
SOCIETY OF ACTUARIES
Group and Health – Advanced

Exam GHADV

AFTERNOON SESSION

Date: Thursday, May 5, 2016

Time: 1:30 p.m. – 3:45 p.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This afternoon session consists of 4 questions numbered 9 through 12 for a total of 40 points. The points for each question are indicated at the beginning of the question. No questions 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****
Afternoon Session
Beginning with Question 9

- 9.** (3 points) XYZ Insurance Company implemented a Disease Management (DM) program for its insured population in 2015. The table is provided for measuring savings outcomes:

Measure	Baseline Year - 2014	Intervention Year - 2015
Average Number of Chronic Measured Members	30,000	35,000
Claims Per Member Per Month (PMPM) – Index Measured Population	\$350	\$375
Claims Per Member Per Month (PMPM) - Chronic Measured Population	\$500	\$525

- (a) (1 point) Describe the retrospective chronic identification method.
- (b) (2 points) Calculate the savings of the DM program for 2015 both as a PMPM amount and a total dollar amount. Show your work.

10. (11 points) You are the valuation actuary at GHI Insurance Company. GHI is a start-up specializing in writing individual health insurance contracts.

- (a) (2 points) Explain the general principles underlying the calculation of premium deficiency reserves (PDR).
- (b) (1 point) List the considerations in claims projections for PDRs.

You are given the following assumptions for your initial projections:

Earned premium for the first year	\$4,500,000
Annual target incurred claims ratio	60%
Interest rate	0%
Claims administration expense (% of claims)	10%
General administrative expense (% of premium)	15%
Premium taxes	2%

Commission (% of premium)	
Year 1	25%
Year 2	20%
Year 3	10%
Year 4	5%
Year 5	5%

Annual lapse rates	
Year 1	5%
Year 2	8%
Year 3	11%
Year 4	14%
Year 5	17%

- (c) (4 points)
 - (i) (2 points) Calculate the PDR at time 0. Show your work.
 - (ii) (2 points) Project the 5-year income statement that shows the change in PDR for each year. Show your work.

10. Continued

During your first contract period, you observe that the total earned premium is well below what was projected in your initial pricing. You are asked to revise your PDR calculations.

- (d) (3 points) Describe four approaches to expense projections GHI can use in this situation. Include advantages and disadvantages for each.
- (e) (1 point) Recommend an approach to GHI. Justify your response.

11. (17 points) It is 2013 and you are advising an Accountable Care Organization (ACO) on the impact of participating in the Medicare Shared Savings Program (MSSP).

(a) (1 point) Explain the use of the Minimum Savings Rate (MSR) in the MSSP.

The ACO's experience for 2010-2012 and your projections of the ACO's results for 2013-2015 are provided below.

- Membership is 10,000 lives each year
- Minimum Savings Rate for a two-sided ACO is 2.0%
- Assume 100% reporting on quality measures each performance year

Year	Average Annual Claims	Risk Score	Age/Sex Factor	Trend	ACO Quality Performance Level Percentile	All or Nothing Quality Measures
2010	\$12,000	1.23	1.34	3%	N/A	N/A
2011	\$12,500	1.30	1.36	3%	N/A	N/A
2012	\$12,250	1.25	1.31	3%	N/A	N/A
2013	\$13,000	1.40	1.38	3%	45 th	100%
2014	\$13,500	1.45	1.32	3%	25 th	0%
2015	\$13,250	1.48	1.37	3%	95 th	100%

You are given the following ACO quality measure scoring system:

ACO Performance Level Percentile	Quality Points (all measures except EHR)
90+	2.00 points
80+	1.85 points
70+	1.70 points
60+	1.55 points
50+	1.40 points
40+	1.25 points
30+	1.10 points
<30	0.00 points

11. Continued

- (b) (4 points) Calculate:
- (i) (3 points) The expenditure baseline.
 - (ii) (1 point) The spending benchmarks for each of 2013, 2014, and 2015.
- Show your work.
- (c) (4 points) Calculate the total savings for a two-sided risk model over 2013-2015.
- Show your work.
- (d) (1 point) Describe ways a provider group-based ACO can generate savings.
- (e) (1 point) List components that increase the speed of implementing quality measures and effectiveness.

The ACO is considering implementing a disease management (DM) program that will reduce claims costs by 4.5% and will raise the ACO quality measure performance to the 95th percentile in 2014. The program cost is \$7,000,000.

- (f) (2 points) Calculate the net Return on Investment (ROI) for this DM program.
- Show your work.
- (g) (2 points) Calculate the new shared savings on the two-sided risk model for 2014.
- Show your work.
- (h) (2 points) Recommend a strategy to the ACO for the implementation of the DM program. Justify your response.

12. (9 points) You are an actuary working on Long Term Disability (LTD) plans.

(a) (2 points) Describe aspects of LTD contracts with respect to claim reserves.

You are determining reserves for your company.

You are given the following information regarding one of your members:

- Date of birth: 10/1/1951
- The member has been disabled since 4/1/2016
- Monthly Benefit: \$1000
- Interest Rate: 5%
- Three-month elimination period
- Benefits are paid until age 65
- Benefits are paid in the middle of the month

Continuance Table			
Claim Duration (Months)	Age At Claim		
	63	64	65
0	1000	1000	1000
1	975	950	900
2	950	900	800
3	925	850	700
4	900	800	600
5	875	750	500
6	850	700	400
7	825	650	300
8	800	600	200
9	775	550	100

(b) (3 points) Calculate the tabular claims reserves as of 6/30/2016, 7/31/2016, and 8/31/2016. Show your work.

You discover that the member has been disabled since 2/1/2016.

- (c) (1 point) List other common data integrity issues.
- (d) (2 points) Calculate the sufficiency or deficiency of the reserve for this member on 7/31/2016. Show your work.

12. Continued

Your manager wants to develop reserves using diagnosis specific tables.

- (e) *(1 point)* Describe challenges to this approach.

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

USE THIS PAGE FOR YOUR SCRATCH WORK