# Solution 1

(a) Traditional and Alternative Distribution Models

Distribution Models

Brokerage:

- Cheaper for smaller companies who can't afford field force
- Often used for small group market
- Exposed to price competition since brokers sell products from many competitors
- Generally paid commission

Group Field Force

- Salaried sales reps paid by company
- More loyal, can sell value not just price
- More predictable revenue
- Can penetrate more niche markets
- More costly than brokerage – need economies of scale

Direct Sales

- Often not very effective for group insurance

Multi-Level

- Combination of wholesale distributors, agents, brokers, telemarketers...
- Can find best distribution for each market/area
- Wide distribution but not as expensive as field force

Sales to Consumers

- Enrollment specialists to enroll employees
- Paid either salary or commission

Alternative Models

Internet Marketing:

- Advertising and Sales
- Provide ability to conduct transactions

Worksite Marketing

- Meet with employees at worksite
- Usually payroll deduction

# Solution 1 (continued)

Major Decision Makers in Distribution Process

Distribution Channel

- Brokers – commission
- Consultants – FFS by group, expected to add value
- Financial Institutions
- Agents

Employers – several key decision makers – CFO, benefit manager, HR
Basic Needs:

- Cost/financial suitability
- Compatible with HR Objectives
- Network Access – Appropriate for population
- Choice of plan design
- Excellent local service
- Strong Partner in Health Coverage

Employee / Consumer – self reliant, well educated, will pay for valued product
Decision criteria

- Low OOP costs
- Choice of plan design
- Access to service info
- Easy/less paperwork
- Plan an administrator
- Provider a resource

Provider - Key to employee satisfaction

**(b)** **<u>Market Segments</u>**

Industry

Geographic Area

Size Segments:

## Solution 1 (continued)

Small 2-50 EE's

- Heavily regulated
- Rely on broker for info
- Need low expense to be competitive
- Min Loss Ratio requirements

Smaller / Medium Groups 51 – 100 EE's

- Less regulation
- Prefer group field force distribution

Moderate Groups 100-500 EE's

- Experience plays a large role
- Group field force used
- Self insuring an option

Large Groups 500+ Employees

- Multi-site
- Fulltime benefits staffing

# Solution 2

(a) Managed Care companies that tighten care management may experience lower trends
Managed care initiatives that affect trends, also affect the cost levels
Useful measure is approval percentage of dollars of claims: Paid v. submitted claim ratio.
As percentage rises over time, may indicate a less restrictive form of managed care.
Precertification, Preauthorization and utilization may create a sentinal effect, limiting services by providers
Sentinel effect can lead to tightly managed MCO with high approval percentage.
Programs, or lack of them, can result in trends persistently above or below the prevailing force of trend.

(b)

| | | Members (1000's) | Table MM-6a Incurred $$ | Hosp PMPM | Yr over Yr Qtrly trend Hosp | Table MM-6b Incurred $$ | Avg Qtrly Non-Hosp PMPM | Yr over Yr Qtrly trend Non-Hosp | Avg Qtrly Total PMPM | Yr over Yr Qtrly trend Total |
|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 2001 | 943 | 50,700 | | | 44,500 | | | | |
| 8 | 2001 | 939 | 48,533 | | | 44,018 | | | | |
| 9 | 2001 | 937 | 49,550 | 52.78 | | 44,935 | 47.34 | | 100.12 | |
| 10 | 2001 | 945 | 52,324 | | | 47,455 | | | | |
| 11 | 2001 | 945 | 50,370 | | | 46,287 | | | | |
| 12 | 2001 | 945 | 54,575 | 55.47 | | 52,477 | 51.58 | | 107.05 | |
| 7 | 2002 | 969 | 57,934 | | | 51,387 | | | | |
| 8 | 2002 | 974 | 59,439 | | | 54,828 | | | | |
| 9 | 2002 | 974 | 60,365 | 60.93 | **15.4%** | 54,458 | 55.08 | **16.4%** | 116.01 | **15.9%** |
| 10 | 2002 | 976 | 61,457 | | | 56,128 | | | | |
| 11 | 2002 | 980 | 66,057 | | | 60,999 | | | | |
| 12 | 2002 | 979 | 106,725 | 79.81 | **43.9%** | 79,912 | 67.13 | **30.2%** | 146.94 | **37.3%** |

(c)

The fourth quarter trend is heavily influenced by the completion factor used to estimate ultimate costs
Recommendation is to use third quarter year over year trend of 15.9% in total, 15.4% for hospital and 16.4% for non hospital.

## Solution 2 (continued)

Use 3Q instead of 4Q because IBNR is distorting the PMPM estimates for November and December 2002.
4Q over 4Q has considerable lag built into the built into the calculation of the incurred estimate. Too much variability in the lag adjustment.

(d)

Hospitals delivering 1/3 of the care will accept 10% less

| | |
|---|---|
| Hospital Trend: | **15.4%** |
| Non-Hospital Trend: | **16.4%** |

2/3 at non-discounted hospitals:

| | | |
|---|---|---|
| Hosp PMPM 2002 | $60.93 | x |
| 1+ Trend | 115.4% | = |
| Hosp PMPM 2003 | $70.32 | 66.67% |

1/3 of facility care at discounted hospitals

| | | |
|---|---|---|
| Hosp PMPM 2002 | $60.93 | x |
| 1+ Trend | 115.4% | x |
| Discount | 0.9 | = |
| Hosp PMPM 2003 | $63.28 | |

| | | |
|---|---|---|
| Non-hospital PMPM 2002 | 55.08 | |
| 1+ Trend | 116.4% | |
| Non-hospital PMPM 2003 | 64.11 | |

| | | |
|---|---|---|
| Non-hospital PMPM 2002 | 55.08 | |
| 1+ Trend | 116.4% | |
| Non-hospital PMPM 2003 | 64.11 | |

| | | |
|---|---|---|
| Total PMPM 2003 | 134.43 | |
| | | 127.40 |

Weight together 1/3 and 2/3

134.43 * 2/3 + 127.4 * 1/3 = 132.09

Revised total trend = 132.09 / 116.01 - 1 = 13.85%

Trend decreases from 15.9% to 13.85%.

(e)

Membership increase from 979,000 to 991,000

| Members | 2003 cost (from part d) | |
|---|---|---|
| 979 | 132.09 | 13.85% |
| 12 | 127.40 | 9.81% ( = 127.4 / 116.01) |
| 991 | 132.03 | 13.81% ( = 132.03 / 116.01) |

0.04% trend change

Given the small change in trend and the fact there is no guarantee all the new members will use the lower cost hospitals all of the time, I would not reduce estimate.

