Institute of Actuaries of India

Subject SA1– Health and Care

July 2022 Examination

INDICATIVE SOLUTION

Introduction

The indicative solution has been written by the Examiners with the aim of helping candidates. The solutions given are only indicative. It is realized that there could be other points as valid answers and examiner have given credit for any alternative approach or interpretation which they consider to be reasonable.

Solution 1:

i) An increase in the number of claims:
The increase in the number of claims being declined could simply be due to an increase in the number of claims being made during the period being considered. [½]
This could just be as a result of increasing volumes of CI business on the insurer's books, eg in response to successful marketing initiatives. [½]
Alternatively (or additionally) increased numbers of claims could be due to, for example: a maturing book of business, the effect of initial underwriting wears off as policies increase in duration, and so overall claims would increase [½]
an adverse change in mix of business, eg an increase in the average age of policyholders would lead to there being more claims [½]
a general increasing trend in critical illness incidence, eg as a result of medical advances or early diagnosis of diseases. [½]
However, as well as the absolute number of claims, the proportion of claims that are declined should also be considered. [½]
Improved claims control:
An increase in the proportion of claims being declined could be as a result of improvements in the claim control process (eg as a result of using more experienced staff), ... [½]
... leading to a reduction in the number (or proportion) of invalid claims being paid [½]
Claims that are not valid
More policyholders may be trying to claim for conditions that they are not entitled to because they do not understand exactly what the policy is covering. [½]
This may be because:
the precise cover was not explained properly when the policy was sold [½]
the policyholder was misled into buying a CI policy, thinking it would cover more than it actually does [½]
the policy wording is not clear enough for the policyholder to understand exactly what is covered [½]
the policy conditions might have changed, and so the claim type is no longer valid [½]
the policyholder has simply forgotten what the policy covers, and so will try to claim anyway. [½]
A new disease may have emerged that is not covered by the policy but because the policyholder considers it to be critical they may try to claim. [½]
There may be cases where the policyholder does, in fact, understand what is covered but they will try to claim anyway. [½]
This would be more likely if the insurer has a reputation for paying claims that do not quite meet the claim criteria, or if the policyholder has been encouraged to make such claims (eg by an unscrupulous broker). [½]
Some policyholders may even try to fraudulently claim for a condition that they don't actually have. [½]
An increase such claims may be more likely if economic conditions have deteriorated recently. [½]
Not eligible for cover / misrepresentation:
There may have been an increase in the number of policyholders that think they are entitled to cover, but it turns out that during the claim checking process that they have breached a condition of cover. [½]
The most common reason for this is where it is found that, when they purchased the policy, they did not disclose to the insurer a piece of medical evidence which would have affected the cover provided or premium charged. [½]
This non-disclosure (or misrepresentation) may be the result of:
poor selling practices, ie the seller not explaining to the customer the importance of disclosing all material facts [½]
the insurer not clearly asking for all the relevant information, eg on its application forms (or product literature) [½]
the policyholder not wishing to disclose something for fear that it will adversely affect the cover (or premiums), ie deliberate misrepresentation. [½]
There may be other changes that have arisen during the policy term, such as not keeping up to date with premium payments, that has made the cover invalid. [½]

[Max 10]

ii) Implications for the insurer

To the extent that the increase in declined claims is due to improvements in claims control, this (at first sight) is actually good news for the company. [½]

It means reduced claims costs, and if there is a reduction in the proportion of invalid claims being paid, it is more likely that cover will be as intended when premiums were calculated. [½]

Also, this will help the insurer to avoid getting a reputation for paying out claims unnecessarily. [½]

However, if a significant number of claims are being declined, many of those claimants will be expecting a claim payout, and so will be disappointed. [½]

Dealing with the complaints from these customers may cause additional administration and associated expenses for the insurer, ... [½]

... particularly as they should be dealt with carefully, using well-trained and sympathetic staff. [½]

