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**SOCIETY OF ACTUARIES**  
**Group and Health – Company/Sponsor Perspective**

# Exam CSP-GH

## MORNING SESSION

**Date:** Friday, April 30, 2010

**Time:** 8:30 a.m. – 11:45 a.m.

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### 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 9 questions numbered 9 through 17.

The points for each question are indicated at the beginning of the question. Questions 5 - 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 CSP-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 an actuary at Good Health Insurance Company (GHIC), a national health insurer. The CEO has asked you to develop a report to evaluate medical effectiveness.
- (a) (1 point) List the primary data sources and identify the advantages and disadvantages of each data source.
  - (b) (1 point) Describe the critical considerations that will give you a statistically valid sample of your company's data to use in your report.
  - (c) (1 point) List and explain the common measures that would be included in a medical effectiveness report.
  - (d) (1 point) The Chief Medical Officer has suggested using all of GHIC's data in aggregate to determine medical effectiveness. Explain why this may or may not be appropriate.

2. (7 points) Your company has recently come under scrutiny for accusations of lack of compliance with U.S. Federal regulations. Your CEO has asked you to design an improved compliance program. You believe the Office of Inspector General's guidance is most appropriate.
- (a) (2 points) Describe the considerations that should be made when designing and hiring for the position of Corporate Compliance Officer (CCO), including appropriate authorities for the position.
  - (b) (1 point) Describe the attributes of an ideal candidate for this role, including the relative importance of each attribute.
  - (c) A year after setting up this position, an accusation has been made against your company for using third party endorsements and statistics in advertisements in violation of the NAIC Advertisements of Accident and Sickness Insurance Regulation.
    - (i) (2 points) Explain the requirements for using third party endorsements and statistics in these insurance advertisements.
    - (ii) (2 points) Describe the steps the CCO should follow and the documentation that should be created when conducting an investigation into this accusation.

**3.** (4 points) Paterno Care is a small regional health care company selling medical expense plans to individuals and small employers. The CEO is looking for ways to manage and grow this business.

- (a) (1 point) List ways reinsurance could facilitate Paterno Care’s expansion goals.
- (b) (2 points)
  - (i) Create a Score Sheet to compare your reinsurance options.
  - (ii) Complete this Score Sheet for Paterno Care. Justify your response.
- (c) (1 point) You have been given the following experience from the previous year.

Claim Range	Average Annual Claim Amount	Number of Claimants
\$0 - \$10,000	\$2,000	100,000
\$10,001 - \$75,000	\$50,000	20,000
\$75,001 - \$150,000	\$100,000	12
\$150,001 - \$250,000	\$200,000	9
\$250,001 - \$400,000	\$300,000	5
\$400,001 – 750,000	\$500,000	2
\$750,000 +	\$1,000,000	1

- (i) Describe general considerations in selecting a stop loss deductible level for any company.
- (ii) Recommend a stop loss deductible for Paterno Care. Justify your answer.

4. (7 points) You work at Toxic Interstate Pharmaceuticals (TIP), a Pharmacy Benefits Manager. Your actuarial trainee has been working on Medicare Advantage Prescription Drug Benefit pricing. He has developed the following pricing for TIP's Alternative Coverage Plan and the Defined Standard Coverage Plan.

	Alternative Coverage Plan			Defined Standard Coverage Plan		
	Members with Projected Cost Less than ICL	Members with Projected Cost Greater than ICL	Total	Members with Projected Cost Less than ICL	Members with Projected Cost Greater than ICL	Total
Projected Members	1,000	1,000	2,000	1,000	1,000	2,000
Cost of Part-D Covered Drugs (PMPM)			\$103.00			\$104.20
Cost of Part-D Excluded Drugs (PMPM)			\$3.90			\$0.00
Net Plan Liability (PMPM)	\$24.04	\$70.16		\$25.49	\$78.75	
Plan Liability (PMPM) for Costs greater than the ICL, but less than the Catastrophic Limit			\$101.00			\$101.00
Net Plan Liability (PMPM) Above the Catastrophic Limit			\$6.40			\$4.80
Annual Deductible	\$20.00			\$310.00		

PMPM = per member per month,  
ICL = Initial Coverage Limit

Assume the Alternative Coverage Plan has the following plan design values:

- Member pays 100% of costs between the ICL and the catastrophic limit
- Copays apply after the deductible
- Copays apply after the catastrophic limit
- TIP will apply for the Part-D payment demonstration

Assume the Defined Standard Coverage Plan has the following plan design values:

- Initial Coverage Limit per member per year (PMPY) \$2,830
- True Out of Pocket Costs (PMPY) \$4,550

**4. Continued**

- (a) *(3 points)*
  - (i) Explain the difference between an actuarial equivalent cost sharing plan and an alternative coverage plan.
  - (ii) Describe the intended goals/safeguards of the actuarial equivalence tests for alternative cost sharing plans and alternative coverage plans.
- (b) *(2 points)* Describe the Actuarial Equivalence tests and determine if TIP's Alternative Coverage Plan meets the requirements of Actuarial Equivalence. Justify your answer.
- (c) *(2 point)* Recommend and justify changes that could be made to TIP's Alternative Coverage Plan design in order to achieve actuarial equivalence.

