Institute of Actuaries of India

Subject ST1 – Health and Care Insurance

March 2018 Examination

INDICATIVE SOLUTION

Solution 1:

i) The special terms that might be offered are:

1. Higher premium – Premium for the base policy can be increased to reflect the additional risk from the applicant.
2. Lower benefit – If additional premium is not preferred by the applicant, reduction in benefit amount can be done to reduce the risk.
3. Exclusion of specified perils – Perils arising from mental health condition can be excluded for the term of the policy or for a specified initial period.
4. Postponement of decision to a later date – Insurer can postpone the decision about accepting the risk to a later date when the risk will be reassessed.
5. Offering a different type of policy – A less risk intensive policy may be offered.
6. Decline the applicant – Application can be declined if risk is unacceptable.

[3]

ii)

1. Higher premium
   – Applicant might be prepared to pay a higher premium for the cover.
   – Depending on the extra premium charged, the cover might become unaffordable for the applicant.

2. Lower Benefit
   – If premium loading is very high and unaffordable, applicant might be willing to accept lower benefit.
   - The lower benefit might not meet the financial needs of applicant.

3. Exclusion
   – This may be acceptable to the applicant since he would be aware about not getting this condition covered.
   - The available cover might not meet the protection need of applicant.

4. Postponement
– Applicant hopeful of getting cover in future if his condition improves.
- Cover is not available when the applicant needs it most.

5. Different policy
– This might be acceptable to applicant if medical condition is expected to improve soon so they may then switch.
- The applicant gets a cover which might not meet his protection needs.

6. Decline
– This might bring bad publicity for the company.
- In some cases this might be most appropriate if risk is assessed to be too high to be accepted.

[6]

iii) Under moratorium underwriting, all applications are accepted automatically at ordinary rates.

Instead of initial formal underwriting, blanket exclusions apply for medical conditions that existed during a pre-specified period prior to policy inception.

but will then cover these conditions if no treatment, symptoms or advice takes place for a pre-specified period after first taking out the policy,

or after receiving further treatment.

The insurer is on immediate risk for all other conditions.

[2]

iv) Advantages:

1. Saves underwriting time, hence applicant gets immediate cover.
2. Reduced anti-selection.
3. Increased marketability from no initial underwriting.
4. Savings in cost of underwriting.
5. Competitive premiums, increased sales volumes, increased profits.

Disadvantages:

1. Claims underwriting will be time-consuming and might get complicated.
2. Delayed claims acceptance may delay income payouts, hence dissatisfy customers.
3. It might be difficult to establish that a claim has occurred due to pre-existing condition.
4. This might result in more claim payouts than expected.
5. Difficult for policyholder to understand as to what is covered and what is not in their policy.
6. Rejection of claims due to pre-existing conditions might lead to bad reputation.
7. Risk of bad reputation from rejected claims if other insurers do not use this approach.
8. Other popular products available with the insurer might use a different approach to underwriting and this might become difficult to manage for company.
9. Policyholders may still select against the insurer if they are aware of pre-existing conditions at the time of purchase of cover, but there is no written evidence.

[5]

[16 Marks]

Solution 2:

i) The data required is as below:

1. Exposure data – Number of policies in force during the investigation period
2. Number of withdrawals during each period in investigation period

Subdivisions would be required as below –

1. Product
2. Age
3. Channel
4. Duration
5. Sales channel
6. Premium size
7. Mode of premium payment
8. Premium payment frequency
9. Policy term
10. Choice of fund
11. Premium payment term

[3]

ii) Use of analysis-

1. Assumption setting for future pricing, valuation etc
2. Compare actual experience versus expected.
3. Can be used to re-price existing products if experience is different from assumptions.
4. To calculate profit/loss from persistency experience.
5. Can provide a check on data and policy movements.
6. Can be used to review sales process.
7. Can be used to assess performance of different sales channels.
8. Can be used to compare performance of company against other industry players.

