DP-GH Model Solutions
Fall 2012

1. Learning Objectives:

1. Understand and evaluate the effectiveness of the various types of Single Employer group coverage typically offered under:
   - Group health plan, including Consumer driven plans, etc.
   - Prescription Drug
   - Group dental plan
   - STD or LTD plan (incl. mention of coverage within other plans)
   - Group life plan
   - Other miscellaneous benefits
   - Multi-employer groups (Taft-Hartley, etc)

5. Apply U.S. and Canadian nation-specific regulation to product design and pricing.

Learning Outcomes:

(1a) Describe the various coverages, including typical benefit provisions, eligibility requirements, cost-sharing provisions, limits and funding mechanisms.

(1d) Assess the advantages and disadvantages to a sponsor of offering a given coverage/benefit.

(5a) Determine if given policy provision is compliant with the regulation.

(5b) Describe key provisions of major legislation.

Sources:

Bluhm, Group Insurance, 5th Edition, Estimating Medical Claim Costs, Chapter 30

Bluhm, Group Insurance, 5th Edition, Medical Claim Cost Trend Analysis, Chapter 36

Bariatric Surgery Holds Promise for Patients and Payors, HealthWatch, January 2011

Cost and Benefit Trends Observed: July 2011 Renewals for State Employees

1. Continued

Commentary on Question:
This question used Bariatric Surgery and a state plan as a context for considering benefit design, cost containment, study applicability, and targeted disease management.
While on the surface the question was about one particular surgery, the question of how to choose interventions and how they are valued and why we do them is an important part of evaluating the results of pilot programs and incorporating them into pricing for group benefits.

Solution:

(a) Describe how states have responded to the increased pressure to reduce costs of health care.

Here there were two paths to get credit. One was to discuss cost control methods such as contracting, DM programs, and wellness. The other was to talk about reduced plan offerings, CDHP plans, and modest reduction in copays.

(b)

(i) Describe the concerns with obesity in the US.

There is a large amount of obese people. The numbers are growing constantly. Obesity is associated with higher health expenditures per person.
Note, it isn't just that the prevalence is growing; it is that there is so much of it already that it forms a huge portion of expenses expended by plans.

(ii) Describe how obesity is measured.

BMI and then divided into underweight normal, obese, morbidly obese.

(iii) Compare the expected medical costs of other who are not obese to those who are obese and those who are morbidly obese.

Normal<<obese<<morbidly obese.

(iv) List the diagnoses(comorbidities) which accompany obesity.

Diabetes, high blood pressure, joint pain.
Note, we accepted all sorts of forms of cardiovascular and musculoskeletal disease, but only one point of credit was given for each. Many forms of signs and symptoms were also accepted. Most people did very well on this section.

1. Continued

(v) List the kinds of surgeries available for the morbidly obese.

Bariatric surgery, lap band, bypass.
Note, we also accepted descriptions of the surgery.

(c) Describe how the pilot study results should be adjusted to project the expected savings for the whole group.

Sample answer.
Sample size too small. Need to adjust to reflect different composition of the rest of the plan. Need to trend. Need to make adjustments for demographics, risk, geography.

2. Learning Objectives:

1. Understand and evaluate the effectiveness of the various types of Single Employer group coverage typically offered under:
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   - Group dental plan
   - STD or LTD plan (incl. mention of coverage within other plans)
   - Group life plan
   - Other miscellaneous benefits
   - Multi-employer groups (Taft-Hartley, etc)

2. Understand and evaluate the effectiveness of the various types of Individual and Multi-Life coverage typically offered under:
   - Individual Health Plan
   - LTC (including group and individual)
   - Individual DI Plan
   - Medicare Supplement

3. Evaluates employer strategies for designing and funding benefit plans for:
   (i) Active employees
   (ii) Dependents
   (iii) Pre-65 retirees
   (iv) Post-65 retirees
   (v) Disabled (short and long-term)

Learning Outcomes:

(1b) Identify the potential gaps in needed or desired coverages.

(1d) Assess the advantages and disadvantages to a sponsor of offering a given coverage/benefit.

(2b) Identify the potential gaps in needed or desired coverages.

(3b) Evaluate potential financial, legal, moral risks associated with each strategy.

Sources:

Rosenbloom, Handbook of Employee Benefits, 7th Edition, Chapter 2, A Functional Approach to Designing and Evaluating Employee Benefits

Bluhm, Group Insurance, 5th Edition, Chapter 30, Estimating Medical Claim Costs

Commentary on Question:

Overall the students performed well on this question.

Part (a)

- Good responses for part (a)
- Once reference material was identified, responses were generally complete

2. Continued

Part (b)

- Critical to "show your work"
- Minor mathematical mistakes can still result in almost full marks being provided. However, this is not possible if the method or formula is not provided and no indication is given regarding how the values were obtained.

Parts (c) and (d)

- Generally the poorest performance was on these parts.
- Students did not identify the objective of the question correctly.

Solution:

(a) Describe the steps required to apply the functional approach to evaluate employee benefits.

- Classify people into groups to provide benefits to
  - e.g. – active employees, retirees, dependents etc
- Identify the needs of these people
  - e.g. – medical expenses, disability etc
- Analyze current benefits program with respect to these groups and needs
- Determine if there are any gaps or overlaps in existing coverage
- Decide on design changes to address these gaps
- Calculate the cost or savings from changes
- Determine financing for new design
- Look for other cost savings
- Implement benefit changes
- Communicate changes to employees
- Periodically re-evaluate plan

(b) Calculate the difference in annual cost per member for funding the new CDHP versus the original plan. Assume no trend or other adjustments to the data provided. Show your work.

		Employers Share of Cost – New Plan	Allowed Cost	Cost to New Plan
% Members (1)	Cost of Current Plan (2)	= 1- coinsurance %	= Paid / (1-Coin)	= Allowed – 2000 (3)
15%	0	0%	0.00	0.00
25%	370	63%	587.30	0.00
40%	1,420	78%	1,820.50	0.00
12%	2,530	87%	2,908.05	908.05
6%	3,980	89%	4,471.91	2,471.91
2%	8,720	95%	9,178.95	7,178.96
	Weighted Ave			Weighted Ave
(1)x(2)	= 1377.30		(1)x(3)	= 400.86

2. Continued

For new plan, add PMPY (HSA cost) of $1,000
Cost of Proposed Plan = 1,000 + 400.86 = 1,400.86
Cost of current plan = 1,377.30
Cost of proposed plan = 1,400.86
Difference in cost = 23.56

(c) Explain how the data should be adjusted when calculating costs under the CDHP plan.

- Claims probability distributions (CPD) vary by product
  - CPD can be used for similarly designed plans
  - CPD can be used for claims costs for high deductible health plans
  - Source data should be consistent with the use of data
- Should have similar cost-sharing by type of service
  - Use CPD for HDHP but use actuarial cost model for plans that use copayments

(d) Describe the potential impact of CDHPs on member behavior and member health.

- Necessary Care
  - Studies show members not giving up necessary care under CDHP plans
  - Received same level of treatment as those in traditional plans
- Preventative Care
  - Studies show higher level of preventative care under CDHP
  - Caused by most plans providing preventative at no cost
- Chronic Care
  - Studies show same level of care as those in traditional plans
- Prescription Drug
  - Greater use of generics
- CDHP members appear to be more engaged consumers

3. Learning Objectives:

4. Evaluate the various types of coverages typically offered under a government health plan (e.g., Medicare, Medicaid, Canadian health plan, Social Security Disability Income, states' Temporary Disability Income programs, Workers Compensation, etc.).

Learning Outcomes:

(4a) Describe the various coverages, including typical qualifications for benefits, coverage eligibility, cost-sharing provisions, limits, taxation and funding mechanisms.

Sources:

Email 20, pg 44 of case study

Email 16, pg 46 of case study

Email 17, pg 48/49 of case study

Various other readings

Commentary on Question:

Formulas used in the question are written in the case study, so the arithmetic work should have been simple to produce. Section (b) is just asking for lists of items.

Solution:

(a)

(i) Calculate the Expected Readmission Rate. Show your work.

