
SOCIETY OF ACTUARIES
Group and Health – Advanced

Exam GHADV

MORNING SESSION

Date: Friday, May 2, 2014
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 8 questions numbered 1 through 8.
 - b) The afternoon session consists of 6 questions numbered 9 through 14.The points for each question are indicated at the beginning of the question.
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****
Morning Session

- 1.** (5 points) You work for a managed care organization.
- (a) (1 point) Discuss the core competencies of claims operations.
 - (b) (1 point) List the enterprise objectives around claims capability.

You receive a phone call from the director of claims management. He is trying to figure out what is causing a high number of payments for physician claims.

- (c) (1 point) Describe possible reasons for the significant increase in the number of adjudicated physician claims.
- (d) (2 points) Recommend actions that could be taken for each item in part (c).

2. (5 points) You have been retained by a large provider system to research the viability of their participation in the Medicare Shared Savings Program (MSSP) as authorized by the Affordable Care Act.

(a) (2 points) Create a chart which compares the key design element differences between the one-sided model and the two-sided model.

You have developed the following projections for this proposed Accountable Care Organization (ACO):

Service	Year 1	Year 2	Year 3
Number of Enrollees	70,000	71,000	72,000
CMS Expenditure Baseline PMPM	\$1,000	\$1,030	\$1,060
Projected Expenditure PMPM	\$950	\$925	\$900

(b) (2 points) Disregarding quality performance, calculate the shared savings or loss per the MSSP. Show your work.

(i) Using the one-sided model

(ii) Using the two-sided model

(c) (1 point) Recommend which model should be used by this client.

3. (5 points) You are a regulatory actuary that is reviewing the Statement of Actuarial Opinion and supporting memorandum filed with the Health Blank for Good Standing HMO (GSH). The following is the Statement of Actuarial Opinion:

STATEMENT OF ACTUARIAL OPINION			
February 28, 2013			
Board of Directors Good Standing HMO			
TABLE OF KEY INDICATORS			
This Opinion is: <input checked="" type="checkbox"/> Unqualified <input type="checkbox"/> Qualified <input type="checkbox"/> Adverse <input type="checkbox"/> Inconclusive			
IDENTIFICATION SECTION			
<input checked="" type="checkbox"/> Prescribed Wording Only <input type="checkbox"/> Prescribed Wording with Additional Wording <input type="checkbox"/> Revised Wording			
SCOPE SECTION			
<input checked="" type="checkbox"/> Prescribed Wording Only <input type="checkbox"/> Prescribed Wording with Additional Wording <input type="checkbox"/> Revised Wording			
RELIANCE SECTION			
<input checked="" type="checkbox"/> Prescribed Wording Only <input type="checkbox"/> Prescribed Wording with Additional Wording <input type="checkbox"/> Revised Wording			
OPINION SECTION			
<input checked="" type="checkbox"/> Prescribed Wording Only <input type="checkbox"/> Prescribed Wording with Additional Wording <input type="checkbox"/> Revised Wording			
RELEVANT COMMENTS			
<input type="checkbox"/> Revised Wording			
<input type="checkbox"/> The Actuarial Memorandum includes “Deviation from Standard” wording regarding conformity with an Actuarial Standard of Practice			
IDENTIFICATION			
I, Lloyd Gregg, Vice President and Valuation Actuary, am an employee of Good Standing HMO and a member of the American Academy of Actuaries. I was appointed on December 3, 2012 in accordance with the requirements of the annual statement instructions. I meet the Academy qualification standards for rendering the opinion.			

Question 3 continued on next page

3. Continued

SCOPE

I have examined the assumptions and methods used in determining loss reserves, actuarial liabilities and related items listed below, as shown in the annual statement of the organization as prepared for filing with state regulatory officials, as of December 31, 2012.

