GH ADV Model Solutions
Spring 2014

1. **Learning Objectives:**
2.   The candidate will understand how to describe and evaluate the functions underlying a well-run health plan.

Learning Outcomes:
(2c)   Describe the claims adjudication process
      (i)   Identify data required to adjudicate claims
      (ii)   Understand techniques for identifying and preventing claims processing errors
      (ii)   Understand techniques for identifying and preventing fraud

Sources:
Essentials of Managed Healthcare
* Chapter 18, pages 387-391 and 395-396
* Chapters 18/19, pages 404-425

Commentary on Question:
Most candidates did well on part a and b of this question. Part c and d proved to be more challenging as candidates were asked to apply their knowledge and provide a recommendation.

Solution:
(a)   Discuss the core competencies of claims operations.

      Commentary on Question:
      Most candidates provided the main points and discussed them.

* Transactional processing
  * Handling and adjudication of claims
  * Functionality should be well understood and communicated
  * Staff includes technically proficient personnel, clerical personnel, supervisors/managers/directors, staff to support analytics

* Quality control
  * Focused on functions from initial intake through prep/staging
  * Proactive testing, quality reviews, and preventive file maintenance
  * Claims processing errors
  * Upstream and downstream needs to be considered

1. **Continued**

- Service Delivery
  - o Relevant for both internal and external customers
  - o Call centers to respond directly to claims issues - can sometimes immediately resolve issues, but can require call transfers if multiple issues
  - o Key is well trained and motivated personnel

- Information management and analysis
  - o Depends on good data stewardship and warehousing
  - o Requires two-way communication b/t claims personnel and departments

(b)   List the enterprise objectives around claims capability.

Commentary on Question:
Candidates had difficulty applying their knowledge to provide reasons for the increase in provider claims.

- Enabling the payer to meet contractual obligations
- Ensuring timely and accurate benefits administration for enrolled members
- Improving health care through the development and execution of care management plans
- Administering medical management policies and medical necessity decisions
- Providing prompt and accurate customer service
- Protecting financial liability
- Delivering on corporate mission through efficient use of the healthcare dollar

(c)   Describe possible reasons for the significant increase in the number of adjudicated physician claims

Commentary on Question:
Candidates had difficulty applying their knowledge to provide reasons for the increase in provider claims.

- Provider billing errors
  - o Duplicate bills submitted
  - o Upcoding of services/unbundling of claims

- Provider reimbursement methodology changes
  - o If fee schedule was changed or changed from a case rate then paid amounts could change

- Claims adjudication system not properly configured
  - o Incorrect benefit set up
  - o Incorrect provider reimbursement set up

1. **Continued**

- Fraud
  - o False claims were filed
  - o Members not eligible for services
  - o Medical identity theft

(d)   Recommend actions that could be taken for each item in part (c).

Commentary on Question:
Recommendations tended to be weak or repetitive of information provided in part c. The recommendation needed to include actions that the company could take to address the issue and not just to conduct analysis.

- Provider billing errors:
  - o Identify if there is a single provider that is causing the cost increase
- Provider reimbursement changes
  - o Contact provider contracting to find out if there were changes in fee schedules
- Systems not properly configured
  - o Contact claims processors to evaluate system configuration
  - o Pull additional claims data to see if there appears to be duplicate claims paid
- Fraud
  - o Contact internal fraud division or appropriate authorities to investigate.

2. **Learning Objectives:**
1. The candidate will understand how to evaluate the effectiveness of traditional and leading edge provider reimbursement methods from both a cost and quality view point.

Learning Outcomes:
(1d) Understand accountable care organizations and medical patient home models and their impact on quality, utilization and costs.

Sources:
Medicare Shared Savings Program, page 18

Commonwealth Fund Paper – Medicare Shared Savings Program

Commentary on Question:
This question aimed to test the candidate's knowledge of the Medicare Shared Savings Program and how to properly evaluate the Program given sets of projections. A prepared candidate would be able to list & provide details regarding the Program aspects and evaluate participation in the Program given three years' of data

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

Commentary on Question:
The majority of candidates created a chart as requested. The strongest candidates included all Program aspects in rows and included the descriptive details in columns.

	One-Sided Model	Two-Sided Model
Maximum Sharing Rate	Up to 50%	Up to 60%
Quality Scoring	Up to 50% is conditional on quality performance	Up to 60% of shared savings is conditional on quality performance
Minimum Savings Rate	Vaires by population size	Flat 2% regardless of size
Minimum MLR	not applicable	Flat 2% regardless of size
Maximum Sharing Cap	Payment capped at 10% of ACO's benchmark	Payment capped at 15% of ACO's benchmark

Shared Losses	None	One minus final sharing rate applied to first dollar losses once MLR is met or exceeded; shared-loss rate not to exceed 60%
Loss Sharing Limit	None	Cap on the amount of losses to be shared is phased in over 3 years sarting at 5% in year 1, 7.5% in year 2, and 10% in year 3

(b) 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

Commentary on Question:
Very few candidates correctly weighted the three years' performance based on the benchmark weights given in the material. Using equal weights for each year earned partial credit.

Service	Year 1	Year 1	Year 1
Number of Enrolees	70,000	71,000	72,000
CMS Expenditure Baseline PMPM	$1,000	$1,030	$1,060
Projected Expenditure PMPM	$950	$925	$900
Calculate the weighted expenditure baseline.			
Weights:	10%	30%	60%

Step 1: Develop CMS Baseline Expenditure PMPM – Multiply PMPM per year by appropriate weights:
- $1000 * .1 + 1030 * .3 + 1060 * .6 = \$1045$

Step 2: Develop Projected Expenditure PMPM – Multiply PMPM per year by appropriate weights:
- $950 * .1 + 925 * .3 + 900 * .6 = \$912.50$

Step 3 (Part i): Develop 1-sided share calculation:
- Gross Calculation: $\$1045 – 912.50 = \$132.50$ savings
- Share 50% = $66.25
- Savings cannot exceed 10% of baseline PMPM
- Savings calculation = $min(10\% * 1045 , 66.25) = \$66.25$

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2. **Continued**

Step 4 (Part ii): Develop 2-sided share calculation:
- Gross Calculation: $1045 – 912.50 = \$132.50$ savings
- Share 60% = $79.50
- Savings cannot exceed 15% of baseline PMPM
- Savings calculation = min(15% * 1045 , 79.50) = $79.50

Step 5: Need to save at least 2% (minimum savings rate) to achieve payout, so gain share will be paid

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

Commentary on Question:
Most candidates drew the correct conclusion to choose the 2-sided approach based on their calculated results.

I have determined savings is greater under two-sided approach and recommend move forward with two-sided approach.

3. **Learning Objectives:**
5. The candidate will understand and prepare a Statement of Actuarial Opinion (SAO) for selected Health Matters.

Learning Outcomes:
(5b) Discuss specific issues with respect to these classes of SAOs

(5c) Develop documentation for an SAO

Sources:
ASOP 41, ASOP 23, ASOP 28, ASOP42

Commentary on Question:
This question was primarily a documentation question in a specific application (a statutory actuarial opinion). As such, much of the solution comes from ASOP 23 on Data Quality and ASOP 41 on Actuarial Communications with a limited amount on the specific application from ASOP 28 and ASOP 42. We were looking for 3 primary components to the solution—an overall statement of the totality of information that should be included in the actuarial memorandum (or any actuarial communication), a section on the type of qualifying language that might be appropriate to include in the actuarial memorandum, and a section on the specific support that one would expect to find from the actuarial memorandum. The performance on this question was varied. Candidates commonly failed to provide the obvious—the memorandum should include sufficient detail to allow another qualified actuary to understand and evaluate the reasonableness of the work. Candidates also commonly lost points by providing a generic answer (e.g. provide assumptions and methods) instead of a specific answer to the opinion provided (e.g. provide calculation showing no premium deficiency reserve and calculation showing the development of the provider liabilities. A limited number of candidates provided the requirement for the actuarial opinion instead of the actuarial memorandum supporting the opinion. Most candidates did well on the section regarding qualifying language (statement on data reliances, disclosure if assumptions prescribed by law, statement on risks and uncertainties).

