GH ADV Model Solutions
Fall 2014

1. 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:

Essentials of Managed Care, Chapter 12

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) List managed care behavioral health treatment methods.

Commentary on Question:

Many candidates listed the types of services delivered by behavioral networks; however, the question was looking for tools used by managed behavioral healthcare organizations. In order to receive credit, the answer needed to address how the care was managed. A list is all that was required. The ideal list included:

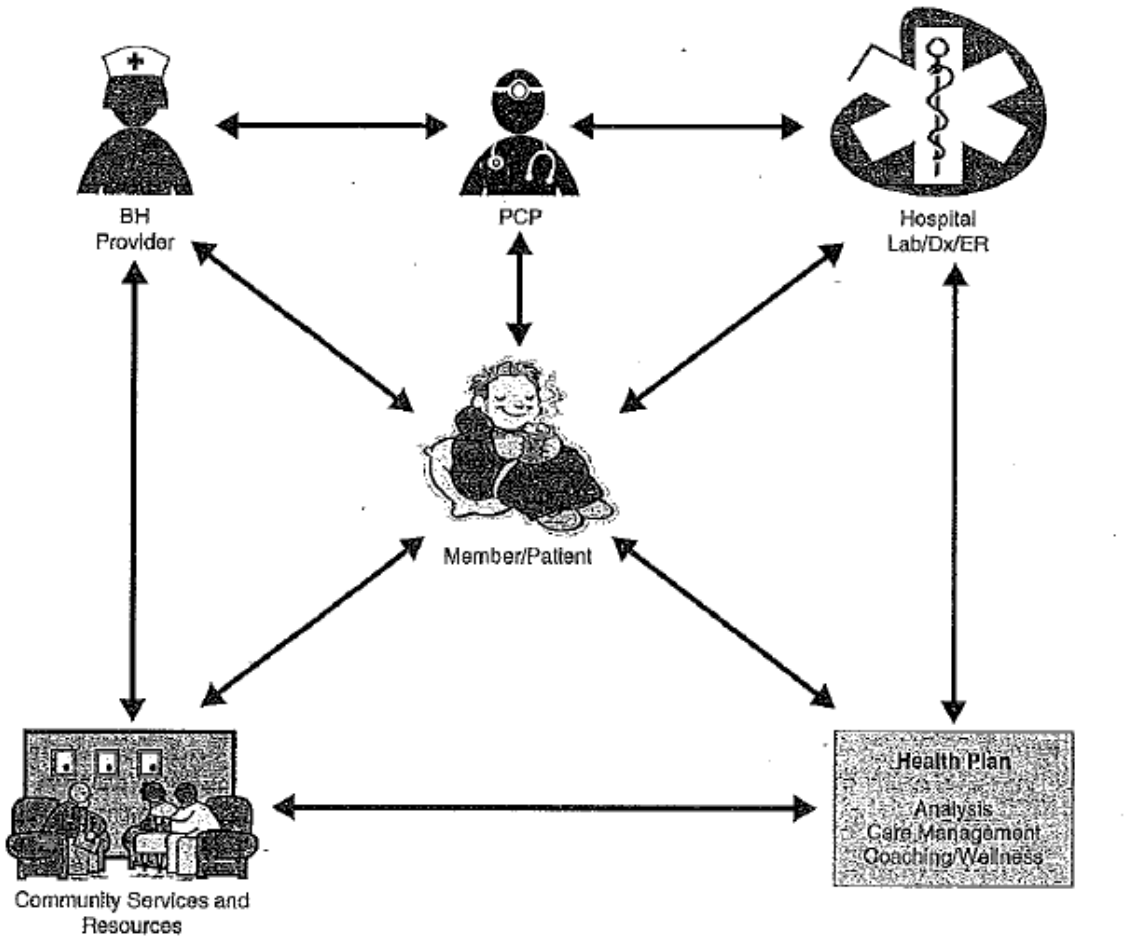
- Quality management
- Standardized assessment tools
- Utilization management
- Outpatient management
- Management of inpatient and intermediate levels of care

(b) Create a visual representation of the elements of a patient-centered medical home for a member with a substance abuse diagnosis.

Commentary on Question:

In order to receive credit, the student was expected to have a visual representation of the system. The picture below is what the ideal answer depicted. Most students who drew a chart drew something similar. The most important parts to accurately depict were having the member in the center of the picture, and the PCP interacting with multiple parties.

1. Continued



(c) List the key success factors of an Accountable Care Organization (ACO) vs. a medical home.

Commentary on Question:
Most students got this correct. As in part (a), a list was all that was required.

Success factors of an ACO:

- Ability to identify the population to manage
- Ability to understand and manage cost
- Ability to manage quality
- Ability to integrate care

Success factors of a medical home:

- Improved quality of care
- Improved status of comorbid conditions
- Increased satisfaction of patients

1. **Continued**

- Reduction of avoidable comorbid hospitalization
- Reduction of acute occurrences
- Reduction of inpatient admissions
- Reduction of long-term care admissions

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:

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

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

Sources:

Essentials of Managed Care, Chapter 11

Commentary on Question:

In general, candidates did well on the calculation part of the question, with some common errors outlined below. On part (b), most made the recommendation but had trouble coming up with additional factors and how they could be used in making the decision.

Solution:

(a) Calculate the savings, if any, for each PBM's contractual guarantees. Show your work.

Commentary on Question:

Most candidates calculated the current cost correctly. However, most thought the dispensing equaled the PBM fee, making their River Run calculation inaccurate. For the Summit Peak calculation, most candidates did not calculate the reduced brand unit cost after carving out the specialty cost.

Formula [2 Grading Points]

Claim Cost PMPM = [(Unit Drug Cost per Script]) + (Dispensing Fee per Script) + (PBM Fee per Script)] * [Utilization PMPM]

Current Cost PMPM

Metric	Generic	Brand	Total
Unit Drug Cost per Script	$20.00	$200.00	
Dispensing Fee per Script	$1.00	$1.00	
PBM Fee per Script	$0.00	$0.00	
Utilization per member per month (PMPM)	0.8	0.15	
Total Allowed Cost PMPM	$16.80	$30.15	$46.95

2. Continued

River Run PBM

Metric	Generic	Brand	Total
Unit Drug Cost per Script	$18.00	$180.00	
Dispensing Fee per Script	$1.00	$1.00	
PBM Fee per Script	$1.00	$1.00	
Utilization per member per month (PMPM)	0.85	0.1	
Total Allowed Cost PMPM	$17.00	$18.20	$35.20

River Run PBM Savings equals $46.95 - $35.20 = $11.75 PMPM

Summit Peak PBM

Metric	Generic	Brand	Specialty	Total
Unit Drug Cost per Script	$17.00	$55.56	$1,125.00	
Dispensing Fee per Script	$0.50	$0.50	$5.00	
PBM Fee per Script	$0.00	$0.00	$0.00	
Utilization per member per month (PMPM)	0.8	0.135	0.015	
Total Allowed Cost PMPM	$14.00	$7.57	$16.95	$38.52

(b) Recommend which PBM that LRHP should select for a long term relationship, considering factors in addition to the calculated savings in part (a).

Commentary on Question:
Candidates were asked to make a justified recommendation, include the results in part (a) and discuss additional considerations as they pertained to selecting the recommended PBM.
Listing considerations without explaining how they are incorporated into the selection process resulted in no credit.
Most candidates made a justified recommendation and mentioned the results in part (a). However, only a small number of candidates included additional considerations outside of the savings results. Common considerations that were given centered around the increase in specialty drugs that are in the pipeline and patent expirations that will increase the generic utilization.

Recommendation: Contract with Summit Peak
Cost savings are not as strong in the short-term, but don't know duration of these contracts/guarantees. Summit Peak has lower unit costs, but won't commit to higher use of generics at this point. Splitting out specialty drugs should help control costs as specialty utilization continues to increase. May be able to work with Summit Peak to improve utilization management programs and drive more usage to generics

2. Continued

Other factors to consider (don't know how the PBMs compare):

- Network (if one has a broader network, that would be preferable from a member-experience stand-point)
- Customer Service – don't want a PBM that can't adjudicate claims in real-time or makes errors
- Reporting – need good, timely data for analysis and tracking claims accumulators
- Mail order delivery – could be a good benefit, may be required by certain customers
- Willingness to work with the plans and be reasonable over the longer term
- Financial stability – since focus is on the long-term, need a stable, solvent PBM that won't force us to find a new provider without adequate notice
- Performance
- Quality
- Customization of benefits
- Clinical Programs
- Formulary Design

3. **Learning Objectives:**

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

Learning Outcomes:

(5d) Discuss approaches to deal with obstacles to producing an unqualified SAO.

Sources:

ASOP #7, #22

Commentary on Question:

Candidates had the most success on part (a) of the question. In parts (c) and (d), a prepared candidate would be able to list and apply reasons and conditions to the provided situation.

Solution:

(a)

(i) Define an Asset Adequacy Analysis.

(ii) Define a Cash Flow Analysis.

Commentary on Question:

Many candidates mentioned the "adequacy of assets" instead of mentioning the "adequacy of reserves". Full credit for the Cash Flow Analysis required mentioning risks in some fashion. Points were given for each reasonably correct definition.

(i) An analysis of the adequacy of reserves and other liabilities being tested, in light of the assets supporting such reserves and other liabilities, as specified in the opinion

(ii) Any evaluation of the risks associated with the timing or amount of cash flows

(b) Describe considerations an Actuary should make when completing the projection of Asset Cash Flows in a Cash Flow Test.

