100	2.5	2,074	64%	$30,036
10	800	$27,500	$25,200	2.5	2,074	62%	$26,629
11	750	$22,500	$24,300	2.0	1,659	67%	$23,090
12	650	$20,000	$23,400	2.0	1,659	63%	$21,272
13	600	$17,500	$23,100	2.0	1,659	60%	$19,732
14	550	$15,000	$20,600	2.0	1,659	58%	$17,376
15	500	$12,500	$19,800	2.0	1,659	55%	$15,792

(5) Total Reserve **$501,310**

(c)   Explain the risks associated with reserve setting if credibility is not properly considered.

Commentary on Question:
For part C, candidates who earned full credit demonstrated an understanding of the downstream risks of applying too much/too little credibility to experience and commented on the impacts of both over and underfunding a reserve. Credit was also given for other valid explanations of risks/impacts.

An incorrect application of credibility creates a risk that the reserve is over/under funded, both of which will have consequences for rate setting. An under application of credibility on experience will result in too high of premiums for a favorable group which in turn may choose to seek coverage elsewhere, and too low of premiums for unfavorable groups which will stay leading to insufficient reserves and a potential death spiral.

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.

(4b) Evaluate standard contracting methods from a cost-effective & quality perspective.

(4c) Understand contracts between providers and insurers.

Sources:
Provider Payment Arrangements, Provider Risk, and Their Relationship with Cost of Healthcare

Commentary on Question:
Commentary listed underneath question component.

Solution:
(a) Describe the utilization, technical, insurance, and performance risks for each of the following provider payment models:

   (i) Fee-for-service

   (ii) Global capitation

   (iii) Case rates

   Commentary on Question:
   Many candidates correctly described the payment models, but some misunderstood the performance risk component.

2. **Continued**

    (i)
        1. Utilization - For most services, the provider's profit increases as utilization increases. (Exceptions do exist, e.g. low Medicare reimbursements).
        2. Technical - FFS has low technical risk because it is easy to implement and monitor.
        3. Insurance - Providers have very low insurance risk since they are not focused on population health.
        4. Performance - Risk is possible if nonspecific codes are not properly monitored. May be quality of care risk for the patient and the insurer, but not the provider.

    (ii)
        1. Utilization - Generally the opposite of FFS. The provider's profit will increase as utilization decreases.
        2. Technical - Very high risk due to the complex nature of reimbursement. An organization typically receives one fee for all services provided which then must be allocated to the individual providers.
        3. Insurance - All of the insurance risk from FFS is transferred to the provider. Provider is at risk if patients need more care than expected when setting capitation rate.
        4. Performance - Provider is at high risk since it takes on all financial responsibility for patient care and services.

    (iii)
        1. Utilization - For admission rates, similar to FFS. Provider has incentive to reduce length of stay since they don't receive additional reimbursement for longer admissions.
        2. Technical - Risk is relatively low due to the number of available payment models/tools.
        3. Insurance - Provider is at risk for longer lengths of stay and outlier patients, but not for number of admissions.
        4. Performance - Discharging patients too early to save money may result in readmissions which carry penalties under Medicare.

(b)   Calculate:

    (i)   Hospital A's 2020 reimbursement

    (ii)   Hospital B's 2020 reimbursement under the discount arrangement

    (iii)   Hospital B's reimbursement under a proposed case rate equal to $4,500 per birth

    Show your work.

2. **Continued**

Commentary on Question:
For part (i), some candidates failed to multiply the monthly capitation rate by 12.

For part (ii), some candidates multiplied by 1 minus the % of billed charges rather than the % of billed charges.

For part (iii), some candidates did not recognize the claim data represented three deliveries.

(i)
2020 Capitation = membership * PMPM * months
2020 Capitation = 5000 members * $2.00 PMPM * 12 months = $120,000

(ii)
Allowed amount = Billed Amount * % Billed Charges

Billed Amount	% Billed	Allowed Amt
$5,000	65%	$3,250
$200	65%	$130
$1,500	65%	$975
$6,000	65%	$3,900
$3,000	65%	$1,950
$1,000	65%	$650
$7,000	65%	$4,550
$800	65%	$520
$5,000	65%	$3,250
Total		**$19,175**

(iii)
Allowed Amount = # cases * cost per case
Allowed Amount = 3 cases * $4,500 per case = $13,500

(c) Calculate the DRG base rate such that GHI is reimbursed a total of $20,000 for the above claims. Show your work.