Calculate the adjusted probability of readmission for each hospital stay.
Adjusted Probability of Readmission = DRG Index * Age Factor * Sex Factor * Geography Factor
Stay 1 = John = 23% * .95 * 1.0 * 1.05 = 22.9%
Stay 2 = Paul = 17% * 1.15 * 1.05 * 1.05 = 21.6%
Stay 3 = Paul 2 = 26% * 1.15 * 1.05 * 1.05 = 33.0%
Stay 4 = Janice = 26% * 1.0 * .98 * 1.0 = 25.5%
Stay 5 = Tony = 23% * 1.0* 1.05 * .97 = 23.4%
Stay 6 = Sandra = 19% * 1.15 * .98 * 1.05 = 22.5%
Stay 7 = Sandra 2 = 23% * 1.15 * .98 * 1.05 = 27.2%
Stay 8 = Janice 2 = 26% * 1.0 * .98 * 1.0 = 25.5%
Stay 9 = Gladiola = 24% * 1.0 * .98 * 1.05 = 24.7%
Stay 10 = Susan = 23% * .95* .98 * .97 = 20.8%
Stay 11 = Daisy = 9% * 1.05 * .98 * 1.02 = 9.4%
Stay 12 = Bernie = 19% * .95* 1.05 * 1.02 = 19.3%
Stay 13 = Jim = 25% * .95 * 1.05 * 1.0 = 24.9%
Stay 14 = Susan 2 = 13% * .95* .98* .97 = 11.7% (assume dates are in 2010, not 2012 and just an error in the email)

Stay 15 = Jim 2 = 21% * .95 * 1.05 * 1.0 = 20.9%

Calculate the Expected Rate of Readmission: Expected Rate = Average the Adjusted Probability of Readmission for the 15 hospital stays.
(Sum of Adjusted Probability of Readmission = 333.3) / (15 hospital stays)
= 22.2%

(ii) Calculate the Star Rating for IP acute readmissions. Show your work.

There are 5 readmissions, but the definition of readmission for the star rating calculation is that a readmission within 30 days of the initial discharge is defined as a readmission.
Of those 5, 3 are within 30 days: Paul, Sandra, and Jim's second admission.
The Observed Rate of Readmissions = Total admissions within 30 days divided by total number of hospital stays
Observed Rate = 3/15 = 20%
CMS Star Rate = (Observed Rate/Expected Rate) * National Average Observed (Readmission) Rate
= (20%/22.2%) * 19.1% = 17.2%
17.2% is less than 30%, but greater than 15%.
Therefore, the Star Rating for this measure is 2 Stars

(iii) Explain the potential implications of the calculated Star Rating.

Credit will be given for a maximum of 5 well thought out responses. Examples of acceptable responses include:

- 2 stars is a low rating so indicates poorer quality for this star measure
- If a plan has a star rating below 3 the plan will not receive a quality bonus (QBP).
- However, readmissions are just 1 of 36 MA measures (there are 53 measures total including Part D measures) so the impact to QBP depends on other measures too.
- The plan can try to improve overall Star rating by improving the readmission rate.
- The work to lower readmissions may be costly so need to study whether benefits outweigh cost.
- The plan should also consider the public perception of lower Star Ratings and consider if this outweighs the cost of improving readmission rate.

(b)

(i) List the advantages of a reduced readmission rate.

Credit will be given for a maximum of 5 well thought out responses. Examples of acceptable responses include:

- Lower readmission rates reduced claims costs
- Reduced claims can lead to lower premiums or enhanced benefits for the plan
- Lower readmission means members have fewer trips to the hospital which is an indicator of healthier members
- Less time spent in the hospital leads to increased member satisfaction
- Lower readmissions can lead better quality ratings (e.g. CMS Stars) which influences:
  - Customer perception - higher Star ratings make the plan more attractive to potential new members
  - CMS bonuses (QBP) payments
  - Bonuses allow the plan to lower premiums and/or provide additional benefits in the plan.
  - In the future, CMS may penalize or terminate low Star rated plans

(ii) List ways IP readmissions could be reduced.

Credit will be given for a maximum of 5 well thought out responses. Examples of acceptable responses include:

- Divert potential admissions to alternative settings such as outpatient which are less expensive
- Improve physician coordination of care including preventive services and follow up visits following hospital stays
- Implement Concurrent review while member is in the hospital which ensures the member gets the appropriate level of care while in the hospital and that they do not leave the hospital before they are ready
- Do Discharge Planning for the member before they leave the hospital ensuring the member will have the services they need when they are in another setting
- Assign nurses or a case manager to follow up with patients discharge to:
  - Ensure prescriptions are filled and taken
  - Ensure that home instructions are followed
- Provide step down services, such as home health, DME, alternative institutional settings, therapies, etc, when the member leaves the hospital
- Encourage providers to reduce readmission rates by providing appropriate care on the first admission by establishing financial penalties for high readmission rates or financial incentives for low readmission rates

4. Learning Objectives:

1. Understand and evaluate the effectiveness of the various types of Single Employer group coverage typically offered under:
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   - Group life plan
   - Other miscellaneous benefits
   - Multi-employer groups (Taft-Hartley, etc)

Learning Outcomes:

(1a) Describe the various coverages, including typical benefit provisions, eligibility requirements, cost-sharing provisions, limits and funding mechanisms.

(1b) Identify the potential gaps in needed or desired coverages.

Sources:

Managing and Evaluating Healthcare Intervention Programs, Duncan, Chapter 13

Commentary on Question:

In general, candidates performed well on this question. Recognizing that it was the average medical costs that were needed was crucial to the question. Common errors included not using the medical cost relativities when finding the average medical costs. Furthermore, this question was dealing only with medical costs. Incorporating disability and absenteeism was not a part of the problem.

Solution:

(a) List elements typically included in a corporate wellness program.

- Assessment of Individual's status through Health Risk Assessments
- Program of Risk Modification of workforce needs - specific health problems (obesity, diabetes, chronic conditions)
- Activities from DM, weight control, nutrition, substance abuse, MH, health and well being
- Level of intervention - information only to specialized interventions
- Location of programs - onsite or offsite through vendors
- Communication channels - electronic, direct, paper using incentives or disincentives
- Evaluation strategy to study results (both healthcare and financial)
- Integration within corporate framework - priority to supporting participation by management

4. Continued

(b) Calculate the new estimated savings from medical care costs.

Step 1: Calculate number of participants for each category.

Participants = Total population * Prevalence * Program Uptake%

	Total Group	Prevalence	Program Uptake	Participants-No Incentive
Chronically Ill	5,000	6%	15%	45
Unhealthy Habits	5,000	10%	20%	100
Mean Well	5,000	79%	10%	395
Vigorously Healthy	5,000	5%	15%	37.5
				577.5

Step 2: Calculate the Avg Medical cost per person (X).

Solve for X-- where X*45*2.2*.08 + X*100*1.1*.15 + X*395*1.02*.12 + X*37.5*.8*.01 = $270,000

x= $3,695.19

Step 3: Calculate Total Savings (Using new uptake and new savings per participant assumptions given in problem)

Formula = Total Group * Prevalence*New Program Uptake%*Avg Cost*Relative Cost Factor*New Savings Estimate

must determine for each disease category and sum together

	Total Group	Prevalence	New Program Uptake	Participants-$200 Incentive	Average Cost	Relative Cost Factor	New Savings Estimate	Total Savings
Chronically Ill	5,000	6%	30%	90.0	$3,695.19	2.2	6%	$43,899
Unhealthy Habits	5,000	10%	35%	175.0	$3,695.19	1.1	13%	$92,472
Mean Well	5,000	79%	20%	790.0	$3,695.19	1.02	10%	$297,758
Vigorously Healthy	5,000	5%	25%	62.5	$3,695.19	0.8	1%	$1,848
	5,000			**1,117.5**	$3,695.19			**$435,977**

New estimated savings is $435,977

4. Continued

(c) Determine whether the expected medical savings will be sufficient to pay for the program.

Step 4: Estimate Cost of the Program

Step 4a Calculate the number of participants in the program.

Can be derived from earlier: formula = Total Group*prevalence*New program uptake

Estimated number of participants = 1,117.5

Step 4b Calculate annual cost of program using PMPM program costs.

Formula =Est number of participants in new program 1,117.5 (step 4a)* $30 * 12 (annualize) $402,300

Step 4c Calculate annual cost resulting from providing $200 incentive.

Formula = Est number of participants in new program 1,117.5 (step 4a)*$200 $223,500

Step 4d Calculate total cost of new program.

Formula = Result from step 4b +Result from step 4c **$625,800**

Step 5: Compare results from Step 3 to Step 4d.

