
SOCIETY OF ACTUARIES
Group and Health – Advanced

Exam GHADV

MORNING SESSION

Date: Thursday, April 26, 2018

Time: 8:30 a.m. – 11:45 a.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This examination has a total of 100 points. It consists of a morning session (worth 60 points) and an afternoon session (worth 40 points).
 - a) The morning session consists of 9 questions numbered 1 through 9.
 - b) The afternoon session consists of 5 questions numbered 10 through 14.

The points for each question are indicated at the beginning of the question. Questions 10-14 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 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.

****BEGINNING OF EXAMINATION****
Morning Session

1. (4 points)

- (a) (2 points) Describe the impact of the following legislation on behavioral health care:
 - (i) The Mental Health Parity and Addiction Equity Act
 - (ii) The Affordable Care Act

- (b) (2 points) Describe the following service delivery systems and list the key success factors in managing physical and behavioral health care:
 - (i) Accountable Care Organizations
 - (ii) Patient Centered Medical Homes

- 2.** (5 points) You are a consulting actuary and your client is considering implementing a care management program.
- (a) (1 point) Describe potential care management programs your client could implement.
 - (b) (2 points) Describe the components of applying the value chain method to planning a disease management program.
 - (c) (1 point) Describe considerations for insourcing or outsourcing the components of the value chain method.
 - (d) (1 point) Describe opportunity analysis and its role within the value chain method.

3. (9 points) You are the valuation actuary at IGA Insurance Company.

(a) (2 points)

- (i) Describe the testing level of a Premium Deficiency Reserve (PDR).
- (ii) List factors that affect how grouping is accomplished at the testing level of a PDR.

(b) (2 points) Describe considerations for contract groupings at the reporting level of a PDR.

You are given the following information regarding your five testing groups:

Testing Group	Income Statement Original Actual Results as of Dec. 31, 2017 (\$000)			
	Earned Premium	Incurred Claims	Expenses / Commissions	Underwriting Gain / Loss
Group Disability	\$663	\$598	\$78	-\$13
Group Long-Term Care	\$745	\$635	\$90	\$20
Individual Major Medical	\$362	\$335	\$50	-\$23
Group Dental	\$258	\$210	\$30	\$18
Group Major Medical	\$47	\$52	\$3	-\$8
Totals	\$2,075	\$1,830	\$251	-\$6

Testing Group	Projected Underwriting Cash Flows by Year (\$000)				
	2018	2019	2020	2021	2022
Group Disability	-\$14	\$2	\$3	\$5	\$7
Group Long-Term Care	\$19	\$20	\$22	\$24	\$26
Individual Major Medical	-\$22	\$0	\$4	\$5	\$6
Group Dental	\$13	\$11	\$9	\$7	\$5
Group Major Medical	-\$9	-\$7	-\$5	-\$4	\$0

3. Continued

(c) (3 points)

- (i) Calculate the PDR at the testing level. Show your work.
- (ii) Recommend a grouping for the reporting level of PDR. Justify your answer.
- (iii) Calculate the PDR at the reporting level. Show your work.

(d) (2 points)

- (i) Recommend a method to allocate the resulting PDR for reporting purposes. Justify your answer.
- (ii) Calculate the resulting allocated PDR at the reporting level. Show your work.

4. (7 points)

- (a) (2 points) Describe measurement principles an actuary should address when constructing a study of a care management intervention.
- (b) (2 points)
 - (i) Define a randomized control trial.
 - (ii) Describe the pros, cons, and challenges of a randomized control trial.

You are provided the following information for a care management intervention:

	Claims Per Member Per Month	
	Reference Population	Intervention Population
Baseline Period Cost	\$90	\$100
Intervention Period Cost	\$100	\$105

- (c) (3 points)
 - (i) Calculate the savings of the intervention. Show your work.
 - (ii) Describe limitations of this savings calculation approach.

5. (6 points) You work for an Accountable Care Organization (ACO) that participates in the Medicare Shared Savings Program (MSSP). You are given:

- The ACO's quality score is 1.0.
- 2018 is Year 2 of the ACO's first contract period in the MSSP.
- The ACO is participating in a two-sided model with a 60% share on savings.
- The ACO's 2018 baseline spending is projected to be \$2,000,000.

An unanticipated surgery costing \$50,000 needs to be scheduled at the ACO between 12/15/2018 and 01/15/2019.

(a) (3 points) Calculate the cumulative marginal revenue over the two MSSP contract periods (2017 through 2022) under the following scenarios:

- (i) The surgery occurs in 2018
- (ii) The surgery occurs in 2019

Show your work.

(b) (2 points) Propose weights to use in determining the benchmark such that the cumulative marginal revenue does not exceed net payments for the surgery. Justify your response. Show your work.

(c) (1 point) Recommend other changes to the MSSP structure to best align incentives to ensure that the ACO and the Centers for Medicare and Medicaid Services (CMS) both realize savings. Justify your response.

