INSTITUTE OF ACTUARIES OF INDIA

Subject SA1– Health and Care

May 2024 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) Advantages and disadvantages for the insurer of the NCD scheme

+ Claims history will be an indication of expected future claims. Those offered a discount are therefore likely to be better risks, and so are more likely to renew. [½]

+ Similarly premium rates for high risks may be greater than the rates with no NCD scheme, and so these risks may be able to get cheaper cover from an insurer without an NCD scheme. [½]

+ The insurer's overall experience may therefore improve. [½]

+ Premiums actually paid on each policy will therefore be more closely related to the expected annual claims costs, and so the rating system will be fairer. [½]

+ It may reduce the number of claims, reducing overall claims costs and cutting claims' administration costs. This is likely to result in more competitive premiums. [½]

+ It may result in a higher proportion of renewals from year to year, particularly if other insurers do not follow the insurer's lead. [½]

+ This will help in spreading the initial expenses of selling a policy over the first few years, thus resulting in more competitive premiums. [½]

– It will require changes to systems to keep appropriate claim records and update premiums, and so policies will become more costly to administer. [½]

+ It may allow the company to attract business from other insurers by offering transferring policyholders an immediate discount if they can demonstrate an appropriate no-claims record with their current insurer. [½]

+ Alternatively, initial underwriting may enable the insurer to determine if the proposer has been healthy for the last year, say, and so to offer an immediate discount of, say 10%. [½]

+ This may be effective in increasing new business volumes, but the cost of this discount will have to recouped elsewhere (eg by charging higher premiums overall). [½]

– The scheme may be seen as unethical, because it could encourage policyholders to delay or not to seek treatment when they may need it. [½] +

It will tend to discourage claims for non-essential treatment, which may be acceptable. [½]
+ If the NCD scheme is novel in the market, this may attract business. [½]

(Max 8)

ii) Compare and contrast with the use of Rs 10,000 excess (Deductible):

Both methods will have the effect of reducing the number of claims, therefore reducing overall costs and hence premiums. [½]

In fact, an excess might be more successful than the NCD scheme in reducing the number of claims. [½] An NCD scheme gives access to full benefits, whereas an excess scheme will provide reduced benefits. [½]

Both schemes are attractive to those looking for a competitive premium. The NCD scheme will be attractive to all sections of the market, ... [½] ... but the high excess policy will tend to attract the better-off, who have the resources to self-pay for smaller claims. [½]

The better-off may have marginally better health, and so the excess scheme will select slightly better risks. [½]

Whereas the NCD scheme will attract those with good claims experience, which are likely to be significantly better risks. [½]

The NCD scheme will discourage renewal by poorer risks, whereas the excess scheme will not. [½] The excess scheme is likely to raise fewer ethical objections. [½]

This is because the policyholder decided at the date of policy issue that he or she wished to pay part of each claim, rather than being faced with the decision to pay a higher premium following the occurrence of an insured event occurs. [½]

The excess scheme is less likely (in most markets) to be a novel policy feature, and so will not attract as much attention as the NCD scheme. [½]

The excess scheme may therefore provide fewer opportunities for attracting business from other insurers. [½]

The excess scheme will be easier than the NCD scheme to administer and implement. [½]

(Max 6)

iii) NCD scheme for IP and ASU business:

Policyholders usually expect a level guaranteed premium rate on long-term policies, such as IP. [½]

In addition, they are usually underwritten in some detail at the outset and so there are fewer advantages to be gained from subsequent experience rating. [½]

Consequently, standard NCD schemes are rarely used for long-term business. [½]

For benefits in the form of income (such as IP and accident and sickness), the definition of a claim, and therefore, what constitutes a claim-free year is not clear cut. [½]

For example is a sickness claim lasting more than one policy year considered as one claim or two claims? [½]

IP policies with reviewable premiums are a form of NCD for long-term business, but here the "discounts" are determined on a group (portfolio) basis rather than on an individual basis. [½]

Also, discounts often relate to the whole experience not just the claims experience (and can also be negative). [½]

The deferred period on an IP policy has the effect of reducing the number of claims, and so any NCD type scheme is less likely to provide additional reductions in the number of claims as a result of deterring people from claiming. [½]

Claims on IP policies, particularly those with long deferred periods, are relatively rare. An NCD scheme would therefore have less impact than for a PMI policy, where claims are more frequent. [½]