[3]

iii) Following factors might make results of current persistency analysis not useful in future:

1. Changed economic environment – for example, a decrease in income levels might reduce persistency rates and vice versa.
2. Medical inflation might make cover amount insufficient leading to increased lapses.
3. Increase in Government-provided benefits might lead to more lapses.
4. Commercial reasons – If competitors introduce better products then policyholder might shift to them.
5. Publicity about industry might impact overall persistency rates.

6. Internal factors of the company like good or bad performance might impact persistency rates.
7. Future new business might be different from past like commission, sales channel, target market, sale practices, surrender penalties etc.
8. Product design might have changed.
9. New laws or legislations might impact persistency.

[4]

[10 Marks]

Solution 3:

i) Wellness programme benefits –

1. Improved claims experience from improved health of policyholders.
2. Reduced anti-selection as policyholders will want to take advantage of the wellness benefits.
3. Reputation of insurer might improve due to association with Government.
4. Enhanced brand value and increased sales volumes.
5. Association with government could give access to more relevant data like population data.
6. Cross-selling opportunities.
7. Opportunity to get associated with agencies offering wellness benefits.
8. Gives competitive advantage to the growing insurer.

[3]

ii) Attractive to potential policyholders –

1. Policyholders would get access to free advice and better health.
2. May find travel and entertainment rewards appealing.
3. Plan might be cost effective if sold on large scale.
4. Attractive option of lower future premiums.
5. Innovative plan so might look appealing.
6. Policyholder might be able to have more trust in the company due to association with the government.
7. There might be tax incentives as product is supported by government.

[3]

[6 Marks]

Solution 4:

i) Possible advantages and disadvantages/risk to the insurer –

Advantages –

1. Might result in increased volumes and profits.

2. Might reduce per policy expenses due to increased volumes and lesser sales force required and thus might make products cheaper.
3. Larger customer base as the supermarket chain is leading one with greater brand awareness.
4. Might also give company the chance to cross sell other products to same customers in the long run.
5. Would give access to target market not otherwise available to insurer.
6. Less labour intensive so more efficient way of selling than agents and brokers.
7. Lower commission is likely to be paid as less advice will be given at sale point, This would help the company in negotiating better commissions with agents and brokers.
8. Customers buying through supermarket might be less sensitive to price and hence may not mind paying higher price for this exclusive deal where they are getting to buy insurance from their trusted supermarket.
9. Provides diversification of sales channel.
10. Provides competitive edge.
11. Build reputation leading to higher sales in future as well and of other products also.
12. Might result in better persistency since customer would be buying the policy from the trusted supermarket.
13. Better persistency as customers are expected to be more sure about their purchase since there is no agent or broker pressure on them to buy the policy.

Disadvantages –

1. Uncertain and possibly high cost of setting up this new channel.
2. Supermarket may demand higher commission and fees.
3. Actual sales volume might not be sufficient to cover the cost.
4. Might be difficult to sell without advisor and lengthy explanations.
5. Website may be poorly designed so not understandable clearly by prospects.
6. Persistency might be poor due to products being sold without much explanations.
7. Claim experience might be worse than expected.
8. Products may need to be redesigned or simplified to meet new channels' need.
9. High anti-selection, especially in respect of lives where further underwriting is not performed.

10. Increase in counter party risk for example delays in supermarket chain supplying required new business data and / or payments.
11. There might be pressure on insurer to pay disputed claims and to improve customer service standards.
12. Might upset other channels.
13. Deal is exclusive with minimum period of 3 years. In case of losses from this channel, it would be difficult for insurer to switch or close down operations from this supermarket chain.