Commentary on Question:

Many candidates struggled to identify/remember the correct lists from the ASOP, oftentimes listing the documentation needed for a cash flow analysis rather than the considerations that an actuary should make. Points were awarded for the following: mentioning both Asset Characteristic and Investment Strategy, and each descriptive comment under Asset Characteristics and Investment Strategy

3. Continued

Asset Characteristics - The actuary should consider the following issues in making cash flow projections:

1. The sensitivity to economic factors - such as interest rates, market returns, and inflation rates on the insurer's asset cash flows.
2. Any limitations on the ability to use asset cash flows to support policy or other liability cash flows (such as a block of assets is held in specific support of a block of business)
3. The impact on cash flow associated with asset quality - risk of a delay in cash flow being collected, asset default, or other financial nonperformance.
4. The associated costs of maintaining the assets or of converting the assets into cash when necessary.

Investment Strategy - The actuary should consider the following issues in making cash flow projections:

1. The insurer's strategy regarding the sale of assets prior to maturity.
2. Asset segmentation in support of the insurer's policy cash flows.
3. The insurer's strategy regarding the sale of assets with a declining market value.
4. The insurer's strategy for the investment of future positive or negative cash flows.

(c)

(i) List reasons for completing a Cash Flow Testing as identified by ASOP #7: Analysis of Life, Health, or Property/Casualty Insurer Cash Flows.

(ii) Evaluate whether these reasons apply to the Individual Medical Actuary in this situation.

Commentary on Question:
Most candidates successfully listed 2 to 3 reasons for completing a Cash Flow Testing along with the applicability to the Individual Medical Actuary. Points were awarded for each part of the question without necessarily answering both parts of the question.

- Where there is material asset risk.
  - There is no knowledge that there is a material asset risk.
- Where the cash flows are far out in the future.
  - Future losses are expected.
- Where a company has a new or rapidly growing block of business.
  - The company has a closed block of business and to our knowledge does not expect to replace this block with a new block of policies sold under the ACA.

3. Continued

- Where options have been granted to policyholders and the likelihood of anti-selection in the exercise of these options is significant.
  - The ACA grants policyholders the options of new policies and there is a significant potential for anti-selection. Thus, a cash flow test should be completed.

(d)

(i) Identify conditions an Actuary should use in determining if the Asset Adequacy Analysis was satisfactory.

(ii) Evaluate whether these conditions apply to the Individual Medical Actuary in this situation.

Commentary on Question:
Candidates struggled with applying the conditions to the Individual Product situation.

1. Reasonableness of Results - review the modeled economic and experience conditions and test for reasonableness.
   - The Individual Medical Actuary should review the economic and experience conditions and test for reasonableness. The newness of ACA may result in unpredictable economic conditions.
2. Adequacy of Reserves and Other Liabilities - are they adequate under moderately adverse conditions, in light of the assets supporting the liabilities.
   - The Individual Medical Actuary should review moderately adverse conditions. Holding reserves to withstand any conceivable circumstance implies excessive reserves.
3. Analysis of Scenario Results - multiple scenarios should be run.
   - If a large number of scenarios were run the failure of a small percentage may not indicate the need to hold additional reserves. The basis should be documented in the supporting memorandum.
4. Aggregation During Testing
   - The Individual Medical Actuary should not aggregate more than one block of business if the assets supporting the reserves cannot be used to discharge the reserves of other blocks of business being tested.
5. Aggregation of Results
   - The Individual Medical Actuary may offset deficiencies in this block of business with other businesses, as allowable under applicable law of the aggregation of results.
6. Trends
   - Prior year's Asset Adequacy Analyses may provide the actuary with valuable insight into the dynamics of the ACA, particular if successive year's results are reconciled.

3. Continued

- The actuary should consider using analysis of trends and reconciliation analysis in forming an opinion.

7. Management Action
   - Any anticipated future actions by management (cancellation?) to address adequacy concerns should be considered, quantified, and documented by the actuary forming the opinion.
8. Subsequent Events
   - The actuary should consider all material events that are likely to affect the actuary's analysis up to the date the opinion is signed and disclose those events in the opinion (such as new promulgations as to how the ACA is to be implemented). The actuary has an obligation to be reasonably informed and any reliance regarding subsequent events should be disclosed.

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.

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:

Measurement of Quality and Efficiency: Resources for Health Care Professionals

Essentials of Managed Care, Chapter 5

Commentary on Question:

This question asked candidates to consider aspects of several different provider reimbursement arrangements. Candidates generally did well on questions related to FFS and global capitation, but many candidates did not demonstrate the same level of understanding of the other payment arrangements. Candidates also tended to provide responses to one or more subparts that contained fewer observations or less detail than expected.

Solution:

(a)

(i) Describe the misalignment of incentives in the Fee-For-Service (FFS) payment structure.

(ii) Explain how the FFS payment structure violates various components of the Institute of Medicine's definition of quality.

Commentary on Question:

This question was looking for candidates to realize that FFS payment is based on inputs and not outputs, and is largely inconsistent with encouraging quality care.

Most candidates identified that FFS pays for inputs and identified the components of the IOM's definition of quality. In order to receive full credit, candidates also needed to recognize that FFS does not incent quality care, and needed to identify the specific components of quality that FFS does not incent and to explain how FFS conflicts with those components.

4. Continued

(i) FFS payment focuses on inputs and rewards a higher volume/intensity of services. It does not focus on outputs/results, and provides no incentive for providers to be efficient or deliver high-quality care.

(ii) FFS payment violates the following:
- Effective – FFS encourages care to be provided to those who won't benefit
- Efficient – FFS encourages waste by paying for volume/intensity
- Timely – FFS creates delays by encouraging unnecessary care (burdening providers)
- Safety – FFS encourages additional services to be provided which pose the risk of additional complications. FFS also does not encourage/reward avoidance of complications or readmissions.

(b) List the advantages and disadvantages of FFS payment structures between health plans and provider groups.

Commentary on Question:
This question was looking for candidates to recognize the pros/cons of paying providers on a FFS basis. Most candidates did well, although some candidates addressed the pros/cons of contracting with providers and not specifically adopting a FFS reimbursement approach.

Advantages:
- Distributes payment in relation to resource use
- Produced better claims data

Disadvantages:
- Rewards providers for high volume (churning)
- Does not incent efficient/quality care

(c) Deduce which disadvantages of FFS payment structures are demonstrated by IUD's utilization patterns.

Commentary on Question:
This question was intended to have candidates think about a given scenario and make inferences about undesirable differences in provider behavior that result from paying on a FFS basis. In order to receive full credit, candidates needed to note both the issue/concern as well as how it was demonstrated in the example provided.

Candidates generally did well, but a fair number failed to either identify the disadvantages, or failed to explain how those disadvantages were demonstrated in the example provided.

4. Continued

Doctors B and D have higher than average visits. This suggests that these doctors might be churning (encouraging higher utilization than necessary).
Doctors C and D have a higher proportion of high-intensity visits (code 99215) than average. This suggests these doctors may be upcoding.

(d) Describe each of the following types of provider payment arrangements:

(i) Global Capitation

(ii) Contact Capitation

(iii) Pay for Performance (P4P)

(iv) Withhold

Commentary on Question:
This question was intended to allow candidates to demonstrate an understanding of the key features of different types of provider payment arrangements. Candidates were expected to provide some detail relevant to the payment arrangement. Candidates did fairly well on this part, although it was common for candidates to provide an incorrect description of one of the payment arrangements.

(i) A single PMPM payment to providers for most/all services; typically used by HMOs and may carve-out certain services (e.g. transplants); transfers most risk to the provider

(ii) Typically used for paying specialists. A pool of funding is established and distributed at the end of the year in proportion to the number of patient contacts each specialist had. Patient contacts need to be tracked, and interim payments to specialists are often made.

(iii) Methods to incent providers to focus on specific process or outcome metrics. Focus can change over time to address new best practices or emerging issues; P4P does not typically consider utilization or cost.

(iv) A portion of PCP payment is held back to fund over-runs in referral or facility services. Any excess is returned to PCPs at the end of the year.

4. Continued

(e) Distinguish the implementation requirements and challenges involved with the use of each of the following provider payment arrangements:

(i) Global Capitation

(ii) Contact Capitation

(iii) Pay for Performance (P4P)

(iv) Withhold

Commentary on Question:
This question was intended to elicit additional detail about the payment arrangements, and specifically what a health plan needs to consider to successfully utilize each payment arrangement. A broad range of responses was acceptable, although the best responses identified both implementation needs and challenges with using each arrangement. Candidates with weaker responses generally either did not respond to all items or only made one or two points (three distinct points for each arrangement were required to earn full credit).

(i) Covered services and carve-outs need to be clearly defined; need to consider ways to encourage complete/accurate reporting of encounter data; insurer is liable if providers become insolvent or otherwise fail to provide medical care – need to ensure capitated providers are financially stable and are supportive of capitation arrangements

(ii) Need to track patient contacts; need to agree on interim payments and identify how payments will be tracked and reconciled; payment calculations are complex before considering any adjustments that would be made to address differences in risk/morbidity across patients

(iii) Must determine the goals/metrics and population that will be tracked; need to ensure that data used in calculating payments is accurate and complete; need to educate providers on the objectives of the P4P system and get their buy-in on the chosen metrics (goals must be reasonable and appropriate)

(iv) Must set an appropriate budget and track spending vs. the budget; need to accrue for refunds due to PCPs; need to fairly account for OON and catastrophic claims

4. Continued

(f) CHI desires to enter into a capitation contractual payment arrangement with IUD for the next calendar year with the intent to save 10% on primary care services.

