SOCIETY OF ACTUARIES
Group and Health – Design & Pricing

Exam DP-GH

AFTERNOON SESSION

Date: Thursday, April 26, 2012
Time: 1:30 p.m. – 4:45 p.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This afternoon session consists of 10 questions numbered 9 through 18 for a total of 60 points. The points for each question are indicated at the beginning of the question. There are no questions that pertain to the Case Study in the afternoon session.
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.

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Printed in the U.S.A.
Exam DP-GH

****BEGINNING OF EXAMINATION****
AFTERNOON SESSION
Beginning with Question 9

9. (*4 points*) You have been asked to provide a life insurance quote for a new group located only in Puerto Rico. You are given the following information:

Monthly Manual Claims Rates' per $1,000 of Coverage

Age	Male	Female
20-25	$0.06	$0.05
25-30	0.06	0.04
30-35	0.07	0.05
35-40	0.09	0.07
40-45	0.13	0.08
45-50	0.16	0.16
50-55	0.20	0.19
55-60	0.35	0.27
60-65	0.74	0.51

Geographic Area Adjustments to Manual Rate per $1,000 of Coverage

Territory	Area	Monthly Claim Rate Adjustment
Puerto Rico	San Juan	$ + 0.07
Puerto Rico	Elsewhere	–0.01

Group Information

Age	Number of Employees	Sex	Area	Insured Amount
25-30	200	M	San Juan	$21,000
25-30	150	F	Elsewhere	22,000
30-35	90	M	San Juan	30,000
30-35	250	F	San Juan	32,000
35-40	310	M	Elsewhere	41,000
55-60	470	F	Elsewhere	43,000

9. Continued

(a) (*2 points*) Calculate the monthly manual claims rate to be applied to the new group. Show your work.

(b) (*1 point*) Identify potential adjustments to the manual rate to better reflect the group's specific characteristics.

(c) (*1 point*) The addition of this group would increase your block of business in Puerto Rico by 50%. Identify potential ways to mitigate this risk.

10. *(6 points)* You are an actuary with a life insurance company that is interested in expanding its marketing efforts. Your boss has asked you to meet with Old Breed, an external direct marketing firm, to determine whether they can meet your company's needs.

Your boss also provides initial product pricing per policy, as follows:

Discount Rate	5%
Present Value of Premium	$550
Average Life of Policy	15 years
Present Value of Claims	$300
Response Rate	4%
Present Value of Expenses	$50
Profit Margin Goal as a % of premium	10%

(a) (*1 point*) Describe the services offered by an external marketing firm to an insurance company.

(b) (*1 point*) List statistical techniques a marketing firm may use for segmentation and selection purposes.

(c) (*1 point*) Calculate the maximum amount per policy you could pay the direct marketing firm to market the product. Show your work.

(d) (*1 point*) Old Breed offers two types of marketing methods, one which generates more responses but lower persistency, and a second which generates fewer responses but higher persistency. Outline considerations for evaluating these marketing methods.

10. Continued

Old Breed sent out an initial set of mailings, comprised of four types of advertisements, where a couple of metrics were varied: first, the inclusion (or exclusion) of a shiny new copper penny; and second, benefit levels. The mailings had the following attributes and response rates:

Mailing Group #	Mailing Includes Copper Penny	Benefit Level Offered	Response Rate
1	Yes	High	9%
2	Yes	Low	5%
3	No	High	3%
4	No	Low	1%

Assume the experiment was properly designed and the results can be relied upon for calculations.

Based on this information:

(e) (*2 points*) Determine if this mailing design is orthogonal and balanced. Calculate the mean response rate and the main effects. Show your work.

11. (*7 points*) As an actuary for a regional health plan with a high penetration provider network, you are preparing rates for a 300 employee group that is attempting to reduce premiums by replacing their current single-option PPO by moving to either an HMO or a Closed Panel PPO. A Closed Panel PPO is similar to a PPO but provides no coverage for out-of-network benefits. The group insists on keeping all of the basic cost sharing provisions of their plan. You have calculated the following rates assuming each product is offered on a stand-alone basis:

Average Premium Rates per Employee per Month

Product	Rate
Existing PPO	$633.75
Closed Panel PPO	$621.08
HMO	$583.05

(a) (*2 points*) The sales representative is challenging why the Closed Panel PPO plan is priced closer to the existing PPO plan than the HMO plan.

(i) Compare key features of managed care plans under a PPO, a Closed Panel PPO, and an HMO.

(ii) Explain why the Closed Panel PPO plan is appropriately priced.