An NCD scheme may prove attractive to customers requiring comprehensive cover but at a "discounted" price. [½]

For example, self-employed professionals, such as dentists, tend to buy policies with very short deferred periods, which can be expensive, but they may see the NCD scheme as a way of reducing their costs without reducing potential benefits. [½]

An NCD scheme would be possible for one-year renewable contracts such as accident and sickness and would have similar advantages to those described above for PMI policies. [½]

(Max 6)
[20]

Solution 2:

i)

a) Impaired Life Immediate Annuity:

Underwriting:

Bear in mind that heavy mortality experience will benefit the insurer, although this will depend on the significance of any death benefit. [1]

The insurer would normally charge a premium based on the individual health status of the proposer. [½] In order to assess this, they will need to collect detailed medical evidence, but this will be costly to do for each applicant. [½]

An indicative quotation could be obtained, based on the answers to a small number of questions on the proposal form. [½]

Activity-based, or functional ability, tests might be carried out to assess the applicant's level of disability. [½]

If the proposal goes ahead, further medical evidence could then be obtained, from the applicant and his or her doctor. [½]

This would be used to give a final premium for the individual concerned. [½]

It is important that evidence is gathered and a decision is made quickly, because the applicants will be in need of care at the time of the proposal. [½]

The use of medical examinations should be kept to a minimum as this is probably an unnecessary cost and would lead to further inconvenience for the proposer at a difficult time. [½]

(Max 3)

Reinsurance:

Reinsurance will help to:

- protect against claim volatility, which will be uncertain, since this is a new product and volumes of business will be small [½]
- provide technical assistance, eg data for pricing and help with underwriting [½]
- reduce risk and hence reduce capital requirements. [½]

The insurer is likely to arrange quota-share reinsurance, probably on original terms, ... [½] ... in order to build up experience the first few years without taking too large a risk. [½]

(Max 2)

Distribution:

The typical applicant is likely to be reasonably wealthy (ie able to afford a high single premium in order to protect his or her assets) and financially sophisticated. [½]

For example, he or she is prepared to pay a high single premium, and may be seeking this insurance in order to protect his or her assets. [½]

However they will be elderly and already in need of care. [½]

Financial advisers could sell this business, but specialist brokers may be best. [½]

For example, they will need to have the skills to obtain the necessary medical underwriting information, some of which may be sensitive. [½]

The target customers will also value face-to-face advice, and may wish to have someone who will "shop around" to get the best price for them. [½]

Brokers with whom customers are in regular contact may provide the best opportunities here. [½]

The insurer could develop its own sales force, but this would be costly, and risky if it proves to be unpopular. [½]

It may be difficult to find the people requiring this product, as the insurer does not have an existing sales force with which to cross sell. [½]

Tied agents may be persuaded to sell this business if the terms were right. [½]

A tie-up with an organization providing long-term care, or providing advice to elderly people, would be ideal if it could be arranged. [½]

(Max 4)

Costs and risk:

If the insurer is new to writing annuities there will be significant costs associated with setting up new systems, eg to pay annuities. [½]

Even if the insurer is already writing annuity business, there will be changes required in the areas of underwriting, marketing, sales and pricing. [½]

Careful underwriting and assessment of risk will be required to price the product accurately, and this may be essential if the product is to be competitive. This will incur costs. [1]

If underwriting is not sufficiently accurate or detailed, the insurer may be exposed to anti-selection risk. [½] Data used for pricing (or for making the decision whether or not to launch the product) may be inappropriate for use on this type of business (eg based on normal, rather than impaired mortality), and the adjustments made may be inaccurate. [1]

Demand for this product may be significantly lower than expected, in which case development costs in launching product may not be recouped. [½]

Requirement for capital will partly depend on the regulatory reserving and solvency capital requirements, but it will be significant. [½]

Brokers will need to be persuaded to sell the new product, and trained to deal with the new underwriting requirements, which will increase costs. [½]

This is a fairly specialized market, and significant costs may be required in identifying, contacting and attracting the potential customers. [½]

There is a risk that the sales method used may not be able to reach those people actually requiring the new product. [½]

Sales and underwriting procedures may be too long or complicated, deterring some from purchasing the product. [½]