Commentary on Question:
Some candidates did not recognize the claim data represented three deliveries and incorrectly added all DRG weights within the table. Other candidates did not understand that the base rate multiplied by the DRG weight results in the payment to the provider.

2. **Continued**

Total Allowed = sum (DRG Base Rate * DRG Weight) across all three claims
$20,000 = (Base Rate * 0.157) + (Base Rate * 1.053) + (Base Rate * 1.164)
$20,000 = 2.374 * Base Rate
Base Rate = $8,425

(d)   List questions GHI should consider before finalizing the contract with Hospital B.

Commentary on Question:
Most candidates performed well. The question was looking for the items below, but some candidates listed considerations in contracting bundled payments – credit was given for those as well. Credit was also given for relevant questions not listed in this model solution.

- What types of unintended behaviors may occur due to incentives created by the payment model, and how may they jeopardize anticipated savings?
- What other factors would jeopardize achievement of the forecasted results?
- How will results achieved during the model test be replicated?
- Will the structure and the dimensions of the payment model change over time?
- Will there be a phased-in approach?
- How will the payment model promote continuous improvement of the service delivery model and adapt accordingly?
- How will the proposal impact GHI's utilization, technical, insurance, and performance risks?
- Does the proposal make financial sense for both parties?
- Are there any other payment models that would be more appropriate to consider?

(e)   Propose a counter-offer to Hospital B. Justify your response.

Commentary on Question:
Although GHI and Hospital B agreed to adopt a DRG-based reimbursement structure for 2021, some candidates proposed counter-offers with unrelated payment models or misunderstood the DRG-based reimbursement methodology. Several candidates provided a counter-offer from Hospital B's perspective instead of GHI – deductions were made in this scenario. Candidates receiving full credit provided multiple justifications for their proposal.

2.   **Continued**

I recommend a counter offer of $8,481. Under DRG-based reimbursement, this would result in a total payment to Hospital B of $20,134, which is 5% higher than Hospital B's current reimbursement of $19,175. The base rate will continue to increase each year at 4%, beating GHI's projected healthcare cost trend and allows Hospital B to achieve efficiencies to profit. The offer will also include a stop loss threshold for catastrophic claims to make it more likely Hospital B will accept the lower base rate offer. The stop loss provision will offer Hospital B protection against insurance risk from longer, more intense patients.

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.

(5b)   Understand, evaluate and apply various risk adjustment mechanisms.

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

Sources:
Group Insurance, Ch. 31

Commentary on Question:
Candidates performed well on this question.

Solution:
(a)   Describe how to measure selection and health status.

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

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

(b)   Describe the impact employee contributions have on selection.

   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.

   - 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

3. Continued

(c) 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.

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.

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

(d) Calculate the:

(i) Total cost and total premium for years 2 through 5.

(ii) Aggregate antiselection risk.

Show your work.

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.

3. Continued

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.

Year 2

| Health Plan | # of EEs | Monthly Prem Rate | Number of employees | | | Relative Health status | Total Monthly Premium | Total Monthly Cost | Anti selection risk |
			Low risk	Avg risk	High risk				
A	70	$550	70	0	0	50.0%	$38,500	$19,250	
B	100	$660	5	95	0	97.5%	$66,000	$64,350	
C	30	$770	0	5	25	225.0%	$23,100	$51,975	
Composite (Total)	**200**		75	100	25		**$127,600**	**$135,575**	**6.3%**

Year 3

| Health Plan | Number of Employees | Monthly Premium Rate | Number of employees | | | Relative Health status | Total Monthly Premium | Total Monthly Cost | Anti selection risk |
			Low risk	Avg risk	High risk				
A	65	$605	65	0	0	50.0%	$39,325	$19,663	
B	100	$726	10	90	0	95.0%	$72,600	$68,970	
C	35	$847	0	10	25	207.1%	$29,645	$61,408	
Composite (Total)	**200**		75	100	25		**$141,570**	**$150,040**	**6.0%**

Year 4

| Health Plan | Number of Employees | Monthly Premium Rate | Number of employees | | | Relative Health status | Total Monthly Premium | Total Monthly Cost | Anti selection risk |
			Low risk	Avg risk	High risk				
A	60	$666	60	0	0	50.0%	$39,930	$19,965	
B	100	$799	15	85	0	92.5%	$79,860	$73,871	
C	40	$932	0	15	25	193.8%	$37,268	$72,207	
Composite (Total)	**200**		75	100	25		**$157,058**	**$166,042**	**5.7%**