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

- Purpose (ASOP 41)--Document should provide sufficient detail to allow another qualified actuary to understand and evaluate the methods and analysis of the opining actuary.
- Disclosures (ASOP41)
  - Disclose if any assumptions or methods are prescribed by applicable law
  - Provide a statement on risks and uncertainties
  - Provide the date that the report used information through (e.g. used paid claim data through December 31)
  - Description of data relied on and source of data

3.   Continued

- Analysis and findings
  - Description of data review process and any findings/modifications to the data (ASOP 23)
  - Calculation of unpaid claims liability including base calculation and how determined to provide for moderately adverse deviation
  - Calculation of provider liabilities
  - Basis for zero unpaid claim adjustment expense liability (zero dollar items need to be supported)
  - Calculation of aggregate health claim reserve
  - Calculation of provider risk sharing receivable including evaluation of provide solvency
  - Reconciliation of Underwriting and Investment Exhibit, Part 2B
  - Evidence of determining consistency with prior period

4. **Learning Objectives:**
1. The candidate will understand how to evaluate the effectiveness of traditional and leading edge provider reimbursement methods from both a cost and quality view point.

2. The candidate will understand how to describe and evaluate the functions underlying a well-run health plan.

5. The candidate will understand and prepare a Statement of Actuarial Opinion (SAO) for selected Health Matters.

Learning Outcomes:
(1a) Calculate provider payments under standard and leading edge reimbursement methods.

(1b) Evaluate standard contracting methods from a cost-effective perspective.

(1c) Describe the credentialing and contracting process for providers.

(1f) Describe quality measures and their impact on key stakeholders.

Sources:
Essentials of Managed Care
• Chapters 4, 5, and 18

Handbook of Employee Benefits, Chapter 9

Actuarial Standard of Practice 17: Expert Testimony by Actuaries

Commentary on Question:
The purpose of this question was to test candidates' understanding of HMO contracting practices and issues, specifically as they relate to dealing with Integrated Delivery Systems and global capitation. While related, most parts of this question were intended as stand-alone questions and did not necessarily build upon the other sub-parts. In addition, responses to this question should have been from an insurer's (SIHP's) perspective.

Solution:
(a) Describe an Integrated Delivery System (IDS).

    Commentary on Question:
    Most candidates gave basic answers covering the first bullet. Some remarked on the ability to manage care on an integrated basis or the potential to have more negotiating leverage with insurers, but many provided no additional information that was relevant.

4.   Continued

- Two types of IDS:
  - o Hospital system and affiliated privately practicing physicians
  - o Hospital systems that employ large number of physicians
- In some states, HMOs may need to have direct contracts with physicians
- if the IDS includes enough physicians, it will have increased negotiating leverage
- Includes facilities and physicians that contract as a single entity and may have an integrated care model.

(b)   Describe the steps SIHP would take to establish a global capitation contract with BCC.

Commentary on Question:
While most candidates did well on this section, a few focused too narrowly and only discussed how a capitation rate would be determined (and not on the process of establishing a contract with BCC).

- SIHP and BCC need to agree on stop-loss or reinsurance provisions
- SIHP and BCC need to determine who is being capitated and for which services
- SIHP needs to ensure the risk pool is large enough to be stable or figure out how to account for variations in risk profile. An adjustment for demographics and risk pooling may be needed.
- IDS contracts are large, complex, and take time to negotiate
- SIHP will want to minimize carve-outs
- SIHP should monitor BCC and ensure it remains solvent/stable

(c)   Calculate the monthly capitation rate. Show your work.

Commentary on Question:
Candidates performed well on this section. The most common gap in understanding was recognizing how stop-loss applies in a contract between a provider group and a health plan.

- Premium = $300 PMPM
  Claims = 80% * Premium = 80% * 300 = $240 PMPM

- Carve-outs = 30 + 5 + 3 = $38 PMPM
- Stop-loss charge = $2 PMPM

- Monthly capitation = target claims less carve-outs and stop-loss charge
- =240 – 38 – 2 = $200 PMPM

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4. **Continued**

(d)   Describe the advantages and disadvantages to SIHP of using a global capitation contract.

Commentary on Question:
Candidates performed fairly well, but tended to focus on either advantages or disadvantages instead of providing a balanced response.

Advantages:
- The provider (BCC) assumes risk for expenses and utilization
- The provider has no incentive to over-utilize (as under FFS), thus aligning the provider's objectives with the health plan's
- SIHP's costs are more predictable and more stable
- It is easier and less costly for SIHP to administer

Disadvantages:
- The reward for care is separated from provision of care
- Stop-loss provisions may not fully insulate SIHP from impact of high-cost cases
- Variability in necessary care and overall costs is an issue if associated members are limited
- SIHP needs to account for the possibility that the provider (BCC) fails to provide agreed upon care

(e)   Assess the global capitation's impact on:

(i)   Medical Management

(ii)   Healthcare quality

Commentary on Question:
Candidates generally provided just one or two observations for each sub-part. While answers generally were relevant, few were complete enough to earn full-credit.

(i)
- most medical management responsibilities are shifted to the provider (BCC)
- provider (BCC) is responsible for efficiency of care, may be better positioned to manage patients
- SIHP may not receive claims detail, complicating its ability to manage care
- provider (BCC) needs to manage facility budgets and potentially limit capital spending and/or adjust types of professionals used

4. **Continued**

(ii)
- SIHP could include incentives/penalties for measurable quality outcomes
- payment structure incents minimizing waste and optimizing efficiency of care
- since provider manages care, can take holistic approach to care/patient management
- could be good if care more efficient and well-directed by provider, but could be bad if provider avoids providing necessary care or lacks adequate capacity

(f)   Assess the legal implications for SIHP of using global capitation.

Commentary on Question:
Candidates performed poorly on this section. Candidates struggled to demonstrate an understanding of the liability that remained with SIHP after entering the global capitation deal, and very few candidates recognized that entering a global capitation contract with BCC creates additional responsibilities for SIHP.

- May be required to provide stop-loss or reinsurance coverage to the capitated provider
- Must understand terms of the contract and what services are carved-out
- Must identify the contractual relationship with individual providers vs. the contracted entity
- SIHP is liable if providers become insolvent and can no longer provide necessary care
- potential requirement to conduct and disclose results of customer satisfaction surveys (esp. for Medicare/Medicaid)
- SIHP may be held liable for providers' behavior/practice

(g)   Assess the impact on claims adjudication and describe any unique challenges faced with global capitation contracts.

Commentary on Question:
Most candidates identified a few items that would impact claims processing, but did not fully identify the scope of the impacts. The more complete responses tied the claim processing changes to other processes in the organization.

- claims may not need to be submitted, making it harder to track population health/utilization
- fewer claims to adjudicate since payment not tied to services provided
- IBNR / lag patterns change
- Need to determine how claims will be handled for capitated care rendered by other providers

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4.   **Continued**

- if not all claims fully reported, SIHP may not be able to provide full-scope of disease management services
- reporting is also more challenging since data may be incomplete

(h)   Describe challenges SIHP might face if they use the same global capitation contract for a PPO product.

Commentary on Question:
Candidates struggled to provide a full answer on this section, and frequently only commented on the lack of a gatekeeper or past practices as the reason it would be a challenge to use global capitation with a PPO plan. The question was seeking a broader response than that and an understanding of why past practice has generally been that PPOs do not use global capitation. Candidates that did provide additional challenges could have enhanced their scores had they provided additional details about why those challenges would pose a problem.