Savings (from Step 3)	$435,977
Total Cost (from Step 4d)	$625,800
Savings is not sufficient to cover the cost of the program.	**-$189,823**

5. Learning Objectives:

1. Understand and evaluate the effectiveness of the various types of Single Employer group coverage typically offered under:
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4. Evaluate the various types of coverages typically offered under a government health plan (e.g., Medicare, Medicaid, Canadian health plan, Social Security Disability Income, states' Temporary Disability Income programs, Workers Compensation, etc.).

Learning Outcomes:

(1a) Describe the various coverages, including typical benefit provisions, eligibility requirements, cost-sharing provisions, limits and funding mechanisms.

(4a) Describe the various coverages, including typical qualifications for benefits, coverage eligibility, cost-sharing provisions, limits, taxation and funding mechanisms.

Sources:

Fundamentals of Retiree Group Benefits Ch. 3, Handbook of Employee Benefits Ch. 7, and Case Study

Commentary on Question:

Commentary listed underneath question component.

Solution:

(a) List options that Medicare eligible have for insurance coverage.

Commentary on Question:

Candidates performed well on this part. Some candidates included descriptions, but this was unnecessary since the question was to 'List.'

- Original Medicare
- Medicare Advantage
  - HMO, PPO, PFFS, etc.
- Medicare Part D
- Employer coverage
- Medicaid

5. Continued

(b) Describe key features of HMO, POS, and PPO plans.

Commentary on Question:
Candidates performed well on this question. Some candidates created charts, but unless it accompanied a description, no or little credit was given.

HMO
- Stresses wellness and preventive care over acute
- Often reimbursed with capitation
- Provides rich preventive benefits
  - HMO, PPO, PFFS, etc.
- Tend to low or modest copays
- Assigns PCP as gatekeeper to steer care appropriately

PPO
- Providers that offer services for a discount to increase volume
- Often reimbursed on FFS basis (FFS)
- More emphasis on acute care and less on preventive
- Insured has more freedom to choose provider

POS
- Cross between HMO and PPO
- Out of network, like PPO
- Cost-sharing greater if out of network

(c) Calculate the overall effective allowed cost trend using the historical HMO experience table as the starting point.

Commentary on Question:
Candidates did well on this question. Some candidates interpreted the allowed trends as cost per unit trends. However, GEIC's allowed cost per unit trends are not needed in the background case study material for member cost sharing valuation.

2013 Allowed PMPM(i) = 2011 Allowed PMPM(i) x (1 + trend(i)) where i is service category

Effective trend = (2013 Allowed PMPM/2011 Allowed PMPM)^(1/2) - 1

For hospital:
$\$295.38 \times 1.05^2 = \$336.26$

5. Continued

Similarly,
SNF = $23.15
HH = $49.61
Ambulance = $9.62
Supplies = $18.73
OP – Emergency = $28.64
OP – Surgery = $111.39
OP – Lab = $84.87
PCP = $88.43
Spec = $124.85
Preventive = $62.42

Total = $938.00

Therefore, $(\$938.00/\$875.25)^{1/2} - 1 =$ **3.5%**

Since the annual trends are same each year by category, 2012 over 2011 allowed PMPM is correct and acceptable.

(d) Calculate the projected proportion of member cost sharing that is out-of-network in 2013, assuming in and out of network unit prices are the same.

Commentary on Question:
Many candidates struggled with this calculation. However, some candidates successfully calculated it and demonstrated their work, thus receiving full credit.

Projected 2013 utilization is necessary to calculate cost sharing for benefits that are copay based. Then, cost sharing PMPM is calculated as (utilization PTMPY x copay)/ (12 x 1,000), where utilization is split out into either its in-network or out-of-network component.

Projected 2013 allowed is necessary to calculate cost sharing for benefits that are coinsurance based. Then, cost sharing PMPM is calculated as coinsurance % x allowed PMPM, where allowed PMPM is split out into either its in-network or out-of-network component.

For hospital:
In-network cost sharing (copay) = (80% x $50) x 1,527.7 / 12,000 = $5.09 PMPM
Out-of-network cost sharing (coinsurance) = 20% x $33.60 = $6.73 PMPM

For SNF:
In-network cost sharing (copay) = ($20 x (1 – 48%)) x 381.9 / 12,000 = $5.09 PMPM
Out-of-network cost sharing (coinsurance) = 20% x $2.30 = $0.46 PMPM

5. Continued

Repeating for the other service categories (in/out PMPM):

HH = $0/$0
Ambulance = $1.25/$0.52
Supplies = $2.62/$2.25
OP – Emer =$1.74/$1.29
OP – Surg = $2.08/$5.01
OP – Lab = $8.68/$3.82
PCP = $1.91/$0.64
Spec = $1.53/$0.43
Prev = $0/$0

Total in-network cost sharing = sum = $25.23 PMPM
Total out-of-network cost sharing = sum =$21.14 PMPM

% of cost sharing that is out-of-network = $21.14/($21.14 + $25.23) = **45.6%**

(e) Calculate the PMPM revenue required for the POS plan in 2013.

Commentary on Question:
Candidates did well on this question. Candidates who didn't do the calculations, but explained or showed a formula for calculating it received partial credit.

Cost sharing = $21.14 + $25.23 = $46.37 PMPM

GEIC's 2013 net claim liability PMPM = 2013 allowed PMPM – 2013 cost sharing
= $938.00 – $46.37 = $891.63 PMPM

PMPM Required Revenue = $891.63/(1 – 10% – 5%) = **$1,048.97**

6. Learning Objectives:

3. Evaluates employer strategies for designing and funding benefit plans for:
   (i) Active employees
   (ii) Dependents
   (iii) Pre-65 retirees
   (iv) Post-65 retirees
   (v) Disabled (short and long-term)

8. Evaluate the process and be able to develop a medical manual rate for government programs, ASO and insured business

Learning Outcomes:

(3a) Describe typical strategies used by employers to fund and design benefit plans, including contribution strategies.

(8a) Identify and evaluate sources of data needed for pricing and underwriting including the quality, appropriateness, and limitations of each data source.

Sources:

McKay Canadian Handbook of Flexible Benefits, Chapter 16, Adverse Selection

Commentary on Question:

Candidates generally did well on the calculations in part (a), explaining adverse selection in part (b), and making recommendations in part (d). A common mistake in part (a) was applying the 4.9% allowed trend to paid claims instead of allowed claims. However, candidates who made other assumptions and stated this clearly, were also awarded credit. Some candidates also made the mistake of applying only 1 year of trend rather than 2 years.

In part (c), many candidates failed to calculate the premium for the proposed plan and take that in to account when making a financial decision between the two plans for each risk category. Candidates who stated and defended which risk categories selected which plan, even if they did not consider the impact of the premium difference between the two plans, were given partial credit.

Solution:

(a) Calculate the January 1, 2013 rate increase assuming no additional plan options. Show your work.

Allowed claims = \$600,000 + (\$1200 * 500 members) = \$1,200,000
Allowed claims in 2013 = \$1,200,000 * (1.049)^2 = \$1,320,481
Paid claims in 2013 = \$1,320,481 – (\$1200 * 500 members) = \$720,481
To get premium, we must divide by the target loss ratio of 80%.
Premium for 2013 = \$720,481 / 0.8 = \$900,600
Premium in 2011 = \$750,000
Rate increase for 2013 = \$900,600 / \$750,000 - 1 = 20%

6. Continued

(b) Describe how adverse selection may result from the inclusion of the additional plan option.

If a new, higher deductible plan is introduced, the healthier members in the plan are likely to choose this leaner benefit because they do not expect to have many claims. On the other hand, unhealthy members are likely to stay with the richer benefit. In general, an informed consumer will usually pick the option that is best for them financially.
As a result, the leaner, cheaper plan will have better than average experience. The richer, more expensive plan will have worse than average experience.

(c) Calculate the aggregate annual revenue needed taking into consideration adverse selection. Use 2011 experience and assume no trend. Show your work.