Annual
Statement
Reference
Item

Page-Line

Amount

Claims unpaid	3-1	\$125,000,000
Accrued medical incentive pool and bonus payments	3-2	3,000,000
Unpaid claims adjustment expenses	3-3	0
Aggregate health policy reserves (including unearned premium reserves, premium deficiency reserves and additional policy reserves from the Underwriting and Investment Exhibit – Part 2D)	3-4	0
Aggregate life policy reserves	3-5	0
Property/casualty unearned premium reserves	3-6	0
Aggregate health claim reserves	3-7	350,000
Any other loss reserves, actuarial liabilities, or related items presented as liabilities in the annual statement	3-23	n/a
Specified actuarial items presented as assets in the annual statement—Provider risk sharing receivable	2-24	2,000,000

RELIANCE

My examination included such review of the actuarial assumptions and actuarial methods and of the underlying basic liability records and such tests of the actuarial calculations as I considered necessary. I also reconciled the underlying basic liability records to the Underwriting and Investment Exhibit, Part 2B of the company's current annual statement.

OPINION

In my opinion, the amounts carried in the balance sheet on account of the items identified above:

- A. Are in accordance with accepted actuarial standards consistently applied and are fairly stated in accordance with sound actuarial principles;

3. Continued

- B. Are based on actuarial assumptions relevant to contract provisions and appropriate to the purpose for which the statement was prepared;
- C. Meet the requirements of the laws of Arizona, and are at least as great as the minimum aggregate amounts required by any state;
- D. Make good and sufficient provision for all unpaid claims and other actuarial liabilities of the organization under the terms of its contracts and agreements;
- E. Are computed on the basis of assumptions and methods consistent with those used in computing the corresponding items in the annual statement of the preceding year-end; and
- F. Include appropriate provision for all actuarial items that ought to be established.

The Underwriting and Investment Exhibit – Part 2B was reviewed for reasonableness and consistency with the applicable Actuarial Standards of Practice.

Actuarial methods, considerations, and analyses used in forming my opinion conform to the relevant Standards of Practice as promulgated from time to time by the Actuarial Standards Board, which standards form the basis of this statement of opinion.

RELEVANT COMMENTS

This opinion has been prepared solely for the Board and the management of the Company, for filing with insurance regulatory agencies of states in which the Company is licensed, and is not intended for any other purpose.

SIGNATURE

Lloyd Gregg, FSA, MAAA
Vice President and Valuation Actuary
Good Standing HMO
1 Outstanding Lane
Peak City, AZ 85110
(520) 216-3166

February 28, 2013

Describe the sections and key content you expect to see in the supporting actuarial memorandum.

4. (14 points) You are a consulting actuary and have been retained by Super Innovative Health Plan (SIHP) to help launch a new HMO product. This product will rely heavily on Blue Coyote Company (BCC), the dominant Integrated Delivery System (IDS) in the geographic area SIHP will serve.

- (a) (1 point) Describe an Integrated Delivery System (IDS).
- (b) (1 point) Describe the steps SIHP would take to establish a global capitation contract with BCC.

You are given the following about the new HMO product:

- Average premium rate of \$300 Per Member Per Month (PMPM).
- Medical costs will be 80% of premium
- BCC will be responsible for all medical costs except for:

Service	Expected Cost (PMPM)
Prescription Drugs	\$30
Emergency Care (providers other than in BCC)	\$5
Transplants	\$3

In addition, SIHP will provide stop-loss coverage to BBC for \$2 PMPM.

- (c) (1 point) Calculate the monthly capitation rate. Show your work.
- (d) (2 points) Describe the advantages and disadvantages to SIHP of using a global capitation contract.
- (e) (2 points) Assess the global capitation's impact on:
 - (i) Medical Management
 - (ii) Healthcare quality
- (f) (1 point) Assess the legal implications for SIHP of using global capitation.
- (g) (1 point) Assess the impact on claims adjudication and describe any unique challenges faced with global capitation contracts.
- (h) (3 points) Describe challenges SIHP might face if they use the same global capitation contract for a PPO product.