- PCP election may not be required
  - Can't force members to have a single provider manage/coordinate care, so not clear who would be capitated or how this would ensure appropriate payments are made
- Referrals not required, limited control over member behavior
  - PCPs / capitated providers may not be able to adequately manage care / utilization
- OON coverage
  - Member free to visit non-contracted providers; who is responsible for these charges, and what if they are higher than the capitation payments?
- Harder to manage care and have full view of claims/data
  - OON claims may not be provided timely; PCPs may not be informed of care provided by other providers (esp. OON); SIHP and providers may not have a full-view of the member's health/history
- Adjustments for capitated services provided by non-capitated providers
  - When capitated services are provided OON, how does the capitation rate get adjusted to avoid paying for the services twice?
- Claim predictability
  - Big advantage of global capitation is predictability of costs to SIHP; lack of referrals and inclusion of OON benefits makes SIHP's costs much less predictable

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

4. Continued

Commentary on Question:
While candidates generally struggled to connect this to the appropriate ASOP, some identified the relevant ASOPs but did not elaborate on the required practices or considerations. Many candidates were able to provide issues to pay attention to during the deposition. Many also provided recommendations on how to respond to those issues.

- Hypothetical questions
  - watch for reasonableness of questions
  - may need to refuse to answer questions if they are not appropriate
- Consistency with prior statements/work
  - results should be reasonably consistent unless unusual events occurred or assumptions proved to be materially incorrect
- In general, during the deposition:
  - should be able to clearly explain and defend work
  - don't imply that outcomes could or should have been foreseeable
  - Could changes in cost level or service mix from starting data have been anticipated?
  - Key assumptions/risks should have been clearly documented and disclosed (as appropriate)

5. **Learning Objectives:**
3. The candidate will understand how to evaluate techniques for claims utilization and disease management.

Learning Outcomes:
(3c) Describe operational issues in the development of a study including acceptable methods for dealing with the issues.

Sources:
Duncan
*   Chapter 3, pages 22-31 and 21-22
*   Chapter 7, pages 123-129 and 122

Commentary on Question:
This question was not intended to be a "list" question. Full points were awarded not for completion of lists but for explanations given. Explanations were much more valuable than complete lists. Part b(ii) was intended to have some original thought or application. Complex answers were not necessary, but the candidates needed to understand the response to b(i) to be able to answer it.

Solution:
(a) Outline questions to the vendor to identify possible methodological, measurement or claims issues.

   Commentary on Question:
   These are examples of responses and a wide variety of relevant answers was accepted. Full credit required multiple questions and needed to cover methodological, measurement AND claims issues.

   *   How was the reference population determined?
   *   How were the claims identified? Were any claims or members excluded?
   *   How were savings calculated/
   *   Was there a claims free period implemented?
   *   Was a control population used? If not, how were savings identified?
   *   How were claims outliers handled?
   *   What was the cost of the program? Are the savings net of cost?
   *   How was equivalence established between the reference and study populations?
   *   What is the source and time period of the data?

(b)
   (i) Explain measurement principles necessary when reviewing this study.

   (ii) Construct scenarios to illustrate how measurement principles have been violated.

5. **Continued**

Commentary on Question:
Part (i) required an explanation for full credit. No credit was awarded for lists. It was not necessary to list, explain and provide scenarios for all of the items listed for full credit.

For part (ii), any scenario that illustrated a candidate understood the principle violated would receive credit, but if more than one scenario illustrated violations of the same principle then credit was only awarded to the first. The purpose of this question was to display an understanding of how these principles apply to an actual study.

Reference Population
(i) Any outcomes measurement requires an intervention population against which to measure the intervention, even if the intervention was at an earlier point in time.
(ii) Looking at the change in costs in the intervention population and attributing this to the program

Equivalence
(i) To ensure validity in outcomes measurement, the intervention population should be equivalent to the reference population.
(ii) If comparing an over 65 population to a population with average age of 35.

Consistent Statistics
(i) The comparison needs to measure the same outcome variable in the reference and intervention populations
(ii) Deriving costs from length of stay in the reference population, but using services avoided for the intervention population.

Appropriate Measurement
(i) Avoid extraneous, irrelevant or confounding variables.
(ii) Using different geographic populations without controlling for area differences

Exposure
(i) Explicit definitions of categories of member, member time periods, and eligibility of those time periods
(ii) Allowing new members into the measurement population but not the control population

Reconcile the Results
(i) Be able to explain how the results impact the entire business and explain other factors can drive the claims costs upwards.
(ii) Showing a 10% savings but having record high claims increases.

(c) Describe common classes of measurement methods used to evaluate DM programs.

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5. **Continued**

Commentary on Question:
Many candidates confused what was being requested with different kinds of savings measurements (e.g. ROI, net savings, etc.) Full credit required all three categories with descriptions and examples

Control Group Methods – Use two populations to compare/measure/evaluate savings.
- Random – Considered the gold standard, difficult to achieve
- Geographic – Need to control for area differences
- Temporal – Actuarial adjusted historical control method, compares equivalent populations before and after intervention
- Participant vs Non-Participant – Has participation bias

Non-Control Group Methods – Does not rely on a control group to measure savings
- Services avoided – Compares services requested against services approved to determine impact of program
- Clinical measurement – Reviews changes in clinical measurement and derives savings from results

Statistical Methods
- Time Series – Looks at best fit line over time and how far actual results diverge after time of intervention
- Regression Discontinuity – $Y = B0 + B_1X + B_2Z$, where Z is a binary variable for pre/post intervention.

(d)   Describe criteria used to evaluate the validity of the vendor's study methodology.

Commentary on Question:
A majority of the items listed below was required for full credit. Credit was also awarded for items that did not appear on this list but were valid concerns.

- Method must be one they are familiar with
- Documented in sufficient detail to replicate the study\
- Results consistent with the client's expectations
- Results plausible overall
- Should lead to stable results over time and between clients
- Must be possible to implement cost effectively

6. **Learning Objectives:**
3. The candidate will understand how to evaluate techniques for claims utilization and disease management.

5. The candidate will understand and prepare a Statement of Actuarial Opinion (SAO) for selected Health Matters.

Learning Outcomes:
(3b) Estimate savings, utilization rate changes and return on investment as it applies to program evaluation.

(5b) Discuss specific issues with respect to these classes of SAOs
(i) Certification of health reserves

Sources:
Duncan Chapters 8/9, entire chapter

ASOP 12

Commentary on Question:
The question tested the candidates knowledge of utilization trend and risk adjustments allowing for comparisons of chronic care management outcomes. Candidates received maximum scores through logical calculations of utilization trend and risk and trend adjusted outcomes. For parts c and d, full points were provided to participants who not only listed major considerations but also elaborated briefly on those considerations.

Solution:
(a) Calculate the index population utilization trend. Show your work.

Commentary on Question:
Partial credit was given to candidates who calculated trend without risk adjustment or to candidates who showed work but did not arrive at the correct trend due to calculation errors. Full credit was given to candidates who calculated risk-adjusted trend accurately. Note that a slightly different answer due to rounding still achieved full credit.

Risk adjustment factor (index): 0.850 / 0.90 = 0.944444
Geographic adjustment factor (index): 1.010 / 0.98 = 1.030612
Risk adjust the current year IP admission per 1,000 per year:
254.55 / .944444 / 1.03612 = 261.518
Calculate index trend: 261.518 / 250 – 1 = 4.61%

(b)
(i) Calculate the care management program savings for the chronic population. Show your work.

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6. **Continued**

        (ii)   Determine whether or not the program was successful. Justify your answer.

Commentary on Question:
For part i) there were several accepted ways to answer this question and get full or nearly full credit. Since the text was not clear on exactly where to start in working relativities between time comparisons, there were several acceptable answers that received full credit. Candidates landed at app. $15.3M and app. $17.4M in gross savings, depending on whether they started with the prior year or current year in terms of calibrating the factors and extrapolating to the member counts.

Risk adjustment factor (chronic): $1.3 / 1.2 = 1.08333$
Geographic adjustment factor (chronic): $1.050 / 1.000 = 1.050$
Risk adjust the current year IP admission per 1,000 per year (chronic)
$= (844.00 / 1.08333 / 1.050) = 741.98$
Appy the index trend to the prior year IP admissions per 1000 per year (chronic)
$= 750.00 \times 1.0461 = 784.56$
Calculate saved admissions per 1000 per year $= 784.56 - 741.98 = 42.58$

Calculate gross saving for chronic population:
$= \$8,000 \times (42.58 / 1000) \times (540,000 / 12) = \$15.3$ M

(c)   Outline considerations to potentially improve the study of the program.

