SOCIETY OF ACTUARIES
Group and Health – Advanced

Exam GHADV

MORNING SESSION

Date: Thursday, November 2, 2017
Time: 8:30 a.m. – 11:45 a.m.

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This examination has a total of 100 points. It consists of a morning session (worth 60 points) and an afternoon session (worth 40 points).

   a) The morning session consists of 9 questions numbered 1 through 9.

   b) The afternoon session consists of 6 questions numbered 10 through 15.

   The points for each question are indicated at the beginning of the question. Questions 10-13 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.

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Exam GHADV

****BEGINNING OF EXAMINATION****
Morning Session

1. (*6 points*)

(a) (*2 points*) Describe the requirements for a valid measurement of disease management (DM) program effectiveness for an employer group.

(b) (*1 point*) Describe the shortcomings of an admission-based methodology when measuring DM program effectiveness.

(c) (*2 points*) List the issues and assumptions for conducting and evaluating a DM program study.

The claims trend for a 40,000 member group produces a standard deviation of 4%.

(d) (*1 point*) Calculate the standard deviation for a 20,000 member group. Show your work.

2. (*5 points*)

(a) (*1 point*) List the typical services offered by a Pharmacy Benefit Manager (PBM).

(b) (*1 point*) Describe:

(i) Maximum Allowable Costs (MAC) list.

(ii) Reasons a PBM uses multiple MAC lists.

A plan sponsor has a spread pricing arrangement where the PBM retains all rebates. The plan sponsor asks the PBM to quote a pharmacy plan where the plan sponsor pays the same amount for claims as the PBM. In addition, rebates are returned to the plan sponsor.

- The average rebate per prescription for formulary brands is $30.
- The administrative fee is $5 per member per month (PMPM).

Expected drug utilization, cost, and discounts from the Average Wholesale Price (AWP) are:

Drug Category	Generic	Brand – Formulary	Brand – Non-formulary
Prescriptions per 1,000 Members per Year	8,000	1,000	500
Plan Sponsor Cost per Prescription	$30	$300	$1,500
Plan Sponsor Cost and Discounts	Average MAC per prescription: $30	AWP minus 15%	AWP minus 10%
PBM Cost and Discounts	Average MAC per prescription: $20	AWP minus 20%	AWP minus 15%

(c) (*2 points*) Calculate an administrative fee for this product such that the PBM's total revenue is unchanged. Show your work.

(d) (*1 point*) Recommend whether or not the PBM should quote this coverage. Justify your response.

3. (*7 points*) You start a new job as the valuation actuary at a company that has a closed block of long-term care (LTC) policies. You discover that the company is not holding policy reserves for the LTC block. Your CFO indicates that the company has never held the reserves and does not see a need to do so.

(a) (*1 point*) Sketch and explain a graph to illustrate the need to hold policy reserves.

You are given the following for a LTC policy:

- Claims are $1,000 in year one.
- Claims increase at 5% annually.
- There is a 90% chance of persisting each year to years two and three and 0% chance of persisting to year four.
- Interest is 3% per year.
- The policy charges a net level premium, with no non-claim expenses.
- Premiums occur at the beginning of each year.
- Lapses occur at the midpoint of each year.
- Claims occur at the end of each year.

(b) (*1 point*) Calculate the net level premium using the present value of claims. Show your work.

(c) (*3 points*) At the end of year 2:

(i) Calculate the prospective policy reserve. Show your work.

(ii) Calculate the retrospective policy reserve. Show your work.

(iii) Explain the difference between the two methods.

(d) (*1 point*)

(i) Define Pharr's rule.

(ii) List the conditions that prevent a clean application of Pharr's rule.

(e) (*1 point*) Recommend:

(i) Whether or not to hold a policy reserve.

(ii) The amount of the reserve to hold, if any.

Justify your response.

4. (*6 points*)

(a) (*1 point*) Describe how the Affordable Care Act has impacted accountable care organizations (ACOs).

(b) (*1 point*) Describe the incentive structure created by the Medicare Shared Savings Program.

(c) (*4 points*) Describe:

(i) The key capabilities of building a system of population health management for ACOs.

(ii) An example of how each capability helps the ACO with its performance and savings goals.

5. (*7 points*) You are a consulting actuary. Your client, the CEO of ABC Insurer, sends you the following email:

"Hi! Great news, we calculated our Individual, ACA-compliant risk score for 2016 and it is 1.10! Since our risk score is above 1.00, this means that we have an above average risk profile and we can expect a risk adjustment transfer receivable. My board of directors would like to know how much money we will be receiving!"

ABC Insurer provided the following:

ABC Insurer's Individual ACA-Compliant Policies	
Earned Premium Per Member Per Month (PMPM)	$410
Member Months	42,000
Plan Liability Risk Score (PLRS)	1.10
Induced Demand Factor (IDF)	1.05
Geographic Cost Factor (GCF)	0.98
Relative Rating Factors	1.10
Market of Individual ACA-Compliant Policies	
Individual Average Premium PMPM	$400
Total Individual Member Months	600,000
Average Individual PLRS x IDF x GCF	1.16

(a) (*1 point*) Define:

(i) Risk Assessment.

(ii) Risk Adjustment.

(b) (*2 points*) Calculate ABC Insurer's ACA risk adjustment transfer amount for 2016. Show your work.