The pricing structure may not be easily adaptable to changes, eg in competitors' rates or investment conditions, in order to remain competitive. [½]

There is a marketing risk in that customers think increasing payments will cover the actual cost of care, and there may be ill-will if they do not. [½]

The level of benefits provided by the State will also affect demand. For example, there will be less need for the product if the State's benefits are more generous. However it is not material in India.[½]

The insurer is exposed to longevity risk in that people may live for longer than allowed for in the pricing assumptions. [½]

There is a risk that whole-sale price inflation will be greater than expected. However, if inflation is high, this may be partially offset by better investment performance. [½]

Investment risk should be reduced by careful matching to liabilities. [½]

Data used for assessing the viability of the launch may be inappropriate for use on this type business (eg based on normal, rather than impaired mortality) and the adjustments made may be inaccurate. [1]

(Max 9)

b) Group income protection (IP) insurance:

Underwriting:

Underwriting will need to be simple and in line with the market for group IP, in order that the cover is attractive to the employer and his administration is kept to a minimum. [1]

Free cover limits (or "non-selection" limits) will be set. All employees requiring cover below the limit will be accepted without being individually underwritten. [½]

The free cover limit from each group will depend on the size of the group (eg based on number of members or total salaries) and the proportion of employees taking up the cover. [½]

The insurer may take other factors into account in setting the free cover limits, such as the industry or location of the group. [½]

Typically the insurer will require that all insured members are "actively at work" on the day that (or for a specified period before) the cover commences. [½]

It may also insist that a waiting period applies for each new member, before a claim can be accepted. [½]

It may insist that the benefits provided follow a prescribed formula (eg based on a percentage of salary). [½]

Employees requesting cover above the free cover limits will be individually underwritten. They will need to provide medical information, undergo tests, etc. [½]

The underwriter will also consider factors such as time spent in a dangerous environment or in overseas territories. [½]

Special terms may be applied such as increased premiums on cover in excess of the free cover. [½]

(Max 4)

Reinsurance:

This insurer is likely to be writing significant volumes of IP business already. The requirement for reinsurance is likely to be small, ... [½] ... although reinsurers may provide useful advice specific to group business … [½] … eg product design, underwriting and data for pricing. [½]

Current reinsurance arrangements would have some bearing here. Original terms quota share is probably best as it is simple and level of cover will not vary significantly, eg usually between 60% and 75% of salary. [1]

The proportion of business reinsured might reduce over time as experience develops. [½]

The insurer may consider catastrophe reinsurance if it was concerned about a number of claims from the same employer. [½]

(Max 2)

Distribution:

Most group health business is sold through large financial advisers, such as employee benefit consultants. Many of these advisers may only deal with groups, and so they will be new to the insurer. It will therefore need to develop relationships with them. [1]

A deal with a tied agent or direct marketing are unlikely to be successful, as most employers are likely to wish the flexibility of being able to get the best deal available in the market for their money. [1] Similarly, it is unlikely that the insurer will be able to justify the cost of a new sales force in this specialist market. [½]

(Max 2)

Costs and risks:

The insurer is likely to be selling individual IP business and so similar systems could be used for this product. [½]

However, there will still be many changes required in order to deal with group business. [½]

For example claim definitions, product design, pricing, claims handling and underwriting may all be different from individual IP products. [1]

The ongoing costs of underwriting will be lower than for other products, as only cases above the free cover limits are underwritten. [½]

However, there will be development costs of setting the free cover limits as this will be new to the insurer. Advice may be sought (eg from reinsurers). [½]

Large brokers will shop around to get the best deals, and so it will be important that the insurer markets its products actively, keeps prices competitive, and also maintain a high level of service to both the broker and the customer. [1]

Also, a high level of commission may need to be offered early on, to encourage sales and build up the business. [½]

These brokers will wish to deal closely with the clients, acting as a go-between for all communication with the insurer. It is possible that they may carry out much of the administration. [½]

Whilst the last point may reduce ongoing expenses for the insurer, the other changes to the insurer's current procedures are likely to result in significant development costs overall. [1]

Sales volumes may be lower than expected, particularly if the large brokers cannot be persuaded to buy into the product. [½]

The market for group IP is dependent on external factors such as the strength of the economy or business optimism. [½]

There is a risk that a future recession, for example, results in a reduced demand for group IP when the product is being launched. [½]