Step 1: Consider the member's cost for the current plan:

Risk	Premium	Member cost share	HSA Contribution	Total Member Cost
A	$1,500	$1,200	$300	($2,400)
B	$1,500	$1,200	$300	($2,400)
C	$1,500	$1,200	$300	($2,400)
D	$1,500	$1,200	$300	($2,400)

Total Member Cost = HSA Contribution – (Premium + Member cost share)
Step 2: Assume all members selected the new, $2400 deductible plan in order to develop its premium

Risk	# of Employees	Average Allowed Claim	Paid Claim with $2400 Deductible
A	250	$1,450	$0
B	150	$1,950	$0
C	90	$3,700	$1,300
D	10	$21,200	$18,800
Total	500		$305,000

Total claims if everyone picked this plan would be $305,000. Dividing by the target loss ratio, the premium for this plan would need to be $305,000 / 0.8 = $381,250.
This is $762.50 in premium per employee (= $381,250 / 500)

6. Continued

Step 3: Now consider the member's cost for the proposed plan using its premium:

Risk	Premium	Member cost share	HSA Contribution	Total Member Cost
A	$762.50	$1,450	$600	($1,613)
B	$762.50	$1,950	$600	($2,113)
C	$762.50	$2,400	$600	($2,563)
D	$762.50	$2,400	$600	($2,563)

Total Member Cost = HSA Contribution – (Premium + Member cost share)

Comparing the costs from Step 1 and Step 3 to make the best personal financial decision, we see that Risk Categories A and B are better off by choosing the proposed plan because their total cost will be lower. Risk Categories C and D will remain in the current plan.

New paid claims = Sum(Members in each category *average paid claim for the plan that category picks)

= (250 * $0) + (150 * $0) + (90 *$2,500) + (10 * $20,000) = $425,000

To get the premium, divide paid claims by the target loss ratio
Premium = $425,000 / 0.8 = $531,250

(d) Describe pricing or plan design options that Roger Cly could present to the group to address the impact of adverse selection.

There are several things that could be done to mitigate the impacts of adverse selection.

Plan Design

- Offer only one plan
- Automatically enroll members in the richer plan/opt out to get the leaner plan
- Introduce coinsurance or copays

Pricing

- Load one or both of the plans to change member's behavior in which plan they select
- Use risk adjusted premiums
- Alter the employer contribution

7. Learning Objectives:

3. Evaluates employer strategies for designing and funding benefit plans for:
   - (i) Active employees
   - (ii) Dependents
   - (iii) Pre-65 retirees
   - (iv) Post-65 retirees
   - (v) Disabled (short and long-term)

Learning Outcomes:

(3a) Describe typical strategies used by employers to fund and design benefit plans, including contribution strategies.

Sources:

Yamamoto, Fundamentals of Retiree Group Benefits, Chapters 3, 4, and 5

Commentary on Question:

Both (a)(i) and (a)(ii) were list questions. For (ii) most did not give any of the definitional answers except for DEFRA limits for tax deductibility on VEBAs and Continuance Funds. The chart was the best way to answer the characteristics portion of (ii).

Candidates listed only the main points for part (b) in most cases. Redefine eligibility and service-related benefits were the most popular.

For part (d) most answered using eligibility for other programs (Medicare) or individual insurance.

Solution:

(a) VP of HR needs to understand retiree benefit funding

(i) Characteristics of an ideal funding vehicle

1. A current company tax deduction for contributions that adequately fund retiree health benefits
2. A tax-free or tax-deferred savings mechanism for employees
3. Tax-free benefits paid to retirees
4. Tax-sheltered investment for employer
5. There is no impact on plan design provisions
6. Funds are counted as an asset under FAS106
7. Assets are revocable if the obligation to the plan changes, flexibility

7. Continued

(ii) Investment vehicles for funding retiree benefits and if each meets above characteristics

1. VEBA, 501(c), Welfare Plan

   - General requirements: benefits be nondiscriminatory and provide payment of life, sick, accident of other to members
   - Subject to all limitations of welfare benefit funds (DEFRA)
   - Contributions made in excess of DEFRA limitation may be carried forward to future tax years

2. Insurance Company Continuance Fund

   - Subject to all limitations of welfare benefit funds (DEFRA)
   - Insurers own reserve

3. Qualified Retirement Plan 401(h)

   - Use same trust fund as pension plan
   - Health benefits must be subordinate to retirement benefits
   - A separate account must be maintained

4. Individual Profit Sharing Plan

   - Contributions must be incidental to the retirement (not exceed 25%)

5. Employee Group Purchase Annuity

   - Employee uses after-tax pay to purchase an insurance company annuity contract

6. Health Stock Options
7. Qualified Plan

7. Continued

Table: F – Favorable, NF – Not favorable, U - Uncertain

	VEBA	Cont. Fund	401(h)	Profit Sharing	Group Annuity	HSO	Qualified Plan
ER Tax Deductible	U	U	U	U	U	NF	F
EE Tax Deductible	NF	NF	NF	F	NF	U	U
Tax Free Benefit	U	U	F	F	F	F	F
Tax Shelter	F	F	F	U	U	F	NF
Plan Design	F	F	U	F	NF	U	F
FAS 106 Asset	F	F	F	F	U	F	NF
Revocable Asset	NF	NF	NF	NF	NF	NF	NF

(b) Various actions to reduce cost of plan

1. Increasing level of retiree contributions, decrease ER contribution
2. Setting retiree contributions as a fixed percentage of cost
3. Change method of coordinating benefits with Medicare
4. Redefine eligibility
   - More years of service needed for benefit
5. Service-related benefits
   - Employer portion of the plan cost varies depending on the employee's service at retirement
6. Managed Care Programs and Cost Management
7. Adjusting retiree contributions based on employee's age at retirement
   - Early retirement reductions
8. Setting employer subsidy as a fixed dollar amount (caps on subsidies)

(c) VP wants to eliminate the benefit entirely, criticize and suggest alternative

1. Tax-effective means of providing retirement financial security
2. Valuable benefit for those receiving coverage and those soon to retire
3. Workforce planning and growth opportunities
4. Ongoing healthcare coverage is social responsibility of ER
5. Retiree health benefits are part of a competitive package of total compensation
6. Current cash costs for retiree health are nominal
7. Retiree health benefits are often near the top of union demands
8. Could have legal obligation to continue benefits

7. Continued

Alternative:

a. Grandfather current retirees and those aged 55 with 5 years of service as of the date of the announcement
b. Eliminate plan for employees not grandfathered
c. Increase cost sharing for future retirees

(d) Describe impact on retirees not having retiree medical coverage

1. Some may have other coverage available through their spouse or other program for which they are eligible (Medicare)
2. Early retirees may use health continuation coverage (COBRA)
3. Healthy ones could buy individual health insurance
4. May need to delay retirement

8. **Learning Objectives:**

3. Evaluates employer strategies for designing and funding benefit plans for:
   (i) Active employees
   (ii) Dependents
   (iii) Pre-65 retirees
   (iv) Post-65 retirees
   (v) Disabled (short and long-term)

7. Understand predictive modeling techniques.

Learning Outcomes:

(3a) Describe typical strategies used by employers to fund and design benefit plans, including contribution strategies.

(7b) Describe typical predictive modeling techniques.

Sources:

Bluhm, Group Insurance, 5th Edition, Chapter 30, Estimating Medical Claim Costs

Yamamoto, Fundamentals of Retiree Group Benefits, Chapter 4, Retiree Benefit Design

Commentary on Question:

For part (a), many candidates were able to calculate the correct impact to the net claim liability. The majority of candidates utilized the claim distribution to manually calculate the average cost using a combination of the frequency and average claims adjusted for the stated cost sharing provisions. Very few candidates utilized the method and formula prescribed by Bluhm, as outlined in the solution. However, many candidates who attempted to use Bluhm's formula did so incorrectly.

For part (b), similar to part (a), many candidates were able to calculate the correct impact to the Plan liability with the additional cost sharing constraint. A common mistake candidates made was not calculating the appropriate gross claim amount where the out of pocket max takes effect (i.e., $3,000).

Most candidates did well on part (c). However, candidates who made mistakes on this question appeared to be answering a different question than was asked.

Solution:

(a) Calculate the impact to the net claim liability of applying a $500 deductible and 20% coinsurance to all non-preventive Part B services. Show your work.

1. Calculate value of claims at appropriate breaking points:
   Value over Deductible = Accumulated Annual Cost at Deductible - (Accumulated Frequency)*(Deductible)
   Deductible level: $0; Value over deductible: $5,876.55
   Deductible level: $500; = $5,796.47 – 0.73*$500 = $5,431.47

8. Continued

2. Calculate value of claims in each cost sharing range:
   Claims range: $0-$500; Value: = .73*$500 = $445.08
   Claims range: >$500; Value: $5,431,47

3. Apply member / plan payment shares to calculate Net/Cost sharing PMPY:
   Member PMPY = $445.08*100% + $5,431.47*20% = $1,531.37
   Plan PMPY = $445.08*0% + $5431.47*80% = $4345.18

4. Impact to Plan Liability: Decreases liability by $1531 PMPY

(b) Determine the incremental impact to the net claim liability of also applying an Out of Pocket limit of $1,000 (including deductible). Show your work.

