
SOCIETY OF ACTUARIES
Group and Health – Advanced

Exam GHADV

AFTERNOON SESSION

Date: Thursday, April 26, 2018

Time: 1:30 p.m. – 3:45 p.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This afternoon session consists of 5 questions numbered 10 through 14 for a total of 40 points. The points for each question are indicated at the beginning of the question. Questions 10 - 14 pertain to the Case Study, which is enclosed inside the front cover of this exam booklet.
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 morning or afternoon session for Exam GHADV.
6. Be sure your written-answer envelope is signed because if it is not, your examination will not be graded.

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****

**Afternoon Session
Beginning with Question 10**

*Questions 10-14 pertain to the Case Study.
Each question should be answered independently.*

10. (8 points)

- (a) (1 point) List the steps of the Employee Health Management (EHM) value proposition.
- (b) (1 point) Describe different matching methods for applying propensity score matching.

You are given the following for Royale Health's disease management (DM) program.

- Program Cost: \$50 per member per month (PMPM)
- Post-tax hurdle rate: 13%
- Corporate tax rate: 35%
- Utilization trend: 6%
- Exhibit 8 from the case study

- (c) (2 points) Calculate the gross savings from averted readmissions in Year 1 for the following chronic illnesses:

- (i) HIV
- (ii) Cancer

Show your work.

- (d) (1 point) Calculate the gross return on investment in Year 1 for the following chronic illnesses:

- (i) HIV
- (ii) Cancer

Show your work.

10. Continued

- (e) (1 point) Evaluate whether or not the DM program for the HIV and Cancer illnesses meets the required pre-tax hurdle rate. Show your work.
- (f) (2 points) Describe how propensity score matching could be used to improve the measurement of a DM program.

*Questions 10-14 pertain to the Case Study.
Each question should be answered independently.*

11. (8 points)

- (a) (1 point) Describe reasons health insurers use bundled payment arrangements.
- (b) (2 points) Describe the following considerations for developing a bundled payment arrangement:
 - (i) Defining the episode
 - (ii) Evaluating catastrophic risk
 - (iii) Quality outcome requirements
 - (iv) Potential for increased utilization
- (c) (2 points) Recommend contract terms for each of the following considerations that a health insurer should include in a bundled payment arrangement. Justify your response.
 - (i) Defining the episode
 - (ii) Evaluating catastrophic risk
 - (iii) Quality outcome requirements
 - (iv) Potential for increased utilization

Quantum is evaluating its contract with a large provider group for 2019. The provider is currently paid on a fee-for-service basis. You are given the following:

- Exhibits 6 through 6C
- Annual facility trends for 2019 are:

Facility	Utilization	Unit Cost
Hospital A	1.0%	1.0%
Hospital B	3.0%	5.0%

11. Continued

- (d) (2 points) Calculate the expected total cost under the 2019 fee-for-service arrangement for all knee replacements performed at:
- (i) Hospital A
 - (ii) Hospital B

Show your work.

Quantum is evaluating a single bundled payment for knee replacements performed at Hospitals A and B. Facility, medical supplies and equipment, and professional services will be included in the bundled payment.

- (e) (1 point) Recommend whether or not Quantum should adopt the bundled payment arrangement for each hospital. Justify your recommendation. Show your work.

*Questions 10-14 pertain to the Case Study.
Each question should be answered independently.*

- 12.** (8 points) You are the President at Skyfall Actuarial Consulting and the opining actuary for Quantum Health Insurance Company. One of your responsibilities is to develop the incurred but not reported (IBNR) claim liabilities for Quantum.

You are preparing your actuarial opinion to support the annual statements of Quantum.

You are given the following information:

- The loss development pattern of December 2016 in Exhibit 1 is representative of all expected future payments.
 - All claims are completely paid after 12 months.
- (a) (4 points) Calculate the IBNR of Quantum Legacy III - Individual block of business as of December 31, 2017. Show your work.
- (b) (3 points)
- (i) Identify the Actuarial Standards of Practice (ASOPs) applicable to preparing an actuarial opinion to support an annual statement. Justify your answer.
 - (ii) Describe Provision for Adverse Deviation (PfAD).
 - (iii) Describe considerations for including a PfAD according to the ASOPs.

You are given the following information about historical recorded IBNR, excluding any PfAD, and the run-out levels as of December 31, 2017.

Date	IBNR ('000s)	Run-out ('000s)
12/31/2012	\$12,256	\$12,011
12/31/2013	\$13,549	\$13,345
12/31/2014	\$12,512	\$13,012
12/31/2015	\$12,162	\$12,770
12/31/2016	\$11,525	\$12,159

- (c) (1 point) Recommend the level of PfAD to include in Quantum's statutory claims reserves. Justify your answer.

*Questions 10-14 pertain to the Case Study.
Each question should be answered independently.*

13. (7 points)

- (a) (1 point) Describe:
 - (i) Rental networks
 - (ii) Types of fees associated with rental networks
 - (iii) Methods used to communicate to providers which network applies at point of service

- (b) (2 points) Describe:
 - (i) Considerations for the creation of provider profiling reports
 - (ii) Benchmarks for provider profiling reports

You are given:

- Royale Health Email 3
- Discounts are greater than 50%
- Daily charges do not change over the course of an inpatient stay
- The stop loss attachment point is reached after a whole number of days
- The stop loss claims for Medical/Surgical/Pediatrics acute inpatient services for 2018:

Admission	Hospital	Hospital Days After Exceeding the Stop Loss Threshold	Total Allowed Claims
A	Lynd	21	\$276,875
B	Montenegro	11	\$178,125

- (c) (4 points) Calculate:
 - (i) The billed charge per day for admission A
 - (ii) The billed charge per day for admission B

Show your work.

*Questions 10-14 pertain to the Case Study.
Each question should be answered independently.*

14. (9 points) You are a benefits consultant working with Moonraker.

(a) (1 point) Describe items to consider when a rate guarantee exists.

You are given:

- Expense load: 10%
- Profit charge: 4%
- Explicit margin: 2%
- Incurred but not reported claims (IBNR) for January 2016 – December 2016: \$0
- All other retention items: 0%.
- Per annum claims trend: 0%
- Exhibit 18

(b) (1 point) Calculate the gross prospective premium for calendar year 2017. Show your work.

Moonraker negotiated a retrospective experience refund. You are asked to evaluate the refund.

You are given:

- Prior Year Formula Balance = \$0
 - Premium Stabilization Reserve Change = \$0
 - All claims are fully-paid after three months.
- (c) (2 points) Describe the elements of the experience refund formula.
- (d) (2 points) Calculate the IBNR for January 2017 – March 2017 using the loss ratio method based upon 2016 Q1 experience. Show your work.
- (e) (2 points) Calculate the experience refund for Moonraker for January 2017 – March 2017. Show your work.
- (f) (1 point) Assess whether Moonraker should continue the experience refund arrangement in 2018.

****END OF EXAMINATION****
Afternoon Session

USE THIS PAGE FOR YOUR SCRATCH WORK

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