(i) Calculate the capitation amount to be paid to IUD for the next calendar year. Show your work.

(ii) List and define the categories of risk IUD will be exposed to upon entering the capitation arrangement.

(iii) Explain additional actions that IUD could take in order to limit their exposure to an inadequate capitation amount.

Commentary on Question:
This question was intended to take a deeper look at how global capitation functions and the unique risks/challenges that arise with a transfer of risk to providers.
Candidates earned full credit by calculating the correct capitation rate, correctly defining financial and service risk, and proposing at least three actions (with sufficient explanation) that IUD could take. Many candidates were able to calculate the capitation amount correctly, but were not able to correctly define financial risk, and provided only one or two actions (in many cases without explanation) that IUD could take.

(i) Current cost = visits * payment/visit = 2.95 * 65.38 = 192.87 PMPM
Capitation rate = 90% * 192.87 = 173.58 PMPM

(ii) Financial risk – the risk that the provider does not receive the expected revenue, typically associated with withholds (due to funds lost to pay for referral overruns) and capitated pools (due to payments needed to be made to OON providers or specialists)
Service risk – the risk that providers spend more time seeing capitated patients that expected/budgeted, forcing providers to see fewer other patients (and losing the corresponding revenue)

(iii) Define covered services / carve-outs – IUD could seek to carve-out services that it cannot adequately manage/control and ensure that the only services it is responsible for are those it has the ability to manage
Purchase stop-loss coverage – This will limit IUD's losses on catastrophic claims
Negotiate adjustments to capitation rate – Medical costs vary by member age/gender/morbidity/benefits. IUD could negotiation a capitation rate that varies with the expected cost of providing services.

5. Learning Objectives:

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

Learning Outcomes:

(2d) Understand the basic processes of member services including:
- (i) Understand the basic process of call centers
- (ii) Understand the basic staffing and management issues in member services
- (iii) Understand the basics of how a plan addresses member concerns and grievances
- (iv) Understand proactive approaches a plan may take to measuring and maintaining member satisfaction
- (v) Understand the legal and regulatory aspects of member services

Sources:

Essentials of Managed Healthcare, Chapter 20

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Explain the issues and their causes that you would expect these members to contact the company about during 2014.

Commentary on Question:

In Part (a), candidates were expected to understand the typical types of questions that member have when they contact the call center as well as the special issues members would have related to 2014. Candidates who explained typical issues without discussing the significance of 2014 were given half credit.

Enrollment issues such as a lost ID card.
For 2014, given the large influx of new members, there is likely to be a backlog of new ID cards, so we should expect higher than usual calls.

Benefit issues such as members needing assistance in understanding the plan.
For 2014, given the recent legislative changes (metal level compliance likely means a change in plan design for many continuing members in the individual market, cost sharing subsidies for some cause confusion), members will have more questions than usual.

Claims processing and payment issues – such as denial of coverage or incorrect reimbursement.
Due to the influx of newly insured members and degree of changes (EHB, for example, changing what is covered), there are likely to be more issues in this area. Some newly insured people may not understand what is covered since they might have no experience with insurance.

5. Continued

Billing issues may also arise, particularly given confusion in new federal subsidies that are related to income.

Provider access issues. For example, limited networks that might cause more calls.

(b) Describe the items that need to be considered regarding the set up and staffing of the Call Center.

Commentary on Question:
Candidates who did well on part (b) listed a wide variety of items.

Location considerations include: real estate costs, labor wage rates in the area and whether or not there are available qualified CSR and manager candidates coming out of local schools. Insource/outsource. Degree of claims staff integration.

You need to consider hours of availability and the associated costs – will you be open during business hours or 24/7. Open enrollment staffing, seasonal needs.

Also consider support functions needed such as technology, documented procedures, training requirements and how many CSRs you will need during different times of the day, week and season.

Consider performance and quality management, whether you will adhere to service level standards and how they will be assessed. Career paths. Need for managers.

(c)

(i) Define how Average Speed to Answer, Service Level Percentage, and Abandon Rates are measured.

(ii) Recommend the number of Customer Service Reps your company should employ in 2014. Justify your answer.

(iii) Describe other means you could use to monitor customer service reps.

Commentary on Question:
Most candidates did very well on part (ii) earning full credit for performing a reasonable calculation and recommending a number of CSRs to staff. Candidates did well on part (i) and (iii) if they described more items.

(i) Average speed to answer is the length of time between the call leaving the IVR and the CSR answering the call; a common goal is for this to be less than 30 seconds.

5. Continued

Service level percentage is the percent of calls answered within a specific timeframe; a common goal is to have 75-80% within 30 seconds.

Abandoned calls occur when a member hangs up before the call can be answered; a common goal is to keep this below 3%.

(ii) Based on 2013 standards, calculate the total seconds per day spent on calls.
474 calls/day x (1 - 9%) = 431 calls/day answered by CSR
431 calls/day x 9 min/call x 60 sec/min = 232,740 seconds of calls/day
(232,740 seconds of calls/day)/10 CSR's = 23,274 seconds/day/CSR --->
Reasonability check: This is 6.5 hr/day/CSR on calls.
Take into account increased volume and improved minutes per call to calculate expected seconds of calls in 2014
1,083 calls/day x (1 - 9%) x 8 min/call x 60 sec/min = 473,280 seconds on calls/day needed to maintain standards.
Projected need for CSR's in 2014 = 473,280/23,274 = 20.3 CSR's
However, the service levels for 2013 were not as good as they should be, so management should consider increasing the number of CSRs to improve quality. I recommend 21 CSRs to maintain 2013 service levels or 25 CSRs to improve quality.

(iii) To monitor CSRs, you could look at the timeliness of their responses, the number of calls they bring to resolution on the first call, how well they adhere to schedules or their average call handle time, as well as work schedules. You could monitor the quality of their responses by silently listening to their calls, reviewing recorded calls or by collecting survey information from the member at the end of the call. Training time can be used to assess and monitor as well.

(d) Explain how customer service staffing requirements impact the pricing of the Individual health products.

Commentary on Question:
Candidates did well if they listed a variety of ways that customer service impacts the pricing of products.

Customer service staffing requirements are a part of administrative expenses. These are a part of the premium calculation. If the number of CSRs increases, the administrative costs will go up. However, since the number of members is going up, the premium per member may stay level, depending on the intensity of the calls.

5. Continued

Poor customer service can hurt profits if dissatisfied members leave the plan. However performance goals and/or 24 hours service can be too costly, so it is important to strike a balance.

New members are high users and can be costly. And training and recruiting can be costly.

6. Learning Objectives:

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

Learning Outcomes:

(2d) Understand the basic processes of member services including:
- (i) Understand the basic process of call centers
- (ii) Understand the basic staffing and management issues in member services
- (iii) Understand the basics of how a plan addresses member concerns and grievances
- (iv) Understand proactive approaches a plan may take to measuring and maintaining member satisfaction
- (v) Understand the legal and regulatory aspects of member services

Sources:

Essentials of Managed Healthcare Chapters 16, 17

Commentary on Question:

Candidates tended to do fairly well on this question. The main cause for deduction of credit would be when a candidate did not provide enough information, for example only giving a list when the question asks for a description (part B).

Solution:

(a) Explain how the characteristics of the employer sponsored and individual market segments affect sales and marketing.

Employer-sponsored characteristics

- Primary influence is employer with secondary focus on consumers
- Insurers invest heavily on investments to drive broker loyalty and improving incentive compensation and tools
- After sales closing, the" account" must be managed by the insurer -- including for the renewal
- Most employers renew on 1/1, with fewer on 7/1

Individual

- Primary influence is the consumer
- Tend to leverage marketing and consumer insight more heavily than employer market
- Web sales, direct mail, telesales, and retail stores common S&M channels
- Very little distinction between sales and tactical component of marketing

(b) Describe the different ways sales and marketing success may be measured, and the strengths and weaknesses of each.

6. Continued

Commentary on Question:
Candidates did fairly well on this part of the question. The most common mistake was just listing the individual ways to measure sales and marketing success without providing either a definition of the strengths and weaknesses.

- Consumer insights gained
  - Impactful because based on behaviors and preferences of specific customer base
  - Weak because health insurers typically rely on anecdotal data or data not specific to customer base
- Value of their brand
  - A strength of BC BS companies due to history
  - Must be built and maintained by other insurance companies
- Marketing portfolio optimization
  - Traditional capabilities like marketing ROI are available, but weak
  - Strength to be gained by using more scientific approaches that depend on qualitative and 3rd party in addition to basic info
- Ability to segment consumers
  - Traditional segments like age and gender are easy and accessible, but weak
  - New segments such as life stage, socioeconomics, and lifestyle represent advantages

(c) Compare and contrast the enrollment process for:

(i) Employer sponsored insurance vs. individual insurance.

(ii) Medicare Advantage vs. Medicaid

Commentary on Question:
Candidates tended to list components of the sales process instead of focusing on the portions that were relevant for enrolling members. Candidates only received credit for the portions of the sales process that applied to the enrollment process. Also for the Medicare Advantage and Medicaid comparison, candidates tended to limit the answer to the eligibility information rather than providing additional information on the overall enrollment process.