1. Calculate gross claim amount for OOP max cut-off:
   20% coinsurance, coinsurance limit is $500 = $1000 - $500 deductible
   Breakpoint calculation = $500 / .2 + $500 = $3,000

2. Calculate value of claims at the additional breaking point:
   Deductible level: $0; Value over deductible: $5,876.55
   Deductible level: $3000; = $5121.27 - .29*$3,000
   = $4,251.27

3. Adjust value of claims in each cost sharing range:
   Claims range: $500-$3000; = $5431.47 - $4251.27 = $1,180.20
   Claims range: >$3000; Value: $4,251.27

4. Recalculate member / plan payment shares to calculate Net/Cost sharing PMPY:
   Member PMPY = $445.08*100% + $1,180.20*20% = $681.12
   Plan PMPY = $445.08*0% + $1180.20*80% + $4251.27 = $5195.43

5. Impact to Plan Liability: Increases liability from Part (a) by $5195.43 - $4345.18 = $850 PMPY

(c) External forces, other than competitive pricing pressures, may be adversely impacting Medicare Advantage sales.

(i) List reasons why employers would not want to offer a retiree group benefit.

- Employers do not receive a full tax "credit" for providing the benefit because of the hidden costs of their subsidy to the plans

8. Continued

- Benefits are only valuable for a minority of active employees
  - Employees don't value the benefit until they begin to consider retiring (around age 50)
- Historical employment relationship (that focused on long-term career) has been diminishing
- As workers assert their independence and their lack of loyalty to their employer, the sense of providing retiree health care as a social responsibility is quickly evaporating
- The cash cost of retiree health care is increasing faster than any other cash item
  - Retiree coverage is no longer a nominal financial commitment
- Historically, retiree benefits have been at the top of most union demands, but recent collective bargaining sessions have indicated negotiating ability in this area

(ii) List characteristics considered by an employer when selecting a retiree group benefit.

- Simplicity
- Ease of administration
- Ease of communication to retirees
- Predictability and stability of costs
- High perceived value of the benefit by a broad group of employees
- Consistency with other health plan offerings (e.g. for active employees)

9. Learning Objectives:

9. Applies principles of pricing, benefit design and funding to an underwriting situation.

Learning Outcomes:

(9a) Understand the risks and opportunities associated with a given coverage, eligibility requirement or funding mechanism.

(9b) Evaluate the criteria for classifying risks.

(9c) Recommend strategies for minimizing or properly pricing for risks.

(9d) Describe basic approaches to credibility theory.

(9e) Apply the credibility theory to a given underwriting situation.

Sources:

Bluhm, Group Insurance 5th Edition, Chapter 30, Estimating Medical Claim Costs

Bluhm, Group Insurance, 5th Edition, Chapter 46, Management of Provider Networks

Rosenbloom, Handbook of Employee Benefits, 6th Edition

GH-D127-10: Understanding Managed Care Health Plans: The Managed Care Spectrum

Commentary on Question:

Solution:

(a) Calculate the restated inpatient base costs (PMPM) for the plan. Show your work.

Facility A agrees to become 10% more efficient: per diem rate = 5,175
Facility B agrees to decrease the cost per admission by 15%: case rate = 4,335

70% from Facility C go to Facility A	revised admits = 51
30% from Facility C go to Facility B	revised admits = 34
Calculated revised facility A	5,175 * 51 / 12,000 = $22.04
Calculated revised facility B	4,335 * 34 / 12,000 = $12.25
Total A + B	22.04 + 12.25 = $34.28

(b) List the measurements of performance for a network, give an example of each and state how they would apply in this situation.

Measuring cost performance (lower per unit price, lower utilization)
Measuring quality (process and outcome, physician / hospital credentials, outcome measures [e.g. morbidity])
Measuring member satisfaction

9. Continued

(c) Due to cost considerations, the plan would like members to use Facility B as a preference over Facility A. Choose the benefit design below that best accomplishes this. Justify your choice.

Design 2 is the best choice as it maximizes steerage

Design	Facility A		Facility B		Other conditions							# of days
Design 1	200		175		200	175	13%	200	175	25	13%	
Design 2	250	75	250	50	493	395	20%	475	400	75	16%	3
Design 3	200	100 first day and 50 the second	175	$100 the first day and 50 the second	412	370	10%	400	375	25	6%	3

The design described in the table of part (c) of this question could be interpreted as the $50 charge is for Day 2 only (and not for subsequent days).

(d)

(i) List the elements of the managed care spectrum.

(ii) Identify which elements are applicable to this tiered network and plan design.

Degree of freedom with the choice of providers - Yes
Degree of steerage - Yes
Responsibility for claims handling
Utilization management
Referral management
Provider reimbursement - Yes
Balance billing
Rating / financial method

(e)

(i) List the considerations for establishing a provider network.

(ii) Identify what further information is required to establish the narrow network.

Population served
Type of product
Accessibility of providers
    Trade off between size of network and level of discounts
    Trade off between size of network and level of efficiency
Entities with which to contract
Current referral patterns

10. **Learning Objectives:**

1. Understand and evaluate the effectiveness of the various types of Single Employer group coverage typically offered under:
   - Group health plan, including Consumer driven plans, etc.
   - Prescription Drug
   - Group dental plan
   - STD or LTD plan (incl. mention of coverage within other plans)
   - Group life plan
   - Other miscellaneous benefits
   - Multi-employer groups (Taft-Hartley, etc)

8. Evaluate the process and be able to develop a medical manual rate for government programs, ASO and insured business.

9. Applies principles of pricing, benefit design and funding to an underwriting situation.

Learning Outcomes:

(1a) Describe the various coverages, including typical benefit provisions, eligibility requirements, cost-sharing provisions, limits and funding mechanisms.

(1b) Identify the potential gaps in needed or desired coverages.

(8a) Identify and evaluate sources of data needed for pricing and underwriting including the quality, appropriateness, and limitations of each data source.

(8c) Develop experience analysis (claims cost and expenses):
   (i) Construct the appropriate models
   (ii) Develop the appropriate assumptions, including trend, anti-selection, etc.

(8i) Construct a rating model to be used for rating individual customers or plan designs.

(9a) Understand the risks and opportunities associated with a given coverage, eligibility requirement or funding mechanism.

(9b) Evaluates the criteria for classifying risks.

Sources:

Bluhm, Group Insurance, 5th Edition, Chapter 39, Data Sources and Structures

GH-D100-07, Specialty Accident and Health Products

Bluhm, Group Insurance, 5th Edition, Chapter 24, Underwriting Large Groups

Bluhm, Group Insurance, 5th Edition, Chapter 34, Calculating Gross Premiums

10. Continued

Commentary on Question:
Most candidates did well on parts (a), (b), and (c).
The most common mistake on part (b) was applying an incorrect formula to calculate the Indemnity premium – several candidates applied the factor for Percentage of Days with Treatments Administered instead of reflecting that Indemnity will pay a fixed amount each day during the treatment period, regardless of whether treatment is administered.
Most candidates described the pricing considerations of group versus individual; very few candidates gave an appropriate marketing related response.
The most common mistake in parts (e) and (f) was not recognizing that the question was specific to large group underwriting (as stated in the stem of the question).
The key to part (f) was recognizing that the claim patterns for a cancer product are similar to that of LTD, so the LTD underwriting process is more appropriate.

Solution:
(a) List and describe external data sources that can be used to assist in actuarial analysis.