4. Continued

- (i) (2 points) BCC is suing SIHP over the assumptions you chose in determining the global capitation payment. Outline issues and recommendations for your planned deposition.

5. (8 points) You have been asked to attend a commercial disease management (DM) vendor's presentation on behalf of your employer's management team for a program of interest. The vendor will be presenting the estimated savings results your company should expect based on their own study.

- (a) (3 points) Outline questions to the vendor to identify possible methodological, measurement or claims issues.
- (b) (3 points)
 - (i) Explain measurement principles necessary when reviewing this study.
 - (ii) Construct scenarios to illustrate how measurement principles have been violated.
- (c) (1 point) Describe common classes of measurement methods used to evaluate DM programs.
- (d) (1 point) Describe criteria used to evaluate the validity of the vendor's study methodology.

6. (7 points) For a health plan chronic care management program, you are given:

Chronic Population	Prior Year	Current Year
Members Months	480,000	540,000
Inpatient (IP) Admissions	30,000	38,000
IP Admission Per 1,000 Per Year	750.00	844.00
Cost per Admission	\$8,000	\$8,000
Average Risk Score	1.200	1.300
Average Geographic Factor	1.000	1.050

Index Population	Prior Year	Current Year
Members Months	4,800,000	5,280,000
Inpatient (IP) Admissions	100,000	112,000
IP Admission Per 1,000 Per Year	250.00	254.55
Average Risk Score	0.9000	0.8500
Average Geographic Factor	0.9800	1.0100

- (a) (1 point) Calculate the index population utilization trend. Show your work.
- (b) (3 points)
- (i) Calculate the care management program savings for the chronic population. Show your work.
 - (ii) Determine whether or not the program was successful. Justify your answer.
- (c) (1 point) Outline considerations to potentially improve the study of the program.
- (d) (2 points) Describe considerations for establishing risk score categories according to Actuarial Standards of Practice (ASOP).

7. (5 points) You are a valuation actuary responsible for the group disability line. The CFO has expressed concerns about the possible effects of governmental shutdown on July 1st, 2014. It is assumed that social security benefit payments will be discontinued during the shutdown. The government may or may not pay retroactive benefits when the shutdown ends. If retroactive benefits are paid, they will be paid monthly for the same length of time that the shutdown occurred beginning with the month following the termination of the shutdown.

Assume the following potential scenarios:

Scenario	Duration of Shutdown	Repayment of past benefits
1	1 Year	No
2	1 Year	Yes

According to the contract, the minimum benefit payable monthly is \$100.

Key Assumptions:

- Date of Birth 7/1/1952
- Gross Benefit = \$1000 per month
- Social Security Benefit = \$800 per month
- Benefits payable at end of month, until attaining age 65
- Assume no interest
- Age Termination rates

62	0.75% per month
63	0.5% per month
64	0% per month

Calculate the expected Disabled Life Reserve (DLR) as of July 1st, 2014 under the two potential scenarios. Show your work.

8. (11 points) You work as the valuation actuary for Try Try Again Insurance Company (TTAIC). TTAIC has a rigid policy for setting incurred but not reported (IBNR) reserves. The policy uses the development method with an average of the most recent 3 development factors. No deviation from this policy is allowed.

(a) (1 point) Explain the conversion from 4010 to 5010 and describe how it may have impacted TTAIC's operations.

