
SOCIETY OF ACTUARIES
Group and Health Core Exam – Canada

Exam GHCORC

AFTERNOON SESSION

Date: Wednesday, April 25, 2018

Time: 1:30 p.m. – 3:45 p.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This afternoon session consists of 6 questions numbered 9 through 14 for a total of 40 points. The points for each question are indicated at the beginning of the question. Question 11 pertains 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 GHCORC.
6. Be sure your written-answer envelope is signed because if it is not, your examination will not be graded.

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 9

9. (8 points) You are the Small Group Pricing actuary at Spurs Health Insurance (SHI). Two small U.S. employers, Employer A and Employer B, located in AnyState, are considering purchasing health coverage through SHI. Employer A, who is risk averse, currently has a grandfathered plan and Employer B, who is willing to take on risk, currently has a grandmothered plan.

You are provided the following information:

Historical claims experience:

Year	Employer A		Employer B	
	Members	Paid Claims	Members	Paid Claims
2015	25	\$100,000	35	\$100,000
2016	30	\$130,000	30	\$150,000

Year	SHI AnyState Small Group Block		SHI Nationwide Small Group Block	
	Members	Paid Claims	Members	Paid Claims
2015	60,000	\$183,000,000	1,200,000	\$4,026,000,000
2016	62,000	\$211,000,000	1,300,000	\$5,000,000,000

Composite rating variables:

Rating Variable	Employer A	Employer B	SHI AnyState Small Group Block	SHI Nationwide Small Group Block
Age	1.05	1.02	0.98	1.01
Gender	0.98	1.02	1.00	1.00
Geographic Area	1.10	1.11	0.99	1.02
Benefit Plan Design	0.94	0.97	0.98	0.99
Health Status	1.20	1.10	1.02	1.01

9. Continued

- (a) (2 points)
- (i) (1 point) Compare and contrast features of grandfathered and grandmothered plans.
 - (ii) (1 point) Recommend and describe appropriate coverage financing options for Employer A and Employer B. Justify your response.
- (b) (6 points) Your boss has asked you to calculate a Small Group premium rate for Employer A and for Employer B as they both move to ACA compliant plans.
- (i) (1 point) Recommend which historical claims data to use in calculating the manual base rate. Justify your response.
 - (ii) (2 points) Calculate the manual base rate for 2018 using a trend rate developed from your recommended historical claims data from (b)(i), assuming that the rating variables remain the same in the experience and projection periods. Show your work.
 - (iii) (1 point) Develop separate 2018 premium rates for Employer A and Employer B, assuming 15% retention. Show your work.
 - (iv) (2 points) Determine whether Employer A or Employer B is more profitable to SHI in 2018. Show your work and justify your response.

- 10.** (8 points) You lead the provider contracting team at Louise Inc., a U.S.-based insurance company. One of your vendors, Hospital Moraine, currently offers a straight 25% discount on billed services, covering 12,000 members. Your boss wants to explore other options for the contract.

You have been given:

2016 claims experience:

Number of inpatient claims	Total days for all inpatient claims	Diagnosis	Billed amount
4	20	Heart attack	\$250,000
10	15	Stroke	\$750,000
15	50	Childbirth (mother)	\$500,000
15	57	Birth (infant)	\$100,000

Diagnosis Related Group (DRG) schedule:

DRG	Fee Schedule
Heart attack	\$50,000
Stroke	\$65,000
Childbirth (mother)	\$15,000
Birth (infant)	\$15,000

- (a) (1 point) Describe the pros and cons of a straight discount off billed charges arrangement.
- (b) (2 points) Describe the pros and cons of four forms of provider contracting (also referred to as provider cost sharing) other than the current arrangement.
- (c) (3 points)
- (i) (1 point) Calculate the change in cost if Louise Inc. switches to the DRG schedule. Show your work.
- (ii) (1 point) Calculate a per diem rate that would break even with the current provider contracting arrangement. Show your work.
- (iii) (1 point) Calculate a capitation rate that would save 10% over the current costs. Show your work.
- (d) (2 points) Recommend a new provider contracting strategy that will incentivize Hospital Moraine to reduce length of stay. Justify your response.

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Question 11 pertains to the case study.

- 11.** (7 points) Ms. Moore, the CEO of U.S.-based startup firm Guthrie Corp, hires you as an employee benefits advisor. The timeline below illustrates the rapid growth of Guthrie Corp:

Year:	2014	2015	2016	2018
Number of Employees:	5	24	75	100
Employee Characteristics:	2 females, ages 36 to 40, 3 males, ages 31 to 35	15 females, ages 36 to 40, 10 males, ages 31 to 35	40 females, ages 36 to 40, 35 males, ages 31 to 35	55 females, ages 36 to 40, 45 males, ages 31 to 35
Average Employee Salary:	\$30,000	\$60,000	\$80,000	Females \$100,000, Males \$80,000
Benefits Offered:	Medical	Medical	Medical, Life, LTD	Medical, Life, LTD

- (a) (1 point) It is 2014. Since Ms. Moore is only able to offer low starting salaries, she wants to pay 100% of medical premiums for Guthrie Corp employees and their families.

Critique Ms. Moore's proposal.

- (b) (1 point) It is now 2015. Ms. Moore pays 80% of medical premiums for Guthrie Corp employees and their families. She wants to know if Guthrie Corp will qualify for the ACA tax credit when the company files its 2015 taxes.