There are political influences too. Changes in State provision of sickness and disability benefits may affect demand for group IP and the future experience. [½]

If the tax advantages of providing IP are withdrawn, this will also reduce demand for the product. [½] The insurer should make sure it has a wide spread of different risks, otherwise there is an accumulation risk. [½]

For example, if the insurer has a concentration of a certain occupation, and there are subsequently a large number of claims as a result of the type of work carried out (eg lots of teachers suffering stress-related illnesses following changes to exam structures). [½]

There is a significant persistency risk in that employers may change insurer every year or two. [½]

There is also a risk that the insurer will lose direct contract with the customer, making it more difficult to control claims and cross-sell products. [½]

Morbidity experience is uncertain, could be very different for group business, and may deteriorate in time. [½]

However, premiums can be changed on each renewal to reflect this, and the groups can be experience rated. [½]

(Max 9)

c) Unit-linked Hospital Cash and major surgical benefit insurance:

Underwriting:

The following forms of underwriting could be considered:

- front end underwriting, where the proposer is fully medically underwritten at outset and either a specific exclusion(s), or an increased morbidity charge, is applied [1]
- back end underwriting, where no, or very limited, underwriting is carried out at proposal, but any pre-existing conditions are excluded from cover. This will be assessed once a claim is made. [1]

Back-end underwriting is probably more appropriate for this product is it will simplify the sales process. [½]

This will make it easier to sell the product and also reduce initial expenses. [½]

However claims assessment will be more involved and expensive. [½]

The policy will need to exclude claims from, or related to, conditions that existed when the policy was taken out. [½]

A moratorium (ie subsequently allowing claims if a condition has not arisen in the next, say, two years) could be considered, but this may over-complicate the product. [½]

At the claims stage, medical evidence will be collected and assessed to ensure the validity of the claim (eg that the surgical procedure is medically necessary) and that the condition was not "pre-existing". [½] Medical history, including a GP report, will be required for the latter. [½]

However, given the complexity of the product – due to its unit-linked nature – and that its main appeal may therefore be to financially-sophisticated customers, full initial underwriting may be acceptable to customers and sellers. [1]

(Max 4)

Distribution:

The complexity of the product rules out a simple direct marketing approach, and will make it difficult to use tied agents. [½]

The viability of the insurer establishing its own sales force for this product depends greatly on future demand for the product – the company will need to wait and see how this develops. [½]

Financial advisers would be the best channel. The product is likely to appeal to the financially-sophisticated individual. [½]

The insurer already has brand awareness with financial advisers and most will be familiar with unit-linked products. [½]

Convincing them to sell the product may be more of a challenge, as this is may not be a not a common product in India. [½]

However, the novel idea may appeal to brokers looking for a (slightly different) alternative to other products, such as CI insurance or PMI. [½]

(Max 2)

Reinsurance:

The insurer should consider reinsurance as it will be concerned with uncertainty of claims experience and is likely to require technical assistance. [½]

The investment risk is mainly borne by the customer, and so risk premium reinsurance would be appropriate for unit linked policies, perhaps with a high retention level. [1]

(Max 1)

Costs and risks:

Significant development costs will be required. Unit-linked systems will need to be adapted. [½]

New sales and claims underwriting procedures will need to be developed. Product design, policy wording and pricing will all be new to the insurer. This will incur costs. [1]

Capital requirements are likely to be low, although this depends on the charging structure. [½]

This is an unusual and new product to the market. Demand will be very uncertain if there are no existing market figures to assess likely demand. [½]

Therefore, there is a big risk that the product will not appeal to the market (either customers or sellers), resulting in poor sales. [½]

Improvements to benefits or pricing are unlikely to increase demand if there is no competition. [½]

Unit-linked products may be out of favour given recent poor performance in the equity markets, and so this will adversely affect demand unless this can be addressed, eg by promoting fixed-interest funds. [1] Claim incidence will rise sharply with age. The required level premium to cover this increasing risk over the term of the contract may be too high to appeal to customers; similarly increases in future premiums may be unpopular. [1]

Expenses could also be high, which will push up charges, and hence premiums. Resulting volumes may not be sufficient to cover expenses at an attractive price. [1]