[12]

ii) Ways to reduce risks highlighted -

1. Analysis of cost should be done beforehand to understand profitability of this business
2. Commission and fees should be negotiated in advance and break even analysis should be performed to understand likely sales volume and overall profitability.
3. Further, it should be ensured that commission and fees should not be more than that paid to existing channels so as to not upset existing sales volume from these channels.
4. Market research should be performed beforehand to understand likely sales volume from this channel.
5. Mock sales pitch, customer surveys, contests etc would help in analysis.
6. Data can also be collected from supermarket beforehand for understanding the customer base and likelihood of sale.
7. Ensure that website is robust and well supported by IT. Mock runs with dummy prospective customers can be done for this.
8. Product design can be simplified for better persistency since it will enable the customer to understand the product better.
9. Experience monitoring should be done regularly
10. Product design could be so as to reduce claims costs. Features that can be built in product for this purpose are - no claim discounts, benefit limits and appropriate exclusions.
11. Reinsurance can also be used.
12. Simplified version of existing products should be worked on

13. Moratorium underwriting or tele-underwriting might be used for this channel.
14. Counterparty risks of delay can be avoided by having carefully worded agreements with respect to timelines, process and system. Also, penalties in case of non-compliance can be defined clearly.
15. Limit new business volume from this channel so that sales are well diversified from various channels. This would help in limiting the loss in case of payouts for disputed claims.
16. Good relationship with existing channels should be maintained to avoid adverse effect on them.
17. If needed, contests for existing channel can be organized to maintain sales volume from existing channels.
18. Clause in respect of minimum number of policies sold, service standards, data collection etc. should be put along with clear specification for exit option from the deal in respect of each of these parameters.
19. Regular monitoring should also be performed for all above risks so as to introduce corrective action as and when needed. This would help in containing likely losses during the lock-in period.
20. Further, market research coupled with thorough analysis on benefits to be gained by insurer after sales can lead to profitability.

[6]

[18 Marks]

Solution 5:

i) The areas that can be covered in the questionnaire are:

a) General Information:

1. Name of the Company
2. Year of establishment
3. Business authorised to write
4. Level of business volume
5. Current Market share of the Company
6. Time since the launch of Individual CI
7. Current benefit structure of Individual CI; illnesses covered etc.
8. Proportion of Individual CI in the business volume
9. Importance of CI in the current and future business plans.

[2]

b) Approach to Underwriting

1. Is there a board approved Underwriting policy for the product?
2. How often the Underwriting Policy is reviewed
3. Approach to Underwriting; Full Underwriting, declaration of good health or any other variant
4. Non-Medical limit under the product
5. The Sum-Assured & age based Medical grid; i.e. medical tests prescribed at each SA & age combination.
6. Use of Genetic test (if any)
7. Waiting Period requirement.
8. Treatment of Pre Existing conditions
9. The rating factors used in the underwriting
10. Treatment of the substandard Life:
    a) Higher premium rates
    b) Low coverage, exclusions etc.
11. Requirement to inform about the:
    a) Change in profession
    b) Change in address
    c) Overseas travel etc.
12. Options available under the policy
13. Underwriting requirements if option is exercised, e.g. if policyholder opts for indexation of SA, will he/she have to undergo complete health check-up etc.
14. Assistance of Reinsurance in Underwriting; is there an automatic reference to reinsurance for cases above the retention limit
15. Exclusions: Suicide, Hazardous sports, Pre-existing condition etc.

[4]

c) Assumption Setting: The information regarding the assumption setting approach can be captured under the following

General

1. How often the assumptions used in Pricing are reviewed;
2. Validation checks on the data used for the assumption-setting;
3. If there is a standard document on the assumption-setting methodology;
4. Is there an assumption-setting committee for the approval and sign-off of the assumptions;
5. Does the Company test the impact of small change in the assumption on profitability;
6. Allowance of correlation between different assumptions;
7. Consistency between different assumptions; for e.g. Interest rate, discount rate & inflation rate;

8. Does Company allow for margin for adverse deviation (MAD) in assumptions while pricing;

Morbidity /Mortality

1. The data used for Morbidity assumption (internal or external)
2. Which external data is used for the assumption setting
    a) Reinsurer data
    b) Consultant data
    c) National Health Statistics
    d) Overseas data
3. How much weight is assigned to the own experience in comparison to external data (Credibility factor)
4. How many years of past experience is used to arrive at the average experience
5. The factors used for the sub division of the analysis
    a) Channel
    b) Smoker Status
    c) Gender
    d) Age
    e) Benefit Level
6. Adjustments done to the own data for e.g. pertaining to
    a) change in the underwriting practices
    b) change in the benefit definition
    c) Approach to sales
    d) Claims Management
7. Is the experience analysis is done separately by the Illnesses
8. How does the company allow for the trends in illness incidence for e.g.
    a) Advancement in the medical technology.
    b) Increase in the use of diagnostic test.
    c) Emergence of new disease & its impact on the morbidity
9. How the company arrives at Margin for Adverse deviation.