# Solution 3

(a)

For employers:

1. Rising medical expenses with difficulty to shift costs to employees;

2. Increasing liability exposure (exposure to lawsuits);

3. Changing employment relationships (benefit portability important);

4. Complex as well as costly administration of health care benefits.

For employees:

1. Employees do not have adequate choices to match their health care needs;

2. Employees face coverage disruptions when employer changes insurer or plan design, or when changing jobs;

3. Employees have limited choice (compared to consumer's choice when buying other goods) to select the level of benefits, doctors, hospitals and even health insurance.

(b)

Key implementation considerations for an employer adopting a PDHB approach:

1. Number of Employees: has great influence on which PDHB approach and implementation strategy to follow. This is important because of federal and state regulations. Large employers can self-fund and experience rate compared to small groups. Large groups have more latitude to design a PDHB that meets their own needs; small groups will be constrained by what is in the market. As a large group, Bailey Industries has the capacity to design its own PDHB program that meets its particular needs; also its cost will be less than small employers.

2. Employee Population Type: Employers with collective bargaining units or those with many retirees may not feel that a PDHB a good strategy in the near future. Also, PDHB requires greater information needs that may not be available for certain groups. Bailey is a white collar, highly paid group, with only 8-years average service; also the company has the needed resources for information needs. Looks like a PDHB suits Bailey in this regard.

## Solution 3 (continued)

3. Human Resources, Business Objective / Philosophy: The whole PDHB is based on increasing employee responsibility as the best way to accomplish efficiency in health care delivery. Not all employers will take this idea to the same extent. Looks like Bailey Industries have the needed resources and the required belief to implement a PDHB strategy (as stated in this problem, "Bailey is considering the adoption of a new medical plan with PDHB benefits").

4. Whether health care benefits are currently in place: PDHB is a good way for smaller employers who would like to offer their employees some sort of health care benefits. However, implementation requires educating employees, finding options in the market, administration ..... etc. Larger employers, like Bailey, already have health care benefits and plenty of experience. Bailey can start PDHB with much lesser difficulties.

5. Available Options in the Area: A PDHB product may not be available in the market for interested employers. Bailey needs to research available options in the area.

6. Available Resources to Manage Health Care Benefits: To decide on which PDHB strategy depends on employer's resources to manage benefits. Employee education is very important and will need plenty of resources. Bailey Industries seems to have all required resources to implement a PDHB strategy. Bailey had experience managing its own health care benefits.

(c)

Models used to predict selection costs:

1. Choice Model: is based on claims probability distribution. Best coverage choice is identified for each person based on his/her needs (assuming knowledge of future expenses), and the cost is compared with group's cost without choice. The model assumes insured know their future medical cost and assigns them to the plan that maximizes their net benefit. This model can be used to evaluate cost for Bailey Industries.

2. Member Utilization Cost Model: This model is based on split of costs by service type. In this model it is assumed that financial incentives will influence decisions about routine care; but have little or no influence on care for serious conditions. The model separates health expenses by

## Solution 3 (continued)

service type, and then applies utilization factors that vary with service type and member cost sharing. Then, as a final step, reduce total utilization adjustment by member cost sharing in the base experience. This model can be used in the case of Bailey Industries.

3. Duration Claims Model: Based on early duration claims kept down by heath status underwriting. The model involves studying health cost in the most current period, then categorizes claims by month since issue, then graphs claims PMPM after adjusting for benefits mix and demographics, and then obtain ratio for current to ultimate claims and use for pricing. This method is not appropriate for Bailey Industries; this method is used by small group insurers (health status underwriting is not applicable in Bailey Industries employees case).

4. Cumulative Anti-selection Model: Based on the tendency of sick persons to retain coverage while healthy persons find other health insurance somewhere else. This model is appropriate for individual carriers facing anti-selection lapse. This model is not appropriate for Bailey Industries, as company employee cannot take employer cash and try to shop on their own (i.e. healthy and young can not leave the group and leave the older or unhealthy behind).

(d) (i)

Employees with \$0

- choose option B for least cost to them (greater PHA rollover)

- cost to employer = \$1,250

Employees with \$1 - \$1,000

- cost for option A = \$400 - \$500 = -\$100

- cost for option B = \$400 - \$1,250 = -\$850

- choose option B

- cost to employer = \$1,250

Employees with \$1,000 - \$2,000

- cost for option A = \$1,000 + 10% x \$500 - \$500 = \$550

## Solution 3 (continued)

- cost for option B = $1,500 - $1,250 = $250

- choose option B

- cost to employer = $1,250

Employees with $2,000 – $5,000

- cost for option A = $1,000 + 10% x $2,500 - $500 = $750

- cost for option B = $2,000 + 20% x $1,500 - $1,250 = $1,050

- choose option A

- cost to employer = 90% x $2,500 + $500 = $2,750

Employees with $5,000+

- cost for option A = $1,000 + 10% x $24,000 - $500 = $2,900

- cost for option B = $2,000 + 20% x $23,000 - $1,250 = $5,350

- choose option A

- cost to employer = 90% x $24,000 + $500 = $22,100

Option A cost to employer with no choice = $500 + 15% x $0 + 40% x $0 + 15% x ($500 x 90%) + 15% x ($2,500 x 90%) + 15% x ($24,000 x 90%) = $4,145

Option B cost to employer with no choice = $1,250 + 15% x $0 + 40% x $0 + 15% x $0 + 15% x ($1,500 x 80%) + 15% x ($23,000 x 80%) = $4,190

Average cost with choice = 15% x $1,250 + 40% x $1,250 + 15% x $1,250 + 15% x $2,750 + 15% x $22,100 = $4,602.50

Average cost with no choice = 50% x $4,145 + 50% x $4,190 = $4,167

Maximum adverse selection cost = $4,602.50 / $4,167 = 1.105

## Solution 3 (continued)

(d) (ii)

Adverse selection will be less than the amount calculated by a choice model for the following reasons:

1. Some insured are risk adverse and might choose rich benefit plan for peace of mind (not based on economic reasons).

2. Insured usually do not have perfect knowledge of future costs.

3. Some insured must select coverage for family and what is best choice for one family member may not be the best choice for another member.