6. (10 points) Company ABC has 30 healthy employees with low expected claims costs covered by a transitional coverage policy. Due to state regulations, ABC will be required to renew into an Affordable Care Act (ACA) compliant plan. ABC is considering self-funded alternatives from Insurer JKL, including level funded products.

- (a) (2 points) Describe advantages and disadvantages to Company ABC of entering a self-funded agreement.
- (b) (2 points) Explain how a level funded option can provide a less costly alternative to an ACA compliant plan.
- (c) (2 points) Describe two reasons Insurer JKL may not want to offer a level funded product to Company ABC.

Insurer JKL offers a level funded product to Company ABC with the following attributes:

- \$20,000 specific stop loss (SSL) deductible
- 120% aggregate stop loss (ASL) deductible
- \$370 total projected claims cost per member per month (PMPM)
- \$325 projected claims cost PMPM below SSL deductible
- \$45 projected claim cost PMPM above SSL deductible

You are given the following scenarios for Company ABC:

Scenario	Total Claims	Claims Above SSL Deductible
1	\$133,200	\$16,200
2	\$75,000	\$0
3	\$105,000	\$0

- (d) (3 points) Calculate the surplus or liability for Company ABC under each scenario. Show your work.
- (e) (1 point) Recommend whether or not Company ABC should pursue the level funded product. Justify your answer.

7. (7 points) You are the consulting valuation actuary for XYZ Health.

(a) (2 points) Describe methods of estimation for health claims reserves.

XYZ Health's CEO has directed you to use the following assumptions:

- Claims are complete after 4 months.
- Use a 2-month average smoothing method.

XYZ Health's claims area has provided the following incurred and paid claim data:

		Cumulative Paid Amount						
		Jun-17	Jul-17	Aug-17	Sep-17	Oct-17	Nov-17	Dec-17
Incurred Date	Jun-17	\$4,500	\$35,000	\$42,000	\$49,000	\$52,000	\$55,000	\$56,000
	Jul-17		\$3,700	\$33,000	\$43,000	\$51,000	\$52,000	\$54,000
	Aug-17			\$4,500	\$30,000	\$49,000	\$50,000	\$53,000
	Sep-17				\$7,100	\$40,000	\$47,000	\$50,000
	Oct-17					\$5,200	\$37,000	\$48,000
	Nov-17						\$3,900	\$36,000
	Dec-17							\$6,700

(b) (4 points)

(i) (3 points) Calculate the December 2017 claim reserve estimate using XYZ Health's assumptions. Show your work.

(ii) (1 points) Critique the CEO's assumptions.

(c) (1 point) Describe practices to ensure claim reserve estimates are sufficient to cover anticipated liabilities.

8. (7 points) You are an actuary working for GHI Health Insurance Company. The ACA has just been repealed and your company has asked you to evaluate the impact of anti-selection on your individual block of business.

(a) (1 point) Describe the three faces of anti-selection.

(b) (2 points) Describe

(i) Premium Leakage

(ii) Buy Down Effect

You are given the following:

- Premium is \$150 annually per policy.
- There are no administrative expenses or profit.
- 70% of policyholders are healthy and have expected annual claim cost of \$150.
- 30% of policyholders are unhealthy and have expected annual claim cost of \$250.
- The expected claims and premium savings of an average policyholder moving to a high deductible plan (HDP) is estimated at 7% of premium.
- It is expected that all healthy policyholders will move to the HDP and all unhealthy policyholders will stay on the current plan.
- All policyholders will be given a rate increase of 20% for the next year.

(c) (2 points) Calculate:

(i) Premium Leakage

(ii) Buy Down Effect

Show your work.

8. Continued

Unhealthy members are looking to improve their benefits in the following year.

- (d) *(1 point)* Describe underwriting actions that can be taken when deciding to offer unhealthy members new coverage.
- (e) *(1 point)* Recommend which underwriting actions GHI should take to mitigate the risk of anti-selection. Justify your answer.

9. (5 points)

- (a) (1 point) Describe the steps involved in implementing and evaluating an Employee Health Management (EHM) Program.

You are a consulting actuary for XYZ Airlines. An industry trend survey shows that there was 8% unmanaged medical trend from 2015 to 2016. ABC Airlines implemented an EHM program in 2016, while XYZ Airlines did not implement one. You are given the following per member per month (PMPM) claims cost:

Year	XYZ Airlines PMPM	ABC Airlines PMPM
2015	\$290	\$300
2016	\$319	\$315

- (b) (2 points)
- (i) Calculate the PMPM savings that XYZ Airlines would expect if it had implemented the same program as ABC Airlines at the beginning of 2016.
- Show your work.
- (ii) Explain why XYZ Airlines may not realize the same degree of savings as ABC Airlines.
- (c) (2 points) Describe information needed to select appropriate financial metrics for an EHM Program.

****END OF EXAMINATION****
Morning Session

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