

Exam GHDPA

Date: Tuesday, April 28, 2020
Time: 8:30 a.m. – 11:45 a.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This examination has a total of 60 points.

This exam consists of 8 questions, numbered 1 through 8.

The points for each question are indicated at the beginning of the question. Questions 3 and 4 pertain to the Case Study.
2. Failure to stop writing after time is called will result in the disqualification of your answers or further disciplinary action.
3. While every attempt is made to avoid defective questions, sometimes they do occur. If you believe a question is defective, the supervisor or proctor cannot give you any guidance beyond the instructions on the exam booklet.

Written-Answer Instructions

1. Write your candidate number at the top of each sheet. Your name must not appear.
2. Write on only one side of a sheet. Start each question on a fresh sheet. On each sheet, write the number of the question that you are answering. Do not answer more than one question on a single sheet.
3. The answer should be confined to the question as set.
4. When you are asked to calculate, show all your work including any applicable formulas.
5. When you finish, insert all your written-answer sheets into the Essay Answer Envelope. Be sure to hand in all your answer sheets because they cannot be accepted later. Seal the envelope and write your candidate number in the space provided on the outside of the envelope. Check the appropriate box to indicate Exam GHDPA.
6. Be sure your written-answer envelope is signed because if it is not, your examination will not be graded.

Recognized by the Canadian Institute of Actuaries.

Tournez le cahier d'examen pour la version française.

CASE STUDY INSTRUCTIONS

The case study will be used as a basis for some examination questions. Be sure to answer the question asked by referring to the case study. For example, when asked for advantages of a particular plan design to a company referenced in the case study, your response should be limited to that company. Other advantages should not be listed, as they are extraneous to the question and will result in no additional credit. Further, if they conflict with the applicable advantages, no credit will be given.

****BEGINNING OF EXAMINATION****

1. (7 points)

(a) (3 points) 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

You are given the following for DEF Company and its current plan:

Member Health Status	Number of Members	Annual Claim Cost per Member	Annual Premium per Member	Annual Deductible
Level 1	7,750	\$1,000	\$3,500	\$4,000
Level 2	2,000	\$10,000	\$3,500	\$4,000
Level 3	250	\$55,000	\$3,500	\$4,000

DEF is adding a second plan which has an \$8,000 deductible.

- Level 1 members are expected to move to the \$8,000 deductible plan
- The rest of the members are expected to stay with the \$4,000 deductible plan
- The expected savings of an average member moving to an \$8,000 deductible is 10% of premium
- Level 3 members are expected to return to Level 1 next year
- 250 of the Level 1 members will have a Level 3 health event next year
- Level 2 members will not experience a change in health status
- Members are faced with a 20% rate increase next year
- Claims cost trend is 0%

(b) (3 points) Calculate:

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

Show your work.

1. Continued

Your manager is challenging your results. She does not believe members can predict their costs in future periods.

- (c) (1 point) Describe the causes of premium leakage and buy-down effect.

2. (6 points)

- (a) (1 point) List provider payment arrangements in order from least risk to most risk to the provider group.
- (b) (2 points) 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

Two provider groups, ABC and 123, have entered into Accountable Care Organization (ACO) contracts with a Managed Care Organization (MCO) for a period of one year. You are the consulting actuary for ABC.

You are given:

- The total cost of care across the two provider groups for the first year is \$250 per member per month (PMPM)
- ABC's benchmark for the first year based on trended historical experience is \$267 PMPM
- ABC's historical risk score is 1.02
- ABC's first-year risk score will be calculated at the end of the year
- Details around the shared savings model design, including the member attribution methodology and the opportunity to phase in risk sharing on certain benefits such as pharmacy

ABC is new to taking risk, whereas 123 is experienced and sophisticated. ABC has asked you to review the arrangement.

- (c) (3 points)
- (i) Propose questions for ABC to consider in advance of entering the ACO.
 - (ii) Recommend actions for ABC to take to mitigate potential risks.

Question 3 pertains to the Case Study.

3. (9 points) You are the consulting actuary at Skyfall assigned to Royale Health.

- (a) (2 points) Describe considerations for the application of credibility in the context of the group medical insurance environment.

You are reviewing the Abeesee experience included in Royale Health Email 2. Abeesee is fully insured with Royale Health.

- (b) (1 point) Calculate the experience trend for Abeesee for each calendar year. Show your work.
- (c) (3 points) 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.

You are given the following for Abeesee:

- $k_1 = 0.25$
- $k_2 = k_3 = 0.01$
- Turnover rate = 80%

- (d) (1 point) Calculate the credibility level in each reporting period. Show your work.
- (e) (1 point) Critique the credibility assumption Royale Health uses in its pricing. Justify your response.
- (f) (1 point) Recommend whether or not this account should move to a self-insured arrangement. Justify your response.

Question 4 pertains to the Case Study.