Lapse

1. The data used for lapse assumption setting
2. How many years of past experience is used to arrive at the average experience
3. The factors used for the sub division of the analysis
    a) Geographical Location
    b) Duration In Force
    c) Channel; Online/Direct/DSF etc.
    d) Benefit Level
    e) Frequency of Premium Payment
4. Allowance for the reinstatement experience.

5. Allowance for the selective lapses
6. How the company arrives at Margin for Adverse deviation.
7. Is there an allowance made for the dynamic policyholder's behaviour, if yes, is it done stochastically or deterministically.

Expense Assumptions:

1. What are the levers of expense assumption; by APE, Per Policy, By Sum Assured or a combination of the above
2. What is the treatment of One Off Cost in the Expense Assumption
3. Treatment of the Overheads or indirect expenses
4. How does the Company allows for the Expense inflation;
5. Treatment of Investment Expense; Explicitly or by reduction of yield
6. How the expense assumption allows for future business volumes.
7. How the company does arrives at the Margin for Adverse deviation.
8. The impact of cross subsidization (if any) on the expense assumptions.

[8]

d) Profit Criterion

1. How does the company arrives at the applicable profit criterion
2. How is the Shareholder's expected return on Capital arrived at
3. What is the Capital structure of the company (Debt/ Equity/Loan)
4. Is a Weighted average Cost of Capital is employed.
5. If it is a public/listed & equity is a source of capital then how is the cost of equity arrived at.
6. The allowance for tax in the Profit Criterion.
7. Allowance for the cost of statutory capital.
8. The level of cross subsidization between different product and its impact on the profit criterion.

[2]

ii) Some of the challenges that may come in the entire project could be as follows:

Obtaining the information

1. The Insurance companies may have problems in sharing sensitive information with the consulting firm.
    i. There might be concerns regarding the security of the information shared.
    ii. Sharing such detail may expose the shortcomings of the processes and invite further scrutiny.
    iii. May not want to share information regarding Profit Criterion.
    iv. The study done by consulting firm may not be analytical enough to be useful to contributors.

v. The results are not made available in a timely manner so may not be relevant to contributors.
vi. Risk of consulting firm retaining the information even after completion of project.
vii. Risk of consulting firm selling some sensitive information to competitors.
viii. Risk of consulting firm sharing results of study with others.
ix. The contributors could lose competitive edge once information is available to others.

2. There may be a significant amount of time spent by consulting firm in getting adequate number of contributors, possibly making the results redundant.

Drawing the conclusion

1. The Product structure & hence the approach to Pricing and Assumptions may be very different across Companies. It might therefore, be difficult to arrive at an average industry approach.
2. There may be variation owing to different Product strategies and Risk appetite of each Company and it may be hard to allow for such variation in the comparison.
3. There may be significant variation in the format in which information is shared by the insurers and drawing any sensible conclusion by collating the information may be difficult.
4. The results may prove out-dated if there are delays in completion of study.
5. In case of inadequate contributors to study, the results may not be useful for contributors in knowing where they stand.

[4]

[20 Marks]

Solution 6:

i) Possible reasons for increase in claims outgo may be as follows:

The increasing trend might be specific to the company and may be due to the following reasons:

1. Increase in the number of claims may be due to increase in business volume in the recent years; i.e. the claims rate as a percentage of business may not have changed
2. Or there may have been changes in the cover provided (e.g. an expansion of the illnesses covered)
3. Weak underwriting standards; therefore anti-selection against the company
4. Lack of training amongst the intermediaries
5. Cover may be issued on declaration of good health without full underwriting
6. Loosely defined benefit definition
7. The number of exclusions may be have been reduced
8. Less control over the third parties involved in the process

9. An increase in fraudulent claims
10. Weak Claims control Management
11. Pre-Existing definition may be covered
12. High free cover limit under the group variant.
13. Change in the business mix; concentration of Risk by geographical area, Smoker Status, Occupation, Gender etc.
14. Insufficient price differentiation for different rating factors for e.g. same rates for smoker and non-smoker attracting riskier lives.