(d) (iii)

1. Some employers might limit types of available choices or even eliminate some choices.

2. Aggregating large groups of persons in one risk pool. Pooling may be based on geographic location, demography, etc.

3. A PDHB program that applies personal health account to pre-planned expenses and insurance plan for insurable losses may reduce adverse selection in the current models. Financial modeling is needed to succeed.

4. Employer can vary its contributions to employees using risk adjustment methods (actual utilization, behavior patterns, .... etc.)

5. Employers may relate contributions to employees so as to promote wellness like exercise programs.

# Solution 4

(a) Assumptions to be considered when calculating a PDR:

1) Enrollment: Realistic enrollments need to be included in the projections. Aging of the block should reflect historic levels of underwriting wear-off. Lapses should reflect potential anti-selection.
2) Claims Trend: Anticipated claims cost inflation must be included in the calculations.
3) Rate Increase: Should be at levels likely to be implemented under regulatory and/or market constraints.
4) Expenses: Expenses related to the policy group should be included in the losses projection.
5) Taxes: PDR should be calculated on after-tax basis using estimated tax rate for the company.
6) Provider Arrangements: Provider settlements must not used to reduce claim costs unless billed to providers(under risk sharing agreements).
7) Interest Rate: Reasonable IR only may be used to discount present value of deficiencies.
8) Conservatism: Realistic assumptions should be used to calculate DR.

(b) Recommended groupings:
The groupings should aggregate policies according to how they were rated, marketed, serviced, or measured for performance. The groupings should also be large enough.

Major Medical Division:

- Fully Insured Indemnity
  - Individual
  - Small Employer (<=50 employees)
  - Large Employer (>50 employees)

- PPO
  - Individual
  - Small Employer
  - Large Employer

Group Life & Disability Division:

- Group Life Policies
- Group Long-term disability
- Individual Long-term disability
- Group Long-term care

## Solution 4 (continued)

Managed Care Division:

- MCO (only one/Bedford Group)

ASO Division:

- Large employers only

(c)

Termination Rate = 98,304/122,800 = 0.8

CY 2003 Member Month = $98,304 \times 0.8 = 78,643$

Expense 2003 = $\frac{78,463}{1.75} \times 20 = 898,777$

Prem. 2003 = $31,123,8008 \times 1.12 \times 0.8 = 27,886,215$ *limited to 12% by state regulation

Claim Trend = $(1+0.12)^{12} = 1.1539$

Claim 2003 = $26143327 \times 1.1539 \times 0.8 = 24,133,428$

Commission 2003 = $0.1 \times 27,886,215 = 2,788,622$

Prem. Tax 2003 = $0.02 \times 27,886,215 = 557,724$

Current Reserves = 0

PDR = PV Claim Cost + PV Expenses – PV premium – Current Reserve
= 492,338

# Solution 5

Pooled Loss Ratio = Claims under Pooling Point ($50,000) / Gross Premium

7/00-6/01 LR = (3,397,000 + 905,000) / 5,800,000 = 74.17%
7/01-6/02 LR = (4,644,000 + 692,000) / (6,480,000 + 1,080,000) = 70.58%

Multi-year Loss Ratio = 75% * Year 2 LR + 25% * Year 1 LR
= 75% * 70.58% + 25% * 74.17% = 71.48%

Charged Claims = Premium by Option * Multi-year LR
Option 1 = 6,480,000 * 71.48% = 4,631,904
Option 2 = 1,080,000 * 71.48% = 771,984

Adjusted Charged Claims = Charged Claims * Trend * Region Adjustment * Benefit Adjustment * Age/Sex Adjustment
- Trend to 9/1/03 from 1/1/02 => $1.009^{12} * 1.012^{8} = 1.225$
- Adjust back to base Region, Benefit, and Age/Sex Levels

Option 1 = 4,631,904 * 1.225 * 1/1 * 1/0.75 * 1/1.05 = 7,205,184
Option 2 = 771,984 * 1.225 * 1/1 * 1/0.70 * 1/0.80 = 1,688,715
Total = 8,893,899

Group is 100% credible, so do not need to adjust to manual

Adjust claims for Exposure Size = Adj. Charged Claims * Family Fctr / Average Fctr
= 8,893,899 * 2.50 / 1.75 = 12,705,570

Develop Gross Premium (3000 employees = 2400 Option 1 + 600 Option 2):
Add Pooling Charge * Trend = 35 * $1.012^{2}$ * 12 * 3000 = 1,290,600
Add Administrative Expense = 12 * 12 * 3000 = 432,000
Divide by Profit & Commission = (Adj. Claims + Pool Chrg + Admin) / (1 - 0.03 - 0.05) = 15,682,793

Adjust for Region , Age/Sex, and Benefit for Option 1 = 15,682,793 * 1.0 * 1.05 * 0.75 = 12,350,199

Convert to PEPM = 12,350,199 / 3000 / 12 = 343.06
Annualize = 343.06 * 12 = 4,116.72

# Solution 6

a) Competitive Strategies

Price

- Lower cost distribution system
- Effective use of technology
- Relocate for cheaper labor costs
- Could price at a loss to gain market share
  - Disruptive to market
  - Short term only

Differentiation

- Unique product
- Higher quality product
- Better customer service
- Better experience-rated cost containment

Niche Marketing

- Specialized knowledge of customer base

b) Strategies by Division

ASO

- Differentiation
  - Top 5 nationally
  - Strong reputation
  - Wide range of services & products
  - Rents out PPO network

Major Medical

- Differentiation
  - Top 3 nationally
  - Developed own provider network
- Price
  - Aggressive provider contracting allows low price

Group Life & Disability

- Differentiation
  - Entered Long Term Care Market

Managed Care

- Niche Marketing
- Focused for future on specific locations

# Solution 7

(a)

- Financial Management should rely on best estimates and actual up to date information where available.
- Initial reserve estimates may prove to be inaccurate, so using those estimates will distort actual incurred claims.

(b) $\text{ROE} = \dfrac{\text{gaap profits}}{\text{gaap capital \& surplus}} = 15\%$

profits consist of underwriting gain + investment income – taxes
2002 investment income = 3% of prem.
2002 taxes – 1.6% of prem.