(i) <u>Employer Sponsored insurance</u>
- New employees must enroll within a specified time period after starting employment
- New employees may have a waiting period before they are eligible which is 90 days max in 2014

- If they do not enroll during this time then they have to wait for the company's annual enrollment period, unless they have a qualifying life event.
- Employer must create a record for each covered employee

Individual insurance

- Individual signs up directly with the insurance company either through a web portal or paper application
- In 2014 Individuals will be able to enroll through health care exchanges
- Qualifying Life Events allow enrollment outside of the open-enrollment period

(ii) MA

- Individual must first make an application for Medicare through the Social security Administration
- The enrollment request must be provided to the MA provider during a valid open enrollment period
- The MA plan is required to send the enrollment information to CMS within 7 days

Medicaid

- More complicated than Medicare
- Vary by state in this joint state/federal program -- Medicare is federal
- Two eligibility groups -- categorically needy and medically needy
- Enrollment info must be drawn from wide variety of sources

(d) Describe how enrollment errors can affect your organization.

Commentary on Question:
Candidates did well on this part of question 6, with the most common mistake being that the candidates were not descriptive enough in their error. For example, saying "claims not paid" instead of describing who was not having their claims paid.

- Paying claims on somebody who is no longer covered or not yet eligible for coverage
- Not paying claims on somebody who is supposed to be covered
- Improper calculation of capitation payments - Can negatively impact provider relationship
- Such enrollment errors can make individual customers and groups unhappy -- negatively impacts your org

7. Learning Objectives:

4. The candidate will understand how to formulate, calculate and evaluate carrier reserving techniques.

Learning Outcomes:

(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:

Individual Health Insurance, Bluhm Chapter 6

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Describe and determine premium reserves for policies TX0001 and TX0783 as of 12/31/2014. Show your work.

Commentary on Question:

Candidates generally did well on this section, recognizing the due and unpaid premium reserve. Common errors include confusing a premium paid in advance reserve with an unearned premium reserve and not calculating an unearned premium reserve on the first policy.

- When late payment occurs, some credit is taken on the statement (as an asset) for such premium due and unpaid premium reserve. This is limited to the smaller of 90 days or one modal premium.
  - Premium for policy TX0001 is late and the premium was due within the last 90 days. The amount due of $1200 is considered a due an unpaid premium reserve.
- An unearned premium reserve sets aside the portion of the premium where an asset is held or premium is received that has been received for coverage which has yet to occur as of the valuation date.
  - Premium for policy TX0001 has been credited as an asset (due and unpaid premium). The portion of the premium for the period past the valuation date (11/12 of the annual premium) or $1100 is considered an unearned premium reserve.

7. Continued

- Sometimes a policyholder will pay more premium that is strictly required to pay prior to the valuation date. When this occurs, the insurer must set up a premium paid in advance premium reserve.
  - Premium for policy TX0783 has been paid in advance of when it was due as of the valuation date. The amount paid of $600 is considered a premium paid in advance premium reserve.

(b) Describe methods to calculate claim reserves on the Individual LTC business.

Commentary on Question:
Candidates for the most part did not reflect how the methods apply to Individual LTC business and instead just listed the types of reserve methods. Partial credit was provided for just listing methods and full credit was given for relating it to the type of claim reserve.

- Coverages such as LTC that have a relatively low number of high cost claims that extend over a long period of time have reserves for known claimants calculated via tabular reserves.
  - For LTC insurance, there is, unfortunately, no standardized table for this purpose.
  - Nonetheless, tabular methods are useful, in order to smooth and extrapolate long term claims.
  - A single table is likely not possible due to (1) the wide variation of policy provisions which lead to differing definitions of a claim and (2) the enormous number of different claim states that can occur (nursing homes vs. Home health care vs. assisting living facility, etc.)
  - Tabular reserves should be checked against actual experience periodically - or - do a retrospective review.
- An IBNR must be determined for policies in which a claimant has yet to notify the company that they have reached claim status. Typical methods to calculate IBNR include:
  - Claim Triangular Methods
  - Loss Ratio Methods
  - Projection Methods
- If not included as part of the IBNR, a reserve must be calculated for estimating the value of reported but unprocessed claims (backlog / pending claims), where there is a count but no other information.
  - The average size claim method is typically used to calculate reported but unprocessed claims.
  - The case examiners method can be used which is rather intensive.
  - The tabular reserve may be used multiplied by a factor to account for the fact that not all reported but unprocessed will become claims.

7. Continued

(c)

(i) Calculate the Statutory Net Gain including Active Life Reserves (ALR) and Deferred Acquisition Cost (DAC) asset as of January 1st each year from 1994 – 1998. Show your work.

(ii) Calculate the GAAP Net Gain including ALR and DAC asset as of each year from 1994 – 1998. Show your work.

Commentary on Question:
This calculation section posed a number of challenges to candidates. Common errors here included failing to distinguish the calculation of Stat ALR from GAAP ALR – in particular, the use of 1 yr full preliminary term. Most candidates did recognize that DAC does not apply to Stat accounting. Errors in DAC calculation were common. If a candidate assumed that not all expenses are deferrable, then credit was given based upon candidate's assumption.

Since early expenses (mostly at issue) are reflected in the reserve calculation, the double whammy of having to pay those expenses plus start holding a policy reserve can put a large strain on the company's bottom line that year. Statutory and GAAP accounting handle this in different ways. In statutory accounting, there is not an explicit recognition of expenses in policy reserves. However, by allowing the use of modified reserve methods, there is an implicit recognition. The NAIC's model law setting reserve bases allows for "one year full preliminary term" for LTC. Conceptually, the "one year full preliminary term" for LTC basis can be thought of al allowing the insurer, as they start holding reserves, to treat thee policy if it was actually issued one year later than it was, with the policyholder actually one year older.

Stat does not recognize DAC.

	Assuming One Year Preliminary Term					
Calendar Year	Net Level Prem.	PV of Paid Claims	PV of Net Level Premiums	**ALR at 1/1/Year**	Increase in ALR	
1994				**0**	0	<- Change in ALR during 1994 calendar year
1995	525	2100	2100	**0**	325	<- Change in ALR during 1995 calendar year
1996	525	1900	1575	**325**	125	<- Change in ALR during 1996 calendar year
1997	525	1500	1050	**450**	-75	<- Change in ALR during 1997 calendar year
1998	525	900	525	**375**	-375	<- Change in ALR during 1998 calendar year

7. Continued

Calendar Year	Collected Premium	Paid Claims	Paid Expenses	Change in ALR	Change in DAC (N/A for Stat)	Statutory Net Gain
1994	$ 600.00	$ 100.00	$ 600.00	$ -	$ -	$ (100.00)
1995	$ 600.00	$ 200.00	$ 75.00	$ 325.00	$ -	$ -
1996	$ 600.00	$ 400.00	$ 50.00	$ 125.00	$ -	$ 25.00
1997	$ 600.00	$ 600.00	$ 20.00	$ (75.00)	$ -	$ 55.00
1998	$ 600.00	$ 900.00	$ 10.00	$ (375.00)	$ -	$ 65.00
Total	$ 3,000.00	$ 2,200.00	$ 755.00	$ -	$ -	$ 45.00

In GAAP accounting, expenses are explicitly reflected. To recognize expenses, a parallel calculation is done using expenses rather than benefits. This expense reserve is actually an asset, but is conceptually equivalent to a negative reserve, in that it performs the opposite function of benefit reserves. Benefit reserves cause a company to set aside funds which would otherwise become profit, so that those funds will (appropriately) be used in the policy lifetime to subsidize later costs. Expense reserves allow a company to postpone recognition of certain expenses, and thus allow funds to flow through to profits earlier than they would if all expenses were fully reflected at the time they are incurred. The equivalent of the reserve in expense terms is called the Deferred Acquisition Cost, or DAC asset.

Calendar Year	Net Level Prem.	PV of Paid Claims	PV of Net Level Premiums	**ALR at 1/1/Year**	Increase in ALR	PV of Paid Expenses	Net Expense Premiums	Accumulated Value of Net Expense Premiums	Accumulated Value of Deferrable Expenses	**DAC at Year 1/1/Year**
1994	440	2200	2200	**0**	340	755	151	151	600	**449**
1995	440	2100	1760	**340**	240	155	151	302	675	**373**
1996	440	1900	1320	**580**	-1430	80	151	453	725	**272**
1997	440	30	880	**-850**	420	30	151	604	745	**141**
1998	440	10	440	**-430**	430	10	151	755	755	**0**

Calendar Year	Collected Premium	Paid Claims	Paid Expenses	Change in ALR	Change in DAC	GAAP Net Gain
1994	$ 600.00	$ 100.00	$ 600.00	$ 340.00	$ 449.00	$ 9.00
1995	$ 600.00	$ 200.00	$ 75.00	$ 240.00	$ (76.00)	$ 9.00
1996	$ 600.00	$ 400.00	$ 50.00	$ 40.00	$ (101.00)	$ 9.00
1997	$ 600.00	$ 600.00	$ 20.00	$ (160.00)	$ (131.00)	$ 9.00
1998	$ 600.00	$ 900.00	$ 10.00	$ (460.00)	$ (141.00)	$ 9.00
Total	$ 3,000.00	$ 2,200.00	$ 755.00	$ -	$ -	$ 45.00

7. Continued

(d) Describe other types of analysis that should be done prior to signing an actuarial opinion for the Individual LTC reserves.

Commentary on Question:
Candidates mentioned cash flow testing much more frequently than an asset adequacy analysis. More points were available to those candidates who elaborated on matters specific to LTC.

