
SOCIETY OF ACTUARIES
Group and Health – Design & Pricing

Exam DP-GH

MORNING SESSION

Date: Thursday, May 2, 2013

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 7 questions numbered 1 through 7.
 - b) The afternoon session consists of 7 questions numbered 8 through 14.

The points for each question are indicated at the beginning of the question. Questions 3-6 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.** (4 points) You are the Medicare Advantage pricing actuary for Golden Boomers HMO. Sales and Marketing are worried that your Medicare Advantage plan is going to have problems meeting the Patient Protection and Affordable Care Act (PPACA) minimum loss ratio ("MLR") requirements for 2014. Using the information below, Sales calculates the 2014 MLR as claims paid in 2014 over premium paid in 2014 which equals 81.8%, and Marketing calculates the 2014 MLR as incurred claims for 2014 over premium earned in 2014, which equals 82.3%.

Premiums* Paid In 2014	\$569,636,364
For 2015 Policy Year	\$49,636,364
For 2014 Policy Year	\$520,000,000
Premiums* Paid In 2013	\$542,510,823
For 2014 Policy Year	\$47,272,727
For 2013 Policy Year	\$495,238,095

*Premium includes both government and member payments.

Claims Paid In 2015	\$489,510,000
For 2015 Dates Of Service	\$479,719,800
For 2014 Dates Of Services	\$9,790,200
For < 2014 Dates Of Services	\$0
Claims Paid In 2014	\$466,200,000
For 2014 Dates Of Service	\$456,876,000
For 2013 Dates Of Service	\$9,324,000
For < 2013 Dates Of Services	\$0
Claims Paid In 2013	\$444,000,000
For 2013 Dates Of Service	\$435,120,000
For 2012 Dates Of Service	\$8,880,000
For < 2012 Dates Of Services	\$0

1. Continued

Expenses Incurred For 2014	
Corporate Overhead	\$8,509,000
Claims Adjudication	\$17,018,000
Eligibility and Enrollment	\$14,182,000
Sales and Marketing	\$14,182,000
Prior Authorization	\$1,500,000
Case Management	\$4,200,000
Provider Network Development	\$3,900,000
Fraud Detection and Prevention Programs	\$330,000
Broker Commission	\$5,673,000
Property Taxes	\$17,018,000
Premium Tax	\$284,000.00
State Income Tax	\$1,418,000.00
Federal Income Tax	\$9,927,000.00

- (a) (1 point) Describe considerations for MLR calculations, according to the article on Minimum Loss Ratios from the AAA Series "Critical Issues in Health Reform."
- (b) (2 points) Calculate the 2014 MLR, making adjustment for these considerations, and indicate if you agree with Sales and Marketing that your plan has a problem. Show your work.
- (c) (1 point) Identify the repercussions for failing to meet PPACA and state MLR rules for
- (i) Medicare Advantage plans; and
 - (ii) Commercial individual plans.

2. (10 points) You are an actuary working at XYZ insurance company which specializes in U.S. group long-term disability (LTD). Your company has been approached by Silver Fox, Inc. to price a group LTD policy for its employees with a benefit of 70% of pre-disability salary. The demographics for Silver Fox are as follows:

Age	Number of Employees	Average Annual Salary
0-29	30	\$25,000
30-39	20	\$37,000
40-49	25	\$52,000
50-54	20	\$54,000
55-59	15	\$63,000
60-64	20	\$41,000
65+	5	\$58,000

You are given the following disability manual rate table for the proposed benefits:

Age	Incidence Rate	Reserve per \$1 of Monthly Coverage
0-29	0.0030	\$40
30-39	0.0045	\$45
40-49	0.0060	\$60
50-54	0.0095	\$80
55-59	0.0110	\$105
60-64	0.0130	\$125
65+	0.0180	\$140

You are also given the following table with information regarding social security disability benefits:

Age	Probability of LTD Claimant Receiving Primary Benefit	Probability of LTD Claimant Receiving Family Benefit	Average Primary Benefit per Month
0-29	0.30	0.15	\$550
30-39	0.30	0.25	\$625
40-49	0.45	0.20	\$750
50-54	0.60	0.20	\$825
55-59	0.65	0.20	\$850
60-64	0.80	0.10	\$900
65+	0.80	0.10	\$950

2. Continued

XYZ's target retention is 14% of premium.