Alternatively, this might be an industry wide trend and all the other insurance players might have seen an increasing trend due to:

1. Greater awareness amongst the customers regarding the benefit entitlements against the policy
2. Medical advancement may have made certain treatment possible which were not earlier possible
3. Early discovery of illness due to prevalent diagnostics.
4. Change in the lifestyle patterns leading to higher claims for e.g. sedentary lifestyle leading to more heart related claims etc.
5. A temporary increase in the mortality for accelerated CI owing to factors such as outbreak of any disease/Natural calamity

[4]

ii) Ways in which the new claims administration system can help in controlling the claims outgo

1. The process of claims recording and verification may become easier & faster
2. May be easier to detect any fraudulent claims
3. New system may provide better automated checks to ensure that benefit claimed are as per the policy conditions
4. Easier to enforce any claims restrictions like Maximum benefit limit, policy excess etc.
5. Easier to enforce any cost sharing mechanism such as NCD, Coinsurance, deductibles etc.
6. Easy analysis of trends by claims incidence/geographical area/channel etc.
7. Would be easier to take corrective action in time
8. Would be easier to train the staff on a standardized automated software
9. Would help in systematic recording of data that can be used for assumption setting and other analyses in future.
10. May help in obtaining favourable rates from the reinsurance due to advance claims management processes
11. Reduced chances of fraud

[5]

iii)

1. Reaction of this change from the sales force has to be taken into account. View of sales channel on this proposal must be considered
2. There may be need to change systems and processes
3. Training of claims staff on the updated processes may be required
4. It may not be bepossible to make changes in claims process in existing contracts as per the terms and conditions of the contract.
5. Need to check if any regulatory approvals are required before making changes to the existing contracts
6. There must be clear communication to all existing policyholders on the changes.
7. There is a reputational risk to the Company if too many claims are declined due to stricter claims process.
8. Hence, it may only be reasonable to apply the changes to new policies sold and not to the existing contracts.
9. Need to ensure that new products have a clear policy terms and conditions to avoid any conflicts at the claim stage.
10. Tighter claims process may result in lower claim cost both in terms of reduced claims incidence and claims outgo
11. Benefit of reduced claims cost may be passed on to customer by reducing premiums.
12. This may counter the negative impact of this proposal on sales and may help in boosting sales.
13. Tighter claims management process may also help Company to get reinsurance at a cheaper cost due to increase in confidence of Reinsurer on claims processes of the Company.
14. Due to better claims process, Company can reduce the Margin for Adverse deviation in Reserve estimation and hence hold lower reserves.

[5]

iv) Some of possible reasons for increase in the IBNR Claims can be listed as follows:

1. Increase in the awareness regarding health Insurance cover & the illnesses covered under the policies.
2. Regulatory guidelines requiring the company to investigate and settle cases with delayed reporting beyond permissible delay.
3. Voluntary drive undertaken by the company to identify & settle possible IBNR cases to position itself as a customer friendly company.
4. Company may have adopted very strict claims underwriting in the period relating to these IBNR claims, or been less stringent in claims scrutiny recently, encouraging the policyholders to try and claim now, even for benefits not covered under the policy.
5. Increased involvement of sales intermediaries with their clients, resulting in client realising they are covered for a particular disease and hence, claiming in retrospect.