- The appointed actuary must annually file an opinion which includes an asset adequacy analysis, which determines the likelihood that current assets plus future revenue will be able to cover future liabilities.
  - The assets supporting those future needs are modeled stochastically, and the appointed actuary must be comfortable that the assets will be sufficient.
- This analysis includes cash flow testing.
  - Risks identified by the NAIC as being important in general to cash flow testing: morbidity, mortality, lapse, asset credit quality, reinvestment, and disintermediation.
  - A longer term (typically 20 years, often longer) of the expected cash flows is made.

(e) Evaluate assumptions required in the calculation of a Premium Deficiency Reserve (PDR) for DOS's Individual LTC block of business.

Commentary on Question:
Most candidates were able to produce a list of key assumptions for premium deficiency reserve. However, few tied it back to LTC coverage (and in particular, a closed block of LTC business). More points were available to candidates that elaborated on their list items, particularly if relating them to the scenario provided in this question.

- Rate Increases are not guaranteed and need to be reasonable and at a level likely to be implemented under market / regulatory constraints (often tough for the LTC population as regulators protect elder insureds who bought a level issue age policy).
- Besides increasing revenue, rate increases may also be considered to induce additional lapses along the lines of any historical precedent and may cause anti-selection.
- Realistic enrollment assumptions should be included in the projections. As this is a closed block, no new entrants can be projected to improve morbidity.

7. Continued

- Expenses need only reflect operating costs for the LTC block if other lines of business can be realistically expected to cover fixed overhead. As mentioned,
- There is no anticipated increase in cost due to claims trend as LTC policies are typically reimbursement policies that provide a fix daily benefit (where the reimbursement purchased is typically less than the charge incurred). To the extent this is not correct, trend should be considered.
- Reasonable interest rate assumptions should be used to discount the present value of the deficiencies. Typically a dedicated portfolio supporting the long-term liabilities is created. The rate of this portfolio can be used.
- The AAA discussion paper indicates deficiency reserves should be calculated without recognizing any impact of income taxes as they are usually addressed in the calculation of deferred tax assets / liabilities (under SSAP # 10).
- No mention of reinsurance of these policies exist. The timing of reinsurance cash flows are usually determined if the PDR is calculated using a discount rate. OR
- Realistic assumptions (no conservatism) should be used in computing deficiency reserves.
- As this is the companies only LTC business, the grouping of Individual LTC policies in calculating a PDR can not be combined with any other block of business under the Health Reserves Guidance Manual (HRGM).
- The actuary is required to document the findings of any PDR testing. Even if a PDR is not required, the testing and results that determined it was not necessary should be documented.
- LTC business typically needs a PDR due to lower than expected persistency and lower than expected credited interest rates than assumed on policies written in the 1990s.

(f)

(i) Calculate the statutory net gain for the years 2015 – 2019. Show your work.

(ii) Calculate the PDR as of 1/1/2015. Show your work.

Commentary on Question:
Generally, candidates did better on this part of the question than on part c. A common error was to be off by a year in doing the change in reserve. Many candidates treated the claim reserves as being values at the end of the year in the table, rather than at the beginning of the year, as indicated. If the alternative formula is used PV(Benefits) + PV(Expenses) – PV(Premiums) – Reserve, the time period must end when the Gain turns positive, a very common mistake.

7. Continued

(i)

	Paid Premium	Paid Claims	Paid Expenses	Change in Claim Reserves	Change in Contract Reserves	Statutory Net Gain
2014	600	$600	$100	-$125	-$25	$50
2015	450	600	80	-$250	-$20	$40
2016	350	500	65	-$100	-$40	-$75
2017	200	400	50	-$250	-$20	$20
2018	100	300	30	-250	-$20	$40

(ii) Cumulative future losses are to be taken as Premium Deficiency Reserves. The period, in this example ends in 2016 as Statutory Net Gain turns positive for good starting in the year 2017.
Thus, the Premium Deficiency Reserve is equal to the opposite sign of the sum of the Statutory Net Gain for the period 2015 - 2016. The total 75 - 40 = 35.

8. Learning Objectives:

4. The candidate will understand how to formulate, calculate and evaluate carrier reserving techniques.

Learning Outcomes:

(4f) Describe, calculate and evaluate different types of reserves and explain when each is required
- (vii) Deficiency reserves
- (viii) Active life reserves
- (ix) Premium reserves
- (x) Deferred acquisition costs
- (xi) Claim administration expense reserves
- (xii) Calculate the reserves given data

Sources:

GHA-103-13: Health Reserves (Lloyd)

AAA Premium Deficiency Reserves Discussion Reports

Commentary on Question:

This question intended to test candidate's ability to understand and describe items related to various types of reserves and their relation to financial statements. Maximum points on this problem came from candidates that could explain each item, and not simply state generic lists loosely related to the topic.

Solution:

(a) Describe items that are included in active life reserves (ALR).

Commentary on Question:

In general, candidates did fairly well on this part.

- Combination of Contract Reserves and Unearned Premium Reserves
- "Active" versus "disabled" lives
- Contract reserves established when a portion of premium in early durations helps with higher claims in later durations
- Unearned Premium Reserves are for premiums that are allocable for time periods after the valuation date.
- Unearned Premium Reserves actually an asset entry
- Contract/Policy Reserves = PV of benefits – PV of premiums

(b) Explain the distinction between the terms "reserves" and "liabilities" as applied within the statutory balance sheet.

Commentary on Question:

Numerous candidates found it challenging to explain the terms themselves.

8. Continued

- Liabilities relate to claims that have already occurred, but where payment has not yet been made.
- Liabilities have already been accrued.
- Reserves are for amounts that have not yet occurred.
- Reserves will accrue in the future.
- Reserves are for future contingent payments.
- Both items are commonly grouped together and called "reserves."

(c) Suggest checks and balances to ensure that an actuary is calculating reserves that are consistent with the entries reflected by the accounting and finance departments.

Commentary on Question:
Several of the students suggested checks and balances on the actuarial side for reviewing the actual reserve adequacy instead of focusing on how they could ensure consistency between actuarial and accounting/finance.

- Ensure incurral date definitions for claims are consistent.
- Ensure timing of data source is consistent.
- Ensure data definitions are consistent.
- Use same data source where possible.
- Ensure administrative costs are assigned consistently.
- Send inputs and documentation to finance and accounting for ensuring consistency.
- Reconcile claim data to claims data reported in the financial statements.
- Reconcile paid claims data used for reserves with entries in the Income Statement.
- Make sure no duplicate inclusion of entries between income statement and reserves.
- Meet face to face several times to ensure each entry is consistent

(d) Describe considerations an actuary should make when determining how to categorize medical conversion policies for premium deficiency reserve purposes.

Commentary on Question:
Candidates struggled with providing specifics on conversion policies and most comments were related to PDRs in general.

- Conversion policies are individual policies but are written because of group business
- Normally gross premium valuation of these policies are negative present value
- State to state variation because of regulations and rate increase constrictions
- Assumptions should vary for each state

8. **Continued**

- Unclear where to categorize - will depend on the circumstances of the insurer
- Gains from other similarly grouped policies will offset losses from medical conversion
- Mention of Section 18 SSAP No. 54 - or Paragraph 32 FAS 60 - or - "consistent with acquisition, servicing, and measuring financials"
- Give extra points for mentioning details around "testing level" or "service level"
- Mention that ACA should decrease/possibly eliminate PDR levels for these policies because of guaranteed issue -or-better pricing/subsidies on individual market

9. 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 Employer Stop Loss

Commentary on Question:

This question was testing for an understanding of the different types of stop loss contracts.

Solution:

(a) Define and explain when an employer would use each of the following stop loss contract types:

(i) Paid

(ii) 15/12

(iii) 12/18

Commentary on Question:

Most candidates defined the latter two types correctly, but many did not provide an adequate explanation of when the types would be used. For paid, many candidates incorrectly thought the claims needed to be paid and incurred during the contract period. For the latter two types, candidates did not receive credit if they did not clarify when the two periods overlapped (i.e. just said incurred in 15, paid in 12 without indicating the 15 starts 3 months before the 12).

For the explanation, candidates needed to say more than "want run-out (or run-in) coverage" – why? Some candidates incorrectly thought 15/12 would be useful for moving from fully-insured when in fact those "run-in" claims would still be covered by the FI plan so run-in stop loss would not be needed. Credit was not awarded for candidates whose explanation was solely based on the length of lag time for particular coverages (i.e. used for coverages with a short lag time).

(i) Paid

- Covers claims paid during the contract period, regardless of when they were incurred
- Useful when an employer renews their policy with their current SL carrier

9. Continued

(ii) 15/12

- Covers claims incurred 3 months prior to the contract effective date through end of current year, paid in current year
- Useful if switching SL carriers to cover run-in

(iii) 12/18

- Covers claims incurred in contract year, paid in contract year thru 6 months after
- Useful if switching to fully-insured in following year

(b) Calculate the claim payments that would be used to calculate aggregate stop loss liabilities for calendar year 2011 for each of the three contract types listed in part (a). Show your work.

Commentary on Question:
Generally candidates did well on the latter two calculations, but many candidates missed "Paid" because of incorrectly applying an incurred date filter. To receive full credit, candidates needed to somehow indicate which quarters were being summed, rather than just writing down the answer. Partial credit was sometimes available if the correct work was shown but there was a calculation error. Candidates did not receive credit if they misunderstood which quarters to include in the calculation.

