SOCIETY OF ACTUARIES

Group & Health Risk Mitigation Exam

Exam GHRM

Date: Friday, May 5, 2023

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This examination has 8 questions numbered 1 through 8 with a total of 60 points.

   The points for each question are indicated at the beginning of the question.

2. 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 provided in this document.

Written-Answer Instructions

1. Each question part or subpart should be answered either in the Word document or the Excel file as directed. Graders will only look at work in the indicated file.

   a) In the Word document, answers should be entered in the box marked ANSWER. The box will expand as lines of text are added. There is no need to use special characters or subscripts (though they may be used). For example, β_1 can be typed as beta_1 (and ^ used to indicate a superscript).

   b) In the Excel document formulas should be entered. Performing calculations on scratch paper or with a calculator and then entering the answer in the cell will not earn full credit. Formatting of cells or rounding is not required for credit.

   c) Individual exams may provide additional directions that apply throughout the exam or to individual items.

2. The answer should be confined to the question as set.

3. Prior to uploading your Word and Excel files, each file should be saved and renamed with your five-digit candidate number in the filename.

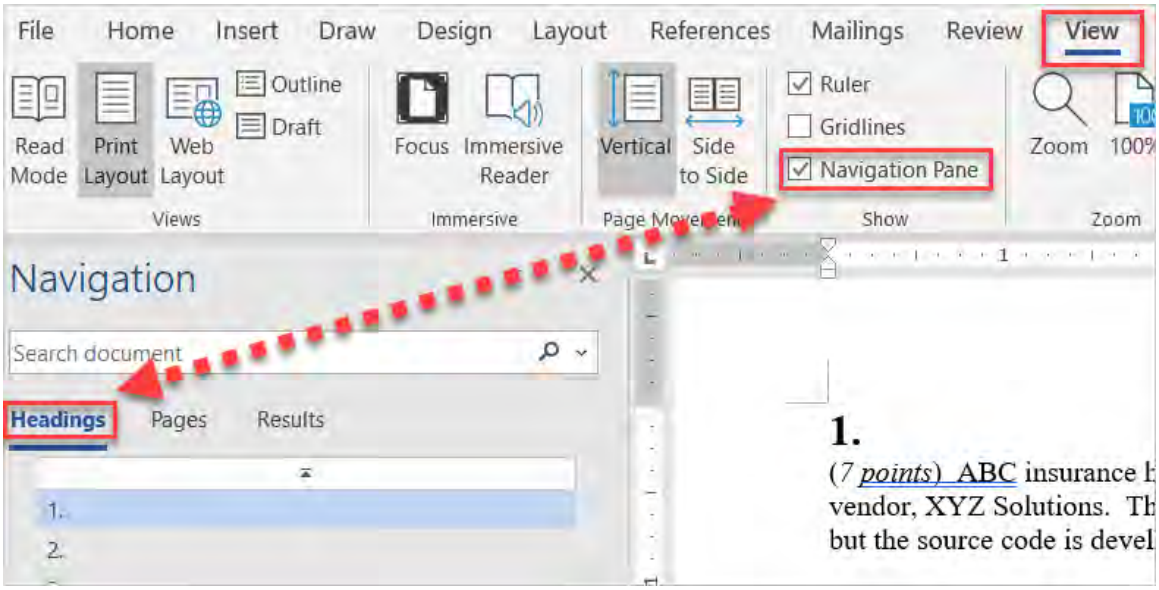
4. The Word and Excel files that contain your answers must be uploaded before the five-minute upload period expires.

475 N. Martingale Road
Schaumburg, IL 60173-2226

Navigation Instructions

Open the Navigation Pane to jump to questions.

Press Ctrl+F, or click View > Navigation Pane:



1.

(*5 points*) The new Chief Actuary of Company ABC is familiar with Symmetry's Episode Risk Groups (ERG) model, but not as familiar with Medicare Advantage Prescription Drug (MAPD) risk scores.

(a) (*2 points*) Describe components of the MAPD risk score.

ANSWER:

(b) (*3 points*) Compare and contrast the calculation of MAPD and ERG risk scores.

ANSWER:

2.

(*7 points*) You are an actuary supporting the administration of provider networks at ABC health insurance company.

(a) (*2 points*)

(i) List elements necessary for network management.

ANSWER:

(ii) Describe an example of how these elements could be at odds with each other.

ANSWER:

(b) (*2 points*) Describe necessary steps for ABC to develop a set of measures for provider network quality.

ANSWER:

You are evaluating the efficiency of in-network Hospital X, which is being considered for a bundled payment program by ABC.