Commentary on Question:
Many candidates pointed out that costs were missing from the evaluation. Many people also pointed out that other possible savings could be investigated. We created a list of acceptable answers and candidates only needed to address four different ideas in order to receive full credit.

Possible acceptable answers addressed:
Adding cost to the evaluation/ROI
Other risk factors to study
Investigate the index population/control group for differences
Investigate whether index trend is appropriate
Exclude certain members from the study because could be inappropriate:
Outlier claims, new entrants
Regression to the mean issues
Classifications refined (high/medium/low)
Ramp up time with new program
Extend time of analysis
Look out for false positives and false negatives
Discussions about better models (best practices/better models available)

6. **Continued**

(d)   Describe considerations for establishing risk score categories according to Actuarial Standards of Practice (ASOP).

Commentary on Question:
Candidates did very well on this part, but candidates who just wrote a list got half credit while candidates who briefly described the issue got full credit.

Practicality of the model: balance between cost/resources and benefit received
Objectivity: categories clear and easy and basically inarguable
Credibility: the classes are not too small as to be not credible
Adverse selection: the risk adjustment model's existence could change the behaviors of the stakeholders
Causality: correlation needed, causation not necessary
Laws and regulations: for example, perhaps gender is not allowable
Industry and business practices: acceptability of the model by industry, expertise of creator, and whether your business can operate the model and react to results
Consider interdependence: many variables are covariant with each other, and thus may not add much additional value and certainly need to be viewed in the context of one another

7. **Learning Objectives:**
4.   The candidate will understand how to formulate, calculate and evaluate carrier reserving techniques.

Learning Outcomes:
(4c)   Calculate appropriate claim reserves given data.

(4f)   Describe, calculate and evaluate different types of reserves and explain when each is required
      (i)   Deficiency reserves
      (ii)   Active life reserves
      (iii)   Premium reserves
      (iv)   Deferred acquisition costs
      (v)   Claim administration expense reserves
      (vi)   Calculate the reserves given data

Sources:
Chapter 41, pages 867, 870, and 880

Commentary on Question:
The question was trying to see if the candidate understands how to calculate a Disabled Life Reserve correctly. The question was also looking to see if the candidate grasped the concept of how different Policy Provisions (in this case Social Security benefits) can affect reserve levels. Finally the question wanted to see if given enough information if the Candidate could correctly evaluate the length of time of these payments.

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

Commentary on Question:
Most Candidates knew the Cash flows in Scenario 1 & scenario 2 although some missed the minimum benefit of 100. Most Candidates knew they were 3 numbers (ages 62, 63, 64) to add to get to DLR. The survival factors were needed in the age 63 and age 64 factors was a point missed by many candidates

The DLR is defined as follows:
DLR = ∑ Max(min benefit, Gross Benefit(t) - Offset(t)) /(1+I(t))^t*(1-termrate(t))

Scenario 1
Cash Flows are as follows age 62 1,000, 63 its 200 64 its 200
Present Values:
Age 62= 1000*((1-.0075)^1+(1-.0075)^2+....(1-.0075)^12)= 11,430.79
Age 63= 200*((1-.0075)^12)*((1-.005)^1+(1-.005)^2+....(1-.005)^12)= 2,122.72
Age 64= 200*(1-.005)^12*(1-.0075)^12*200*((1)^1+(1)^2+....(1)^12)= 2,064.69
Scenario 1 DLR is 11,431+2123+2,065=15,618.20

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7.   **Continued**

> **Scenario 2**
> Cash Flows are as follows age 62 1,000, 63 its 100(minimum benefit applies) 64
> its 200
> Present Values:
> Age 62 = 1000*((1-.0075)^1+(1-.0075)^2+....(1-.0075)^12)= 11,430.79
> Age 63 = 100*((1-.0075)^12)*((1-.005)^1+(1-.005)^2+....(1-.005)^12= 1,061.36
> Age 64= 200*(1-.005)^12*(1-.0075)^12*200*((1)^1+(1)^2+....(1)^12)= 2,064.69
> Scenario 2 DLR is 11,431+1,061.36+2,065=14,556.84

8. **Learning Objectives:**
4. The candidate will understand how to formulate, calculate and evaluate carrier reserving techniques.

Learning Outcomes:
(4b) Explain the limitations and applications of the various valuation methods:
    (i) Lag methods
    (ii) Tabular methods
    (iii) Case reserves
    (iv) Projection methods
    (v) Loss ratio methods

(4d) Identify adjustments to IBNR (margins, trend, seasonality, claims processing changes, etc.).

(4e) Evaluate data resources and appropriateness for calculating reserves.

(4g) Demonstrate adequacy of the reserve
    (i) Gross premium valuation
    (ii) Asset adequacy analysis
    (iii) Recast analysis

Sources:
GHA-103-13: Health Reserves (Lloyd)

GHA-30-13: 2009 Health Meeting – Session 17: Claims Payment Issues, 12-Apr.

Commentary on Question:
Many students did well on part b. Many students did not know how to calculate the reserve deficiency in part c. The purpose of this question was to thoroughly test knowledge needed to develop reserves. It required both calculation knowledge and perspective as to various smoothing techniques and adjustments to deal with changing environments that impact claim payment patterns.

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

    Commentary on Question:
    Although a slight majority of students had some knowledge of the claim form conversion, many students didn't have any knowledge of it.

    The conversion of 4010 to 5010 is a change in electronic claim forms that is required by HIPAA. It allows input of the new ICD-10 coding. Operational impacts include:
    • Claim administrative staff training

8.   Continued

- Implementation costs
- Initial slow down of claim payments
- Reserving will need to be adjusted

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

Commentary on Question:
Most students knew how to perform the calculation. Some did errors while doing the computation and some didn't do all the computations but described the main steps.

Calculation of the IBNR can be done in four main steps:
- Determine the Age to Age factors
- Determine the Completion factors
- Apply the completion factors to the Cumulative Paid claims
- Subtract the Cumulative Paid claims

Step 1 - Determine <u>Age to Age factors</u> for each Lag:
- Take the average of the most recent three Age to Age factors
- Lag X Age to Age Factor = Average (Current Lag X factor, Prior Lag X factor, 2 period prior Lag X factor) (below are rounded values)
  - Lag 8 $1.003 = (1.00 + 1.01 + 1.00) / 3$
  - Lag 7 $1.013 = (1.03 + 1.01 + 1.00) / 3$
  - Lag 6   1.030
  - Lag 5   1.043
  - Lag 4   1.173
  - Lag 3   1.497
  - Lag 2   1.563
  - Lag 1 $4.010 = (3.51 + 3.73 + 4.79) / 3$

Step 2 - Determine the <u>Completion factors</u> for each Lag:
- Completion Factor = Prior Completion Factor / Current Age to Age factor in Step 1 (below are rounded values)
  - Lag 9   100.0%
  - Lag 8 $99.7\% = 100\% / 1.003$
  - Lag 7 $98.4\% = 99.7\% / 1.013$
  - Lag 6   95.5%
  - Lag 5   91.5%
  - Lag 4   78.0%
  - Lag 3   52.1%
  - Lag 2   33.3%
  - Lag 1 $8.3\% = 33.3\% / 4.010$

8. Continued

Step 3 - Apply the Completion Factors to the <u>Cumulative paid</u> claims for each incurred month:
- Ultimate Paid claims = (Cumulative Paid claims / Completion factor in Step 2) (below are exact values)

Incurred month - Ultimate Paid claims
- o Nov 11   14,449,054 = 14,401,050 / 99.7%
- o Dec 11   12,993,568 = 12,780,000 / 98.4%
- o Jan 12   16,996,258
- o Feb 12   16,716,652
- o Mar 12   23,011,437
- o Apr 12   26,286,026
- o May 12   47,842,806
- o Jun 12   50,518,404 = 4,200,000 / 8.3%

Total Incurred claims: 208,814,206

Step 4 - Subtract the total <u>Cumulative Paid claims</u>:
- IBNR = Total Incurred claims in Step 3 - Cumulative Paid claims

Incurred month - Cumulative Paid claims
- o Nov 11   14,401,050
- o Dec 11   12,780,000
- o Jan 12   16,230,000
- o Feb 12   15,300,000
- o Mar 12   17,950,000
- o Apr 12   13,700,000
- o May 12   15,950,000
- o Jun 12   4,200,000

Total Paid claims: 110,511,050

(c)

    (i)   Determine sufficiency/deficiency of the March 31, 2012 IBNR as of June 30, 2012. Show your work.