There is a danger of building up a reputation for selling policies that do not pay out, and so in the long run people will be less willing to take out the insurer's CI products, thinking that the cover is worthless. This will lead to lower sales volumes. [1]

Brokers will also be upset if they have to be involved with disputed claims, and deal with the consequences (ie unhappy customers), ... [½]

... and so may be less willing to sell the insurer's products. [½]

Some disputed claims may subsequently be settled in favour of the customers (eg by the financial ombudsman). [½]

This will lead to more claims being paid than the insurer originally intended. [½]

If the increase in the number of declined claims is due to worsening claim incidence, then this has implications for the insurer's profitability and solvency. [½]

The increase in declined claims may be an indication that policies are not being sold appropriately. [½]

Hence, there may be higher than expected lapse rates due to policyholders realising that cover may not be suitable for their needs, and there may be further claim disputes in the future. [½]

[Max 7]

iii) Recommended analysis and actions

Carry out an analysis of the claims experience and exposure over the period of investigation to assess to what extent the increase in the declined claim figures have simply been due to an increase in the number of claims. [½]

The factors contributing to an increase in claim numbers (eg increasing business volumes or the maturing of the business, as mentioned in part (i) above) should be identified and quantified to assess how they compare with the assumptions that should have been made for them in the company's models eg for pricing or financial planning. [½]

If the increase in the number of declined claims has been in line with these assumptions, then this does not suggest that the increase is a cause of concern in itself (otherwise, further investigation needs to be made). [½]

However, there needs to be enough expert staff available to deal with declined claims, and so any action that can be taken to reduce the number of any unnecessary declined claims should be considered. [½]

Each declined claim should be investigated to assess the reason for the claim being declined. [½]

This will help to identify where there is the greatest cause for concern, and so where resources should first be targeted. [½]

At a high level (eg where claim conditions were not met or where there was misrepresentation), the reason should be readily identifiable from the claim records. [½]

However, it will be more difficult to assess the reason in more detail (eg where due to poor selling processes), and this may require subjective judgment. [½]

Investigate whether claims control has improved over the period and what impact this is expected to have had on the level of declined claims. [½]

For example, a recent sample of declined claims could be assessed as to whether or not they would have still been declined under the previous claims control measures. [½]

It is essential that the insurer maintains a sufficient level of claims control to prevent too many invalid claims being paid, and so discourage fraud and anti-selection. [½]
Ideally, any further analysis over time should strip out any increase in claim numbers occurring, eg work with the proportions of claims that are declined. [½]
The proportion of claims declined could be analysed, split by factors such as:
age of policyholder, eg perhaps the way that the policy is worded or the language used is only appropriate for people of a certain age group [½]
duration of policy, eg a high level of claims being declined shortly after the contract is taken out suggests misrepresentation (or possibly fraud) [½]
distribution channel and, if possible, down to individual seller, as this can identify if there is a problem with particular sellers [½]
type of claim, as this will help to assess whether any particular claim definitions are causing problems. [½]
A key problem with any detailed analysis will be lack of claim volumes, and so there may be too few declined claims to be able to make any sound conclusions. [½]
However, they will give some indication of where attention should initially be made. [½]
If the figures reflect more stringent claims control, the insurer might consider reducing premium rates or relaxing the claim validation criteria, so as to better satisfy policyholders. [½]
The sales process should be reviewed, particularly for those channels or sellers where a potential problem has been identified. [½]
Action could include re-training, regular monitoring and introducing remuneration that is (partly) geared to rewarding low proportions of claims being declined. [½]
These steps may be unpopular with sales staff, and so a good relationship with the sales people will be essential, ensuring that they appreciate the importance of customers understanding exactly what they are covered for. [½]
Consider reviewing application forms, marketing literature and policy wording to see how these can be improved. [½]
This should be done with a view to ensuring that all the necessary information is captured. [½]
Literature and policy documentation should make clear the importance of disclosing all relevant information, clarify that only the listed conditions are covered and that these conditions are clearly defined. [½]
The insurer could ensure that the penalties for misrepresentation are made very clear to the customer when the policy is sold. [½]
It could consider strengthening the initial underwriting (eg by collecting and using more medical evidence) so that more cases of misrepresentation are picked up. [½]
However, this will incur higher costs, and may inconvenience sellers and potential customers. [½]
The policy design could be reviewed, eg remove benefits that are causing a great number of claims to be declined (such as TPD). [½]
Alternatively, the insurer could try to target customers that exhibit characteristics less likely to make invalid claims, eg certain age groups. [½]
It should try to make regular communication with existing customers, reminding them of these issues and could try to educate them as to what are valid claims. [½]
If a new (critical) disease has emerged that is not currently covered on the insurer's policies, it may decide to include this in its new policies (and existing ones if reviewable). [½]
Also, investigate whether competitors are experiencing similar rates of declined claims. [½]
This may help to identify whether there is a problem with the insurer's particular product or processes, or whether this is an industry-wide problem. [½]
If there is an industry-wide problem, then the insurance industry might be able to pool resources to help improve things (eg by improving claim definitions or sharing data). [½]
The insurer could take the step, as some insurers in the overseas markets, of publishing declined claim figures, in order to highlight to sellers the consequences of not selling appropriate cover. [½]
Depending on the extent to which these recommended measures are successful, the insurer will need to allow for the implications of declined claims in future pricing, reserving, financial planning, etc. This should include the expenses of any actions that it chooses to take. [1]