You are given the following:

Incurred Claims Paid Through June, 2012

Incurred month	Cumulative payments	Membership
Jan-10	\$12,012,000	52,000
Feb-10	\$11,492,000	52,000
Mar-10	\$13,676,000	52,000
Apr-10	\$10,920,000	52,000
May-10	\$12,792,000	52,000
Jun-10	\$12,220,000	52,000
Jul-10	\$12,376,000	52,000
Aug-10	\$13,156,000	52,000
Sep-10	\$12,948,000	52,000
Oct-10	\$12,116,000	52,000
Nov-10	\$12,688,000	52,000
Dec-10	\$11,388,000	52,000
Jan-11	\$13,266,650	53,000
Feb-11	\$12,666,650	53,000
Mar-11	\$15,031,600	53,000
Apr-11	\$12,011,350	53,000
May-11	\$14,346,250	54,000
Jun-11	\$13,696,750	54,000
Jul-11	\$13,851,400	54,000
Aug-11	\$14,871,550	54,500
Sep-11	\$14,675,000	54,500
Oct-11	\$13,750,650	54,500
Nov-11	\$14,401,050	54,500
Dec-11	\$12,780,000	54,000
Jan-12	\$16,230,000	60,000
Feb-12	\$15,300,000	60,000
Mar-12	\$17,950,000	60,000
Apr-12	\$13,700,000	60,000
May-12	\$15,950,000	60,000
Jun-12	\$4,200,000	60,000

Question 8 Continued on next page

8. Continued

Age to Age Record Table									
Incurred Month	Lag 1	Lag 2	Lag 3	Lag 4	Lag 5	Lag 6	Lag 7	Lag 8	Lag 9
Jan-11	2.97	1.20	1.08	1.03	1.01	1.00	1.00	1.00	1.00
Feb-11	3.26	1.12	1.08	1.02	1.01	1.00	1.00	1.00	1.00
Mar-11	3.30	1.14	1.06	1.01	1.01	1.00	1.00	1.00	1.00
Apr-11	2.79	1.16	1.07	1.02	1.01	1.00	1.00	1.00	1.00
May-11	3.08	1.14	1.09	1.02	1.01	1.00	1.00	1.00	1.00
Jun-11	3.11	1.14	1.07	1.02	1.01	1.00	1.00	1.00	1.00
Jul-11	3.59	1.10	1.07	1.01	1.01	1.00	1.00	1.00	1.00
Aug-11	3.57	1.07	1.09	1.01	1.01	1.00	1.00	1.00	1.00
Sep-11	3.08	1.11	1.08	1.02	1.01	1.00	1.03	1.01	1.00
Oct-11	3.17	1.10	1.04	1.01	1.01	1.02	1.01	1.00	
Nov-11	2.82	1.05	1.03	1.06	1.10	1.07	1.00		
Dec-11	2.32	1.08	1.11	1.32	1.02	1.00			
Jan-12	1.86	1.15	2.19	1.18	1.01				
Feb-12	2.39	2.24	1.22	1.02					
Mar-12	4.79	1.34	1.08						
Apr-12	3.73	1.11							
May-12	3.51								
Assume there are no payments beyond lag 8									

- (b) (3 points) Determine the appropriate IBNR as of June 2012 using TTAIC's IBNR policy. Show your work.

You have also been provided the following information about TTAIC as of March 2012:

Reserving Data Table		
Incurred Month	Completion Factor	Claims Paid through 3/31/12
Aug-11	100.00%	\$14,870,900
Sep-11	100.00%	\$14,075,000
Oct-11	100.00%	\$13,220,000
Nov-11	99.01%	\$12,300,000
Dec-11	96.13%	\$9,450,000
Jan-12	90.69%	\$6,200,000
Feb-12	82.94%	\$5,500,000
Mar-12	37.87%	\$2,600,000

Question 8 Continued on next page

8. Continued

- (c) (3 points)
 - (i) Determine sufficiency/deficiency of the March 31, 2012 IBNR as of June 30, 2012. Show your work.
 - (ii) Explain the sufficiency or deficiency.
- (d) (1 point) Explain the reasons for recent instability of the IBNR calculation.
- (e) (3 points) Construct a new reserve policy for TTAIC. Be specific and justify your answer.

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

USE THIS PAGE FOR YOUR SCRATCH WORK

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