Federal government publications
- National Ambulatory Medical Care Survey
- National Hospital Discharge Survey
- Consumer Price Index

Actuarial data sources
- Serials, reports, tables, SOA Research Department and Foundation

Other data sources
- State health data organizations, HMO and PPO data sources, HEDIS, medical periodicals and sources, major actuarial consulting firms, reinsurer data, competitor rate filings

(b) Calculate the required monthly gross premium rate using the given indemnity amounts per day for each benefit for:
(i) An uncapped product
(ii) An indemnity product

Uncapped - Pay unlimited charges for specific treatments
Expected Cost per Enrollee = Prevalence Rate x Average Treatment Period x Percentage of Days with Administered Treatments x Average Cost per Day of Treatment

Indemnity - Pay a fixed daily amount for cancer treatments
Expected Cost per Enrollee = Prevalence Rate x Average Treatment Period x Desired Indemnity Amount per Day

10. Continued

Uncapped Calculation:

Treatment Benefit	Prevalence Rate	Average Treatment Period (Days)	Percentage of Days with Treatments Administered	Average Cost per Day of Treatment	Product of previous columns
Chemotherapy	0.0005	120	30%	8,500	153.00
Infusion	0.0001	45	10%	3,500	1.58
Radiation Treatments	0.0003	140	30%	12,000	151.20
Surgical Procedures	0.0002	2	80%	32,500	10.40
Other Cancer-Related Care	0.0001	150	50%	2,000	15.00
Total					**331.18**

Target Retention = 10% + 5% = 15%
Gross annual premium = \$331.18 / (1 – 15%) = \$389.62
Monthly premium = \$389.62 / 12 = \$32.47

Indemnity Calculation

Treatment Benefit	Prevalence Rate	Average Treatment Period (Days)	Desired Indemnity Amount per Day	Product of previous columns
Chemotherapy	0.0005	120	3,000	180.00
Infusion	0.0001	45	2,000	9.00
Radiation Treatments	0.0003	140	6,000	252.00
Surgical Procedures	0.0002	2	10,000	4.00
Other Cancer-Related Care	0.0001	150	1,000	15.00
Total				**460.00**

Target Retention = 10% + 5% = 15%
Gross annual premium = \$460.00 / (1 – 15%) = \$541.18
Monthly premium = \$389.62 / 12 = \$45.10

(c) Construct the lowest price hybrid plan and calculate its required monthly gross premium rate maintaining the 10% profit margin. Justify your answer, and show your work.

10. Continued

Hybrid is a plan that offers both uncapped and indemnity benefits for different categories, so create lowest cost hybrid option by choosing lower cost benefit in each category, uncapped or indemnity, by using previous work, and comparing uncapped and indemnity rates by category.

Treatment Benefit	Uncapped Cost	Indemnity Cost	Lowest Cost
Chemotherapy	153.00	180.00	153.00
Infusion	1.58	9.00	1.58
Radiation Treatments	151.20	252.00	151.20
Surgical Procedures	10.40	4.00	4.00
Other Cancer-Related Care	15.00	15.00	15.00
Total	**331.18**	**460.00**	**324.78**

Target Retention = 10% + 5% = 15%
Gross annual premium = $324.78 / (1 – 15%) = $382.09
Monthly premium = $382.09 / 12 = $31.84

(d) Describe factors to consider when choosing between offering individual or group specialty products.

Considerations for Marketing Group vs. Individual Policies:

- Individual policies can enhance sales appeal
  - Due to ability to offer guaranteed renewability

Advantage of group contract is greater flexibility for the insurance company.

- Group contract is renewable at the option of the company.
- Company can cancel small or poorly-performing blocks of business.
- Group contract is quicker and easier to file.
- Easier to change the rates.

Loss ratio requirements may be lower for individual products versus group products.

- Lower loss ratio allows for adequate expenses and profit margin.

(e) Compare and contrast underwriting processes for group managed care versus group disability income.

10. Continued

Underwriting for Group Disability Income

- Group disability income reflects low claim volumes but large potential liabilities.
- The underwriter will generally review multi-year data due to lower credibility.
- Blending and pooling techniques are applied to increase the statistical confidence of the data.
- Underwriter needs to have information regarding open claims.
- This is due to large impact that open claims on these policies can have.
- Characteristics considered in open claims are age, duration, and diagnosis.
- Experience data will also be reviewed to detect abnormal patterns due to business cycle or industry risk.

Underwriting for Group Managed Care

- For large medical groups carriers will consider one year of experience fully credible.
- The underwriter may simply adjust experienced claims for trend impacts.
- Managed care and multiple plan options may increase complexity of underwriter's work.
- Provider contracts
- Utilization management
- Over time, underwriter gets familiar with other carriers' offerings, and may use this information to respond to RFPs.
- Method used to calculate rate from different plan's data depends on type of reimbursement used in both plans.

(f) You have decided to develop the underwriting process for the new group cancer product using one of WW's existing underwriting processes as a template. Recommend which process to use and justify your answer.

Recommendation: I would recommend that the group disability underwriting process be used as a template rather than manage care because of the following reasons:

- Like group disability, the cancer policy has low claim volumes but high claim liabilities.
- Like group disability, the lower volume of claim data may require review of multi-year data.
- Like group disability, pooling/credibility techniques will likely be required due to lower volume/credibility of data.
- Like group disability, open claims should be reviewed to understand potential liabilities.
- Like group disability, the pricing of the product is based on the benefits offered and rates charged.

10. Continued

(g) Describe the steps to follow when creating an underwriting process for a group specialty insurance product.

Steps in creating a specialty product underwriting process:

1. Determine the risk profile of the population in the market.
   a. Understand characteristics of target market.
   b. Understand the distribution method.
2. Determine the specific questions that will be asked.
   a. Often dictated by marketing method and competitor practices in the market.
3. Decide what actions the company will take for different responses.
   a. Accept-reject questions are common.
   b. Some information discovered during underwriting process may require separate treatment.
4. Estimate the portions of the population that will have different responses and quantify the morbidity of these sub-populations.
   a. Persons with specific answers to certain questions represent a different morbidity risk.
   b. Subpopulations can be ranked from most favorable to uninsurable.
   c. The relative morbidity risk for each sub-population can then be calculated.

11. Learning Objectives:

5. Apply U.S. and Canadian nation-specific regulation to product design and pricing.

8. Evaluate the process and be able to develop a medical manual rate for government programs, ASO and insured business.

Learning Outcomes:

(5b) Describe key provisions of major legislation.

(8b) Identify and evaluate the rating parameters needed to evaluate and manage a book-of-business.

Sources:

Bluhm, Group Insurance, 5th Edition, Chapter 25, Underwriting Small Groups

GH-D125-11, Summary of New Health Reform Law, Kaiser Family Foundation

Commentary on Question:

Most people did reasonably well this question. Those that did poorly missed the comparison in (b) and didn't identify more than one PPACA provision.

Solution:

(a) Describe factors used historically for rating small group medical business.

Commentary on Question:

Most people completed the list of factors, but many people forget to add some description about each factor.

- Age – costs usually increase with age except that women in child bearing years are more expensive
- Gender
- Geographic area – adjusts for differences in utilization and provider contracts
- Group size – 20% limitation in many states; can spread more risks across larger groups
- Industry – 15% limitation in many states; can reflect risk of accident or lifestyle
- Plan of benefits
- Family composition
- Tobacco use – some states consider as health status so then not allowable

(b) Compare and contrast the availability of these factors for rating small group medical business under the following federal regulatory schema:

(i) Health Insurance Portability & Accountability Act of 1997

(ii) Patient Protection & Affordable Care Act of 2010

11. Continued

Commentary on Question:
Common errors were:

- Some papers did not compare the rating factors that are available under the regulations but rather compared other provisions of the regulations.
- Some papers made statements like "some of the factors in (a) applied under HIPAA" but did not specifically list which ones applied.

The following table compares the availability of rating factors under the two regulations:

Factor	HIPAA	PPACA
Age	Allowed but limited to 1:2 or 1:3 in some states	Allowed but variation limited to 1:3
Gender	Allowed in most states; but some states are unisex	Not allowed
Geographic Area	Allowed	Allowed
Group Size	Allowed but limited to 20%	Not allowed; some states may merge individual and small group market
Industry	Allowed but limited to 15%	Not allowed
Plan of benefits	Generally not restricted in how developed	
Family Composition	Allowed	Allowed
Tobacco Use	Some states consider health status and won't allow whereas others do	Allowed but variation limited to 1:1.5

(c) Identify provisions of PPACA which offset the impact of reduced underwriting flexibility.

Commentary on Question:
Most people only listed one provision. Given the number of points on this section, more than one provision was expected for a passing answer. In addition, some people were uncertain where the provisions applied – in or out of the exchange, small group or individual, etc.

- PPACA includes risk adjustment to address selection that may result between carriers.
- PPACA creates a temporary reinsurance programs to provide payments to plans in the individual market to cover high-risk individuals.

11. Continued

- PPACA requires most U.S. citizens and legal residents to have health insurance and imposes a penalty if they don't go through the individual mandate.
- PPACA applies same insurance market regulations relating to guarantee issue, premium rating, and prohibitions on pre-existing condition exclusions in the individual market, in the Exchange, and in the small group market to create a level playing field.