Moving forward, a system of monitoring declined claims should be put into place, including keeping a record of the reason for the claim and for declining it. [½]
This will enable the impact of these recommended actions to be regularly and easily monitored, and subsequent changes to be made if and when necessary. [½]
The insurer should also monitor the knock on effects of high levels of claims declined, such as poor persistency and new business volumes, and take steps to improve these. [½]
[Max 15]

iv)

SR = ASM/RSM
δ (SR) = δ (ASM) / RSM – δ(RSM) * ASM / (RSM)^2
= δ (ASM) / RSM – [δ(RSM)/RSM] * [ASM/RSM]
= δ (ASM) / RSM – SR * [δ(RSM)/RSM]
= Change in ASM as % of RSM – SR* change in RSM as percentage of RSM [3]

v) The current month solvency = (1231 -27 +3+50)/(403+8-3) = 308.09%, that is an increase by 2.63%. with the following impact in the above order:

				ASM & Chng	RSM & Chng	SR	Impact on SR
				1231	403		
Opening						305.46%	305.46%
a.Net increase in RSM for individual business of 8 cr					8	299.51%	-5.95%
b. Decrease in RSM for Group Business by 3 cr					-3	301.72%	2.20%
c. A loss of 27 cr from demographic sources				-27		295.10%	-6.62%
d. A profit of 3 cr from Economic sources				3		295.83%	0.74%
e. Capital injection of 50 cr by shareholders				50		308.09%	12.25%
Closing							308.09%

[5]

vi) The assets in the Shareholder's fund contributing to ASM has two components, namely the assets supporting the minimum regulatory level of solvency, and the fund in excess to it.

Since the RSM represents a proxy of the risk of the insurers and it's liability book, it is expected that the RSM will move in a similar to the movement of the policy liabilities. Accordingly, the portion of the shareholder's fund supporting the regulatory minimum level of solvency should have the investments in various asset classes in the same proportion as in the policyholder's fund.