$\dfrac{\text{u/w gain} + 340 \text{ prem.} - 1.6\% \text{ prem.}}{1840 \text{ prem}} = 15\%$ u/w gain objective = 1.3 % of prem.

$$\text{Loss Ratio} = \frac{\text{incurred claims}}{\text{earned premium}}$$

if u/w gain objective = 1.3% of prem., then incurred claims + expenses = 98.7% of prem.
operating expenses have been running at 15.1% of prem.,
so Loss Ratio objective = 98.7% - 15.1% = 83.6%

(c) EVA = Profit – cost of capital
= profit – 10%

2000: Total claims expense is listed as 1,004,200 in financial statement. This matches the total of updated data in MM-6a and MM-6b. If 12/31/99 IBNR was understated by 50,000, then 12/31/00 must be understated by 50,000 as well, since paid claims + Δreserve was accurate operating earnings after tax = 4.1% of prem.
surplus = 18% of prem.

$\text{EVA as \% of capital invested} = \dfrac{4.1}{18} - 10\% = 12.8\%$

2001: incurred claims reported = 1,129,000
restated = 1,126,224
restated operating earnings before tax = 83,000 + 1,129,000 – 1,126,224 = 85,776

after tax = $85{,}776 \times 0.62 = 53{,}181 = 3.76\%$

$\text{EVA as \% of capital invested} = \dfrac{3.76}{18} - 10\% = 10.9\%$

## Solution 7 (continued)

2002: incurred claims reported = 1,283,000
restated = 1,378,977

restated operating earnings before tax = 81,000 + 1,283,000 – 1,378,977 = –14,977

after tax = $-9,285 = -0.6\%$ of prem.

EVA as % of capital invested = $\frac{-0.6}{18} - 10\% = -13.3\%$

# Solution 8

(a)

| | A | B | B/A | |
|---|---|---|---|---|
| **Table MM-4b** | **11/02** | **12/02** | **Age-to-Age Development** | |
| Aug-01 | 48,500 | 48,500 | 1.0000 | x |
| Sep-01 | 49,400 | 49,500 | 1.0020 | x |
| Oct-01 | 52,100 | 52,200 | 1.0019 | x |
| Nov-01 | 50,100 | 50,200 | 1.0020 | x |
| Dec-01 | 54,200 | 54,300 | 1.0018 | x |
| Jan-02 | 51,100 | 51,200 | 1.0020 | x |
| Feb-02 | 49,700 | 49,700 | 1.0000 | x |
| Mar-02 | 57,400 | 57,600 | 1.0035 | x |
| Apr-02 | 53,800 | 54,100 | 1.0056 | x |
| May-02 | 52,000 | 52,400 | 1.0077 | x |
| Jun-02 | 53,300 | 54,800 | 1.0281 | x |
| Jul-02 | 53,500 | 55,000 | 1.0280 | x |
| Aug-02 | 52,800 | 55,100 | 1.0436 | x |
| Sep-02 | 48,400 | 53,300 | 1.1012 | x |
| Oct-02 | 35,600 | 49,300 | 1.3848 | x |
| Nov-02 | 4,100 | 39,200 | 9.5610 | |
| Dec-02 | | 8,100 | | |
| **Subtotal** | | | = | |

(b) Product of Age-to-Age Development Factors **16.5121**

x

8,100

**Estimated Incurred Claims for 12/02:** = **133,748**

**Subtotal**

## Solution 8 (continued)

(c)

- Historical lag pattern will be an accurate representation for the payment of claims that have been incurred but not yet completely paid
- Able to record an incurral date & a payment date for each claim
- Fairly consistent lag pattern in the progression of claims
- Short duration relative to ultimate run-out
- Sufficient volume of business in a given valuation cell
- Requires premium or contracts to adjust for volume changes
- Don't have to wait for the ultimate development

# Solution 9

(a) **For LTD:**

(i) Automatic Excess:

- Direct writer retain first X dollars of coverage and reinsurer assume the excess.
  Prefered by large insurer.

  2 variations:
- Extended Elimination Period (aka Excess Duration). Direct writer retain first *n* months of disability income payment and reinsurer assumes the excess.
- Specified dollar amount
  Direct writer retain first X dollars of cumulative payment (compared to first X dollars of monthly payment for traditional automatic excess) and reinsurer assumes the excess.

(ii) Facultative: Coinsurance or Quota Share.

- Preferred by smaller insurer who needs more support from reinsurer
- A fixed percentage of coverage is reinsured
- Reinsurer provides net premium to which insurer add its own expense load.

**For LTC:**

(i) Coinsurance or Quota share. A fixed percentage of coverage is reinsured.
(ii) Automatic Excess
(iii) Modified coinsurance

(b) LTC:

- Claim Cost Slope steep
- Low frequency, high severity product
- New Product
- Future of claim cost debatable
- Product is capital intensive: Reserve Strain
- Reinsurer has an advantage: Help insurer avoid past mistakes of this new product. Reinsurer has access to experience of many insurers.

LTD:

- Low frequency, high severity product
- Product is capital intensive
- Amount of total benefit payment not known until end of disability
- High volatility of experience

# Solution 10

(a) Importance of measuring medical effectiveness:

- Measuring medical effectiveness was motivated by the escalating cost of health care in the U.S over the last several years. As a result, cost management efforts had increased with particular emphasis on improving quality of health care.
- Higher quality services believed to be less expensive; also it is believed that "you cannot control what you cannot measure". That means it is important for cost containment to measure medical effectiveness.
- If providers medical effectiveness is measured, the quality of medical care will be effective and this will lead to controlling cost.
- It is important if we need to compare quality of care between different provider groups.
- Consumers, employee benefit managers, and health plan mangers will be able to use the measurement reports to make better buying decisions.

(b) The main health plan performance evaluation categories:

(i) Access: Measured as the opportunity to receive health care treatment or by actual treatment received. Geographic information systems can be used to measure distances between providers and actual or imputed geographic locations. It is important for any health plan to clearly identify the method used in the calculation of accessibility measure, the access standard, etc. one measure of accessibility is the ratio of providers to enrollees.

(ii) Cost & Financial Measures: cost depends on the benefits provided by the plan, the covered population, etc. cost information provided should cover gender, age, health status, etc. Definitions of cost components like administrative cost should be consistent. Reserving methodology should be identified as part of the financial information.

(iii) Member Satisfaction: surveys might be used to measure member satisfaction; if so, standard surveys should be utilized. The health plan should explain the survey instrument used (phone, face-to-face,...), how sample was selected, the statistical confidence, etc. sometimes enrollment/disenrollment rates are used to appraise member satisfaction.

(iv) Measuring Medical Effectiveness: multiple measures are recommended rather than one measure to measure medical effectiveness. Measures normally used include cost and utilization statistics, preventive health care measures, compliance with practice guides, proxy indicators, and health status outcome.