- (a) (2 points) Describe typical benefit provisions included in a group LTD policy, and explain how each provision can impact claims experience.
- (b) (3 points) Calculate the total monthly LTD premium for Silver Fox without a social security disability benefit offset, using the tables above. Show your work.
- (c) (2 points) Describe requirements for individuals:
 - (i) To be covered under social security;
 - (ii) To receive disability benefits under social security.
- (d) (2 points) Calculate the total monthly LTD premium for Silver Fox with a social security disability benefit offset, using the tables above. Assume the family social security benefit is 150% of the primary benefit in all cases. Show your work.
- (e) (1 point) Explain the impact of a social security disability benefit offset on expected LTD incidence and termination rates.

Questions 3 - 6 pertain to the Case Study.
Each question should be answered independently.

- 3.** (8 points) Dombey and Sons intends to switch its PBM to Two Cities Rx. The CEO of Dombey and Sons expressed concerns about increasing union employee cost sharing.
- (a) (1 point) Describe the options available for employers to manage prescription drug costs and utilization.
 - (b) (2 points) Calculate annual aggregate union and non-union premiums for the new design with Two Cities. Show your work.
 - (c) (3 points) Dombey wants to give union employees a subsidy at point of sale to fully offset the increased member copays. Calculate the annual aggregate union premium in this scenario. Show your work.
 - (d) (2 point) Dombey and Sons has asked you to evaluate the impact of reducing union and non-union copays to \$4 per script. An actuarial student calculates the price by merely reducing the copayments.
 - (i) Criticize the student's reasoning; and
 - (ii) Describe the additional information you would need to calculate revised premiums.

Questions 3 - 6 pertain to the Case Study.
Each question should be answered independently.

- 4.** (10 points) Dr. Manette has followed up with you regarding the 2013 outpatient observation initiative (Email 20).

You are given:

- 5% of inpatient admissions will be diverted to outpatient observation.
 - Of the diverted admissions, 60% are post-ER and 40% are post-surgery.
- (a) (3 points) Calculate the premium (PMPM) GEIC should charge in 2013 without the initiative. Show your work.
- (b) (1 point) Calculate the effective annual IP hospital utilization trend and OP utilization trend as a result of the initiative. Show your work.
- (c) (4 points) Calculate the financial impact of the initiative on GEIC in 2013 (in total claim dollars). Show your work.
- (d) (2 points) Calculate the premium GEIC should charge in 2013, assuming the initiative is fully applied to member premium. Show your work.

Questions 3 - 6 pertain to the Case Study.
Each question should be answered independently.

5. (10 points) Wackford Squeers has reviewed all of the analyses you have provided for GEIC's POS proposal (Email 18 and 19). He has expressed the following additional concerns:

- A 20% member coinsurance for out-of-network inpatient hospital and skilled nursing is too low. It will drive too many members to higher cost facilities that don't have contracts with GEIC.
- Assuming 10% of inpatient hospital and skilled nursing utilization to be out-of-network is optimistically low; the option to go out-of-network will be overly attractive to members.
- Medical management found some errors with their historical trend reports. They are now expecting utilization for Part A services to be lower than previously assumed.

He has asked you to prepare additional analyses assuming the following:

- Increase inpatient hospital and skilled nursing out-of-network member cost sharing to 40%.
- Increase the assumed percentage of inpatient hospital and skilled nursing utilization for out-of-network services to be 20%.
- Reduce the assumed Part A utilization trend by 100 basis points (1 percentage point).

- (a) (8 points) Calculate the projected 2013 member cost sharing as a result of the revised assumptions. Show your work.
- (b) (2 points) You advise Mr. Squeers that the impact of the assumption and benefit changes may cause GEIC's Part A benefits to be not actuarially equivalent to Original Medicare.