When the solvency level is marginally above the regulatory minimum, Cash might be probably the best preferred asset category for the excess assets over the regulatory minimum because:

- there are no problems with marketability or asset values
- it is secure in monetary terms
- there is a link between short-term interest rates and inflation, so some limited inflation protection
- Small size investment is not a problem for cash & its value doesn't fluctuate much with market movement

However, when the SR is significantly higher than the regulatory minimum, the excess fund (over regulatory minimum) may be invested to achieve higher expected returns. Accordingly, suitable proportion of

investments in equity, bonds & property may be suitable. However, the fund up to the regulatory minimum will have the same investment as before. [5]

vii) Since in ULIP, the unit fund and reserve moves with the market values of the assets and accordingly, the RSM also moves similarly as it is related to the fund value. To have a similar movement in the fund supporting ASM in line with the market movement of the ULIP equity funds, the corresponding proportion of equity investment is made in ASM. This will ensure consistent movements in RSM & ASM for equity market movements. This is crucial where significant ULIP equity fund investments are present in the policyholder's fund. Otherwise, for an upward equity market movement, the RSM will increase without any supporting increase in ASM, causing downward pressure on solvency. [5]

[50 Marks]

Solution 2:

i) Typical features of IP only cover are

- Reimburses medical expenses incurred in connection with the hospitalization due to sickness or injury
- Requires minimum hours/days of hospitalization – typically 24/48 hrs
- Yearly reviewable – premium rates/terms could vary year or year – based on the experience of the insured pool
- Annual maximum limit (AML) – maximum claim amount payable in a year
- Sub-limits on hospital room charges, pharmacy etc. depending upon the network chosen
- Cashless settlement for treatment within the network of providers/reimbursement for outside network
- Co-pay/deductibles – claims up to certain limit to be borne by the insured
- Cosmetic and other treatments without medical necessity excluded
- Optional coverage for maternity, dental and optical

[½ per point; Max 3]

ii) Design for the OP cover should include the following:

- No experience on OP => introduce minimal benefits to start with – so, significant copay/deductible
- … yearly reviewable structure with AML
- Cover consultation, labs and pharmacy costs
- exclude cosmetic treatments
- Consider allowing alternative treatments (homeopathy, ayurvedic etc.) to increase the product appeal
- Allow specialist consultation only upon GP referral to minimize cost and avoid abuse
- Benchmark with what is already offered in the market or elsewhere – not want to offer benefits richer than the market to avoid anti-selection
- Offer different network options with differentiated pricing – this allows pricing segmentation and choices for customers based on affordability
- Clearly define what is OP – to avoid overlap with IP – eg. day surgery
- For individuals and voluntary coverage under groups, some level of underwriting will be required
- Consider offering health-checkup packages – to enhance the product appeal and to help prevent some life-style diseases
- Built-in disease management programs to effectively manage life-style diseases such as diabetes and hypertension

- Consider no/low claim bonus in the form of reduction in renewal premium – could be a differentiator and disincentivise small claims

[½ per point; max 5]

iii) Steps involved in pricing the OP cover are:

- Burning cost = frequency x severity; frequency refers to the incidence of claims and severity refers to the size of claims
- Need to estimate the frequency and severity by each of the major risk factors for typical standard life
    - Age
    - Gender
    - Network
    - Occupation
    - Location
- Dental/optical and maternity coverage costs need to considered separately
- Leverage any industry studies on burning cost or take reinsurer's help
- Align the burning cost to the product design – such as co-pay/deductibles other limits
- Underwriting loading to reflect additional risk for sub-standard lives – work with the underwriting and claims function to estimate the loading for different types of sub-standard risks
- The existing IP underwriting framework could be the starting point – but need adjustment as even a moderate sub-standard could lead to higher frequency of OP compared to IP claims
- Estimate operational expenses based on projected volumes – be cognizant of higher frequency of OP claims and likely much wider network of providers to manage
- There is initial product development and system setup costs that would need to be recouped over time – an allowance for this will need to go into the pricing
- Build loadings on top of burning cost to reflect the expected return on capital and profitability targets – simply, it could be target loss ratio (claims/premium) that meet the requirements
- Competitive considerations will drive how long we need to spread fixed costs over and loading for profitability
- So, profit testing and market testing will be iterative until a good balance is struck

