

Exam GH 301

Date: Friday March 27, 2026

INSTRUCTIONS TO CANDIDATES

General Instructions

1. This examination has 7 questions numbered 1 through 7 with a total of 50 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.

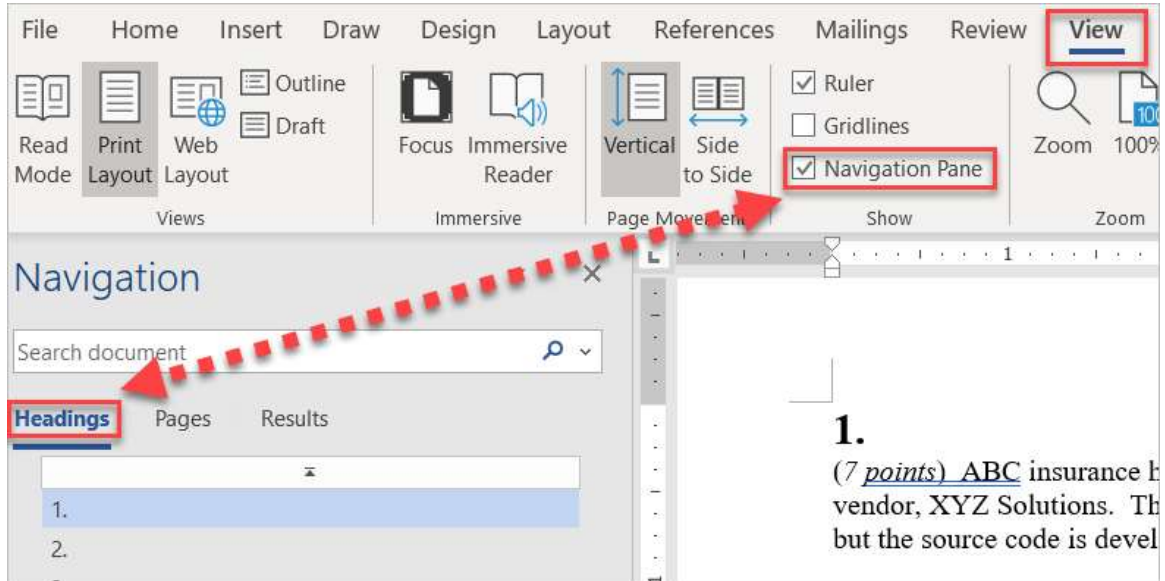
3. Prior to uploading your Word and Excel files, each file should be saved and renamed with your unique candidate number in the filename.

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

Navigation Instructions

Open the Navigation Pane to jump to questions.

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



1.

(4 points) Verify the accuracy of the following statements about predictive analytics using healthcare data. Justify your response.

- I. When performing predictive analytics with healthcare data, it is important to consider inference versus transparency. Additionally, for health risk score modeling, two important criteria are stability and accuracy.

ANSWER:

- II. The difference between concurrent and prospective risk scores is the time-period during which the measured relative costs are incurred. The US Department of Health and Human Services' Hierarchical Condition Categories (HHS-HCC) model, as an example, is a concurrent model which is used to evaluate the performance of Accountable Care Organizations (ACOs).

ANSWER:

- III. The presence of ICD-10 diagnosis codes in laboratory claims often identify the presence of clinical conditions for members, therefore, it is reasonable to include the diagnoses from laboratory services when developing and applying a predictive model.

ANSWER:

- IV. One of the common data sources used in predictive analytics is claims data and it often includes demographic information such as patient age, gender, health insurance product type, race, ethnicity, family status and income.

ANSWER:

- V. A "snapshot month" is the first month of open enrollment each year, which often contains the most accurate data for predictive models.

ANSWER:

2.
(6 points)

- (a) (1 point) Describe the unintended incentive for Accountable Care Organizations (ACOs) when the Centers for Medicaid and Medicare Services (CMS) created the Medicare Shared Savings program.

ANSWER:

- (b) (1 point)

- (i) Describe differences between one-sided and two-sided models for ACOs participating in the Medicare Shared Savings program.

