
SOCIETY OF ACTUARIES
Group and Health – Design & Pricing

Exam DP-GH

MORNING SESSION

Date: Thursday, April 26, 2012

Time: 8:30 a.m. – 11:45 a.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This examination has a total of 120 points. It consists of a morning session (worth 60 points) and an afternoon session (worth 60 points).
 - a) The morning session consists of 8 questions numbered 1 through 8.
 - b) The afternoon session consists of 10 questions numbered 9 through 18.

The points for each question are indicated at the beginning of the question. Questions 4-8 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 since 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 DP-GH.
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****
MORNING SESSION

- 1.** (3 points) ABC Health Insurance offers an HMO product with a three-tier premium rating structure.

You have been given the following:

- Community-rated HMO capitation rate = \$308.21 PMPM

Three Tier Steps	Distribution of Contracts	Number of Persons per Contract	Ratio to Single Rate
1	50%	1	1
2	20%	2	2
3	30%	3.2	3

- (a) (1 point) Describe the different premium rating structures typically used under community rating.
- (b) (1 point) Calculate Single, Two-Person and Family premium rates for ABC's HMO members. Show your work.
- (c) (1 point) Calculate the equivalent two-tier premium rates assuming the distribution of contracts and single rates remain the same. Show your work.

2. (8 points) ABC Health Insurance classifies its benefit designs as either “rich” or “lean”, described as follows.

	Rich	Lean
	Plan A	Plan B
Deductible	\$500	\$3,000
Coinsurance	20%	30%
Out-of-pocket maximum (OPM)	\$2,000	\$6,000
Actuarial value	Not given	0.67

You are given the following claims for five members:

	Allowed Claims
Person #1	\$25,000
Person #2	\$1,500
Person #3	\$800
Person #4	\$500
Person #5	\$400

Due to health care reform, all benefit designs must now fall into one of the following classifications. Plans that do not fall within a range of two percentage points of these values must be terminated (i.e., if value = 0.50, range is 0.48–0.52).

Plan	Actuarial Value
Ruby	0.67
Emerald	0.85

You are also given that allowed trend for all future years is 10% annually.

- (a) (5 points) Calculate the following:
- Actuarial value of Plan A today
 - Actuarial value of Plan A in 2 years
 - Actuarial value of Plan B in 2 years
- Show your work.
- (b) (3 points) Determine the implications of the $\pm 2\%$ range on your ability to continue offering a plan, and suggest changes to improve the rule.

3. (9 points) You are a benefits consulting actuary for Company XYZ. XYZ currently provides its employees with a salary continuance plan that provides a benefit of 100% of salary for the first 15 weeks of disability followed by long term disability (LTD) coverage. Disability costs are rising and Company XYZ has asked you to evaluate the possibility of replacing the salary continuance plan with a short term disability (STD) benefit of 66.67% of salary up to a maximum of \$600 per week.

The salary continuance experience is as follows:

Calendar Year	Number of Claims per Thousand		Average Length of Claims (weeks)
	Male	Female	
2008	3.0	6.0	9
2009	3.5	6.5	7
2010	4.0	7.0	8

You are given the following information about Company XYZ:

- Number of employees: 350 in each year
- Employee demographics: 40% male / 60% female
- Regional factor: 1.10
- Industry factor: 1.05
- Average benefit offset percentage: 10%
- Average 2010 annual salary: \$46,650
- Salaries were frozen for the 3 years from 2008 to 2010

You are given the following STD pricing assumptions and manual rates:

- Salary inflation of 3% per year for 2011
- Each year in the experience period has equal weighting
- Use the typical credibility formula where K is 250

Manual Rates per \$10 Weekly Benefit	Male	Female
15 week benefit period	0.022	0.042

- (a) (2 points) Compare and contrast STD and LTD benefit provisions.
- (b) (4 points) Calculate the 2011 STD claims rate for this group. State your assumptions and show your work.
- (c) (1 point) Identify additional information required to provide a more precise claims rate for this group, and explain how this would improve your analysis.
- (d) (2 points) Recommend actions that could be taken to reduce the client's disability claims costs. Justify your recommendation.

Questions 4 – 8 pertain to the Case Study.
Each question should be answered independently.

- 4.** (6 points) Wilkins M. would like to design a tiered network from the hospitals listed in Table 2 in the case study. The network will need at least one ambulatory surgical center (ASC), one behavioral health, one orthopedic specialty, and one inpatient (IP) facility of each type (primary, secondary, tertiary).