Describe the requirements for ACA tax credit qualification and determine whether Guthrie Corp meets each requirement for tax year 2015.

11. Continued

(c) (2 points) It is now 2016. Ms. Moore wants to add the following benefits for Guthrie Corp employees:

- Life Insurance:
 - 100% employer paid
 - \$50,000 benefit
- Long Term Disability:
 - 100% employee paid
 - 90% income replacement

Critique Ms. Moore's proposal from the point of view of an employee earning \$100,000 annually. Show your work.

(d) (3 points) It is now 2018. You have been given the following information:

- Guthrie Corp incurred one life insurance claim in 2016 and no claims in 2017
- Guthrie Corp used the Thunderball manual rates to calculate expected claim costs for 2015
- Manual rates include 15% retention
- Mortality rates and retention increase 2% per year

Calculate the actual-to-expected life claims cost ratio for Guthrie Corp for 2016 and 2017 combined. Show your work.

12. (9 points) You are an actuary for Mountain View Insurance. One of your clients, South End Chemical, offers the following pharmacy benefits to its employees:

Type of Drug	Member Cost Sharing
Generic	\$10 co-payment per script
Brand	\$50 co-payment per script
Specialty	20%

In 2016 and 2017, South End Chemical employees are charged the full copayment, regardless of actual drug cost. For 2018, South End Chemical wants to modify the pharmacy benefits so that employees pay the lesser of the copayment or the actual drug cost.

You are asked to set the 2018 premium for South End Chemical pharmacy benefits. The following data is provided based on 2016 experience and contract terms:

Type of Drug	Annual Scripts / 1,000 members	AWP	Discount
Generic	4,000	\$50	70%
Brand	800	\$200	20%
Specialty	100	\$3,000	5%

The 2016 claims distribution for Generic and Brand drugs only is also provided:

Generic		Brand	
% of Scripts	AWP per Script	% of Scripts	AWP per Script
45%	\$7	5%	\$6
25%	\$30	15%	\$35
15%	\$70	25%	\$75
10%	\$150	30%	\$169
5%	\$277	25%	\$500
100%	\$50	100%	\$200

12. Continued

Assume that:

- Dispensing fee is \$2.00 per script
- Ingredient unit cost trend is 8% per year
- Utilization trend is 2% per year
- Pharmacy rebate is 20% off WAC on Brand drugs
- Retention is 15%
- The script distributions remain unchanged
- South End Chemical has a two tier premium structure where the family rate is 2.5 times the single rate
- 25% of employees have single coverage and 75% have family coverage

(a) (2 points)

- (i) Describe four pharmacy benchmarks.
- (ii) Define four key relationships between pharmacy benchmarks.

(b) (3 points) Calculate the effective member coinsurance for all drugs in 2016 and 2018. Show your work.

(c) (3 points) Calculate the 2018 premium rates for the South End Chemical prescription drug benefit plan. Show your work.

(d) (1 point) South End Chemical saw an increase in its 2016 medical claims due to low prescription adherence of diabetic members.

Recommend two different pharmacy plan strategies that could alleviate this problem. Justify your response.

13. (5 points) Hall Corp, a U.S.-based employer, has acquired Oates Co.

Hall Corp offers a consumer-driven health plan (CDHP) to its employees, while Oates Co offers a PPO medical plan to its employees.

The Hall Corp Chief HR Officer has decided to eliminate the PPO plan for Oates Co employees for the 2019 plan year, with the goals of controlling unnecessary utilization of services and encouraging health care consumerism.

Premiums and employee payroll contributions per employee per month (PEPM) for the 2018 plan year, developed separately for each plan prior to the acquisition, are as follows:

	Single Tier			Family Tier		
	Total Premium	Employee Payroll Contribution	Employees Enrolled	Total Premium	Employee Payroll Contribution	Employees Enrolled
Hall Corp	\$850	\$170	1,500	\$1,870	\$374	6,000
Oates Co	\$1,425	\$430	1,300	\$2,993	\$903	4,750

You are given the following information:

- Premiums will increase by 6% in 2019 for both tiers at each company, before plan design changes
- Total claims and administrative expenses for Oates Co employees will decrease 15% when the PPO is eliminated
- The family tier payroll contribution must be 220% of the single tier
- There are no changes in the number of employees enrolled in each tier
- Within a given enrollment tier, all employees will pay the same payroll contribution

Senior management requires that Hall Corp’s net cost must be 5% less than it would have been if both:

- The Oates Co PPO was not eliminated; and,
 - The employee payroll contribution had remained constant as a percentage of total premium.
- (a) (2 points) Describe four key features of CDHPs and explain how they align with the goals of the Chief HR Officer.
- (b) (3 points) Calculate the required single and family payroll contributions for the 2019 plan year. Show your work.

14. (3 points) Valley Insurance Company, a U.S.-based multi-line insurer, currently uses:

$$\text{Credibility} = (\text{Average Annual Members} / N)^{0.5}$$

where $N = 10,000$ for its group medical transplant products.

- (a) (1 point) List criteria to consider when developing a credibility standard and characteristics you should consider when selecting relevant experience.
- (b) (2 points) Valley Insurance Company is going to launch a new group pharmacy product offered to retirees aged 65 and older.

Recommend a credibility threshold (N) for this new product. Justify your response.

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

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