    (ii)   Explain the sufficiency or deficiency.

Commentary on Question:
Many students were not able to calculate the deficiency of the reserves as of March 31,2012. The most straight forward way is to compare ultimate claims as of March, 31 and compare them to ultimate claims for those same months based on June paid data and reserves. Using this approach takes into consideration both payments since March and updated reserves for those same months. Some students focused only on the incurred month of March which does not consider the reserves for prior months that are part of the full March 31 reserve.

8.   Continued

(i)   Calculate Ultimate Paid as of March 31, 2012 for months that are
       incomplete and compare to ultimate as of 6/30/12.

- Ultimate Paids = (Cumulative Paids / Completion factor)
- <u>March 31 2012 Ultimate Paids as of March 31, 2012</u>

    o   DOS   Ultimate
    o   Nov-11   12,423,000
    o   Dec-11   9,830,835
    o   Jan-12   6,836,852
    o   Feb-12   6,631,011
    o   Mar-12   6,864,905
    o   Total   42,586,602

- <u>March 31 2012 Ultimate Paids as of June 30, 2012</u>

    o   Based on the calculation in part b, the Oct-11 and prior DOS are
        fully complete.
    o   DOS   Ultimate as of 6/30/12
    o   Nov-11   14,449,054   (From above reserve calc)
    o   Dec-11   12,993,568   (From above reserve calc)
    o   Jan-12   16,996,258   (From above reserve calc)
    o   Feb-12   16,716,652   (From above reserve calc)
    o   Mar-12   23,011,437   (From above reserve calc)
    o   Total   84,166,969
- The Difference between the 2 is the IBNR sufficiency/(deficiency)
    o   42,586,602 – 84,166,969 = (41,588,366)

So there is a 41.6M deficiency

(ii)

- At the March 2012 close, the averaging method placed un-due
  credibility on the low payments made to date.
- The low payments were not due to lower ultimate liability, but rather,
  due to disruptions in payments.
- In this case the application of a development method was not
  appropriate since historical payment patterns were not consistent with
  current patterns.
- At the June 2012 date the shortfall was obvious as the paids had
  flowed thru.
- The application of the development method at this point should be re-
  evaluated to determine if the 84.2M is appropriate. It may be too high
  if it is over-reacting to the swing in paids.

---

8. Continued

(d)   Explain the reasons for recent instability of the IBNR calculation.

Commentary on Question:
Student should address issues with averaging method when developing completion factors. Also should note how completion factors need to consider external issues.

- The averaging technique using only 3 months of data looks at a very small block of data.
  o   Anomalies and swings in the data during the averaging period can be very distortive to the completion factor method.
- The reserve for recent incurral periods is using a Completion Factor method. The completion factor method can be very distortive in recent months due to the low level of paid claims.
- The claim disruption from conversion to 5010 was not addressed or considered.

(e)   Construct a new reserve policy for TTAIC. Be specific and justify your answer.

Commentary on Question:
It was necessary for students to make a recommendation __as well as__ justify their answer on this question. A cohesive, logical and sensible policy for TTAIC was the objective of this question. Many students did not give enough details in their recommendations given that this portion (e) of the question was worth 3 points.

The new reserve policy for TTAIC should include the following:
- A longer averaging period than 3 months should be used. Using a longer period will smooth out bumps.
- The highest and lowest factor should be removed before averaging in order to remove the effect of shock claims. The low payments for TTAIC would have been somewhat mitigated in this case.
- A Projection Method should be used for periods where completion factor is either below 70% or for the most recent 3 months.
  o   This method can be used because membership data is available
  o   A loss ratio method could also be used if membership is not available, but that is not recommended for TTAIC
  o   A study of PMPMs would have shown a dramatic drop during the March close which would have been a warning sign that further investigation was needed.
- Explicit margin should be included to make sure the reserves are adequate. This provision for adverse deviation would protect TTAIC in situations where an unforeseen event would leave the reserves short.

8.   Continued

- The policy must be changed to allow some deviation when calculating reserves. There must be some flexibility to apply judgment when an actuary realizes the current method doesn't adequately project completion factors.
- Reserve policy should be reviewed periodically.

9.   **Learning Objectives:**
1.   The candidate will understand how to evaluate the effectiveness of traditional and leading edge provider reimbursement methods from both a cost and quality view point.

Learning Outcomes:
(1a)   Calculate provider payments under standard and leading edge reimbursement methods.

(1b)   Evaluate standard contracting methods from a cost-effective perspective.

(1d)   Understand accountable care organizations and medical patient home models and their impact on quality, utilization and costs.

Sources:
Essentials of Managed Care Chapter 5

Commentary on Question:
Commentary listed underneath question component.

Solution:
(a)   Calculate the provider payments that would be due under each of the following arrangements for a knee replacement. Show your work.

  (i)   Straight Charges

  (ii)   60% discount on facility charges and supplies; 40% discount on professional charges

  (iii)   Surgical case rate of $15,000 which covers professional charges; 60% discount on facility charges and supplies.

  (iv)   Bundled payment of $40,000

  (v)   Pay for performance – Charges paid as in (ii) with an additional 10% discount, 5% bonus paid at year end (on discounted charges) since the provider met the quality targets.

  Commentary on Question:
  Most candidates calculated the correct provider payment for (i) – (iv). Most candidates made a mistake in (v) – they added the extra discount, rather than doing it multiplicatively (e.g. 60% + 10% = 70% discount (incorrect), rather than (1-.6)(1-.1)). Overall, candidates did well on this part.*

9. **Continued**

      (i)   Straight charges = pay as billed
                =30k + 30k + 25k + 5k
                =85k

      (ii)   60% discount on facility charges and supplies; 40% discount on
                professional charges
                = (1-60%)*(30k + 30k) + (1-40%)*(20k + 5k)
                =0.4 * 60k + 0.6 * 25k
                = 24k + 15k

      (iii)   Surgical case rate of 15,000 covering professional charges with other
                charges paid as in ii.
                = 15k plus discounted amount for facility and supplies
                =15k + 0.4*(30k + 30k)
                = 15k + 12k + 12k
                = 39k

      (iv)   Bundled payment of 40,000
                = One charge for all services
                = 40k

      (v)   Pay for performance -- Charges paid as in ii. with an additional 10%
                discount; 5% bonus paid at year end (on discounted charges) since the
                provider met the quality targets
                =0.9 * 39k + 5% * (.9*39k)
                = 35.1k*1.05
                = 35.1k + 1.755k
                = 36.855k

(b)

      (i)   Evaluate each of the above payment arrangements from SHP's
                perspective.

      (ii)   Identify the arrangement that is most beneficial to SHP. Justify your
                answer.

Commentary on Question:
*In part (i), many candidates didn't get full credit because they didn't fully
evaluate each payment arrangements – they gave either one pro or one con, and
for full credit you needed to provide at least 1 pro AND 1 con.*

*Some candidates described without evaluation and others gave a good or bad
evaluation, with no justification.*

9. Continued

In part (ii), many candidates didn't choose just one of the arrangements – therefore couldn't receive full credit. It is important to note than when asked to recommend the best option and justify, that the candidate choose one option, not more.