You are given:

Services	Number of Services	Market Average Cost per Service	Provider Cost Per Service
Cardiac Stents	2	$20,000	$200,000
Knee Replacements	30	$40,000	$37,000
Hip Replacements	35	$45,000	$40,000
Colonoscopies	35	$2,500	$2,600
Appendectomies	5	$12,000	$15,000

2. Continued

(c) (*3 points*)

(i) Calculate the efficiency of Hospital X using the Portfolio Method. Show your work.

The response for this part is to be provided in the Excel spreadsheet.

(ii) Assess potential concerns with the efficiency assessment.

ANSWER:

(iii) Recommend a bundled payment program for Hospital X that maximizes the efficiency of and the number of services included in the program. Justify your response. Show your work.

The response for this part is to be provided in the Excel spreadsheet.

3.

(*7 points*)

(a) (*2 points*) Describe characteristics of the group technique for employee benefit design.

ANSWER:

Company ABC offers a selection of vision and dental benefits for its employees. During a review of the benefit program, ABC notices that many employees have been choosing higher coverage in years of high claims and reduced coverage in years of low or zero claims.

(b) (*2 points*)

(i) Identify the issue described.

ANSWER:

(ii) Recommend design approaches to mitigate this issue. Justify your response.

ANSWER:

(c) (*2 points*) Explain the advantages and disadvantages of a Cafeteria Plan to an employer.

ANSWER:

3. Continued

(d) (*1 point*) Assess whether each of the following is considered an acceptable mid-year change to an employee's medical account under Section 125 regulations. Justify your response.

(i) Switching carriers after moving from one state to another

ANSWER:

(ii) Removing coverage for a spouse following the birth of a child

ANSWER:

(iii) Adding coverage for a spouse who lost their own coverage after becoming unemployed

ANSWER:

(iv) Electing a richer plan because of anticipated doctor's visits

ANSWER:

4.

(*8 points*) LMN Health Insurance company is looking to diversify its reimbursement methodologies with existing providers. As part of the initiative, LMN is looking to move towards more Value-Based Care reimbursement models.

(a) (*1 point*) List marketplace data and metrics that actuaries may consider when modeling potential outcomes for providers moving to a Value-Based Care model.

ANSWER:

(b) (*2 points*) Describe four capabilities of the Value-Based Care Framework.

ANSWER:

4. Continued

LMN has been negotiating with OPQ Community Hospital to enter a three-year Accountable Care Organization (ACO) arrangement in 20X4. This arrangement will be a one-sided model with benchmarks set based on the rules established by the Medicare Shared Savings Program.

You are given the following information on LMN's fee-for-service (FFS) spend for services provided by OPQ:

Year	FFS Spend
20X1	$1,000,000
20X2	$1,200,000
20X3	$1,400,000

- FFS cost of a hip replacement is $15,000
- Estimated annual FFS spend per year for 20X4-20X6 is $1,200,000

(c) (*2 points*) Calculate the incremental revenue OPQ can receive over the three-year period from 20X4-20X6 by performing two additional hip replacements in 20X3. Show your work.

The response for this part is to be provided in the Excel spreadsheet.

(d) (*2 points*) Propose three changes to LMN's ACO arrangement with OPQ that will prevent unintended incentives. Justify your response.

ANSWER:

(e) (*1 point*) Compare each of the following reimbursement models to an ACO shared savings reimbursement model in terms of degree of risk managed by the provider and the level of provider sophistication. Justify your response.

(i) Fee for Service

ANSWER:

(ii) Global Payment/Capitation

ANSWER:

5.

(*8 points*) You are an actuary with Company ABC. You are asked to evaluate a disease management (DM) program designed to reduce the total claims spend of members with hypertension. All members with hypertension are in the DM program.

(a) (*1 point*) Describe the impact on a savings calculation of identifying patients with hypertension using only medical claims versus using both medical and pharmaceutical claims.

ANSWER:

You are provided with the following:

- Data on ABC's members provided in the accompanying Excel file.
- All members are enrolled with Company ABC for the entire 12 months of each year.
- The DM program costs $200,000 to administer each year.

(b) (*4 points*) Calculate the total percentage reduction in aggregate claims spend from the DM program for each of the intervention years under the following scenarios:

(i) Base-Case, that is, attributing each member based upon their condition status in each year. Show your work.

The response for this part is to be provided in the Excel spreadsheet.

(ii) Retrospective Chronic Identification. Show your work.

The response for this part is to be provided in the Excel spreadsheet.

(c) (*3 points*)

(i) Critique the scenarios from part b.

ANSWER:

(ii) Recommend whether Company ABC should continue offering the DM program. Justify your response.

ANSWER:

6.

(*10 points*) Medicare Payment Advisory Commission (MedPAC) published a study, "Issues for Risk Adjustment in Medicare Advantage."