(i) **Paid**

Paid in 2011 (in 1,000's) = 2 +11 +3 +57 +13 +18 +112 +32 +12 +5 +2 +5 +5 =

Total claims in period
$277,000

(ii) **15/12**

15/12 = Incurred in 4th Qtr 2010 through 4th Qtr 2011, Paid in 2011(in 1,000s)
= 57 +18 +13 +112 +12 +32 +5 +5 +2 +5

Total claims in period
$261,000

(iii) **12/18**

12/18 = Incurred in 2011, Paid thru 2nd Qtr 2012 (in 1,000's)
= 18 +112 +12 +32 +5 +5 +2 +5 +4 +1 +1 +5 +1 +5

Total claims in period
$208,000

9. Continued

(c) Calculate the impact of leveraging. Show your work.

Commentary on Question:
Candidates generally did well on this question and almost all adequately showed their work. However many candidates did not actually calculate the impact of leveraging and simply stopped at the leveraged trend. A few candidates confused the SL carrier's portion vs. the employer's portion and calculated the leveraged trend from the employer's perspective.

Year 1 reimbursement = 230,000 – 100,000 = 130,000 (only member 1)

Year 2 claims – assume these are Year 1 amounts increased by trend
Member 1: 230,000*1.10 = 253,000
Member 2: 95,000*1.10 = 104,500
Member 3: 90,000*1.10 = 99,000

Reimbursement is Year 2 claims less the 100,000 specific deductible
Member 1: 253,000 – 100,000 = 153,000
Member 2: 104,500 – 100,000 = 4,500
Member 3: 99,000 – 100,000 = 0

Total = 157,500

Stop Loss Trend = 157,000 / 130,000 – 1 = 21.2%

Leveraging = Stop Loss Trend – Aggregate Trend = 21.2% - 10% = 11.2%

10. Learning Objectives:

3. The candidate will understand how to evaluate techniques for claims utilization and disease management.

Learning Outcomes:

(3a) Describe, compare and evaluate care management programs and interventions.

(3e) Describe value chain analysis as it applies to the planning and management of disease management and other intervention analysis.

Sources:

Duncan, Chapter 5: The Use of the Value Chain in Care Management

Program Planning; Chapter 4: Actuarial Issues in Care Management Evaluations

Commentary on Question:

Most candidates were able to calculate the savings from reduced re-admissions.

Solution:

(a) Explain the role of the Value Chain components in program design and assessment.

Commentary on Question:

Most candidates were able to list the components of the value chain, but not their role in the program design and assessment.

Value chain breaks down the process into components of different contributions to the plan. It provides framework for analyzing each component. You can measure inputs and output at each step and analyze where the most value is coming from and where more work or resources are needed.

- Assess the outreach success and which strategy offers the greatest contribution to the overall outcome of the program.
- Allocate resources by using predictive modeling to identify targeted members by risk or "intervenability".
- Help determine the intervention that will be most effective at changing members' behavior.
- Determine which provider-involvement model produces the most favorable clinical and financial outcomes
- Identify interim measures of progress/success.

(b) Calculate the savings from the reduced re-admissions. Show your work.

Commentary on Question:

Most candidates were able to calculate the savings from reduced re-admissions.

10. Continued

2012 Readmission rates = (# of readmits)/(# of admissions)
Asthma = 63/180 = 0.35
Obesity = 78/312 = 0.25
Diabetes = 92/280 = 0.3286 ~= .33

2013 expected readmissions = 2013 admissions * 2012 readmission rate
Asthma = 0.35 * 200 = 70
Obesity = 0.25 * 340 = 85
Diabetes = 0.33 * 291 =~96

2013 reduced re-admissions = 2012 expected readmissions – actual readmissions
Asthma = 70-50 = 20
Obesity = 85-51 = 34
Diabetes = 96 – 87 = 9

Savings = reduced re-admissions * cost per admission
= 20 * $7500 + 34 * $7500 + 9 * $7000 = $468,000

(c) Discuss other considerations in assessing the program's effectiveness.

Commentary on Question:
Most candidates indicated cost of the program relative to the savings was important, but few listed the measurement principles, study design issues, and risk factors discussed in chapter 4. Only half of this list necessary for full credit.

- Was the reference population equivalent to the intervention population
- Consistent statistic was used to evaluate both populations
- Is the measurement appropriate: all admissions v targeted disease admissions
- Is exposure explicitly defined
- Reconcile results for reasonableness
- Causality of savings to program
- Outcome measurement most suitable for program
- Timing of study: starting and end points
- Total medical costs v disease specific costs
- Regression to the mean
- Patient drop outs
- Sample size and disease prevalence
- Claims run out
- Outliers
- Changing Risk of population
  - Demographic
  - Exclude certain members (HIV) or claims (maternity, cancer)
- Contactability

11. 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
  (i) Certification of health reserves

(5d) Discuss approaches to deal with obstacles to producing an unqualified SAO.

Sources:

ASOPs 23, 28, 41, 42

Commentary on Question:

This question aimed to test the candidate's knowledge of the disclosures required by the ASOPs for the given scenario described in the question. Most candidates attempted to tie the required ASOP disclosures to specific scenarios listed in the question. But a decent number of candidates only listed required disclosures without tying them to the scenario described in the question.

Solution:

You are a consulting actuary that has been appointed to prepare the actuarial opinion for All in the Family Health Insurance Company (AFHIC). The President of AFHIC is your sister so you want to make sure you do a very thorough job in your analysis.
During the course of your review you find the following:

- All of the data was provided by AFHIC's CFO, Joe Jackson. You noted that there were no paid claims reported during the first quarter of 2012. Joe told you that the company lost the feed with the paid and incurred detail for those months. He provided you the total paid claims for each month and indicated it would be appropriate to assume that the incurred dates were distributed in the same pattern as the second quarter since processing times in the second quarter were slightly faster than in the first quarter.
- The company has a small line of Long Term Care (LTC) business that has contract reserves of $2 million and claim reserves of $45,000 (compared to total health reserves of over $500 million). AFHIC provided valuation factors but could not provide any pricing memos or assumptions behind the valuation factors. You believe you can still reach an unqualified opinion without additional detail on the LTC reserves due to overall materiality.
- AFHIC has a Long Term Disability (LTD) line of business and holds disabled life reserves based on statutorily required claim termination rates and interest rates. The line of business is too new and too small to allow for any experience studies of the adequacy of the assumed claim termination rates.

11. Continued

- AFHIC uses a global capitation for approximately 25% of its health insurance premiums where providers are paid 85% of premium monthly for all required medical services. Since the payment is made to the providers at the beginning of each month for that month's services, AFHIC is holding no liability for this arrangement.
- When you reconciled paid claims to the ledger, you noted that the ledger showed approximately 1.5% more claims than the lags. AFHIC's controller attributed this to claims from one claim system that did not flow into the data warehouse. The controller indicated that all of the payment timing metrics for this administrator were identical to the rest of AFHIC's metrics. You chose to adjust for this by increasing the unpaid claim liability estimate from the lags 1.5%.
- AFHIC has a provider liability that is based on provider adherence to certain quality measures. They establish the liability based on the average payout per member over the last three years. This was $25 million in 2009, $1 million in 2010 and $35 million in 2011. You have concluded that this produces a reasonable estimate of the liability but believe the variability of recent payouts increases the anticipated variability of the estimates.

Explain the disclosures you will need to include in your actuarial report as required by the Actuarial Standards of Practice (ASOP).

- Identify yourself and disclose that you meet the Qualification Standards
- Disclose there is a potential conflict of interest because your sister is the president of AFHIC
- Disclose reliance on assumptions from CFO Joe Jackson for claim payment patterns for Q1 2012. Disclose any disagreement with this assumption, given faster payments in Q2 are applied to Q1.
- Disclose limitations of data for contract and claim reserve calculation for LTC business and reliance of valuation factors given by AFHIC. In addition, disclose that there supporting memos for that support the assumptions and so it is not possible to give an opinion as to the reasonability of the assumptions.
- Disclose prescribed claim termination rates and interest rate for LTD under applicable law. Disclose limitations on LTD data for purpose of experience study on termination rates.
- Describe provider arrangements and explanation of why no liability is held. Disclose any possible provider insolvency issues.
- Disclose reliance on AFHIC controller assumption that one claim month did not flow into data warehouse and data modification of increasing liability by 1.5%.
- Disclose caution over risk of potential variability in the provider liability due to quality measure payouts and how this may affect estimates. Reference appropriate sensitivity testing.
- Provide sufficient information on assumptions, methods, and data so that another actuary could reasonably audit the work

11. Continued

- Provide any additional information on data selection, review, and reliance on data supplied by others.

12. 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.

Sources:

Evaluating Bundled Payment Contracting

Essentials of Managed Health Care, Chapter 4 & 5

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) Outline the reasons RBIC and providers would want to contract with each other.

Commentary on Question:

Overall candidates did very well on this section. They were able to highlight the reasons why the health plan (RBIC) would be motivated to contract vs. the reasons why the providers would be interested.

RBIC would want to contract with the providers in order to:

- Obtain favorable/discounted pricing
- Meet required service area access standards
- Obtain contractual agreement for several clauses
  - Direct submission of claims and to hold harmless members for insurer payments
  - Provider agrees to cooperate with UM & QM program
  - Plan's right to audit clinical and billing data
  - Provider agrees to not discriminate

Providers would want to contract with RBIC in order to:

- Ensure it won't be excluded from the network
- Direct & timely payment by payer (health plan)
- Have plan members be preferentially directed (steered) to them
- Defined rights around disputing claims and payments

12. Continued

(b)

(i) Discuss considerations in selecting which procedures to include in a bundling payment mechanism.

(ii) For each procedure in the table, recommend whether or not to bundle. Justify each recommendation.