(c) (*2 points*) Describe the issues insurers encountered during the first year of ACA risk adjustment.

(d) (*2 points*) Construct a response to the CEO's email to confirm or refute the conclusion. Justify your response.

6. (*7 points*) You are an actuary for a multi-state, high quality physician group, PG. PG is looking to join an independent practice association (IPA) or form a patient centered medical home (PCMH).

(a) (*2 points*) Compare and contrast for an IPA and a PCMH:

(i) The organizational structure.

(ii) The contracting considerations with a health plan.

(b) (*1 point*) List the capabilities of a contract management system.

(c) (*1 point*) List the healthcare administration data sources and formats.

(d) (*1 point*) Describe the key data fields required to reprice claims to the Medicare fee schedule.

A managed care organization proposes a bundled payment rate of $30,000 for hip replacement surgeries. PG will manage the payments and retain $1,500 per case. PG's internal cost is projected to be $1,200 per case.

You are given the following benchmark information to use in your analysis:

	Allocation of Allowed Dollars for Hip Replacements		
Region	**Physician**	**Facility**	**Total**
East North Central	19%	81%	100%
East South Central	18%	82%	100%
Middle Atlantic	19%	81%	100%
Mountain	16%	84%	100%
New England	16%	84%	100%
Pacific	12%	88%	100%
South Atlantic	14%	86%	100%
West North Central	17%	83%	100%
West South Central	13%	87%	100%
Nationwide Average	**15%**	**85%**	**100%**

(e) (*2 points*)

(i) Propose a professional payment rate that maximizes PG's profit. Assume no change to the total bundled payment rate. State your assumptions and justify your response.

(ii) Propose a rate where PG should walk away from the negotiation. Justify your response.

7. (*10 points*)

(a) (*1 point*) Describe the methods used for estimating incurred claims, according to Actuarial Standards of Practice.

You are given the following claims data (in '000s):

	Incurred Month					
Paid Month	Jul-16	Aug-16	Sep-16	Oct-16	Nov-16	Dec-16
Jul-16	$50	-	-	-	-	-
Aug-16	$300	$40	-	-	-	-
Sep-16	$400	$300	$70	-	-	-
Oct-16	$200	$450	$500	$30	-	-
Nov-16	$70	$200	$500	$500	$50	-
Dec-16	$40	$80	$200	$400	$600	$200

- Membership is 12,000 for each month.
- Assume claims are complete after six months of run-out.

(b) (*3 points*) Calculate the reserve as of 12/31/2016 for claims incurred for the second half of 2016 using the triangulation method. Show your work.

(c) (*1 point*) Describe shortcomings of the triangulation method.

Your supervisor decided that all claims costs per member per month (PMPM) are credible on this block once the completion factor reaches 35%.

(d) (*5 points*)

(i) Calculate the revised reserve as of 12/31/2016, using the claim cost method to replace the non-credible claims PMPMs. Show your work.

(ii) Recommend an alternative credibility threshold. Justify your response.

(iii) Calculate the revised reserve under this new threshold. Show your work.

8. (*5 points*)

(a) (*2 points*)

(i) Describe the three types of study design methods for disease management (DM) program evaluation.

(ii) List examples of each study design method.

You are given the following for a DM program:

Year	Member Months		Claims Costs ('000s)		Managed Services	
	Total	Program-Eligible	Total	Program-Eligible	Utilization	Total Cost ('000s)
2015	100,000	15,000	$35,000	$14,000	6,750	$6,750
2016	150,000	20,000	$55,000	$19,000	8,500	$9,350

- Service utilization trend of 4% in absence of the DM program.
- All eligible members enroll in the program in 2016 and are of an equivalent risk to the 2015 cohort.

(b) (*2 points*) Recommend a DM program study design method. Justify your response.

(c) (*1 point*) Calculate the total savings of the DM program. Show your work.

9. (*7 points*) You work for LI, a group life insurance company. You have a new prospect, BTM Company. Your boss has asked you to prepare a retrospective experience rating proposal for BTM.

(a) (*2 points*) Describe the criteria LI should consider to evaluate the retrospective experience rating proposal for BTM.

(b) (*1 point*) Describe challenges when reviewing Group Life claim experience for experience rating.

You are given the following for BTM:

Experience Period	7/1/2014 - 6/30/2015	7/1/2015 – 6/30/2016	7/1/2016 – 6/30/2017
Report Date	6/30/2017	6/30/2017	6/30/2017
Total Premium (‘000s)	$12,000	$13,500	$14,000
Total Paid Claims (‘000s)	$10,080	$10,530	$10,220
Legal Claims (‘000s)	$ -	$ -	$120
Reserve Balance (‘000s)	$ -	$540	$1,000

Pooled Premium (‘000s)	$ -	$925	$925
Pooled Claims (‘000s)	$ -	$450	$675

- The premium stabilization reserve at 6/30/2017 is $500,000.
- Claims trend is 8%
- Interest is 3%
- The following as a percentage of premium:
  - Administration 5%
  - Claim Adjudication 4%
  - Premium Taxes 2%
  - Risk and Profit 3%
  - Expected Claims 86%

9. Continued

(c) (*3 points*) Calculate the deficit or surplus at 6/30/2017. Show your work.

(d) (*1 points*) Propose contractual clauses LI should include in the final retrospective proposal to BTM. Justify your response.

****END OF EXAMINATION****
Morning Session

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