Year 5

Health Plan	Number of Employees	Monthly Premium Rate	Number of employees			Relative Health status	Total Monthly Premium	Total Monthly Cost	Anti selection risk
			Low risk	Avg risk	High risk				
A	55	$732	55	0	0	50.0%	$40,263	$20,131	
B	100	$878	20	80	0	90.0%	$87,846	$79,061	
C	45	$1,025	0	20	25	183.3%	$46,119	$84,552	
Composite (Total)	**200**		75	100	25		**$174,228**	**$183,745**	**5.5%**

	Premium	Cost	Aggregate Antiselection Risk
Total for Years 2-5	$600,456	$635,402	5.8%

(e)   Describe how the antiselection spiral can be prevented.

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.

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).

(f)   Design an employee contribution strategy that reduces the antiselection spiral. Justify your response.

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.

3. **Continued**

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.

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.

(4b)   Evaluate standard contracting methods from a cost-effective & quality perspective.

(4c)   Understand contracts between providers and insurers.

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

Sources:
Provider Payment Arrangements, Provider Risk, and Their Relationship with Cost of Healthcare; GHDP-135-20: Value Based Pharmacy: A Canadian Example

Commentary on Question:
Commentary listed underneath question component.

Solution:
(a)   Describe the elements and risks involved in a typical pay-for-performance arrangement.

   Commentary on Question:
   Candidates had a general understanding of pay for performance (P4P). Candidates generally took one of two approaches to identify the risks: 1) explain how Utilization, Technical, Insurance and Performance risks applied; or 2) list risks from a list in the study materials which focused on risks to patient care rather than risks to providers. Partial credit was given for approach 2 since these responses did not fully identify the elements of P4P.

   - Quality outcomes must be achieved in order to trigger payments
   - Includes some sort of gain share component
   - May also include elements such as bonuses or withholds
   - Technical risk – significant technical risk for developing appropriate contract terms
   - Performance risk – associated with meeting quality targets and reducing spend below specified threshold

4. **Continued**

(b)   Describe key features when evaluating pay-for-performance programs, including the Medicare Hospital Quality Incentive Demonstration (HQID).

Commentary on Question:
Candidates did not perform well on this part. When candidates provided a response, it was often tied to measuring success from a patient care perspective rather than a provider perspective. Some candidates listed domains of quality, which earned partial credit under the Success Measures portion.

- Population Target: Should the program focus on chronic diseases, acute care or preventive services or some combination thereof?
- Payment Specifics: magnitude, frequency, and duration of incentives
- Success Measures of Performance: domains of quality.
- How to incorporate non-quality measures of performance like audits, feedback, surveys, etc.

(c)   Assess how Green Shield Canada's Value Based Pharmacy Initiative addresses the following categories of risks:

(i)   Utilization

Commentary on Question:
Candidates often listed parts of the Initiative that dealt with utilization rather than "assessing" how those features impact utilization risk. Candidates either ignored, missed, or misinterpreted the "Assess" part of the question.

- Payouts depend on a (pharmacy) organization's utilization in relation to a target for "Quality Utilization"
- Profitability will vary between organizations as a result.

(ii)   Technical

Commentary on Question:
Candidates who answered this part got it correct by identifying that features of the Initiative were simple and easy to understand which reduced the Technical Risk of the program. Candidates got the "Assess" part correct here.

- The initiative uses 8 simple measures that are aligned with indicators from provincial health agencies and which would be easily impacted by pharmacists.
- Quality measures can change over time.

4. **Continued**

(iii) Insurance

Commentary on Question:
Very few candidates identified that the Initiative has low insurance risk or doesn't address insurance risk.

- Insurance Risk typically doesn't apply to P4P programs.

(iv) Performance

Commentary on Question:
Candidates generally understood that pharmacies have performance risk under the Initiative which is tied to their performance.

- Incentives are based on pharmacy's ability to reduce utilization and meet quality targets.
- Program tries to identify high-need patients who would benefit from the program.
- Fraud and/or abuse can contribute to this risk

(d) Critique the Star Rating Methodology proposed in Email 7.