# Solution 11

(a) Calculate the expected gross premium for this product

| Outcome | Frequency | Severity | Pure premium |
|---|---|---|---|
| 1 | 25 % | $ 875 | $ 219 |
| 2 | 50 % | $ 750 | $ 375 |
| 3 | 75 % | $ 550 | $ 413 |

Average = 335

Expected gross premium = 335 /0.8 (loss ratio) = $419.27

(b) Calculate the credibility

Credibility = n/(n+K)

n = number of observations = 7

K = Expected Value of the process variance / Variance of hypothetical means

Variance of hypothetical means

| Outcome | Pure premium | (Pure premium – average)$^2$ |
|---|---|---|
| 1 | $ 219 | 13,611 |
| 2 | $ 375 | 1,567 |
| 3 | $ 413 | 5,942 |

Variance = 7,040

K = 133,581/7,040 =18.975

Credibility = 7 / (7+18.975) = 26.9 %

(c) Calculate the credibility weighted total premium for this individual

Experience premium = (2,500 /7) / 0.8 = 446.43

Expected premium = 419.27

Credibility weighted total premium =(26.9 % x 446.43 )+ ((1-26.9%)x419.27) = 426.59

# Solution 12

(a)

Measures of Claims Quality

Overall Accuracy - % claims paid correctly with no errors - financial or non-financial
Good range is 95%

Payment Accuracy - % claims that pay the correct amount but still could have other errors/non-financial
- could include payee name, address, etc
Good range is 97%

Financial Accuracy - dividing sum of absolute errors (over and under) by total amount paid
Good range is 99.3%

(b)

1. Check eligibility
   - was claimant enrolled when claim was incurred
   - was policy inforce when claim was incurred

2. Check for pre-existing conditions
   - was the claim the result of a condition not disclosed at issue
   - could be grounds for denial

3. Is benefit being claimed for covered?
   - check coverage eligibility

4. Proof of Loss
   - has insurer received notice of claim including bills, APS, hospital and medical records
   - includes date services rendered

5. Determine eligible charges
   - should policy be contested
   - what amount is eligible under the plan

6. Determine gross/allowed charges
   - apply basic contract parameters to determine gross benefit level
   - includes application of deductibles, copays, coinsurance, out of pocket maximums, policy maximums

7. Determine net benefit level
   - consider existence of other plan liability either coordination of benefits (COB) or subrogation

## Solution 12 (continued)

8. Actually making payment
   - to whom should payment be made
   - statement accompanying payment as to how amount determined and any assignment

9. Is there a network of providers under contract
   - payments made directly to providers
   - if capitation, claims processed but no actual payment
   - payment levels may differ by provider

10. Degree of Healthcare management
   - did claim have necessary pre-authorization
   - medically appropriate/necessary
   -care protocols to establish acceptable reimbursement patterns

(c)

Internal Data Sources

Claim form- patient name, DOB, address, procedure, diagnosis/DRG codes, provider name
Hospital Claim Form (UB-92)
Physician Claim Form (HCFA-1500 now CMS)

Medical claims systems - stores claim form info as well as a host of other data

Premium and eligibility system - make sure premiums have been paid and are up to date
- also check to see if claimant is still eligible (on group)

Provider Contracting system -stores provider status (are they active)
- also stores payment arrangement (FFS, capitated, etc)

Utilization Review and Pre-Certification
-stores useful notes for inpatient claims
- logs requests for pre-certifications and provides authorization for type of service performed

## Solution 12 (continued)

(d)

Audit Issues

1. Was claimant eligible at time of service?
   - was policy inforce when claim incurred

2. What was provider status and payment arrangement
   - contractual or non-contractual
   - were contract arrangements followed correctly?

3. Were written procedures and guidelines followed when claim adjudicated
   - does company comply with own rules (whether rules are right or wrong)

# Solution 13

(a) Capitation

Traditional forms of Capitation:

- Capitation transfers the financial risk of healthcare to the doctors, and doctors receive fixed monthly fee for every member in the plan (without regard if the member receives services or not). Doctors must provide all services no matter what the cost is.
- Full Risk Capitation: In the method physicians carry all the risk of providing health care for a fixed PMPM rate. The fee covers primary and specialty care; if the physician refers a member to a specialist, he/she must pay the bill. Large physician groups contract under this method because they can get favorable rates with specialists. Also, large groups can bear the downside risk.
- Global Capitation: This is one step further compared to the previous method. The Capitation payment here covers all medical expenses including institutional and professional ones. Integrated delivery systems (IDS) usually use global capitation.
- Case Rate, Global Fee or Flat Rate: A bundled case rate or package pricing is established as a single fee for a set of given services. The physician receives the same fee each time regardless of how much time he/she actually spends with a patient.
- Salary – This is the staff model HMO where the physician is a salaried employee of the health plan.

New Alternative forms of Capitation:

- Contact Capitation: This is a modification to the traditional capitation to suit specialty physicians. In this form, specialist physician is paid a lump sum upon his/her first encounter with a new patient. The payment represents the average cost of healthcare and should cover a whole contact period (6 or 12 months). The specialist is responsible for all required care during the contact period. The capitation payment usually includes a risk adjustment according to severity of illness.
- Physician DRG's - This form is still underdevelopment but allows a set payment for a given diagnosis group. The amount is usually adjusted for severity.

## Solution 13 (continued)

- Market Share Capitation: This form uses market share to allocate capitation between specialty groups. If a certain specialty group sees 10% of the patients, then that specialty group will get 10% of the monthly capitation budget for that specialty type. This method requires historic referral data to base payments. This method is suitable for single specialty groups, but not suitable for individual physicians in a multi-specialty group.