Commentary on Question:
The majority of candidates provided a recommendation with justification for each procedure. Some candidates were inconsistent when listing considerations for part (a) vs. their recommendations in part (b). Some candidates misunderstand part (a) and provided considerations regarding bundling vs FFS rather than focusing on the considerations for selecting a procedure to bundle or not.

(i) Need a high volume of procedures to have a predictable mix of cases.
Need a minimal number of extremely complex or costly cases (low occurrence of outliers).
Need definition of the episode of care such as when it starts/
Need clear definition of the services covered by the bundled payment

(ii) Do not bundle Procedure A because of its low volume and significant amount of outliers.
Bundle Procedure B because of the high frequency and the high number of readmissions which may be avoidable.
Bundle Procedure C because of the lower variability and high frequency of claims.

(c)

(i) Calculate the risk pool payment for the provider group.

(ii) Identify potential obstacles in establishing a risk pool program for this HMO.

Commentary on Question:
The majority of candidates struggled on this section. Almost no candidates were able to articulate potential obstacles in establishing a risk pool program. Some candidates were able to calculate the risk pool payment in part (i) or were at least able lay out a clear approach. The most common issue was not including each element – physician, specialty and facility in the calculation or not applying the correct capitation or pooling methodology.

(i) <u>PCP Experience:</u>
PCP Claims Target = $60 PMPM * 64,572 MMs = $3,874,320
PCP Capitation Paid = 95% * $3,874,320 = $3,680,604
Withhold Amount = 5% * $3,874,320 = $193,716

12. Continued

Specialist Experience:
Specialist Claims Target = $97 PMPM * 64,572 MMs = $6,263,484
Specialist Deficit = Actual – Target = $6,601,294 - $6,263,484 =$337,810
Facility Experience:
Facility Claims Target = $229 PMPM * 64,572 MMs = $14,786,988
Facility Surplus = Target – Actual = $14,786,988 - $13,903,738 = $883,250
50% Risk Share with PCPs = 50% *$883,250 = $441,625

PCP risk pool payment will be the PCP withhold plus the balance of shared experience from specialist and facility services
Payment to PCPs = $441,625 (shared facility surplus) - $337,810 (specialist deficit) + $193,716 (PCP withhold) = $103,815 + $193,716 = $297,531

(ii) Potential obstacles include:

- Determining how to attribute members to a PCP/provider group if not a gatekeeper HMO.
- Having sufficient membership to avoid instability / significant random fluctuations
- Should consider stop loss in order to protect PCPs from high referral or facility costs due to expensive chronic diseases or random catastrophic claims
- How should capitation be shared among PCPs? If PCPs with negative balances share in overall positive balance, we're not incenting the desired behavior for those providers. If sharing is based on individual results it is subject to random variation and gaming.

13. Learning Objectives:

3. The candidate will understand how to evaluate techniques for claims utilization and disease management.

Learning Outcomes:

(3a) Describe, compare and evaluate care management programs and interventions.

(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.

(3d) Perform a literature review about program evaluation.

Sources:

Managing and Evaluating Healthcare Intervention Programs, Duncan, Chapter 3, 4, and 6

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 knowledge that an actuary should have about the different care management programs and interventions.

Solution:

(a)

(i) Explain why it is difficult to demonstrate disease management (DM) program savings despite clear evidence of improvement to health plan quality outcomes.

(ii) Propose solutions to resolve this difficulty.

Commentary on Question:

In order to get the maximum points allowed on this question, candidates must have listed the major items of the model solution and briefly describe each of them.
Few 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 model solution.

(i) The measurement of financial outcomes is not sufficiently stable.

- It could be subject to variation or external factors that have been inadequately controlled.
- The measurement techniques are not sufficiently sensitive to be able to detect positive financial outcomes.

13. Continued

Programs were either not focused on financial outcomes or were not structured to optimize the financial outcomes.

- Programs were often implemented by the Medical Management Department or were established to achieve clinical improvement.
- The achievement and measurement of financial outcomes was an afterthought in early programs, so it should not be surprising that they do not produce financial results as favorable as the later program.

Program sponsors do not understand the economics of DM programs and therefore do not optimize the programs for financial return.

(ii) A better understanding of the economics of DM programs.

- This may allow those who are responsible for designing and implementing programs to set reasonable expectations.

More rigorous measurement of financial outcomes.

- The core problem with measurement is not the methodology employed to measure outcomes, but rather the way the methodology is applied to a particular analysis, the assumptions made and decisions taken with regard to data that will affect the outcomes.
- Factors that potentially influence the outcomes range from the way that claims data completion is handled to who is included in and excluded from measurement.

Reconciliation between program savings, overall claims costs and costs increase trends.

(b) For health plan care management:

(i) Describe initiatives.

(ii) Summarize major findings found in literature.

Commentary on Question:
For part (i) of the question, in order to get the maximum points allowed, candidates must have listed all the Managed Care (MC) initiatives and briefly describe each of them. Most candidates did very well in that part of the question. Candidates that did not score well in that part of the question are those that did not list the MC initiatives and briefly describe each of them.

13. Continued

For part (ii) of the question, in order to get the maximum points allowed, candidates must have listed the major items of the model solution. Very few candidates did score well in that part of the question. Candidates that did not score well in that part of the question are those that did not list the major items of the model solution.

(i) Pre-authorization / Utilization Review (UR)

- Requires that a physician or hospital obtain approval from a MCO before performing a diagnostic procedure or surgical intervention on a health plan member.
- Generally applied to inpatient procedures, although its use has been growing for certain outpatient procedures (Imaging Services) and most recently certain high-cost outpatient drugs.

Concurrent Review

- Involves monitoring a health plan member's care while the member is still receiving care in an acute hospital or nursing home.
- This process is commonly performed by a utilization review nurse who may request information about a hospitalized patient and discuss the case with responsible clinician via telephone.

Case Management

- Involves a health care professional who coordinates the care of a patient with a serious disease or illness (such a stroke, sclerosis, AIDS, some cancer, or lupus).
- The complexity of diseases usually results in medical care that involves multiple medical specialties, institutions, a wide array of possible diagnostic and therapeutic tools, and a significant social or community-based welfare element.
- Case management often begins during an inpatient hospital stay with the planning of the patient's post-hospital care (discharge planning) and continues once the patient returns home.

Demand Management

- Demand management refers to certain passive forms of informational interventions, often provided by clinical staff over the telephone.
- One form of demand management in "Nurse Advice Lines", which address episodic, often acute, illnesses.
- One objective of these services is "triage", or the process of determining whether a medical condition or event requires immediate intervention, such as emergency room visit.

13. Continued

Disease Management (DM)

- The focus of DM is on chronic conditions with certain characteristics that make them suitable for clinical interventions.
  - The disease is often manageable with a combination of pharmaceutical therapy and lifestyle change.
  - The average annual cost of some chronic patients is sufficiently high to warrant the expenditure of resources by the health plan or employer to manage the condition
  - Patients are expected to play an active role in the management of their disease.
  - Traditionally, DM has focused on the "big five" chronic conditions: ischemic heart disease, diabetes, chronic obstructive pulmonary disease, asthma, and heart failure, but some companies add other conditions on the list.
- DM is a system of coordinated health care interventions and communications for populations with conditions in which patient self-care effort is significant.
- It emphasizes prevention of exacerbations and complications using evidence-based practice guidelines and patient empowerment strategies.

Specialty Case Management

- Performed by a care manager who has expertise in a particular area (such as mental health, organ transplantation, maternity, certain drug therapies, or oncology) and to whom the MCO has assigned primary responsibility for coordinating the patient's care.
- Typically, MCOs contract or "carve-out" this intervention to a private company that has established networks of specialists or centers of excellence.
- Frequently, the financial responsibility is carved out of the overall plan liability and transferred, along with the service responsibility, to the Specialty Case Manager.
- Patients still need a case manager's assistance to help them negotiate through multiple sites and stages of treatment, often over an extended period of time.

Population Health Management

- Population health management is a recent intervention in which a broad set of medical conditions is addressed.
- A broader approach is used in which the entire population of a health plan is evaluated; using statistical tools such as Predictive Modeling or Health Risk Assessment.

13. Continued

- Population Health Management programs deliver education and other information to the target population in an attempt to members aware of and better managers of their conditions.
- The emphasis of Population Health Management is usually on wellness, prevention, or early detection of disease through educational services or Health Risk Appraisals.

(ii) Pre-authorization / Utilization Review (UR)

- Early studies show admission and bed-day reduction from UR in the range of 10% to 15%.
- Recent international studies of data not subject to MC show considerable opportunity for utilization reduction.
- Early gains were not maintained as medical management models changed.
- There is also evidence of increased outpatient utilization due to inpatient UR.

Concurrent Review

- Early gains due to Concurrent Review were not maintained as medical practice patterns changed.
- Current evidence that Concurrent review can reduce bed-days by 2% to 3%.

Case Management

- Reported results are variable (depending on target condition and program).
- Evidence exists of clinical improvement and reduction in utilization due to CM, particularly for heart disease.
- A survey of CM financial outcomes for diabetes found no valid studies.

Demand Management

- Evidence exists that Demand Management reduces unnecessary physician and ER visits.

Disease Management (DM)

- Highest savings are reported for heart diseases.
- Moderate savings are reported in diabetes and mixed results (in some cases no savings) for Asthma.
- A recent study using a randomized control showed no discernible savings.