Commentary on Question:
Many candidates correctly identified the below deficiencies of the proposal. For parts (d) and (e) additional critiques were awarded points if the candidate demonstrated understanding and stayed within the scope of the question.

- Use of different star ratings for different measures can be administratively complex
- Applying double weight to Measure 2 puts too much focus on that measure.
- There are not enough measures.
- It's not clear how many years of data are used for each measure.
- It's too difficult for pharmacies to be "high performing" for Measure 2 due to the extremely high tail.
- For measure 3 the tails are too broad (i.e. don't differentiate enough)
- The measures are not defined in the email.

(e) Revise Quantum's proposed Star Rating Methodology. Justify your response.

Commentary on Question:
Many candidates correctly used their responses in (d) as a template for answering part (e).

4. **Continued**

I suggest the following:
- Clearly state the medication-use quality measures that Quantum will use
- Use the same weights for all measures
- Use the same star rating ranges for each measure
- Increase the number of measures used in the quality rating

These changes address the weaknesses noted in part d and will lead to more stable, consistent results.

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.

Sources:
Level Funding: An Alternative to the ACA for Small Groups

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).

Solution:
(a)   Describe:

   (i)   The advantages and disadvantages of self-funding.

   (ii)   How level funding products benefit from the advantages of self-funding.

   (iii)   How level funding products mitigate the disadvantages of self-funding.

   Commentary on Question:
   Of the five parts of the question, candidates performed best on this part.

   (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

5. Continued

(b) Describe the insurer's considerations when deciding to offer level funding products.

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.

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.

(c) Calculate the Relative Risk Factor for each company. Show your work.

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	
					Base
High Risk	50	$2,250	125	$3,500	Rate
Combined	1000	$220.00	1000	$750.00	$400.00
Relative Risk Factor	**0.550**		**1.875**		
	=(220/400)		=(750/400)		

5. Continued

(d) Calculate for each company:

    (i) The ACA small group premium rate

    (ii) The level funding premium rate

Show your work.

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).

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**

(e) 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.

5.   Continued

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

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

	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 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.

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

GHDP 123-19 Physician Cost Profiling – Reliability and Risk of Misclassification

Design and Pricing of Tiered Network Health Plans, Health Watch, May 2009

Commentary on Question:
This question tested candidates' ability to construct a tiered network health plan based on cost profiles of physicians, and provide detailed information on the assumptions, process, and data used.

Solution:
(a) Describe advantages and disadvantages of episode-based physician profiling.

> **Commentary on Question**:
> *Most candidates listed advantages and disadvantages; descriptions were required to earn full credit.*

Advantages:
- Data is easy to collect making the calculations administratively feasible
- Provides a standard of quality to compare across physicians

Disadvantages:
- Including hospital costs may cause issues since physicians have little control over these costs
- Providers may start to selectively see easy or low cost patients to increase their scores

(b) Compare the purposes of physician cost profiling and episode-based profiling.

6. **Continued**

Commentary on Question:
This part required candidates to compare concepts from two separate source materials. Candidates struggled to generate those connections.

- Both are aimed at providing objective criteria to compare providers, in order to inform payer and patient decisions on which providers to see and how to contain costs
- Cost profiling centers around provider cost efficiency, while episode based profiling focuses on quality measurement
- Episode-based cost profiling goes beyond traditional methods of determining cost and quality by looking at how care was managed over an entire "episode", often consisting of a hospital stay and follow-up care. Episode-based profiling is more patient-centered and outcome-focused.
- Data quality and accessibility can impact how scores are calculated and create issues or errors

(c) Calculate the physician cost profile for physicians A, B, and C. Show your work.

Commentary on Question:
This calculation was straightforward for most candidates.

		Physician A	Physician B	Physician C
Physician cost averages	J	318	316	372
Total cost average for all claims	K	337	337	337
Cost profile	J / K	**0.9427**	**0.9363**	**1.1046**

(d) Propose a 2-tiered cost sharing structure and assign each physician to a tier. State your assumptions. Justify your response.

Commentary on Question:
Candidates were expected to create robust responses in accordance with the point value assigned to this part. Credit was given for defining the cost sharing amounts, separating higher-performing physicians into preferred tiers, and for explaining choices behind the tiering as well as the cost sharing amounts.