You are given the following:

Benefit	Actuarial Value of Original Medicare Cost Sharing (as % of allowed)
Inpatient hospital	8%
SNF	20%

Test and comment on the actuarial equivalence of the POS plan to Original Medicare for:

- (i) The inpatient hospital benefits; and
- (ii) The SNF benefits.

Show your work.

Questions 3 - 6 pertain to the Case Study.
Each question should be answered independently.

- 6.** (11 points) Dr. Manette is asking you to help his clinical team implement the clinical programs for Medicaid members. In addition to the information in Email 21, you are provided the following tables regarding risk categorization from similar clinical programs for Medicaid members.

Shift 1: With No Programs Implemented			
Current Segment	Subsequent Segment		
	High Risk	Medium Risk	Low Risk
High Risk	80%	15%	5%
Medium Risk	15%	80%	5%
Low Risk	5%	15%	80%

Shift 2: With All Programs Implemented			
Current Segment	Subsequent Segment		
	High Risk	Medium Risk	Low Risk
High Risk	70%	20%	10%
Medium Risk	10%	70%	20%
Low Risk	10%	20%	70%

- (a) (1 point) Each member completes a Health Risk Assessment (HRA) to be stratified into each of the risk segments. Describe the categories and response options for the HRA.
- (b) (6 points) Calculate the 2012 per member per year (PMPY) expected costs for each risk segment and in aggregate if:
- (i) No programs were implemented and no population mix shift occurred.
 - (ii) No programs were implemented and the population mix shift 1 occurred.
 - (iii) All programs were implemented and the population mix shift 2 occurred.

Show your work.

- (c) (2 points) Calculate the overall 2011 to 2012 trend in aggregate, and display the effective trends caused by each of cost inflation, population mix shift, and program implementation. Show your work.
- (d) (2 points) Dr. Manette believes the total trend is too high and as a result wants to eliminate the programs on the grounds that they weren't effective. Draft an explanation to convince the CFO that these programs are effective.

7. (7 points) Your client, Very Big Company (VBC), has 1,000 employees and has asked about making changes to the member cost sharing for inpatient mental health benefits and other cost containment methods. Currently the inpatient health benefits are the same for all inpatient services including mental health. You are given the following information about the group's inpatient medical and surgical benefits:

	Inpatient Medical / Surgical	Maternity	Skilled Nursing Facility & Rehabilitation
Expected Net Claims PMPM	\$90	\$8	\$2
Member Cost Sharing	\$100 / day (\$500 max per visit)	\$100 / day (\$500 max per visit)	\$50 / day (\$375 max per visit)

- (a) (3 points) You've been asked how various mental health regulations will affect VBC's choice of mental health benefit offerings.
- (i) Describe the provisions of The Mental Health Parity Act of 1996 (MHPA) and The Mental Health Parity and Addiction Equity Act of 2008 (MHPAEA).
 - (ii) List key requirements included in MHPAEA that resolved issues or loopholes in MHPA.
 - (iii) Explain the impact of The Patient Protection and Affordable Care Act of 2010 (PPACA) on mental health benefit requirements.

7. Continued

- (b) (2 points) Determine whether each of the mental health member cost sharing options shown below comply with MHPAEA. Justify your answers.

Inpatient Mental Health Care Cost Sharing Options (includes Serious Mental Illness and Substance Abuse)	
Option A	\$100 Deductible
Option B	20% Coinsurance
Option C	\$50 / Day (\$250 max per visit)
Option D	\$100 / day (\$500 max per visit)
Option E	\$150 / day (\$750 max per visit)

- (c) (1 point) Describe care management and cost control mechanisms available to manage mental health benefits.
- (d) (1 point) Describe the types of employee assistance programs (EAPs) available, and explain the advantages of offering an EAP to help reduce mental health costs.

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

USE THIS PAGE FOR YOUR SCRATCH WORK