12. Learning Objectives:

12. Demonstrate an understanding of dental rating parameters and claims cost modeling.

Learning Outcomes:

(7b) Identify and evaluate the rating parameters needed to evaluate and manage a book-of-business

(7c) Develop experience analysis (claims cost and expenses)
- (i) Construct the appropriate models
- (ii) Develop the appropriate assumption, including trend, anti-selection, etc.

Sources:

Bluhm, Group Insurance, 5th Edition, Dental Benefits, Chapter 8

Bluhm, Group Insurance, 5th Edition, Estimating Dental Claim Costs, Chapter 32

Bluhm, Group Insurance, 5th Edition, Applied Statistics, Chapter 38

Commentary on Question:

The goal was to demonstrate an understanding of dental rating parameters and claims cost modeling.

Solution:

(a) Describe factors impacting claims costs for dental plans.

Commentary on Question:

In general candidates were able to get some but not all of the factors. Some candidates simply listed the factors without the corresponding impact on claims cost.

<u>Plan Characteristics</u>

- Covered benefits
  - Exclusions, pre-ex, etc.
- Cost Sharing Provision
  - Deductibles, coinsurance, copays, etc.
- Provider reimbursement level
  - Fee-for-service, capitation, etc.
- Care management
  - Preauthorization, self-management under capitation
  - Care management has potential to reduce claims cost

<u>Insured Characteristics</u>

- Age/gender
  - Claims costs generally higher for adults and females
- Geographic area
  - Area adjustments can be affected by availability of services and negotiated reimbursement levels with providers.

12. Continued

- Group size
  - Anti-selection is greater with small groups
- Prior coverage
  - Utilization generally higher for groups without prior coverage
- Pre-notification
  - Claims cost generally higher if employees had no prior coverage as they will postpone treatment until coverage goes into effect
- Occupation/income/education/industry
  - Public facing and skilled professional roles generally utilize services more often
- Incentive coinsurance/tiered coinsurance
  - Plan coinsurance low the first year (higher cost sharing for employee) and increases in subsequent years (plan pays more)

(b) Define the given modeling strategies and list the advantages of each.

Commentary on Question:
In general candidates struggled to properly define and differentiate the four different models types. Many candidates missed some of the advantages of each method.

- Deterministic models provide information regarding the expected or average value of a random variable
  - Inputs into a deterministic model are point estimates
  - Advantages
    - Not as slow or complex as stochastic models
- Stochastic models are used to provide information regarding the statistical distribution of a random variable
  - Inputs into a stochastic model are probability distributions
  - Advantages
    - Random variables do not need to be identically or independently distributed
- Empirical models assign probability 1/n to each observed value from a sample of size n
  - Empirical data is often relied upon for stochastic simulations
  - Advantages
    - Reflect the actual experience of a population covered by a specific set of benefits (as opposed to parametric models)

12. Continued

- Parametric models uses probability distribution and estimates parameters fit the data to the distribution
  - Parametric methods typically not used in group insurance
  - Advantages
    - More tractable mathematically than empirical models
    - Allow for the construction of confidence intervals
    - Ability to smooth grouped observations
    - Ability to test statements about the population
    - Provides a maximum likelihood estimate that has the smallest variance and is unbiased

(c) Calculate the annual net claims cost by using a stochastic approach given information in question.

Commentary on Question:
In general candidates were able to answer this question correctly. A common error was the misapplication of the deductible.

Claim	Class	Allowed Claim Cost	Member Cost Sharing	Net Claim Cost
1	I	40	0	40
2	I	160	0	160
3	I	40	0	40
4	I	90	0	90
5	I	160	0	160
6	I	90	0	90
7	I	40	0	40
8	II	1000	(1000-100)*.2+100=280	720
9	II	480	(480-100)*.2+100=176	304
10	I	160	0	160
Total		2260	456	**1804**

Class is determined by the following: if the random number for the class from a U(0,1) distribution is in the range of (0,.70) the claim type is Class I, otherwise it is Class II.
Allowed claims cost is calculated by first developing the cumulative frequency and then finding the average claims cost for the cumulative frequency in the appropriate claims distribution table (Class I or Class II).

12. Continued

Class I 2011 Claims Distribution	Frequency	Cumulative Frequency	Average Claim Cost
$0-$50	0.2	0	$40
$50-$100	0.25	0.20	$90
$100-$200	0.33	0.45	$160
$200-$300	0.17	0.78	$220
$300-$500	0.05	0.95	$340

Class II 2011 Claims Distribution	Frequency	Cumulative Frequency	Average Claim Cost
$0-$100	0.19	0	$90
$100-$250	0.26	0.19	$240
$250-$500	0.33	0.45	$480
$500-$750	0.12	0.78	$600
$750+	0.1	0.90	$1,000

13. Learning Objectives:

5. Apply U.S. and Canadian nation-specific regulation to product design and pricing.

6. Apply U.S. and Canadian taxation rules to employer and individual health plan.

Learning Outcomes:

(5a) Determine if given policy provision is compliant with the regulation.

(5b) Describe key provisions of major legislation.

(6c) Assess pricing impact of taxation on employer, employee or policy holder.

Sources:

Rosenbloom pages 673 – 679

MacKay Ch. 12, and Rosenbloom Ch. 25)

McKay Canadian Handbook of Flexible Benefits, 3rd Edition, Chapter 12, Taxation of Flexible Benefits

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Commentary on Question:

Part (a) is a simple list question and candidates performed well.
In part (b) some candidates confused types of cafeteria plans with types of flex plans.
In part (c) instead of comparing rules needed to get favorable tax treatment, some candidates just compared tax treatment in US vs. Canada.
In part (d) candidates who did not provide the steps to their calculation did not receive as many points as possible.
In part (e) candidates performed well on this question.

Solution:

(a) Explain advantages and disadvantages of cafeteria plans in the US from the perspective of
  (i) the employee, and
  (ii) the employer.

Employee

Advantages:

Can save money as pay for share of expenses on a tax-favored basis
Contributions except from federal income tax
Contributions not subject to Federal Insurance Contribution Act (FICA) and Federal Unemployment Act (FUTA)

13. Continued

Disadvantages:
- All benefit elections must be made prior to beginning of plan year
  - Irrevocable, with limited exceptions
- "Use it or lose it" rule
  - Benefit dollars unused at the end of the plan year are forfeited

Better to take tax credit instead of paying for dependent care expenses through cafeteria plan
- No FICA tax

Employer

Advantages:
- Payroll cost savings as employer does not pay FICA or FUTA tax
- Deferral amounts not considered wages for purposes of determining worker's compensation
- Avoid most state taxes as they mirror federal treatment
- Employees perceive value of benefit plan better than traditional plans
- Contain health care cost
- Encourage consumer-driven decision making

Disadvantages
- Higher cost of administration and operation
- Must be operated in accordance with strict adherence to federal tax law
- Full amount of benefit elected in health care flexible spending account must be available during entire plan year
- Adverse Selection
- Complex coverage and non discrimination testing

(b) Describe the different types of cafeteria plans that may be offered in the US.

Premium conversion plans
- No employer contributions
- Employees can pay for employee-paid insurance costs on a tax-favoured basis

Flexible spending accounts (aka reimbursement accounts)
- Bookkeeping account with funds remaining part of the employer's general assets
- Typically 12 months of coverage

Full flex plans (aka full choice plans)
- Participants can select from a full range of benefits
- Employer determines dollar value earmarked for benefits, in addition to employee salary reductions

13. Continued

(c) Compare and contrast rules in Canada and the US that must be followed to receive favorable income tax treatment of benefits in flexible plans and cafeteria plans

Similarities

Benefit elections must be made on a prospective basis
Elections must be irrevocable, unless certain "life events" occur
12-month plan years

Canada

Granting of credits to an employee will not confer tax benefit provided certain criteria are met in the manner in which options are elected

Salary deferral arrangements
Retirement Compensation arrangements
Employee Benefit plans
Employee Trusts
Private Health Services Plans

US

Plan must be operated in accordance with a written benefit plan maintained by an employer for the benefits of employees
Must allow participants to choose between two or more benefits consisting of cash and qualified benefits
Cafeteria plans allow to offer after-tax employee contributions for qualified benefits or paid time-off
Plan is subject to complex coverage tests
Plan is subject to complex nondiscrimination tests

(d) Calculate the tax difference between the US and Canada for an employee receiving the benefits listed below. Assume all currency amounts are in US dollars and an average tax rate of 20% in the US and 30% in Canada, and member is not in Quebec.