Tier 1 (preferred): Members pay 10% coinsurance
Tier 2 (non-preferred): Members pay 20% coinsurance

Providers A and B are assigned to Tier 1 (preferred), while Provider C and All Other Physicians are assigned to Tier 2 (non-preferred).

6. **Continued**

Providers A and B have cost profiles lower than average, meaning that they tend to be less costly than the industry. We should reward this behavior by encouraging members to see them with lower cost sharing.

Providers C and All Other have cost profiles above the average. We should steer members away from these providers to create savings.

(e) Explain how to develop a shift assumption:

(i) Before implementation of a Tiered Network Health Plan (TNHP).

(ii) After implementation of a TNHP.

Commentary on Question:
Candidates did not seem familiar with the source material, but most were able to give reasonable answers.

(i) Before implementation when it is unknown how members will react to the creation of the tiers, a shift assumption can be developed using reasonable judgment based on the magnitude of the cost sharing differential between tiers. The higher the differential, the higher the shift is likely to be. Additionally, the shift assumption may depend on how well the network change is communicated. If plan members are aware of and understand the new structure, they will be more likely to shift to preferred providers.

(ii) After implementation, it may be possible to look at empirical data to see how many members who had been using non-preferred providers are now incurring claims with preferred providers. This data can be used to adjust the shift assumption if it differs from what was expected.

(f) Recommend a shift assumption. Justify your response.

Commentary on Question:
A specific recommendation and a justification were required for full credit. Any reasonable shift assumption was accepted as long as the justification explained the choice.

I recommend assuming 50% of the population using Physician C and other physicians shift to Physician A and B (i.e. 6 members).

- With 20% coinsurance structure, insured members will have to pay around double the cost for a visit to Physician C and other physicians, and this reduces their likelihood to continue with the less preferred tier.

6. **Continued**

- However, due to geographic reasons, insured members may find it difficult to access Physician A and B and may still stick with the physician in the less preferred tier.
- Physician C charges are a lot greater than physicians A & B and he/she may have higher quality of services. Insured members may still stick with the service in less preferred tier to maintain this quality of service.

(g) Calculate the impact of the TNHP on HIJ's costs using the proposed cost sharing structure, tier assignment, and shift assumptions. Show your work.

Commentary on Question:
Most candidates were able to utilize the formula from the source material to calculate savings. Credit was also given to candidates who chose to solve the problem using first principles.

Claims under the Control of non-preferred Providers (N%)	55.1%	= total cost from non-preferred providers / total cost from all providers = \$4,271 / \$7,754
Shift	50.0%	from part F
Member Liability Differential (M%)	11.1%	= 1 - AV non-pref / AV pref = 1- (1-20%) / (1-10%) ; design from part d. *M represents savings to plan from utilization staying at non-preferred providers due to higher member cost share.*
Cost Differential Between Tier Providers (P%)	11.0%	= 1 – [net paid from preferred provider cost / net paid from non-preferred provider] = 1 – (\$316.64*90%) / (\$355.92*90%); *P represents savings to plan from utilization moving to preferred providers with lower costs*
Savings	6.1%	Savings = N% x [M% + Shift (P% - M%)]

(h)

    (i) Recalculate the cost profiles and TNHP impact. Show your work.

    (ii) Explain how this impacts your proposed tiering and shift assumptions.

Commentary on Question:
This part required repeating calculations from prior sections. Most candidates were able to adjust Physician C claims and recalculate the amounts. Some candidates failed to reproduce both the cost profiles and the Tiered Network savings.

6. **Continued**

(i)

New Cost Profiles		Physician A	Physician B	Physician C
Physician Cost Averages	J	318	316	$372 * 0.9 = 335
Total cost average for all claims (including new Phys C claims)	K	329	329	329
New cost profile	J / K	**0.966**	**0.959**	**1.019**

New Tiered Network Health Plan Savings		
Claims under the Control of non-preferred Providers (N%)	54.0%	= total cost from non-preferred providers / total cost from all providers = $4,085 / $7,568
Shift	50%	from Part F
Member Liability Differential (M%)	11.1%	= 1 - AV non-pref / AV pref = 1- (1-20%) / (1-10%) ; design from part d
Cost Differential between Tier Providers (P%)	7.0%	= 1 – [net paid from preferred provider cost / net paid from non-preferred provider] = 1 – [$316.60*90% / $340.40*90%]
Savings	4.9%	Savings = N% x [M% + Shift (P% - M%)]

(ii)

The tiering can remain the same as Physician C's costs are still higher than average, but the cost sharing differential could be reconsidered since the cost difference is not as drastic.