(b) Incentives

Traditional forms of incentive plans:

- Incentives are supposed to make physicians practice in a certain way. A separate account is usually set for the money allocated for the incentive program (pool account). Physicians are well informed on the account value and how it will be distributed.
- Withholds: A certain percentage of the physician's income is withheld by the plan to cover excess medical expenses. After paying all claim expenses, the physician gets the leftover at year end.
- Bonuses: According to a pre-specified performance criteria, the physician will get a bonus at year end. Newer bonus criteria use benchmarks not related to utilization (to medical expenses only)

<u>New Alternative forms of Incentive Plans:</u>

- Quality-Based Incentives: These are usually bonus programs that use information on quality of healthcare. Some quality of care criteria: use of practice guidelines, member satisfaction surveys, number of member complaints, preventive care measures. This form worked well in the field of workers' compensation
- Fee Incentive Method: This form uses a flat fee to change the behavior of physicians. For example, HEDIS can be monitored so as to increase preventive care. If a physician gets high performance HEDIS scores, he/she will be paid higher fee schedule.
- Gainsharing: This arrangement is usually between a hospital and it's physicians. The physicians will receive a share of the hospital savings. This method is good when the physicians reimbursement is according to fee schedule, but hospital is paid on a DRG basis. This method is not allowed in federal programs and has had limited use in non-federal programs

# Solution 14

(a) list general types of delivery systems

Indemnity plans
- Fee for Service or scheduled indemnity, pay up to certain amount
- access to any dentists
- Usual Customary and Reasonable (UCR) plans cover up to UCR limit subject to deductibles, coinsurances and plan maximums

Preferred Providers
- plan takes advantage of contracted fees with providers
- plan design is same whether in or out of network
- out of pocket expenses reduced if in-network
- various forms of PPO's
- discounted fee for service
-fee schedule FFS
- EPO exclusive provider organization
- POS - hybrid of indemnity, PPO and DHMO
- discount referral plans - discount cards (not insurance)

DHMO - Dental HMO
- Prepaid or capitated
- Independent Provider Association - pay capitation to independent providers
- Staff model HMO's - providers are EE's of HMO and are salaried

(b) Plan provisions and Claims Practices

Plan provisions
- exclusions - cosmetic, experimental, on the job injury, no orthodontia
- pre-existing conditions - missing tooth
- benefits after insurance ends - only pay claims after coverage ends if within 31 days

- incentive coinsurance
- benefits are provided at lower coinsurance for Type II and III coverages unless utilize type 1

## Solution 14 (continued)

Claims Practices

1. dental review for difficult claims
   - use dental professionals as consultants to review difficult claims
   - need sophisticated adjudication system to properly adjudicate claims
   - check eligibility, age and frequency limitations

2. LEAT - Least expensive Alternative treatment
   - limit reimbursement to least expensive alternative that is still appropriate

3. COB - coordination of benefits
   - to avoid paying in excess of charges

4. Predetermination
   - if treatment expected to cost more than $x then require pre-treatment review

5. UCR - Usual, Customary and Reasonable
   - limit payment to dentist usual fee or fee level customary for area or reasonable charge if unusual situation

(c) challenges to e-commerce

1. No clear leader to follow – no one sets the pace, discourages others to follow
2. No clear standards for transactions - changing with HIPAA
3. Financial impact cannot be measured - reluctant to make changes
4. Security and privacy regulations are a barrier - result of HIPPA
5. Integration with legacy systems is cumbersome - hard to eliminate so have to figure out how to work with
6. Processing problems become public - internal weaknesses become more visible
7. Local needs do not match national needs - different e-commerce approaches
8. Must adopt e-commerce mindset
9. Accept that e-commerce is continually changing
10. Adopt rapid, iterative approach (changes in less than 3 months)
11. Build good technical infrastructure

# Solution 15

(a) Difficulties

- Access to good quality insured data was non-existent
- Data was from Medicare & public sources (e.g. Medicare)
- NHHS-85 was only real data available…more conservative than insured data
- Even less known about non-institutional experience
- Some data was from outside US
- Benefit design was evolving in ways that affected claim costs
- No clear picture to what benefit design should be
- Early version strictly nursing home
- Early version did not have ADL benefit triggers
- Some policies underpriced because of trigger liberalism
- Little market penetration until recently so very little experience exists
- Effects of future anti-selection unknown
- Morbidity and medical technology improvements…unknown affects on claims costs
- Existing NHHS-85 table needs to be adjusted
  - Affects of underwriting
  - Differing product design
  - Based on general population, not insured data
  - Very little insurance at that time data collected, this impacted claims
  - Different benefit triggers
  - No premium classifications
  - Consider selective lapsation
- Noninstitutional Tables also need adjustment, to reflect variations in policy designs

(b) Group and Individual

- Individual has many plan options, group has limited
  - Group may have single waiting period
  - Individual has 100% HHC, group has 70%
  - Group has periodic inflation index, individual has automatic
  - Group has no spousal rider
  - Group has death benefit, individual usually doesn't
  - Individual has range of daily benefit, group has a few choice
  - Group often has non-forfeiture options; SBP & RPU common

## Solution 15 (continued)

- Individual has large benefit period max, group has moderate
- Individual uses long form underwriting, group is guaranteed issue and actively-at-work
- Average age is lower for group
- Commissions are lower for group
- Participation in group may have minimum requirement, or anti-selection will occur
- Both group and individual have age-rated level premiums
- Group may have 3-10 yr rate guarantee, individual must file increases on class
- Group doesn't have spousal discount
- Loss ratios for group are higher... 75% vs 60% for individual
- Group policies have conversion option to continue coverage if employment terminates
- Group contracts can be transferred from one insurance company to another if contract terminates

# Solution 16

(a) Segmentation analysis: identify unprofitable market segments & direct efforts to more profitable segments

- e.g. California and Florida

Tighter underwriting

- Use blood testing
- Tightened guidelines on MN and substance abuse
- Tighter financial disclosure requirements

Changes in claim management

- Use psychiatric resources to handle MN claims
- Claim settlements
- Add accountants to analyze complex financial
- fraud investigation, rehab

Stop or reduce noncancellable policies

More reinsurance to reduce volatility

Rating and renewal actions on problem segments,

- e.g., premium surcharge for California and Florida
- Load for physicians

Contract/Plan Changes

- MN limitations
- No lifetime sickness
- Reduce offering of extended own occ period
- Decrease monthly benefit maximum
- Eliminate or reduce COLA
- Increase EP

(b)

Manual Rate

= Incidence Rate* Reserve Factor/12

# Solution 16 (continued)

Incidence Rates
Old = 7.23 per 1000 lives
New = 120% * 7.23 = 8.676

Termination Rates

Old termination rates = expected termination rates

| | Year 1: | Year 2: | Year 3: |
|---|---|---|---|
| Termination rate | 0.43 | 0.28 | 0.16 |
| Continuance Rate | 0.570 | 0.410 | 0.345 |

New termination rates = 110% * expected termination rates

| | Year 1: | Year 2: | Year 3: |
|---|---|---|---|
| Termination rate | 0.473 | 0.308 | 0.176 |
| Continuance Rate | 0.527 | 0.365 | 0.300 |

Reserves = Sum(t)[ (Benefit(t) * v(t) * c(x,g,e,t)]

Old Reserves = 12 * (0.57/1.05 + 0.41/1.05^2 + 0.345/1.05^3)
= 14.553

New Reserves = 12 * (0.527/1.05 + 0.365/1.05^2 + 0.3/1.05^3)
= 13.105

Old Manual Rate = 7.23/1000 * 14.553 / 12
= 0.00877

New Manual Rate =8.676/1000 * 13.105 / 12
= 0.00947

So the desired rate adjustment for age 42 is
0.00947/0.00877 = 1.08

Meaning: the rate should be increased by 8%.