(b) (*2 points*) The group is now considering two alternatives: a full replacement HMO or a dual option with the HMO offered alongside the existing PPO. Describe possible ways to adjust the premium rates in anticipation of adverse selection under a dual option design.

(c) (*3 points*) You have developed the following table:

	HMO	Existing PPO
Stand-alone Pricing Loss Ratio	0.88	0.88
Dual option Selection Factor	0.85	1.10
Dual option projected enrollment	100	200

Calculate the annual claim savings under each alternative described in (b). Show your work.

12. *(8 points)* You have been tasked with calculating the fully-insured premium rates for your company's large group Basic Indemnity product. You have been provided the following continuance table based on actual experience for this product, projected to the renewal year:

Range of Allowed Claims per Member	Frequency	Average Annual Allowed Claims
$0.00	30%	$0
$0.01 - $500	25%	$200
$500.01-$1,000	15%	$700
$1,000.01 - $8,000	15%	$4,000
$8,000.01 - $50,000	13%	$20,000
>$50,000	2%	$70,000

You are also provided with the following expense information:

Expense Type	PMPM
Claims Administration	$15
Corporate Overhead	$20
Wellness & Disease Management Programs	$20
Sales & Marketing	$15
Reinsurance	$5
Total Retention	$70

Plan design information is as follows:

- $500 deductible
- 20% member coinsurance
- $2,000 out-of-pocket maximum (including deductible)

(a) (*2 points*) Describe the reasons for normalizing historical experience data and identify variables used in this process.

(b) (*2 points*) Calculate the premium rate. Show your work.

(c) (*1 point*) Identify NAIC recommendations on what insurer expenses are considered allowable as medical expense for MLR requirements. Describe complexities that insurers may face in identifying costs associated with each of these expenses.

(d) (*3 points*) Determine whether the loss ratio meets the minimum loss ratio (MLR) requirements for large groups under health care reform. If not, describe the steps you would take to remedy the situation.

13. *(4 points)* The group division offers a PPO product where member office visit copays are lower at a defined group of high-performance physician providers. Senior management would like to offer this product in the individual market in addition to the current PPO product which has the same in-network and out-of-network member cost share.

You have been asked to rate this new individual PPO product with the following cost-sharing provisions:

Office Visits	High-performance providers	In-Network	Out-of-network
Primary care	$10 copay	$25 copay	Deductible/Coinsurance cost sharing format
Specialist	$20 copay	$40 copay	

After adjusting the experience data, you calculate the following:

Average Net Cost per Physician Visit (non high-performance providers):
In-Network = $200
Out-of-Network = $325

Total Physician Utilization per thousand members = 3,000

High-Performance Providers

Office Visits	Annual Utilization/1000	Allowable Payment per Visit
Primary Care	63	$75
Specialist	27	$175

(a) (*1 point*) Describe considerations when evaluating a high-performance network.

(b) (*1 point*) Identify a data source for pricing this new product, and list adjustments that may need to be taken into account to make this data source appropriate for pricing this new individual product.

(c) (*2 points*) Assuming no change in total utilization, calculate the professional PMPM net cost to the plan based on a utilization distribution of 3% for high-performance provider office visits, 92% in-network office visits and 5% out-of-network office visits. Show your work.

14. (*9 points*) You are a consulting actuary in Canada. Your client, CHOIX, currently offers a traditional benefits plan to its active employees and retirees. CHOIX has just been acquired by BIG, a US Company. BIG wants to implement a flexible benefits plan for CHOIX's 300 active employees and future retirees in Canada. Financial results have been mediocre recently, limiting the amount of money available for benefits. BIG's VP of Benefits has asked you for help in analyzing the Canadian Medicare environment, the various private flex benefit plan structures and its best option.

(a) (*1 point*) List benefits typically provided through provincial Medicare plans.

(b) (*3 points*) State reasons for and against offering company-sponsored retiree benefits.

(c) (*2 points*) Identify potential reasons why CHOIX:

(i) Has not offered flex options to its retirees.

(ii) Is considering flex options for retirees.

(d) (*3 points*) Assess the various flex plan structures based on their characteristics and the needs of employers and recommend a retiree flex plan for CHOIX. Justify your recommendation.

15. (*6 points*) At a small group employer roundtable, you host an open question-and-answer session. Address the following concerns on medical plan design strategy from your audience.

Q&A #1: The president of Long Haul Truckers, a group of 48 employees, is hopeful that the minimum loss ratios will mitigate the recent 45% rate increase levied by her carrier. She asks why minimum loss ratios differ between small and large groups. She asks if she should grow her employee count to become a large group.

(a) (*1 point*) Explain reasons why minimum loss ratios differ by group size.