(a) (*3 points*) Identify and describe issues from the study regarding the use of Medicare Hierarchical Condition Categories (HCCs) for risk adjustment.

ANSWER:

You are given the following information on two health plans, which roll up to the state plan, prior to any network contract effects:

	State	Plan A	Plan B
Actuarial Value (AV)	0.700	0.700	0.700
Plan Liability Risk Score (PLRS)	1.000	0.918	1.082
Allowable Rating Factor (ARF)	1.952	1.952	1.952
Induced Demand Factor (IDF)	1.020	1.020	1.020
Geographic Cost Factor (GCF)	1.000	1.000	1.000
Network Contract Effect		1.000	1.000
Premium (priced at 100% loss ratio)	$500	$500	$500
Members	2,000	1,000	1,000

6. Continued

(b) (*2 points*) Define and describe issues with each of the following biases:

(i) Bias against zero-condition members

ANSWER:

(ii) Bias against limited network and other lower cost plans

ANSWER:

(c) (*2 points*) Calculate the net income as a percent of premium for each plan assuming the network contract effects of Plan A and B are 0.900 and 1.100, respectively. Show your work.

The response for this part is to be provided in the Excel spreadsheet.

(d) (*3 points*)

(i) Describe the scope and applicability of ASOP 23, Data Quality.

ANSWER:

(ii) Explain elements that should be included in any actuarial communication regarding work specifically subject to ASOP 23.

ANSWER:

7.

(*8 points*) You are an actuary supporting a care management program.

(a) (*2 points*)

(i) Define Opportunity Analysis.

ANSWER:

(ii) Describe the purpose of Opportunity Analysis.

ANSWER:

(iii) List the basic components required to perform Opportunity Analysis.

ANSWER:

(iv) Define the key components in designing a care management program.

ANSWER:

You are given the following population stratification for your company's care management program:

Condition Category	Population %	Cost %
Episodic, Mental Health, Chronic	12%	42%
Episodic and Mental Health	4%	7%
Episodic and Chronic	15%	27%
Episodic only	9%	7%
Mental Health and Chronic	5%	5%
Mental Health only	14%	6%
Chronic Only	5%	2%
Emerging Conditions	12%	3%
None	24%	1%
Total	100%	100%

(b) (*2 points*) Interpret findings from this data.

ANSWER:

7. Continued

You are given the following logistic regression equation:

$$\ln[\, p / (1 - p)\,] = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + e$$

You are also provided the following information:

Control Member	Age	Education	Credit Score
1	30	0	600
2	55	1	820

Treatment Member	Age	Education	Credit Score
1	40	1	780
2	60	0	680

(c) (*2 points*) Calculate the propensity score for each treatment and control group member. Show your work.

The response for this part is to be provided in the Excel spreadsheet.

Assume the Caliper Matching method has a "fixed distance" criterion of 0.037.

(d) (*2 points*)

(i) Calculate the difference in age between treatment and control members, prior to and after matching, using the Caliper Matching method. Show your work.

The response for this part is to be provided in the Excel spreadsheet.

(ii) Calculate the difference in credit score between treatment and control members, prior to and after matching, using the Caliper Matching method. Show your work.

The response for this part is to be provided in the Excel spreadsheet.

8.

(*7 points*) You are the benefits manager for a small employer. Employee retention is a growing issue for the company and has caught the attention of the Chief Executive Officer (CEO). The CEO has asked you for suggestions to improve employee retention.

(a) (*1 point*) Describe advantages of using voluntary benefits to address employee retention.

ANSWER:

The CEO sends you an email with the following suggestions on how a voluntary benefits program should be structured:

(i) The employer will contribute a flat amount for every employee

(ii) Employees are automatically enrolled in the program

(iii) The program will have the full endorsement of the employer

(iv) The employer will publicize the program to employees

(v) Premiums are collected in cash

(vi) The CEO is to receive a consulting fee which is over and above normal administrative costs for the program

(b) (*1 point*) Explain whether each of the CEO's suggestions allows for a voluntary benefits program to be excluded from ERISA governance. Justify your response.

ANSWER:

8. Continued

The CEO has asked you to consider additional plan design changes for your company's group medical and Health Savings Account (HSA) offerings.

(c) (*2 points*)

(i) Describe considerations when designing a group medical plan for your employer.

ANSWER:

(ii) Describe pricing and plan design trends a small company should consider when offering group medical.

ANSWER:

(d) (*3 points*) Describe proposed legislative improvements for expanding HSAs in the following areas:

(i) Contributions to HSAs

ANSWER:

(ii) Major medical use of HSA funds

ANSWER:

(iii) Nonmajor medical use of HSA funds

ANSWER:

****END OF EXAMINATION****