6. Court settlements of claims in past in favour of the claimants may have set precedence for others to try and avail benefits which were not seen to be available under the CI.
7. For Group version of the product, higher IBNR claims might be due to delay in reporting of claims from the employer.
8. Operational issues like late updation of claims on admin systems, errors in claims data e.g. incorrect reporting date/claim date might have resulted in inaccurate reporting of past incurred claims. Identification and rectification of such issues now may have caused an increase in claims

[4]

v)

1. Company would need to assess whether this increase is temporary or due to factors which have caused a permanent increase in delay pattern.
2. If the increase in claims is caused by one off events, the effect may subside over next couple of months and hence the issue can be addressed by keeping an interim short term provision.
3. If there is a permanent increase in the delay pattern, Company needs revisit its IBNR claims reserves. IBNR reserve adequacy test would need to be performed for last 3-4 years to see whether reserves kept have been adequate to meet the IBNR claims outgo.
4. Based on the outcome of test, company may need to revise its IBNR reserve to reflect the increase in delay pattern.
5. Regular audits of Claims administration systems to avoid operational issues like incorrect claims reporting etc.
6. Clear policy T&C wordings and simple claims definition to ensure customers are clear on which conditions are covered and when at what stage they should claim.
7. Regular communications with customer to get an idea of their current health status and to make them aware of the claims conditions covered by the policy

[2]

[20 Marks]

Solution 7:

i) General

The investment should be made in assets that are appropriate to the nature, term and currency of the liabilities.

Other factors that is required to be taken into account:

1. Return (Income as well as Capital gain)
2. Security
3. Marketability
4. Volatility
5. Liquidity
6. Should allow for any Regulatory framework

The suitable assets for each product line could be selected taking into account following consideration:

Product Specific –

PMI

1. The amount of Reserve in PMI is low and therefore, investment return may not be very important criteria here.
2. Short term contracts and therefore, security, liquidity and marketability would be desirable.
3. Since PMI is indemnity based & prone to inflationary influences therefore, short term Index linked securities may be a suitable match to offer some protection against expense inflation.
4. Index linked gilts and Money market instrument are likely to be suitable due to high liquidity and marketability

Income Protection

1. Due to the long term nature of liabilities, investment is long term bonds would be desirable
2. Protection from inflation is required and therefore, a combination of index linked securities, both government and high rated corporate bonds may be suitable.
3. The index should closely replicate the benefit escalation rate
4. Investment on Corporate bonds should be in secured debt securities
5. Investment can be made for different duration; subject to the duration of the liabilities
6. Some portion should be invested in Money Market securities (cash based) to meet the regular expense outgo.
7. Some exposure into equity may be acceptable to achieve higher returns, but it needs to be closely monitored

Long term Care Insurance

1. Reserves are significant and hence, investment return would be important.
2. To serve long term care needs and hence, security is important.
3. A combination of government and high rate secure corporate bonds may be suitable.
4. Investment in index linked security may help meet the inflation in the cost of care.
5. Some exposure into equity (depending of the level of free surplus available with the company) may be acceptable to achieve higher returns, but it needs to be closely monitored
6. Some portion should be invested in Money Market (cash based) securities to meet the regular expense outgo.

[6]

ii) Areas that may be covered in the ALM report

1. Past period reports on ALM position
2. Current asset composition by different lines of business.
3. Money weighted and time weighted return for each asset class & fund class
4. The change in the asset mix in the recent years & the reasons for the change
5. Details of assets sold and purchased during last one year and its impact on the Asset duration
6. Presentation of Asset and liabilities cash-flows by different term to maturity for e.g. 0-2 years 3-5 years, 6-8 years etc. for each fund
7. Presentation of the Duration/DMT of Asset and liabilities
8. Comparison of ALM position over last one year along with reasons for any significant changes
9. The impact of different sensitivities on the ALM position of the company
    - Change in the interest rate
    - Change in the asset composition
    - Change in Demographic assumptions like discontinuance, morbidity etc.
10. The impact of future NB on the ALM position of the company
11. Sensitivities on new business volumes
12. Reinvestment scenarios at different investment rates
13. Investment recommendations to bridge the gap between asset and liabilities
14. ALM numbers can be reported on both Best estimate and prudent basis

[4]

[10 Marks]

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