# Solution 17

(a)

Employer Cost = Claims Cost + Expenses and Taxes + Credits - Prices

| | |
|---|---|
| A no dep | $175 x 1.15 + 400 - 290 = 311.25 x 175 (employees) = $54,469 |
| A dep | $350 x 1.15 + 700 - 575 = 527.50 x 75 (employees) = $39,563 |
| B no dep | $420 x 1.15 + 400 - 465 = 418 x 150 (employees) = $62,700 |
| B dep | $945 x 1.15 + 700 - 1045 = 741.75 x 200 (employees) = $148,350 |
| Total | 54,469 + 39,563 + 62,700 + 148,350 = $305,082 |

Employee Cost = Prices - Credits

| | |
|---|---|
| A no dep | $290 - 400 = -110 x 175 (employees) = -$19,250 |
| A dep | $575 - 700 = -125 x 75 (employees) = -$9,375 |
| B no dep | $465 - 400 = 65 x 150 (employees) = $9,750 |
| B dep | $1,045 - 700 = 345 x 200 (employees) = $69,000 |
| Total | -19,250 - 9,375 + 9,750 + 69,000 = $50,125 |

(b)

Family Credit
Credits for all employees set so that no one is disadvantaged
Most costly option is B dep where current cost is $345
New price tag for B dep will be $1,045 x 1.10 (trend) = $1,149.50
Credits for all employees = $1,149.50 - 345 = $805

Average Credit
Credits for all employees set so that the employer's total cost does not change
Employer cost in new year = $305,082 (from a)) x 1.10 (trend) = $335,590
Credits for all employees = $335,590 / 600 = $559

(c)

Winners and Losers

| | Current Employee Cost | Family Credit Employee Cost | Winner/Loser |
|---|---|---|---|
| A no dep | -$110 | $290 x 1.10 - 805 = -$486 | Winner |
| A dep | -$125 | $575 x 1.10 - 805 = -$172 | Winner |
| B no dep | $65 | $465 x 1.10 - 805 = -$293 | Winner |
| B dep | $345 | $1,045 x 1.10 - 805 = $345 | Neutral |

## Solution 17 (continued)

| | Current Employee Cost | Average Credit Employee Cost | Winner/Loser |
|---|---|---|---|
| A no dep | -$110 | $290 x 1.10 - 559 = -$240 | Winner |
| A dep | -$125 | $575 x 1.10 - 559 = $73 | Loser |
| B no dep | $65 | $465 x 1.10 - 559 = -$48 | Winner |
| B dep | $345 | $1,045 x 1.10 - 559 = $590 | Loser |

(d)

What broad organization goals should be reflected in the pricing and credit structure?

- will surface attitudes towards benefit value equity
- concerns about competitive position may also arise
- concerns about employee recruitment and total cost

What are the objectives of the flex benefits program?

- realistic prices enhance the employees' appreciation of benefit value
- if immediate cost containment is a goal, no additional cost is key (so family credit structure likely not a viable option)

What is the current employee mood or morale?

- having a large number of losers (average credit strategy) may not be acceptable

# Solution 18

Underwriting

Individual:

- long-form questionnaire, medical exam, APS, telephone interview to verify questionnaire responses
- possibly simplified issue for multi-life groups.
- may alter plan if too risky or may deny the applicant

Group:

- guaranteed issue if actively at work full-time
- short-form questionnaire for spouses; long form for other relatives and retirees.
- either accept or reject

Tax

Individual:

- premium is tax deductible if greater than 7.5% of AGI
- benefits received tax-free
- Revenue Canada has not ruled on whether LTC premiums are qualified medical expenses

Group:

- HIPAA indicates that 2 or more ADL's or cognitive impairment (CI) to be qualified
- loss of two or more ADLs, or CI expected to last 90 days or more.
- if a qualified plan, premium deductible to ER and EE; ER contrib not taxable to EE, and benefits received are tax-free

Plan Design

Group and individual LTC - distinctions are blurring.

Premium waiver provision common

Individual:

- covers nursing home, home health, adult day care, assisted living facilities and other benefits
- provisions for:
  - maximum benefit period (e.g., to age 65 or a dollar limit). But ILTC usu. unlimited ben period.
  - inflation protection: indexed or flat amount. Most policies have some form of inflation protection.
  - issue age rated: ILTC (and GLTC) are issue age rated. Most states prohibit attained age rating.

## Solution 18 (Continued)

- exclusions: war, suicide, mental health, drug and alcohol abuse, pre-existing conditions
- elimination period, 90 days is common; no differences between GLTC and ILTC
- daily limits, with full flexibility and daily maximum for ALF and home health care can be 100% of nursing care limit
- no death benefits

Group:

- covered services are more than individual, and also include respite care, caregiver training independent support services, care management programs and hospice care
- ben period usu. 4-6 years.
- usually no spousal riders
- exclusions similar between GLTC and ILTC; and similar between US & Canada
- conversion benefits, possibly with higher premiums
- some provisions are restricted compared to individual
- daily limit for ALF and home health care usually 50%-70% of nursing care limit

Benefit Triggers

- similar for group and individual
- usually at least 2 ADL's or cognitive impairment
- old policies based on medical necessity or 3-day hospital stay

Market Receptivity

- LTC products are not very common in Canada since hospital and some LTC treatments are covered by the provincial health insurance system
- consequently, there is less of a perceived need for this product in Canada than in the US
- LTC may become more popular in Canada as the provincial plans are cutting back some coverages
- GLTC has been more difficult to sell than ILTC; ILTC larger in premium and insured lives however, the group business is growing

# Solution 19

(i) Morbidity

Lifetime Loss Ratio = PV Claims / PV Premium

Test: 68,948 / 115,494 = 59.7%
Actual: 430,517 / 711,522 = 60.5%

very close. Possible reasons why:
benefits are limited under "indemnity" structure
underwriting expense controlled via accept/reject, or short form/simplified u/w

Persistency:

- The lapses of actual higher than test
- could mean problem if unable to recover initial expenses
- could be because of lower average age in actual population
- need to consider lapse by age, gender, smoking status
- could have anti-selection issues (response rate, average age)
- may be due to simplified underwriting

Demographic distribution of actual in-force resulted in lower average premium (when compared to the test launch)

(ii)

Need to distinguish between and monitor initial and non-initial fixed and variable expenses

Fixed Expense

Split between initial and ongoing.