You are given the following:

- Actuarial says the most cost-effective hospitals must be chosen to produce the best price
 - Healthcare Services focuses only on quality
 - Marketing wants a product that will sell
- (a) (1 point) Describe the potential pitfalls of designing a tiered network and how each pitfall would apply to the providers.
- (b) (1 point) Determine which hospitals would be excluded from the network if it were designed by the following stakeholders:
- (i) Actuarial
 - (ii) Healthcare Services
 - (iii) Marketing
- (c) (2 points) Define each term in the Tiered Network Health Plan (TNHP) formula and explain the purpose of each term.
- (d) (2 points)
- (i) Design a behavioral health tiered network, assuming price is the only consideration.
 - (ii) Determine if the proposed network satisfies each stakeholder's requirement. Justify your response.

Questions 4 – 8 pertain to the Case Study.
Each question should be answered independently.

- 5.** (8 points) You are the actuary responsible for completing the annual small employer rate certification. You must attest that Great Expectations Insurance Company's (GEIC's) rates are in compliance with state law. Your state follows the NAIC model law "Small Employer Health Insurance Availability Model Act".
- (a) (3 points) Describe rating requirements with which GEIC must comply.
 - (b) (3 points) Evaluate whether the GEIC small group rate filing Exhibits 1. a.-e. satisfy small employer rating requirements.
 - (c) (2 points) Determine whether the rating in Exhibits 3. a.-c. and 4. a.-b. meets the class rate increase test.

Questions 4 – 8 pertain to the Case Study.
Each question should be answered independently.

- 6.** (10 points) Dombey and Sons (Dombey) has indicated an interest in looking for savings opportunities for its current employee prescription drug plan. You suggest using the functional approach for employee benefits to assess changes to the prescription drug plan.

In addition to Emails 16 and 17, you are given that Great Expectation's total administration expense and margin load is 15% of total premium.

- (a) (2 points) Define the functional approach for employee benefits and outline the steps to apply it.
- (b) (6 points) Calculate the aggregate annual premium that Dombey would expect for each plan design under each pharmacy benefits manager (PBM). Show your work.
- (c) (2 points) Recommend the PBM and plan design that Dombey should choose. Justify your recommendation.

Questions 4 – 8 pertain to the Case Study.
Each question should be answered independently.

7. (9 points) Little Dorrit Kipper Cannery (LDKC) is considering adding a Weight Loss Coaching Program for its employees. By adding this program, they expect to reduce both medical and absenteeism costs. In order to purchase it, they need to be convinced that the return on investment (ROI) will exceed 5:1, inclusive of both of these savings types.

In addition to Email 8, you are given the following pre-implementation patterns for PPO West membership:

Category	Obese	Overweight	Healthy
Annual Medical Trend	10%	10%	10%
Annual Distribution Change	+3%	+2%	-5%

- (a) (1 point) For employee wellness programs, list:
- (i) Critical success components.
 - (ii) Benchmarks for successful implementation.
- (b) (6 points) Calculate LDKC's net after-tax ROI in Year 1 and Year 2 if:
- (i) No incentives are offered.
 - (ii) Incentives are offered.
- Show your work.
- (c) (1 point) Assess the reasonability of the assumptions used to calculate the ROI.
- (d) (1 point) Recommend how LDKC should proceed with respect to the Weight Loss Coaching Program. Justify your recommendation.

Questions 4 – 8 pertain to the Case Study.
Each question should be answered independently.

- 8.** (7 points) You have reviewed Dr. Manette's email (Email 5) from March 3 and you have also obtained the following information:
- (i) PPO West had 250,000 members in 2010 and no changes are projected for 2011
 - (ii) Trend for each type of service from 2010 to 2011 is projected to be 9.5%
- (a) (1 point) List factors that influence utilization trend.
- (b) (1 point) Explain the sentinel effect.
- (c) (1 point) Explain the difference between disease management and acute case management, and explain how the sentinel effect applies to each.
- (d) (2 points) Calculate the projected trend after this program is implemented. Show your work.
- (e) (2 points) Calculate the ROI for the program, and assess the reasonability of the results. Show your work.

****END OF EXAMINATION****
MORNING SESSION

USE THIS PAGE FOR YOUR SCRATCH WORK

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