(i) **Straight Charges** – Highest cost, least control/predictability, poor approach.
Discounted Charges – Reduced cost, but limited control over level/increases in billed charges.
Surgical Case Rate – Known cost for professional services but susceptible to unexpected variation due to increases in facility charges, complications, and expensive follow-ups.
Bundled payment – Very predictable, but not the lowest cost option (in this example) unless this was a low-complexity surgery and the bundled payment is not adjusted provides most incentive to the provider to optimize care, so could be a good approach.
P4P – Not necessarily predictable but incents providers to manage care/quality; should consider pairing with charges not based on billed amount.

(ii) P4P (here) since it is the lowest cost and also provides incentive to manage billed charges; bonuses can also reduce variability in total claims. Need to watch billing levels and ensure appropriate intensity levels; may want to require prior approval of non-standard or high-intensity services/supplies. Approach encourages providers to be more efficient and selective in the services they provide since increased utilization reduces unit costs but could lead to reduced quality, avoidance of providing needed care, or abuse of billing/intensity to get around payment reductions

(c) Calculate the monthly capitation rate that would be due to the hospital system based on this arrangement. Show your work.

Commentary on Question:
The vast majority of candidates got full credit on this part. Candidates were able to correctly calculate the PMPM.

Current spending = utilization * unit cost (adjusted to PMPM basis)
= 300 days/k * \$2k/day / 12k
= 600/12
= \$50 PMPM

Cap rate = 5% higher than current spending
= 1.05 * 50 PMPM
= \$52.50 PMPM

9. Continued

(d)   Calculate the settlement that would be due or receivable based on this
       arrangement. Show your work.

Commentary on Question:
*Most candidates were able to calculate the correct settlement. Some candidates
did not apply the quality index correctly while others just calculated pieces and
not the full settlement. Common mistakes included: applying the quality index to
the total PMPM; adding the settlement to the original PMPM; not multiplying the
difference of the PMPMs by 50%; calculating the settlement as the difference
between $2.50 and $2.40.*

Actual results are better than projected
Settlement is due to provider based on actual results
$5 below target --> 50% * (50-45) = $2.50 PMPM payment to the hospital system

Quality results are better than target
Payment is due to provider based on quality results beating target
Quality bonus = 1.2 * $2 PMPM = $2.40 PMPM
Total settlement = sum of settlements based on financial and quality results
Total settlement = $2.50 PMPM + $2.40 PMPM = $4.90 PMPM payable to the
hospital system

10. **Learning Objectives:**
3. The candidate will understand how to evaluate techniques for claims utilization and disease management.

Learning Outcomes:
(3b) Estimate savings, utilization rate changes and return on investment as it applies to program evaluation.

(3c) Describe operational issues in the development of a study including acceptable methods for dealing with the issues.

(3g) Calculate chronic and non-chronic trends in a manner that reflects patient risk.

Sources:
Managing and Evaluating Healthcare Intervention Programs, Duncan, Chapter 6,7,8, and 12

Commentary on Question:
This question was trying to address some issues that an actuary is likely to encounter in practice when performing DM outcomes evaluations. The question was also trying to test the Actuarially-adjusted Historical Control Methodology.

Solution:
(a) Outline considerations for determining exposure with regard to population measurement.

Commentary on Question:
In order to get the maximum points allowed in this question, candidates must have listed the major items of the model solution and briefly describe each of them. Some candidates did well in that part of the question.
Candidates that did not score well in that question are those that did not list the major items of the modal solution

Managed Vs. Measured populations
• The population to be measured need not be the same population being managed.
Eligible members
• We first determine eligibility for health plan membership, then eligibility for DM services.
Member months
• In any month, a member is placed into a single classification category and members can move between categories from one month to the next, although movements between some categories may not be possible.

10. Continued

Chronic and non-chronic ("index") members
- Within the eligible membership population, we assign members according to their chronic status and those members who do not qualify as Chronic are, by definition, Non-chronic, a group we define as "Index".

Excluded members
- We assign an exclusion status to those members who may not be eligible for inclusion in the program population or the measurement population:
  o The member class is not receptive to DM.
  o The program is administered by another vendor.
  o The claims pattern of some members can thus distort the trend.
  o High claimants can create a bias to the calculation.

Measured and non-measured members
- At the next level, we separate measured from non-measured members.
- Tests for inclusion in the Measurement population may include:
  o Continuous Coverage Test
  o "Claim-Free period"
- Not all members may be "targeted" for a program, but all members (whether targeted or not) who meet the identification criteria should be measured.

(b) Determine the issues and assumptions for evaluating a DM savings outcomes study.

Commentary on Question:
In order to get the maximum points allowed in this question, candidates must have listed the major items of the model solution and briefly describe each of them. Many candidates did well in that part of the question. Candidates that did not score well in that question are those that did not mentioned the major items of the modal solution.

Population definitions
- Chronic population
- Excluded population
- Multiple years
- Newly-identified chronic and excluded population
- Eligibility criteria

Data
- Data exclusions in dataset provided
- Data specifications
- Data validation / reconciliation
- Data exclusion in study
- Claims run-out

10. Continued

Potential sources of bias
- Prevalence creep
- Trend bias
- Geographic and product controls
- Selection bias

Tests of equivalence
- Test the intervention and control populations for equivalence

Trend
- Method for calculating trend
- Validate the calculated trend

Reporting
- Reports are audible

Calculations
- Audit the calculated savings numbers
- Audit the components of the calculated savings numbers
- Are the calculated savings plausible?

(c)   Calculate the savings from averted admissions using the Actuarially-Adjusted Historical Control Group Methodology. Show your work.

Commentary on Question:
In order to get the maximum points allowed in this question, the candidates must have got the correct calculations. They were two acceptable answers for the estimated savings due to averted admissions. The vast majority of candidates have got all grading points for that part of the question. Candidates that did not score well in that question are those that did not calculate correctly the saving measure.

Based on the Chronic population inpatient admissions / 1,000 / year that was given in the exam (i.e. 1,200 for the baseline period and 1,152 for the measurement period).

Reduced admissions / 1,000 / Year
- = (Baseline admissions / 1,000) x (Utilization trend) - (Actual admissions / 1,000 / Year)
- = (1,200 x 1,053) - (1,152)
- = 111.6

10. Continued

Total reduced admission
- = (Reduced admission / 1,000 / Year) x (Actual member years in measurement period / 1,000)
- = 111.6 x (100,000 / 1,000)
- = 11,160

Estimated savings due to averted admissions
- = (Total reduced admission) x (Trended unit cost) / Admission
- = 11,160 x 16,000
- = 178,560,000

Based on the Chronic population inpatient admissions / 1,000 / year that can be derived directly from 2 other figures that were given in the exam (i.e. the Average chronic population and the Chronic population inpatient admissions).

Chronic population inpatient admissions / 1,000 / year – Baseline Period
- = (Chronic population inpatient admissions / Average chronic population) x 1,000
- = (60,000 / 100,000) x 1,000
- = 600.0

Chronic population inpatient admissions / 1,000 / year – Measurement Period
- = (Chronic population inpatient admissions / Average chronic population) x 1,000
- = (57,600 / 100,000) x 1,000
- = 576.0

Reduced admissions / 1,000 / Year
- = (Baseline admissions / 1,000) x (Utilization trend) - (Actual admissions / 1,000 / Year)
- = (600 x 1,053) - 576
- = 55.8

Total reduced admission
- = (Reduced admission / 1,000 / Year) x (Actual member years in measurement period / 1,000)
- = 55.8 x (100,000 / 1,000)
- = 5,580

Estimated savings due to averted admissions
- = (Total reduced admission) x (Trended unit cost) / Admission
- = 5,580 x 16,000
- = 89,280,000

10. Continued

(d)   Recommend whether or not this is a useful measure of the program. Justify your answer.

Commentary on Question:
In order to get points in this question, the candidate must have indicated whether or not the measure was useful and explain its rationale.
Few candidates did a perfect score in that part of the question.
Below is an example of an answer having the maximum points allowed in this question (other answers were accepted if they were justified).