Initial fixed includes expenses that do not vary with the number of new policies issued, but are related to new policy issue. E.g., salaries of marketing staff.

Ongoing fixed expense would include things like actuarial dept., legal, HR.

Variable Expense

## Solution 19 (continued)

Also split between initial and ongoing.

Initial: would be anything directly related to policy acquisition, e.g., commission.
non-initial: include claim admin, customer service.

As a % of premium:

| | Test | Actual |
|---|---|---|
| Admin | 24,122 / 115,494 = 20.9% | 197,731 / 711,552 = 27.8% |
| Commissions | 3,416 / 115,494 = 2.96% | 37,517 / 711,552 = 5.27% |
| Marketing | 7,458 / 115,494 = 6.46% | 86,569 / 711,552 = 12% |
| Sum | 34,995 / 115,494 = 30.3% | 321,817 / 711,552 = 45.2% |

All actual expenses are higher than test.

May be due to:

- lower response rate
- higher lapse
- higher commissions (may have 1st year commission too high relative to following years. Therefore, no incentive to keep business or may have incentive to churn business.
- Rule of 5 violated – sample test mailing < 5x actual mailing.

(iii)

PV (Free earnings released in test ) > actual
4,173 > -74,147

Profit Margin = 1 – V – mkt / prem

test = 1 – (68,948 – 24,122 – 3,416 – 7,458) / 115,494 = 10%
actual = 1 – (430,517 – 197,731 – 37,517) / 711,552 = – 5%

Other measures of profit:
GAAP ROE (GAAP income/GAAP surplus);
Stat ROE (Stat income/Stat surplus);
IRR of stat profit

# Solution 20

(a)

| | 2001 | 2002 |
|---|---|---|
| Aggregate Attachment Point | (125%)($380) = $475 | (125%)($400) = $500 |
| Expected Annual Attachment | ($475)(6,000) = $2,850,000 | ($500)(6,000) = $3,000,000 |
| Minimum Attachment Point | (95%)($2,850,000) = $2,707,500 | (95%)($3,000,000) = $2,850,000 |
| | | |
| Specific Stop Loss Reimbursements | $10,000 + $30,000 + $100,000 = $140,000 | $50,000 + $450,000 = $500,000 |
| Eligible Aggregate Loss | $2,800,000 – $140,000 = $2,660,000 | $3,500,000 – $500,000 = $3,000,000 |
| Aggregate Attachment Points | $2,802,500 | $2,850,000 |
| Aggregate Reimbursements | $0 | $150,000 |
| Total Stop Loss Reimbursements | $140,000 | $650,000 |

(b)

| | 2001 | 2002 |
|---|---|---|
| Specific Stop Loss Reimbursements | $140,000 | $500,000 |
| Aggregate Specific Stop Loss | $140,000 – $100,000 = $40,000 | $500,000 – $100,000 = $400,000 |

(c)

- useful to avoid nuisance claims
- introduced to mitigate the effect of rate increase
- saves costs (lower expenses)
- used in lieu of lasering

## Solution 20 (continued)

(d)

- persons 1 and 2 are closed
- person 4 is closed but may want to investigate further
- person 3 is still open and should be investigated (request attending physician statement)

The alternatives are:

- rate up the plan
- laser the individual
- exclude the known loss from coverage

# Solution 21

(a)

Plan elements that can be used to contain costs include:

Benefit percentage
- Common amounts are 50%, 60%, 66 2/3% or 70%
- Limit to lower amount in order to provide incentive to return to work

Maximum Benefit
Dollar limit on monthly benefit
Common limits are $5000 or $6000 per month

Elimination period
Longer elim period decreases cost and administration of short duration claims

Benefit duration
- Can limit to as little as 2 years
- Most common to pay to age 65

Definition of disability
- Use any occ rather than own occ to contain costs
- Alternative might be 2 yr own occ, any occ thereafter
- Providing partial disability or rehab benefits can help encourage return to work

Integration with other sources of disability income
- Such as SSDI, state disability plans, workers comp
- Either direct integration or all-source integration

COLA
- Limit availability of COLA
- Either don't offer at all or don't begin indexing until x years after disability begins

Eligibility
- Require new employees to have a waiting period before being eligible

Exclusions & Limitations
- Pre-existing condition exclusion
- Exclusion for suicide, war, riot, insurrection, etc.
- Limited benefits for mental & nervous

## Solution 21 (continued)

(b)

Pros

Avoid premium taxes, thus cost saving
May be able to achieve lower administrative, risk/retention charges
Flexibility-sponsor can design plan to fit their needs, not taking insurers standard plan
Claims management-sponsor may be able to achieve lower claims administration costs via third party vendor
Cash flow-sponsor holds reserves for plan and may be able to improve cash flows
Investment income-sponsor keeps interest on plan reserves

Cons

No transfer of risk-sponsor is liable for cost overruns
Variable cash flows (claims pay'ts & reserves) hard to budget
Sponsor must handle administration of plan, make sure that third parties work together effectively
Legal liability-sponsor may be liable for plan actions

(c)

Quota share (aka proportional)

Pays a portion of the claim in return for a portion of the premium & same retention to reinsurer
Transfers a considerable amount of risk
Appropriate for smaller blocks of business

Excess

Dollar excess
Durational excess
Can be specific or aggregate
More appropriate for larger blocks of business

Considerations

Allows plan sponsor access to reinsurer's expertise in pricing and underwriting

(d)

FAS 112 is intended to cover employment benefits paid after employment ends and before retirement

FAS 112 covers long-term disability income and health benefits
GLTD benefits are terminally accrued under FAS 112
GLTD benefits do not meet all the conditions of FAS 43

## Solution 21 (continued)

GLTD benefits are valued under the rules of FAS 5:

Information available prior to the issuance of the financial statements indicates that it is probable that an asset has been impaired or a liability has been incurred at the date of the financial statement.

The amount of loss can be reasonably estimated