ANSWER:

- (ii) Explain whether most ACOs participate in one-sided or two-sided models. Justify your response.

ANSWER:

ABC Health (ABC), a Medicare Fee-for-Service (FFS) provider, has decided to become an ACO in the Medicare Shared Savings program in Year X. It will be a 3-year one-sided contract.

You are given the following for ABC:

Year	FFS Spend
X - 3	\$5,000,000
X - 2	\$5,500,000
X - 1	\$6,000,000

- Cost of a knee replacement is \$20,000.
 - Estimated annual FFS spend per year for Year X through Year X + 2 is \$5,500,000.
- (c) (2 points) Calculate the incremental revenue ABC would receive for the contract period by performing an additional six knee replacements in Year X - 1. Show your work.

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

2. Continued

CMS is being asked to consider changes to the parameters of the Medicare Shared Savings program.

(d) (2 points) Critique the following statements with respect to the changes being considered:

(i) *“The most recent year matters the most in healthcare spend so the benchmark calculation should be based solely on that year.”*

ANSWER:

(ii) *“The benchmark should be based on all similar ACOs across the United States.”*

ANSWER:

(iii) *“One-sided deals should be eliminated. The government and ACOs should both have skin in the game so there should only be two-sided arrangements.”*

ANSWER:

3.
(7 points)

- (a) (2 points) List the components of a Medication Therapy Management (MTM) program for Medicare plans.

ANSWER:

ABC Health plan has seen members become non-adherent to their medications post hospital inpatient discharge.

- (b) (1 point) Describe how medication reconciliation can improve adherence for ABC Health's members.

ANSWER:

- (c) (1 point) Compare and contrast the health plan cost implications of medication adherence on Prescription Drug Plans (PDP) and Medicare Advantage Part D (MAPD) plans.

ANSWER:

You are given the following information for a MAPD plan member's utilization of two drug therapies, each on a 90-days supply, during the first 300 days of the year:

Day of Rx Fill	Drug Therapy
0	1
0	2
80	1
170	1
260	1
260	2

3. Continued

(d) (3 points)

- (i) (1 point) Compare and contrast Medication Possession Ratio (MPR) and Proportion of Days Covered (PDC).

ANSWER:

- (ii) (1 point) Calculate the MPR and PDC for this member. Show your work.

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

- (iii) (1 point) Evaluate whether the Medicare STAR measure of 80% adherence has been met. Justify your response.

ANSWER:

*The Excel spreadsheet has
additional data and information applicable to this question*

4.

(10 points) You are a Medicaid actuary working for ABC Health on a team who has been tasked with creating an internal forecast. The Medicaid book of business contains three blocks: Risk Group A, Risk Group B, and Non-Risk Group C. There are two other health insurers with market share in the same state as ABC Health.

In the accompany Excel file, you are provided with capitation rates, claims, risk scores, and member months for 20X1 through 20X3.

You are also given the following:

- No change in membership count and mix from 20X3 to 20X4 compared to the experience period
- Combined premium tax and margin is 10%
- Admin is \$15 PMPM
- The state uses the prior year as the experience period for risk adjustment

(a) (3 points) Calculate the average annual claims trend normalized for risk adjustment for the 20X1 through 20X3 experience period for the following blocks of business. Show your work.

- (i) Risk Group A
- (ii) Risk Group B
- (iii) Non-Risk Group C

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

(b) (4 points) Calculate the projected combined revenue for all groups for 20X4. Show your work.

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

(c) (1 point) Describe causes for the change in ABC Health's relative risk score from 20X2 to 20X3.

ANSWER:

4. Continued

ABC Health is interested in improving health outcomes by partnering with a social health and resource provider (SHARP).