The savings from averted admission produced by the Actuarially-Adjusted Historical Control Group Methodology is a useful measure for the following reasons:
- It is highly rigorous.
- It is widely used in the industry.
- It is produced by a "Gold standard" method.
- It is practical to implement and avoids adjustment issues.
- Other answers were accepted if they were justified.

11.

Learning Objectives:

6.   The candidate will understand how to apply principles of pricing, benefit design and funding to an underwriting situation.

Learning Outcomes:

(6a)   Understand the risks and opportunities associated with a given coverage, eligibility requirement or funding mechanism.

Sources:

GHA 104-13 Actuarial Aspects of Stop Loss Insurance

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a)   Outline considerations in pricing the two basic forms of stop loss insurance.

Commentary on Question:

To receive full credit, the student needed to do more than just list the considerations. Candidates needed to briefly explain each consideration, indicating why it is important. Most candidates did well on this section. Some students did not make distinctions between aggregate and specific stop loss and just provided general considerations.

Specific Stop Loss Rating:	
Consideration	Explanation
Leveraging	Are three main types of leveraging: trend, area, and network effect of leveraging increases as the deductible increases
Variations by age and sex	Patterns of excess loss by age and sex are significantly different than patterns of total loss by age and sex Young males have higher accident rates, and therefore have higher excess loss rates than young females Whereas for total cost, young males have lower total expected cost than young females
Underlying Plan Design	key elements include per person Out of Pocket Maximum, lifetime maximum benefits, and managed care features
Industry	Some industries are more accident prone than others and therefore represent higher risk for insurers
Contract Type	The number of months of run out for the contract Anti-selection can occur by contract type

11. Continued

Aggregate Stop Loss Rating:	
Aggregate Margin Factor	The level of the attachment factor
	Plans with lower attachment factors will have lower premium
Number of certificates	Aggregate losses of plans with fewer certificates are more volatile, and require a larger contingency margin
Specific Deductible	aggregate losses of plans with higher specific deductibles are more volatile
Design of the employee benefit plan	"leaner" underlying benefit plans are more volatile than "richer" underlying benefit plans
	becomes a more important element of price when benefits are being reduced in many industries
Underwriting	Profitability is mostly a function of careful underwriting

(b) Outline the advantages and disadvantages of Aggregating Specific Stop Loss Insurance.

Commentary on Question:
Most candidates did very well on this section. Some students did not appear to understand the difference between aggregating specific stop loss and general aggregate stop loss insurance. Other students only listed advantages and not disadvantages.

Advantages
- Enables stop loss insurer to avoid nuisance claims
- An aggregating specific stop loss may be introduced to mitigate the effect of leveraged trend rate increases
- Lower administrative and commission costs
- Sometimes used instead of lasering

Disadvantages
- Greater uncertainty of claims estimates and greater claims volatility means pricing needs to reflect greater margins (additional contingency margin)

(c) Calculate the leveraged trend. Show your work.

Commentary on Question:
Most students did well on this section

11. **Continued**

Claim Categoy	Number of claims	Claim amount		Excess Loss (claim amount – 75,000)	
		trend 8%		Amount in excess of: 75000	
		Year 1	year 2	Year 1	year 2
A	2,500	0	0	NA	NA
B	7,000	5,000	5,400	NA	NA
C	375	25,000	27,000	NA	NA
D	100	50,000	54,000	NA	NA
E	16	75,000	81,000	0	6,000
F	6	100,000	108,000	25,000	33,000
G	3	150,000	162,000	75,000	87,000
Total	**10,000**	**51,625,000**	**55,755,000**	**375,000**	**555,000**

(d)   Recommend approaches to reduce leveraged trend.

Commentary on Question:
To receive full credit, the student needed to include options that included addressing large claims and increasing deductibles.

- Anything that reduces trend for large claims will have the greatest impact on leveraged trend - such as increased underwriting, auditing large claims, or medical management of large claimants.
- Changing how inpatient reimbursements are contracted with hospitals to reduce large claims will reduce the leveraged trend
- Increasing the specific deductible annually commensurate with medical trend will reduce the premium impact for leveraged trend
- Adding an aggregate deductible

12. **Learning Objectives:**
2.   The candidate will understand how to describe and evaluate the functions underlying a well-run health plan.

Learning Outcomes:
(2c)   Describe the claims adjudication process
   (i)   Identify data required to adjudicate claims
   (ii)   Understand techniques for identifying and preventing claims processing errors
   (iii)   Understand techniques for identifying and preventing fraud

Sources:
Essentials of Managed Health Care, Chapter 19

Commentary on Question:
Most candidates did very well. Question was fairly simple and straightforward, but candidates had to recall a lot of specific points that were scattered throughout the chapter. Candidates recalled most marking points but not necessarily in the correct section of the question. Section B rubric was split into 2 sections (perhaps unnecessarily), which hurt some candidates who maxed out points on one section but not the other. – not a huge issue, but noteworthy.

Solution:
(a)   Define both fraud and abuse in health care.

   Commentary on Question:
   Straightforward definition

   - Fraud - occurs when someone intentionally misrepresents a fact about health care services to obtain or increase payment from a health plan or government.
   - Abuse - when an activity abuses the health care system, but does not meet the legal definition of fraud or is not medically necessary.
   - The difference is the ability to prove intent.

(b)   Describe efforts for identifying and preventing health care fraud.

   Commentary on Question:
   List question that required the candidate to pull information from the whole chapter. Most candidates did well here.

   - Identify Fraud
   - Monitor claims for compliance with billing & coding guidelines
   - Adhere to clinical documentation standards
   - Educate all staff responsible for medical records
   - Report all suspected fraud to law enforcement agencies & regulators

12. Continued

- Using claims analysis
- Data analysis & tools
- Coordinate with other health plans & enforcement agencies
- Compliance & ethics hotlines for employees & providers

(c) Describe the challenges and forces that complicate effective health care fraud and abuse control.

Commentary on Question:
Candidates struggled a little here and had lots of interesting/extraneous comments. Most did pretty well.

- Historically, it has been easy to commit fraud
- Technology is always changing creating new opportunities
- Lack of sufficient staff to fight fraud
- Lack of sufficient resources to fight fraud
- Tools
  - Effective instruments to spot emerging fraud patterns & tools
  - Quick action to mitigate losses
  - Tools to identify new fraud wherever and whenever they occur

13. **Learning Objectives:**
2. The candidate will understand how to describe and evaluate the functions underlying a well-run health plan.

Learning Outcomes:
(2b) Describe the product development process including risks and opportunities to be considered during the process.

Sources:
Group Insurance, Ch 46: Product Development

Commentary on Question:
The answers to the different parts of this question were taken directly from Chapter 46 of Group Insurance. There were some subtle differences in the wording on certain parts of the question which required the candidate to fully understand what each part of the question was asking rather than just hurrying to put down a memorized list.

Solution:
(a) Describe why understanding your company's strategic perspective is important when developing products.

   Commentary on Question:
   This question ascertains if the candidate understands the reasons for tying in the development of a new product with the company's current strategy. Most candidates struggled with this question usually answering by putting down a single idea and then giving examples to back up that one idea.

   Understanding strategic perspective allows for:
   - Tie in with company's overall goals and objectives
     o Better results when new product is consistent with overall brand and strategy
     o Don't want to contradict company's message, or invest in areas that company doesn't want to go or may exit

   - Reduce unnecessary work
     o Marketing and branding efforts can be reused
     o Build off of corporate efforts and research

(b) Identify the dynamics that lead to creation of new products.