(b) (*1 point*) Assess whether moving to a large group plan would be beneficial.

Q&A #2: An owner of a small bike shop thinks allowing the purchase of insurance across state lines would solve numerous cost issues by increasing competition. He demands your feedback on whether this is a good idea.

(c) (*1 point*) Outline your response.

Q&A #3: A coffee shop owner employs mostly college students. He believes the concerns over medical costs are exaggerated. His company has very low costs, which he attributes to the cleverly designed, lean benefits offered. He advocates all employers offer plans that include a $10,000 deductible, regardless of service or medical justification, and significant member cost share above the deductible to help members "feel" the cost of their coverage.

(d) (*1 point*) Explain why this benefit strategy may not work for all employers.

(e) (*1 point*) Assess how this benefit strategy aligns with Value Based Insurance Design.

(f) (*1 point*) Predict how switching to this lean benefits strategy will impact trend for each of the next three years for an employer currently offering a rich benefit design.

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16. (*7 points*) Effective 1/1/2010, Smalls' Fruit Market, a U.S. based company, changed their method of co-ordinating claims with Medicare from the standard coordination of benefits to the exclusion method.

You are given the following plan design information for Medicare eligible retirees:

- Smalls' medical benefit plan:
  - $500 deductible
  - 20% member coinsurance
  - Smalls pays 100% of the premium
- Smalls' retiree prescription drug plan:
  - $300 deductible
  - 30% member coinsurance
  - Member contributions are $25 per month
- Medicare Standard Part D drug benefit is assumed to be:
  - $300 deductible
  - 25% member coinsurance on allowed costs between $300 and $3,000
  - 100% member coinsurance on allowed costs between $3,001 and $6,500
  - 5% member coinsurance on allowed costs greater than $6,500
  - Member contributions are 25.5% of the average gross cost and Smalls has not currently applied for a federal subsidy for its drug plan.

Assume that Medicare is always the primary payer.

Medical plan experience for the 2010 year for an average participant consisted of $4,500 total covered medical claims of which the plan paid $400.

You have been given the following expected distribution of drug costs under Smalls' existing drug plan:

Total Member Annual Claim Level	Percentage of Members in Claim Level	Average Allowed Drug Costs PMPY
$0 - $300	5%	$200
$301 - $3,000	55%	$2,700
$3,001 - $6,500	30%	$4,100
$6,500+	10%	$8,700

16. Continued

(a) (*1 point*) Define the methods of integrating benefits with Medicare.

(b) (*2 points*) Calculate the 2010 savings that would have resulted from changing to:

(i) the exclusion method; and

(ii) the carve-out method.

Show your work.

(c) (*1 point*) Explain the types of caps employers place on retiree medical plan subsidies and their uses and considerations.

(d) (*3 points*) Explain the tests to determine eligibility for the retiree drug subsidy and determine whether Smalls' plan meets the requirements to receive the retiree drug subsidy. Show your work.

17. *(4 points)* You are the pricing actuary of CDACo. You have been asked to explain rating actions to the sales force based on an HMO group example below:

CY 2010 Allowable Physician PMPM (per member per month) = $120.00
CY 2010 Copayment PMPM = $15.00

CY 2010 Allowable Facility PMPM = $180.00
CY 2010 Coinsurance = 20%

Projected 2011 Allowable Trend = 15%

(a) (*1 point*) Define both Allowable PMPM and Net PMPM.

(b) (*1 point*) Calculate the CY 2011 Total Net trend for all services assuming the cost sharing arrangements have not changed from 2010 and the allowable trend is solely cost driven. Show your work.

(c) (*2 points*) Explain why Net PMPM trends differently than Allowed PMPM. Illustrate this concept using Facility and Physician trends.

18. (5 *points*) The VP of Human Resources at SAD, a U.S. based employer, is concerned that recent layoffs have led to an increase in anxiety and depression. She has asked you to comment on techniques to control mental health and substance abuse (MH/SA) costs.

(a) (*1 point*) Describe the managed care spectrum for MH/SA benefits with regards to provider reimbursement and effectiveness in controlling MH/SA costs.

(b) (*1 point*) Identify common inpatient facility reimbursement arrangements and assess their effectiveness in controlling MH/SA costs.

(c) (*2 points*) Describe typical utilization management techniques and identify the techniques appropriate for MH/SA claims.

(d) (*1 point*) Describe the tools and data that may be used to develop a workplace wellness program and explain how they reduce MH/SA and related disability claims.

****END OF EXAMINATION****
AFTERNOON SESSION

USE THIS PAGE FOR YOUR SCRATCH WORK