13. Continued

Specialty Case Management

- Relative few studies.
- Prevalence of members with target conditions makes them a poor candidate for randomized control trials.
- Evidence shows support for financial outcomes in mental health and some high-cost diseases, such as renal diseases.

Population Health Management

- Evidence reported of dollar savings within population-wide programs.
- Studies of programs to intervene within entire chronic condition sub-populations report measurable PMPM savings.

(c) Define Return on Investment (ROI) and explain its components in a managed care perspective.

Commentary on Question:
In order to get the maximum points allowed on this question, candidates must have indicated the ROI definition and listed the different components of costs and savings.
Few 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 different components of costs and savings.

ROI = Total savings attributable to the program / Total program cost

Program cost = Direct costs + Indirect costs of internal support activities + Management costs + Overhead and other allocated costs + "Set-up" costs

Where:

- Direct costs = Salaries of internal staff + Vendor fees
- Indirect costs of internal support activities = Information systems + Mail and printing + Medical director involvement
- Management costs = Program management + Medical management + Financial management
- Overhead and other allocated costs = Rent + Employee benefits + Senior management load

Savings due to the program = Medical cost savings due to decreased health care resource utilization, in turn resulting from the beneficial effects of a DM program or intervention.

13. Continued

(d) Calculate the following for both programs. Show your work.

(i) ROI

(ii) The Average Net Savings per member per month (PMPM).

(iii) The Average Net Savings per chronic member per month (PCMPM).

(iv) The Marginal Net Savings PCMPM for the first 200 members.

(v) The Marginal Net Savings PCMPM for the next 500 members.

Commentary on Question:
In order to get the maximum points allowed in this question, the candidates must have got the correct calculations.
The very 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 Marginal Net Savings PCMPM for the next 500 members.

(i) ROI

= Annual gross savings of the congestive heart failure program
/ Annual congestive heart

= 500,000 / 100,000 for Program 1
and 1,400,000 / 500,000 for Program 2

= 5.00 for Program 1
and 2.80 for Program 2

(ii) Average Net Savings per member per month (PMPM)

= (Annual gross savings of the congestive heart failure program –
Annual congestive heart failure program cost)
/ (Number of plan members x 12)

= (500,000 – 100,000) / (20,000 x 12) for Program 1
and (1,400,000 – 500,000) / (20,000 x 12) for Program 2

= 1.67 for Progam 1
and 3.75 for Program 2

13. Continued

(iii) Average Net Savings per chronic member per month (PCMPM)

= (Annual gross savings of the congestive heart failure program - Annual congestive heart failure program cost) /
(Number of members with a congestive heart failure condition x 12)

= (500,000 – 100,000) / (200 x 12) for Program 1
and (1,400,000 – 500,000) / (700 x 12) for Program 2

= 166.67 for Program 1
and 107.14 for Program 2

(v) Marginal Net Savings PCMPM for the next 500 members

= ((1,400,000 – 500,000) – (500,000 – 100,000)) / ((700-200) x 12)
= N/A for Program 1 and 83.33 for Program 2

(e) Recommend which program GHP should implement. Justify your recommendation.

Commentary on Question:
In order to get points in this question, the candidate must have recommended which program should be implemented and explain its rationale.
Many candidates did score well in that part of the question.
Candidates that did score well are those that did recommend a program and explain its rationale.

GHP should invest in Program 2 since the Average Net Savings PMPM is greater than in Program 1. Indeed, the use of ROI as a measure suggests that Program 1 is a better investment, but in fact this measure is misleading since it does not tell to GHP how profitable is the program overall, as it the case with the Average Net Savings PMPM.

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 Disability Insurance, GHA-105-13, pp 27-29

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) List the group and plan design characteristics to consider when underwriting group disability insurance.

Commentary on Question:

Candidates were expected to address both group characteristics and plan design characteristics. Many candidates who did poorly on this section only addressed one or the other.

Group characteristics include: age distribution, gender distribution, industry, income or salary distribution, group size, geographic location

Plan design characteristics include: richness of benefits or the income replacement ratio, special benefits such as COLA or pension benefits, benefit taxability, and maximum benefits.

Definition of disability: own occupation versus any occupation

Employer contributions: Paid by employer, employee or a combination of the two

(b) Describe the challenges when underwriting a self-managed STD plan.

Commentary on Question:

This question is specifically for the challenges of a self-managed plan. While there are many challenges to underwriting a STD plan in any situation, this question was looking for a discussion on the challenges specific to self-managed STD plans. Candidate responses were not always specific to self-managed plans.

Self-managed plans tend to have incomplete or inaccurate data. Many employers want to use their own data but have a credibility issue. Data would need to be validated against manual rates or another benchmark. If the data is unreliable, manual rates should be charged. An experience refund could be offered to the group if they are concerned about not using their own data.

14. Continued

(c) Calculate both the taxable and tax-free Income Replacement Ratios for this individual. Show your work.

Commentary on Question:
Many candidates confused the tax-free Income Replacement Ratio with a scenario where there are no taxes on working or disability income. Taxes are always paid on working income; it is only the disability benefit that can be tax free.

Earnings while at work = salary x (1 - working tax rate)
Disability income = salary x benefit percentage x (1 - disabled tax rate)
Replacement ratio = disability income ÷ earnings while at work

Taxable Benefit:
Earnings while at work = \$10,000 x (1 – 25%) = \$7,500
Disability income = \$10,000 x 70% x (1 – 20%) = \$5,600
Replacement Ratio = \$5,600 ÷ \$7,500 = 75%

Tax Free Benefit
Earnings while at work = \$10,000 x (1 – 25%) = \$7,500
Disability income = \$10,000 x 70% x (1 – 0%) = \$7,000
Replacement Ratio = \$7,000 ÷ \$7,500 = 93%

(d) In order to save money on their employee benefits, BRCH is considering offering a 70% Voluntary Long-Term Disability (LTD) benefit for their executives.

(i) Describe potential rating challenges.

(ii) Recommend possible plan design changes. Justify your answer.

Commentary on Question:
Candidates generally did well on this question. For full credit, we were looking for a candidate to describe 2-3 unique rating challenges and a similar number of plan changes to address those rating challenges.

(i) The Income Replacement Ratios are very high so executives have little incentive to return to work.

Voluntary plans have anti-selection because better risks decline coverage while worse risks accept.

The industry load for this blue collar industry may be too high because the plan will only cover executives.

14. Continued

(ii) Reduce benefits or institute a maximum benefit to reduce the high replacement ratios.

Make sure pre-existing exclusions are in place to protect against anti-selection.

15. 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.

(6b) Evaluate the criteria for classifying risks.

Sources:

GH-D102-07 Group Life Insurance

Commentary on Question:

Parts (a) and (b) were determined to be defective questions since they were not on the syllabus. Only part (c) was considered in the grading process.

Solution:

(a) List the elements to review in determining if the plan is to be considered a group life insurance product for purposes of Internal Revenue Code Section 79.

Commentary on Question:

Part (a) was determined to be defective since it was not on the syllabus and was not considered in the grading process

A plan is considered to be group term life insurance for purposes of Section 79 if it meets the following conditions:

1. The plan must provide a general death benefit that is excludable from gross income for federal income tax purposes
2. The plan must be provided to a group of employees as compensation for personal services
3. The insurance must be provided under a policy carried directly or indirectly by the employer; and
4. The amount of insurance provided by the plan must be computed under a formula that precludes individual selection

(b) Describe taxation issues that should be considered for this policy.

Commentary on Question:

Part (b) was determined to be defective since it was not on the syllabus and was not considered in the grading process

15. Continued

Consider taxable income. Employers can provide up to $50,000 of coverage without taxable income. Excess of policy limit and $50,000 must be multiplied by the appropriate amount of tax cost by age/gender per IRS statute.

There are exceptions for taxation which include:

- when insured is former employee who has terminated employment and become permanently disabled
- if charitable organization is designated by beneficiary, but no charitable deduction is allowed for such a designation
- if the employer is the beneficiary (this is contrary to most state's laws)

Consider non-discrimination requirements which include:

- Can't deduct cost of group life for Key employees when plan discriminates for eligibility and benefit level
- Key employee must pay higher of actual cost or IRS mandated cost
- Non-Key employees may still deduct the value of their benefits under $50,000

(c)

(i) Describe the types of concentration risks associated with group life insurance.

(ii) Describe potential issues that arise when determining concentration risk.

(iii) Recommend and explain a potential solution to address the carrier's concern.

Commentary on Question:
Most candidates were able to correctly identify the geographic and industry concentration risks, but the candidates that properly explained the risks behind each received full credit.

Very few candidates correctly answered part (ii).

For part (iii), candidates received full credit for making any of the recommendations shown below with proper explanation.

(i) Geographic concentration risk

- One group with a significant number of employees in one location
- Several smaller groups located in a single office building
- Subject to natural disaster or other event that may greatly affect one concentrated area

15. Continued

Industry concentration risk

- Industries that use chemicals or other materials that prove to be hazardous

(ii) Quantifying exposures in a geographical location is difficult. Detailed data may not exist for employers that do their own premium administration. The insurer may only know the location of the head office or billing address, but the employer has multiple locations. In large office buildings, each tower may have its own address making it difficult to identify overlapping exposures.

(iii) Obtain Reinsurance:

- Catastrophe Reinsurance provides coverage against the loss of multiple lives in a single event
- Per-Life Reinsurance (Excess Reinsurance) retains a maximum amount per life for the primary insurer and then cedes the excess
- Participate in an industry risk pool

Limit the amount of business written in certain areas or industries to help spread risk and avoid concentrations