**Questions 5 - 8 pertain to the Case Study.**  
**Each question should be answered independently.**

- 5.** (10 points) You are an actuary for Great Expectations reviewing the material presented for the possible merger with Copperfield.
- (a) (4 points)
- (i) Calculate the key elements of the Dupont Formula for Great Expectations and Copperfield for 2009. Show your work.
  - (ii) Compare and contrast the drivers of the key elements for each company.
- (b) (1 point) List the strengths and weaknesses of using Return on Equity (ROE) to evaluate a company.
- (c) (1 point) Calculate the ROE for Copperfield for 2009 assuming Shareholders Equity decreases 18% and asset turnover increases 10%. Show your work.
- (d) (1 point) Calculate the ROE for Copperfield for 2009 assuming its 2008 year end reserves were overstated by \$1.385 billion. Show your work.
- (e) (2 points) Calculate Great Expectations' Cost of Capital for 2009 assuming the following. Show your work.
- |   |      |
|---|------|
| - Interest on bonds is                      | 6.0% |
| - Beta                                      | 1.55 |
| - Current Stock Price                       | \$40 |
| - Historical excess return on common stocks | 5.5% |
| - The yield on government bonds is          | 3.5% |
- (f) (1 point) Explain the impact to Great Expectations' stock price for the following scenarios:
- (i) Actual Return on Assets is greater than the Cost of Capital.
  - (ii) Actual Return on Assets is equal to the Cost of Capital.
  - (iii) Actual Return on Assets is less than the Cost of Capital.

**Questions 5 - 8 pertain to the Case Study.**  
**Each question should be answered independently.**

- 6.** (9 points) Dr. Manette has received a proposal from Nipper-Toots, Inc. (NTI), an independent Disease Management (DM) vendor. He has asked you to assist in evaluating NTI's proposal. You have been given the following information, in addition to the case study:

Members covered in DM program: 19,603

<b><u>2010 DM Plan Information</u></b>	<b><u>NTI</u></b>
DM Program Cost	\$3,500,000
Average Length of Stay	1.47
Cost Per Day	\$1,845
Expenses (per member per month)	\$1.98
Expected Hospital annual admissions with the DM program	58,921

- (a) (1 point) Describe characteristics of chronic conditions that make them suitable for DM programs.
- (b) (1 point) Give examples of specific exclusionary conditions which may preclude a member's experience from being included in a DM program's measurement.
- (c) (4 points) Calculate the Return on Investment (ROI) and net savings for each of the DM programs. Show your work.
- (d) (3 points) Make a recommendation to Dr. Manette as to whether or not Great Expectations should proceed with NTI's DM program or continue their current DM program. Justify your answer.

**Questions 5 - 8 pertain to the Case Study.**  
**Each question should be answered independently.**

- 7.** (14 points) You have been working on your response to Mr. Scrooge's concerns regarding Barnaby Rudge Inc's (BRI) year end reserves.
- (a) (1 point) Describe considerations that should be made when developing medical reserves.
  - (b) (2 points) You have determined that the pharmacy claims are submitted electronically and paid immediately, so no pharmacy reserve is required. Verify the reserves reported for BRI in the 2009 NAIC Health filing's Statement of Actuarial Opinion. Show your work.
  - (c) (5 points) Critique and recommend changes, if any, to Mr. Fagan's 2009 NAIC Health filing's Statement of Actuarial Opinion.
  - (d) (3 points) Your legal counsel is considering taking Mr. Fagan to the Actuarial Board of Counseling and Discipline (ABCD). List the precepts of the Code of Professional Conduct and describe how Mr. Fagan may or may not be in conflict with these precepts.
  - (e) (3 points) Describe the qualification standards that Mr. Fagan must follow in order to sign the NAIC Health Filing's Statement of Actuarial Opinion.

*Questions 5 - 8 pertain to the Case Study.  
Each question should be answered independently.*

- 8.** (5 points) Great Expectations is considering expanding into the individual market in the US regardless of the outcome of merger talks with Copperfield. List and explain the changes Great Expectations would need to make to its current sales, marketing, and distribution functions in order to have a successful individual product line.

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