[1 per point; Max 10]

iv)

a) Underwriting

- The Insurer will be primarily concerned about high frequency and low severity business here. [½]
- From an underwriting perspective, the insurer will be concerned with Pre-Existing and Chronic cases that may contribute heavily to the claims experience. [½]
- On the OP side, items such as diabetes, hypertension, upper respiratory tract disease, disease of the circulatory system would be key items for look out. [½]
- The insurer may impose several mechanisms upfront to protect itself from being selected against:
    i. Medical declaration upfront – including tests and other diagnosis
    ii. Simplified underwriting declaration where only declaration form may be used.
    iii. Moratorium underwriting where the Pre-existing cover may not be covered for a certain period and will only be covered after the lapse of a defined period.
    iv. Waiting period- where, say, for 6 months, the member cannot claim for Pre-existing or chronic claims. [½ per point; max 1½]

- This will be a function of the regulatory guidance on the minimum product requirements and regulatory conditions on Pre-existing/chronic cases. [½]
- Competitors' practices are important consideration to avoid being selected against by differing significantly from market practices [½]
- The underwriting section may also impose or make recommendations/ suggestions on the product design along the following key areas:
    a) Imposing a copayment or deductible or co-sharing
    b) Consultation may be subject to a fixed amount of deductible subject to max limit
    c) Pharmacy may be subject to copayments or switch to generics as opposed to brands.
    d) The underwriting team will be concerned with items which may constitute abuse such as physiotherapy and would probably suggest caps or coinsurances or pre-authorization.
    e) Sub limits may be proposed as an important cost control.

  [½ per point; max 1½]
- It is also important to assess the definition of what constitutes an OP – does it cover day cases? Does it cover extra benefits such as dental/optical? [½]
- The underwriter will also be concerned with the need to underwrite the extra services such as dental/optical and the OP related component of maternity. [½]
- The underwriting team will also need to adjust its pricing methodology and risk management processes to price new business/renewals inclusive of OP [½]
- In particular, credibility approach may require change, because there will be far more claims of less severity that will come through. [½]
- The underwriting team will also need to be cognizant of fraud waste and abuse that happen in the market. [½]
- Underwriters will have to go through some training on the product feature and tweaks to the existing underwriting practices [½]

[Max 5]

b) Claims

- Claims will need to be prepared for a major increase in claims frequency and major reduction in claims severity. [½]
- Need to decide on what level should the pre-authorization level be set. If set at a low level, then, a higher proportion of claims will be subject to scrutiny – though this may impair on the service delivery and approval. [1]
- There needs to be clear interaction between the claims team and the underwriting team as to what was decided and approved at an underwriting stage. In particular, the claims team will be mindful of:
    - What is the underwriting approach that was taken – upfront detailed/simplified/moratorium/waiting period and therefore, claims can only be settled accordingly.
    - The exclusions of the product as specified in the UW document
    - The product specificity – limit/sub limit/ copayment/deductible/ coinsurance/co-sharing.
    - Level of claims reporting and, the difference between sub-categories/sub -plans and by networks. [½ per point; max 1½]

- Emphasis will be laid on the claims admin system – whether it is in-house or delegated to a third-party administrator. If it is in-house, then, special provision needs to be made to accommodate OP claims in the following sense:
    - The pre-authorization request and time to provide response to the requests=> this impacts TAT and may have implication on service delivery and targets.

- Claims processing of high frequency/low severity claims => may have implication on in house personnel and claims staff as more would be needed to hand hold claims frequency.
- Linkage to international best practices on diagnosis and procedures- CPT/ICD-9/10 classification.
- Whether the regulator enables Fee for Service or Bundled payments
- Pharmacy prescription – in particular, any pre-authorization on pharmacy related claims – including recommendation on indications/contra indications etc.
- There may be a link to Pharmacy benefit management systems for best practice=> that would require purchase and training of staff.
- Any fraud, waste and abuse that may be occurring and that needs to be flagged.
- Claims reporting and analytics would need to be available from the system.
- Probably, an app would need to be developed to enable netizens from submitting claims through an APP.
- The insurer would need to be mindful as to how it would treat claims from outside network of preferred hospitals or from abroad.