The shift assumption would need to change, as members using Physician C would realize less of a cost savings from switching to a preferred provider after this reduction.

7.   **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:
GHDP-137-20: Short Term Disability Example

Commentary on Question:
Commentary listed underneath question component.

Solution:
(a)   Explain how short term disability (STD) claims may trend due to utilization.

Commentary on Question:
Few candidates explained that STD claims trend is tied more to the employer's wage inflation or population mix, rather than the frequency of disabling events.

STD claims are on-inflation type products since they are typically calculated as a percentage of salary and increase as salary increases. Generally, STD rates do not necessarily trend due to cost inflation. Employers' disability premiums increase over time because of their own wage inflation, even though disability rates (i.e., frequency of disabling events) may not change.

The frequency of claims (utilization) will change over time with economic conditions and the employer's financial condition.

(b)   Calculate the renewal rate change for MNO. Show your work.

Commentary on Question:
The exam's Premiums and Expenses table erroneously provided incurred claims as $75,000 instead of $7,500. Candidates were given full credit if they correctly calculated the rate increase using either $75,000 or $7,500.

Candidates generally did well identifying MNO's current rating factors but had more difficulty recommending changes to the rating factors based on 2019 experience. Some candidates correctly calculated the product of the renewal rating factors applied to MNO's renewal but did not divide out the product of MNO's current rating factors, which resulted in a renewal increase percentage that was ~12% too high.

The model solution gives 100% credibility to Insurer X's experience. Full credit was also given if candidates assumed different credibility levels.

7. **Continued**

Assuming incurred claims were meant to be $7,500 rather than $75,000, the incurred loss ratio is 75%, which is higher than the target loss ratio of 70%. To achieve the target loss ratio, a base rate increase of 7.14% = 75% / 70% – 1 is needed. However, the problem states that the base rates will not be changed.

I assume that Insurer X will not revise its base rate. Therefore, I am normalizing the loss ratios for each rating factor to reach the incurred loss ratio of 75%. I am assuming Insurer X's experience has 100% credibility.

Age/Gender	Current Factor	Incurred Loss Ratio	Revised Factor
Males under 25	0.50	75%	**0.50** = 0.50 × (75% / 75%)
Males 25-40	0.75	75%	**0.75** = 0.75 × (75% / 75%)
Females 40+	1.25	75%	**1.25** = 1.25 × (75% / 75%)

No change to age/gender factors. Average age/gender for 7-employee census provided is 0.7857.

Industry	Current Factor	Incurred Loss Ratio	Revised Factor
Construction and manufacturing	1.5	110%	**2.2** = 1.5 × (110% / 75%)

Group Size	Current Factor	Incurred Loss Ratio	Revised Factor
5-9	1.10	90%	**1.32** = 1.1 × (90% / 75%)

Area	Current Factor	Incurred Loss Ratio	Revised Factor
Northeast	1.15	75%	**1.15** = 1.15 × (75% / 75%)

MNO has a 60% employer subsidy and employee participation of 77.7% = 7/9

Employer Subsidy	Employee Participation	Current Factor	Incurred Loss Ratio	Revised Factor
50-100%	50-100%	0.75	75.83%	**0.7583** = 0.75 × (75.83% / 75%)

MNO's renewal increase
    = Product of revised factors / Product of current factors – 1
    = (0.7857 × 2.2 × 1.32 × 1.15 × 0.7583)
        / (0.7857 × 1.5 × 1.10 × 1.15 × 0.75) – 1
    = **78%**

7. **Continued**

(c)   Propose changes, if any, to the pricing factors to be applied to MNO's next policy
renewal. Justify your response.

Commentary on Question:
*Some candidates did not recognize that the 2021 claims experience provided was
for employer MNO, rather than all of Insurer X's STD block. Recommendations
to change Insurer X's rating factors based solely on one year of MNO's 7-life
experience did not receive full credit.*

I recommend making no changes to the base rates and factors. This sample size is
too small to achieve true credibility and would lead to a dramatic over-reaction to
one year of claims. Rather, the credibility formula should be adjusted to only
consider manual rates for a group this small, rather than assigning partial
credibility to MNO's experience.