4. (10 points)

- (a) (1 point) Describe the objectives associated with implementing a Value Based Pharmacy Initiative.
- (b) (1 point) List four examples of a medication-use quality measure.
- (c) (1 point) Describe reasons medication-use quality measures were used in the Value Based Pharmacy Initiative launched by Green Shield Canada.

You are given Quantum Email 7 and the following for the five pharmacies in Quantum Health Insurance Company's network.

Pharmacy	Prescription Drug Utilization	Average Dispensing Fee	Measure #1	Measure #2	Measure #3
1	200	\$4.00	45%	72%	55%
2	500	\$5.00	70%	97%	50%
3	100	\$3.00	10%	35%	66%
4	300	\$3.50	67%	99%	85%
5	400	\$6.50	72%	83%	71%

- (d) (3 points) Calculate each pharmacy's star rating. Show your work.
- (e) (4 points)
 - (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.

5. (5 points)

- (a) (1 point) Describe challenges that an insurance carrier may encounter when offering a level funding product to a small group.

You are given the following for a small group health plan with five members:

- Projected manual paid claims per member per month (PMPM) are \$1,000
- Credibility for the group's projected experience is 40%
- Specific stop-loss deductible is \$25,000
- Aggregate stop-loss corridor is 120%
- Actual paid claims costs are 90% of expected claims

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

- (b) (3 points) Calculate the actual paid claims fund surplus PMPM for this group. Show your work.
- (c) (1 point) 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.

6. (8 points)

- (a) (2 points) Describe the considerations in contracting for bundled payments.
- (b) (1 point) Describe bundled payment risks from the perspective of a provider group.

XYZ Health Insurance Company proposes the following multi-year reimbursement contract for cardiologists for the implantation of a pacemaker:

- Term of Contract: Three years
- Payment: \$55,000 per episode
 - No adjustment for trend
 - Adjustment for physician profile score
 - Top 1/3: \$5,000 more per episode
 - Middle 1/3: No adjustment
 - Bottom 1/3: \$5,000 less per episode
- Physician profile score based on:
 - Efficiency score using allowed amounts, and
 - Quality score using data from patient surveys
- Other contract attributes:
 - Bundled period is defined as pre-operative (i.e., 3 months prior to surgery), operative, and post-operative (i.e., 3 months after surgery)
 - Bundled payment for all patient services during the bundled period. Examples of services include the pacemaker (i.e., implant), physician services, facility services, and pharmacy
 - Payments made to cardiologists. Cardiologists allocate dollars to service providers and facilities.
 - Data:
 - Financial data from XYZ's claims and accounting system
 - Quality data from patient surveys
 - Payments made prospectively
 - No adjustment for outliers

6. Continued

You are given:

- Cardiologists in the network are independent practitioners with their own practice infrastructure, electronic health records, and office staff.
- Cardiologists approve of the methodology used for assigning service categories to the claims.

(c) (5 points) Critique the proposal from the perspective of:

- (i) XYZ
- (ii) The cardiologists

7. (5 points)

- (a) (1 point) Describe typical elements of a diagnostic-related group (DRG) reimbursement contract.
- (b) (1 point) Describe risks associated with DRG contracts.

You are given the following for two hospital systems:

	Hospital A	Hospital B
Annual Admissions	1,000	1,000
Cost Per Admission	\$10,000	\$11,000
Member Coinsurance	20%	20%

A tiered network health plan is proposed with the following attributes:

- Hospital A is the preferred provider
 - 30% of Hospital B admits will move to Hospital A
 - Member Coinsurance for Hospital A remains 20%, but is increased for Hospital B
- (c) (3 points) Calculate the minimum member coinsurance for Hospital B such that the health plan achieves 10% savings net of member coinsurance. Show your work.

8. (10 points) You are consulting with an employer who is considering moving to a multi-choice environment.

- (a) (2 points) Describe reasons why an employer may offer choice.
- (b) (2 points) Describe how insurers can manage selection and the impact of antiselection cost.

You are given for Year 1:

Plan	Number of Employees	Insurer Cost as % of Premium	Monthly Premium	Monthly Employer Contribution
A	10	50%	\$500	\$500
B	50	100%	\$600	\$500
C	15	133%	\$700	\$500

- (c) (2 points) Calculate the antiselection risk. Show your work.

For Year 2, you are given:

- The insurer increases premium rates 20%
 - The employer maintains its per-employee contribution at \$500 per month
 - 10 members move from Plan B to Plan A
 - 10 members move from Plan C to Plan B
- (d) (3 points) Calculate the insurer's cost as a percent of premium in Year 2 for each plan. Show your work.
 - (e) (1 point) Recommend alternative plan benefit design elements to mitigate the antiselection risk.

****END OF EXAMINATION****

USE THIS PAGE FOR YOUR SCRATCH WORK