[½ per point; max 4]
[Max 5]

c) Valuation

- OP might have different claim pattern/seasonality eg. some services such as annual health screening or dental/optical could mostly occur during holiday season or towards end of the policy year – valuation needs to be cognizant of this when setting up unexpired risk reserves [1½]
- Similarly, claim reporting lag will vary with most OP claims does not typically require pre-authorization. This will depend upon how claims are split between cashless and reimbursement and how digitalized the claims data flow from providers to the insurer is – valuation needs to be cognizant of these when setting up IBNR (Incurred by not reported) [1½]
- On the IBNER (Incurred but not enough Reported), again, there will be differences between OP and IP – IP will have some estimates initially at pre-authorization and the actuals might significantly differ once final bills are negotiated and settled whereas OP tends not to vary much. [1]
- Valuation system may require change to handle large volume of claims data validation/manipulation with significantly higher volume of smaller claims [1]

[Max 5]

d) Reinsurance

- The insurer will be concerned with having the appropriate reinsurance strategy here. Having OP product will dampen the requirement for catastrophe claims as the claims are much higher in frequency and less severe in severity. [1]
- The insurer may need to be mindful of the possibility of epidemic/pandemic which may further increase frequency of claims. With vaccination, severity may not be as severe as to how it may have been at the beginning of the pandemic/epidemic [1]

- Therefore, an excess of loss may not be entirely relevant as the emphasis is probably more on:
    - Capacity requirement
    - Underwriting support
    - Claims support
    - Supportive actuarial pricing and net risk rates
    - Solvency requirement and solvency relief

  - Technical support on items that may be relevant to an insurer focusing on OP such as: disease management, chronic disease management, preventative, diagnostics, digital health, wellness etc. [½ per point; max 2]
- From that angle, it may make more sense to engage in traditional QS arrangement where a certain proportion is ceded to the reinsurer (both premiums and claims). This may protect the insurer against the risk of having underpriced while still getting appropriate solvency relief. [1]
- Cost (reinsurance outgo) Vs benefit (capital efficiency; reduced volatility) analysis required to put the appropriate reinsurance structure in place [1]

[Max 5]

v) Merits of the argument are:

- OP tends to be more frequent and less severe...IP is on the other hand less frequent and more severe.
- While absence of insurance for IP could hurt individuals, it could be argued that the insurance necessity is lower for OP as the severity tends to be low
- However, OP timing and frequency could pose significant financial burden (eg. several members of a family falling sick at the same time)
- …so, there is still OP cover need for some (eg. low/middle income earners)
- OP is arguably more uncertain and high risk for HealthX – more prone to fraud, waste & abuse
- On the other hand, low premium volume if it is IP only – so, will have to spread fixed expense over smaller volume
- Absence of OP insurance would also mean 'less flow of payout to providers through insurance' and hence reduced negotiation power for lower tariffs by HealthX

[1 per point; max 6]

vi) Merits of the suggestion are:

- Under capitation, the provider will receive a fixed payment per person per year for providing OP services required under the insurance policy in lieu of fee-for-service.
- Essentially, the utilization risk is passed on to the providers
- OP is more prone to waste, abuse, and fraud…
- …and this arrangement emphasizes on the efficiency of care as provider profits decrease with higher utilization
- So, there is merit in the suggestion given that OP is a new risk to HealthX
- However, there are challenges with such an arrangement
- …it is typically hard to agree on the blanket capitation with the providers
- …it is easier to estimate the cost for existing business as opposed to a new business
- .. thus, making it even more difficult for the providers to agree on the capitation fee
- …insured members may not be happy if the providers compromise on the quality of care
- …providers could covert some OP into IP
- …an insured member of HealthX may have to go different providers for OP and IP that could be considered inconvenient.
- …regulations may not permit such an arrangement

[½ per point; max 6]

[50 Marks]

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