13. Continued

	US	Canada
Adoption Assistance	- Qualified benefit under 137	20,000 Taxable unless exempt (but not listed as exempt)
Automobile	5,000 Not a qualified benefit	Not tax under Subsection 6(1)
Health and Dental	Qualified benefit under 105, 106	Not tax under Subsection 6(1)
Life Insurance	333 First $50,000 non-taxable	400 Premiums paid for employees are taxable
Retirement Plan Contributions	Qualified benefit	Not tax under Subsection 6(1)
Total	5,333	20,400
Tax Rate	20%	%
Taxes Paid	1,067	6,120
Total difference		5,053

(e)

(i) Determine if the Canadian flexible benefit plan meets the requirements of a qualified cafeteria plan in the US.

The plan cannot spend more than 25% on officers earning more than $125,000 - key employee concentration test

Given this, the plan does not meet the requirements of a qualified cafeteria plan in the US

13. Continued

(ii) List and describe other test necessary to be a qualified Section 125 plan in the US.

Eligibility Test:

- All employees who satisfy eligibility must enter the plan by the first day of the plan year following completion of requirements.
- May not discriminate in favor of highly compensated individuals, i.e. an officer, a 5% owner, highly compensated, or their spouse/dependent.

Contributions and benefits test:

- The actual selection of benefits through the plan must not be disproportionately elected by highly compensated participants.
- Contributions made on behalf of a participant = one of the following: 100% of the cost of the majority of highly comp. participants who are similarly situated.
- 75% of the cost of the most expensive benefits coverage elected by any similarly situated participant.

Key employee concentration test:

- Healthcare flexible spending account not discriminatory if same benefit available to all participants on same basis (same dollar amount of benefits must be available).
- Certain employees may be excluded, such as those that have less than three years of service, not yet attained age 25, seasonal employees, part-time employees (less than 35 hrs/wk), and union members.
- Prohibited group for dependent care assistance plan is highly compensated employees.
- 55 percent test - certain employees can excluded, including those who earn less than $25,000, union employees, etc.
- Rules for group term life insurance coverage under a cafeteria plan.

14. Learning Objectives:

1. Understand and evaluate the effectiveness of the various types of Single Employer group coverage typically offered under:
   - Group health plan, including Consumer driven plans, etc.
   - Prescription Drug
   - Group dental plan
   - STD or LTD plan (incl. mention of coverage within other plans)
   - Group life plan
   - Other miscellaneous benefits
   - Multi-employer groups (Taft-Hartley, etc)

2. Understand and evaluate the effectiveness of the various types of Individual and Multi-Life coverage typically offered under:
   - Individual Health Plan
   - LTC (including group and individual)
   - Individual DI Plan
   - Medicare Supplement

3. Evaluates employer strategies for designing and funding benefit plans for:
   (i) Active employees
   (ii) Dependents
   (iii) Pre-65 retirees
   (iv) Post-65 retirees
   (v) Disabled (short and long-term)

5. Apply U.S. and Canadian nation-specific regulation to product design and pricing.

Learning Outcomes:

(1a) Describe the various coverages, including typical benefit provisions, eligibility requirements, cost-sharing provisions, limits and funding mechanisms.

(1b) Identify the potential gaps in needed or desired coverages.

(2a) Describe the various coverages, including typical qualifications for benefits, coverage eligibility, cost-sharing provisions, limits, and funding mechanisms.

(2b) Identify the potential gaps in needed or desired coverages.

(3d) Evaluate integration strategies with government programs (e.g., Parts A, B, and D of Medicare).

(5a) Determine if given policy provision is compliant with the regulation.

(5b) Describe key provisions of major legislation.

14. Continued

Sources:
GH-D104-07, Pricing Medicare Supplement Benefits

Article: Health Watch, January 2011, Medicare Supplement: Critical Factors for Success

Commentary on Question:
Candidate understands the conditions of offering a Medicare Supplement product, what is covered, and how it is regulated.

Solution:

(a) List five examples of the benefits covered in a post-1990 Medicare Supplement policy.

Commentary on Question:
Only 5 needed, the following are acceptable – must list exactly what is covered. Ex: Don't just answer "skilled nursing," but answer "skilled nursing copayments.")

1. Part A deductible
2. Part A copayments plus coverage for 365 additional days after Medicare benefits end
3. Skilled nursing copayments
4. Home health care benefits beyond 100 days
5. First three pints of blood each year
6. Part B deductible
7. Part B coinsurance or copayments for hospital outpatient services
8. Foreign travel emergencies
9. At home recovery
10. Preventive care not covered by Medicare

(b) Outline the differences in design, administration, regulation and population between and individual Medicare Supplement Plan, an individual Medicare Advantage Plan, and Medicare fee-for-service (FFS).

- Design
  - i. Med Supp: Twelve standard plan designs that are federally mandated
  - ii. MA: Must cover at least Medicare A & B, but can provide additional benefits
  - iii. FFS: Covers Medicare only
- Administration
  - i. Med Supp: Administered by a private insurer or health plan
  - ii. MA: Administered by a private insurer or health plan
  - iii. FFS: Administered by CMS

14. Continued

- Regulation
  i. Med Supp: Filed with the states, subject to minimum loss ratios
  ii. MA: CMS regulated, annual bids are submitted to CMS
  iii. FFS: CMS regulated
- Population (GRADER COMMENTS: The following is what we were looking for, however credit was also given if response was "65+ or disabled")
  i. Med Supp: May be medically underwritten or guaranteed issue
  ii. MA: Guaranteed issue during open enrollment
  iii. FFS: Automatic enrollment in Part A, must enroll in and pay for Part B

(c)

(i) Explain the concerns which led to the NAIC regulations on Medicare Supplement plans.

- The senior population is a vulnerable population
- Sale of policies that provided minimal benefits for relatively high premiums
- Sale of multiple policies where insureds could be paying for excessive coverage
- Churning – agents were moving policyholders from one company to another so they could qualify for first year commission again

(ii) Explain how the NAIC regulations address the concerns raised in the rationale for the regulation.

- Minimum loss ratio standards
- Standard plan offerings
- Requirements that a plan/insurer offer at least the base plan
- Open enrollment periods
- Commission limitations to prevent churning
- Annual rate filings

(d) List and differentiate ways that employers can offer employer coverage for Medicare eligible retirees. Provide an example of a benefit payment for an acute inpatient hospital admission under each scenario.

Commentary on Question:
Question asked for an acute inpatient example, credit was given if formulas below were provided.)

14. Continued

- Standard Coordination of Benefits
  i. Richest plan design, frequently results in payment of 100% of expenses
  ii. Formula: min (C%, (C-M))
- Carve-Out
  i. Results in smallest benefit payments
  ii. Formula: C% – M
- Exclusion
  i. Formula: (C – M)%
- Offer some type of Medicare Supplement policy

(e) Describe the rate management process for a Medicare Supplemental product. Differentiate rate management from pricing policy, where applicable.

Commentary on Question:
This section was pulled from the Health Watch article. Candidates did not need to use exact wording, but mention a few key items in each point.

- Rate management requires regular analysis of pricing assumptions by conducting scenario testing, experience analysis, impact of rate increases on future experience (projections) and impact of inadequate rate management.
- Should take into account regulatory and market considerations while reflecting changes in benefits, medical inflation, utilization, and corrections to expected trends.
- Rate adjustments should not reflect aging and underwriting wear-off assuming that these components are properly reflected in the initial pricing. It is important to develop a regular process for reviewing experience, developing and filing annual rate increases, as well as rate implementation.
- Rate development and filing is affected by state specific requirements, loss ratio standards, credibility standards, pooling, actuarial equivalence and turnaround time for the rate filing review and approval process.
- Unanticipated changes in Federal or State regulations such as MIPPA, Health Care Reform, NAIC Model Regulations, etc., can also impact rate development.

(f) Calculate the Medicare Supplement lifetime loss ratio based on the following experience. Comment on the results, and required next steps and suggest any remedies. Show your work.

Commentary on Question:
Candidate could assume group or individual and answer loss ratio test accordingly.

14. Continued

- Lifetime loss ratio = PV incurred claims / PV premium
- $5,779,945 / $8,402,814 = 68.8%
- Loss ratio requirement of 65% for Individual OR 75% for Group
- Loss ratio test is met for Individual OR not met for Group
- If loss ratio test not met, suggested remedies would be:
  - Increase benefits
  - Lower premium by lowering expenses, commission, or profit