   Commentary on Question:
   There was an exhaustive list in the chapter identifying these dynamics. Full credit was given for identifying at least 8 of those items with a brief description about each. Most candidates identified 3 or 4 of items from the list and included a short description for 1 or 2, oftentimes not including any description whatsoever. A few

13. Continued

*candidates described the steps in **designing** a product (addressed in part (c)), rather than those items that **lead to the creation** of a new product.*

- Changes to company's strategic perspective: align product with company's goals and objectives
- Innovation: creation of a new product that does not currently exist
- Competition: new product driven by popular products already in the market
- Changing laws and regulations: products must be in compliance and consistent with regulatory requirements
- Consumer Demand: provide products that are popular with consumers
- Marketing and Sales Demands: New offerings that sales team feels are necessary for success
- Leverage insurer's capabilities: understand and make use of company's strengths
- Social Need: new products that address social issues
- Changing Demographics: adapt offerings to reflect current demographic trends
- Changing Economy and Financial Markets: adapt to changes in product popularity and attractiveness
- Market Assessment: react to market needs and gaps in offerings

(c)   List and describe the steps in designing a product.

Commentary on Question:
This part of the question was measuring the candidate's understanding of the steps in designing the product. Of the five parts to question 13, this proved to be the most difficult. Many candidates answered part (d), dealing with the steps in building the product, rather than designing the product.

- Define product structure
  - o Identify features, network, risk mitigation features to limit adverse selection.
- Define product design variables
  - o Determine coverage period, cost sharing, scope of coverage
- Define contribution requirements
  - o How will product be marketed and sold; offered on a voluntary basis, or employer pays premium
- Determine regulatory compliance
  - o Review for compliance and consistency with applicable requirements

13. Continued

(d)

    (i)   Describe steps in building the product.

    (ii)   Describe considerations of risks and opportunities when building the product.

Commentary on Question:
Candidates were evenly split on how they answered the first part of this question, either answering very well or very poorly. It seemed that those who answered poorly was due to confusion over how this question differed from the part (c) regarding designing the product. The main difference being that once the product is designed, what are the steps to build the product and get it ready to market

    (i)   Steps in Building the Product
- Project enrollment: estimate expected membership; needed for financial analysis and to estimate required resources and staffing
- Price the product: determine assumptions to convert data into claims estimate, reassess enrollment projections, assess market price sensitivity
- Perform financial assessments: determine if product is expected to satisfy financial targets
- Implement necessary infrastructure: build administrative support – claims processing, billing/collection, customer service, marketing materials
- Receive sign off from senior management: get final sign off and move towards launching for sale

    (ii)   Risks
- Enrollment may differ materially from projections
- Pricing may not be competitive
- Assumptions may turn out to be inappropriate
- Financial projections may not be realized
- Changes to infrastructure may not be ready in time or may not perform as expected

Opportunities
- Product could sell better than expected and be more profitable than expected
- Product may be received favorably and lead to positive PR for company
- Product may help the company cross-sell other products
- Investment could position the company to introduce similar products in the future

13. Continued

(e)   List and describe the teams involved in product development.

Commentary on Question:
Most candidates did very well on this part of the question, both in listing the teams involved in product development and providing a description of these teams. Full credit was given by providing eight of the following teams and a brief description of each.

- Product Development: responsible for generation of new ideas, market research, analysis of consumers and competitors
- Senior Management: set tone and direction for new products, makes final decision on whether to introduce product ideas
- Marketing: focus on types of advertisements needed, build name recognition and branding
- Sales: provide insights into price sensitivity of customers and products customers desired
- Underwriters: help quantify risk associated with product and specific plan features
- IT: provide insight into operational risks and feasibility and cos of implementing infrastructure
- Operations: works with IT to create administrative functions such as claims processing, billing, data collection
- Compliance: informs teams of laws and regulations and ensures compliance with them
- Actuarial: performs pricing and reserving, works on projections and feasibility studies
- Finance: reviews projections against corporate targets and objectives, stress tests assumptions

14. **Learning Objectives:**
6. The candidate will understand how to apply principles of pricing, benefit design and funding to an underwriting situation.

Learning Outcomes:
(6c) Recommends strategies for minimizing or properly pricing for risks.

Sources:
Group Insurance, Bluhm, 6th Edition

Ch. 37 Experience Rating and Funding Methods

Commentary on Question:
Commentary listed underneath question component.

Solution:
(a)
(i) Describe Retrospective and Prospective experience rating for employer sponsored health insurance.

(ii) Describe factors that would influence a group to choose retrospective over prospective experience rating.

Commentary on Question:
Candidates did well on part (i) and were able to explain these two types of experience ratings methodologies. Part (ii) seemed a little more difficult for candidates. Full credit was achieved if at least 4 factors were described. Most candidates were only able to describe 1 or 2 factors and partial credit was given.

(i) Retrospective
- Policyholder pays a percent of regular premium up front
- After the plan year is finished up, the policyholder may be required to pay additional premium or receive a premium refund depending on how experience materialized

Prospective
- Premiums are calculated based on the group's past experience or some blend of past experience with a manual rate
- Considered part of the underwriting process
- No "true-up" at the end of the experience period

(ii)
- The size/credibility of the group
- The group's ability to handle risk (risk tolerance)

14. Continued

- If the group expects future experience to be better than past experience (perhaps the group has started health programs or other programs to improve overall experience)
- The group may be able to earn an investment return on the float

(b) Calculate the retrospective experience refund as of 6/30/2012. Show your work.

Commentary on Question:
Candidates generally performed very well on the calculation. Most candidates had the correct formula. Quite a few candidates did not properly trend the pooling charge.

Add Pooling Charge	$55.00	
Pooling Charge PEPM		*Effective Jan 2013 for claims >$50,000*
Mid-Point of $55 Pooling charge = 7/1/13		
Mid-Point of Experience Period = 1/1/12		
Discount 6 mo. @ 2.0% and 12 mo. @ 1.5%	1.346	=1.015^12x1.020^6
Pooling charge for Experience Period	$40.85	*PEPM*
# of EE's	2,500	
# of Months	12	
Total Pooling Charge	$1,225,435	
Total Paid Claims	$8,350,000	
Total Paid Claims >$50,000	$918,500	
	$7,431,500	*Remove Claims Over $50,000 Pooling Point*
Claims Charged	$8,656,935	
Administrative Expenses	$18.00	*PEPM*
# of EE's	2,500	
# of Months	12	
Total Administrative Expenses	$540,000	

Commission	$556,667	*As a % of gross premium*

14. **Continued**

Rate Stabilization Fund	$334,000	*As a % of gross premium*
Risk/Profit Load	$334,000	*As a % of gross premium*
Prior Balance Carried Forward	$875,00	
Earned Premium	$11,133,333	
Investment Earnings	$0	
Net Claims	$8,656,935	
Administrative Expense	$$540,000	
Commissions	$556,667	
Rate Stabilization Fund	$334,000	
Risk and Profit	$334,000	
Experience Refund	$1,586,731	

(c)   List and describe the alternative funding arrangements used for large experience rated accounts.

Commentary on Question:
Most candidates did well on this question. The most common mistake candidates made was not properly or fully describing each of the funding methods.

Reserveless Plans (or Deferred Premium or Premium Drag Plans)
- The insurer foregoes some of the premium payments (intended to equal part or all of the claim reserves)

Fully-Insured Plans
- The insurer keeps the risk/profit of adverse experience

Self-Insured Plans
- A trust receives employer money and pays the claims
- Stop Loss (individual or aggregate) can be purchased
- No premium taxes or state mandates
- The employer is the sole risk taker unless there is stop-loss coverage

Minimum Premium Contracts
- Similar to a fully-insured plan which includes a minimum premium rider
- The policyholder deposits funds and the insurer draws on as needed to pay claims
- Plan avoids premium tax on the portion of premium used to pay claims
- Insurer is responsible for claims over the expected claims amount

Stop-Loss Contracts
- Specific Stop-Loss insures claims for an individual in excess of the contracted attachment point

- Aggregate Stop-Loss insures for the group in aggregate, which is usually a multiple of expected claims for the entire group (e.g. 110%)

14. Continued

Retrospective Premium Arrangement
- Policyholder pays a percent of regular premium upfront
- Policyholder is responsible for an additional premium up to some limiting amount