(d) (2 points) Describe the potential impacts of this partnership to the following loss ratio components:

(i) Claims

ANSWER:

(ii) Revenue

ANSWER:

(iii) Admin

ANSWER:

The Excel spreadsheet has additional data and information applicable to this question

5.
(10 points)

(a) (1 point) Describe contents included in the following types of claim files:

(i) HCFA – 1500

ANSWER:

(ii) Pharmacy claim data

ANSWER:

(iii) UB-92

ANSWER:

(iv) Encounter data

ANSWER:

(b) (1 point) Describe coding schemes in claims data to classify members as diabetic.

ANSWER:

5. Continued

In the accompanying Excel file, you are provided with data on company XYZ's employees for Years 1 through 3.

Beginning in Year 2, Vendor ABC offered a disease management (DM) program to reduce blood glucose scores for employer XYZ's diabetic employees. The program encourages participants to frequently check their blood glucose levels. You are asked to provide a cost analysis of the program. Assume all covered members have been enrolled continuously for all years, and all diabetic members are eligible to be included in the cost analysis.

- (c) (1 point) Describe reasons for excluding diabetic members from the DM program's measured population.

ANSWER:

- (d) (5 points) Calculate the total percentage reduction in aggregate claims spend from the DM program for each of Years 2 and 3, using retrospective chronic identification. Show your work.

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

- (e) (2 points) Propose a revision to the calculation to better demonstrate the impact of ABC's program. Show your work. Justify your proposal.

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

*The Excel spreadsheet has
additional data and information applicable to this question*

6.

(6 points) You are negotiating reimbursement rates for physician services for a large group employer plan. The plan wants to incentivize in-network physicians to offer more availability to its members. A 20% bonus on office visits performed during evenings and weekends is being proposed.

In the accompanying Excel file, you are given utilization frequency and negotiated rates by CPT for Base Year Y.

You are also given the following information:

- Utilization trend of 1% per year on evaluation and management procedures
- Negotiated rates will take effect January 1, Y+2
- Rates will increase 2.5% from year Y to Y+2
- Proportion of visits during evenings and weekends is uniform across all CPT codes and are estimated to increase from 5% of all office visits in year Y to 12% of all office visits in year Y+2
- Descriptions for the following evaluation and management procedures:

CPT Code Range	Description
99201-99205	New patient, office and other outpatient visits
99211-99215	Established patient, office and other outpatient visits
99217-99220	Hospital observation care
99221-99239	Hospital inpatient services
99242-99245	Office or other outpatient consultations
99252-99255	Inpatient or observation consultations
99281-99288	Emergency department services
99291-99297	Critical and neonatal intensive care
99301-99333	Nursing facility and custodial services

- (a) (4 points) Calculate the cost of introducing the 20% bonus. Show your work.

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

6. Continued

The actuary representing the physician association negotiating with your health plan believes the estimated cost for the bonus calculated above may be overstated.

- (b) (2 points) Critique the assumptions used for calculating the cost of the bonus.

ANSWER:

7.

(7 points) You are employed by a health plan that is building a tiered narrow network.

You are given the following information on ten specialists. No other specialists are being considered for the tiered narrow network.

Specialist	Allowed Cost	Cost Efficiency Score	# Episodes	Specialty
1	\$5,000	0.75	10	Endocrinology
2	\$50,000	1.02	100	Endocrinology
3	\$5,000	1.29	10	Endocrinology
4	\$15,000	0.95	25	Gastroenterology
5	\$17,500	1.05	25	Gastroenterology
6	\$60,000	1.30	20	Hematology
7	\$4,500	0.50	3	Cardiology
8	\$30,000	0.70	15	Cardiology
9	\$125,000	0.95	50	Cardiology
10	\$87,500	1.30	25	Cardiology

(a) (4 points)

- (i) (2 points) Recommend each specialist as preferred or non-preferred. Justify your response.
- (ii) (2 points) Describe other factors that should be considered when deciding if a specialist should be preferred.

ANSWER:

(b) (3 points) Calculate the Tiered Network Health Plan (TNHP) savings using your preferred specialist recommendations and the following assumptions. Show your work.

- (i) \$1,000,000 in total network spend
- (ii) 80% of non-preferred episodes shift to preferred providers
- (iii) No change in member liability

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

****END OF EXAMINATION****