Future claims experience will be uncertain on this new product. Although charges can be reviewed as a result, increases will be limited by consumer demand and customers' reasonable expectations. [1]

In addition, there is a risk that back-end underwriting will not identify all claims for pre-existing conditions, and so there will be selection against the insurer, impacting on claims costs. [1]

The investment risk will be borne by the customer, except to the extent of any fund management charges. [1]

(Max 9)

General points for all products:

The cost of providing the product disclosure and sales training required by the sales regulations will need to be allowed for. [½]

Systems will need to be developed to provide this for the new products. [½]

There is always the risk that a new product may be too successful, using up capital from elsewhere in the business. [½]

This is unlikely to have a significant effect because the products are quite specialist and not significantly capital intensive (compared to, for example, conventional life savings products), unless volumes are much higher than anticipated. [½]

However, more sales than expected may lead to resourcing problems for the insurer, compromising service standards. [½]

Above all, Health & Care insurance business is a new area of risk to which the company intends to enter. Accordingly, additional uncertainties and risks in the unknown area will be there to consider. All the above including every operational details related to these must be considered very carefully in minute details. [1].

(Max 51)

v) Policy information required are:

● policy type [½] ● date of birth [½] ● gender of policyholder [½] ● number of people covered (or more details of additional people covered, such as age and gender, if available) [½] ● office premium and any extra premium [½] ● frequency of premium payment [½] ● sum insured / benefits levels [½] ● product details (eg deferred period, excess, hospital band) [½] ● any additional benefits [½] ● date that policy was taken out [½] ● policy expiry date / policy term [½] ● current status, eg healthy, sick but not claiming, claiming [½] ● if claiming, need details of claim, eg date and cause of claim [½] ● (possibly) occupation, location (if basis used has this detail) [½]

(Max 6)

vi) Checks for accuracy & completeness:

- Spot checks, eg check sum insured or benefit levels for certain specified policies. [½]
- Check that the data is complete, with as little as possible missing. [½]
- Check maximum / minimum / average sum insured, benefit levels, age, term, etc to ensure that they are reasonable. [½]
- Compare total policies with last time and reconcile the ons and offs, ie current business in force should equal last time's plus new business less leavers. If possible do this for number of contracts, premiums and benefit levels. [½]
- Also if possible check the movements with other sources that are available, eg accounting information, claim register. [½]
- Analyze new business rates, withdrawal or renewal rates, etc to check they are reasonable. [½]
- Compare with data for other valuations if available, eg for embedded value. [½]
- An analysis of surplus might highlight some errors. [½]
- Compare with company's financials for new business premium for completeness. [½]
- Compare with the last policy commencement date in the data received. [½]
- Check whether the last issued policy number (received from new business department) is present in the data received. [½]

[Max 5]

vii) Internal model tests:

The "use test" – companies have to demonstrate that their internal model is widely used throughout all relevant areas of the business ... [½]

... and that it plays a significant role in the internal governance, risk management and decision-making processes, as well as the economic and solvency capital assessments and capital allocation processes. [½]

This may be one of the most challenging aspects of gaining internal model approval. [½]

As well as embedding the model throughout the company and developing an effective risk culture, companies need to be able to evidence that this is the case. [½]

Statistical quality standards – a number of minimum quality standards must be met relating to assumptions and data, ... [½]

... including probability distribution forecasting, the use of expert judgment, materiality considerations and methods of aggregation. [½]

Calibration standards – these standards aim to assess whether the SCR derived from the internal model has a calibration equivalent to the Value at Risk at 99.5% confidence over one year. [1]

Profit and loss attribution – this includes a requirement to demonstrate how the categorization of risk chosen in the internal model will be used to explain the causes and sources of actual profits and losses. [1]

Validation standards – the internal model must have been fully validated by the insurance company and must be subject to regular control cycle review, including testing results against emerging experience. [1]

Documentation standards – the design and operational aspects of the internal model must be clearly and thoroughly documented. [1]

[Max 7]
[69]

Solution 3:

Classification of products:

For the purpose of these regulations, health insurance products shall be classified into either indemnity or benefit based products and may be offered to individual or families or groups.

- Types of policies:
  - Indemnity based health insurance policy means an insurance policy that compensates an insured for the loss due to occurrence of an insured event as specified in the policy.
  - -Benefit based health insurance policy means an insurance policy that pays fixed amount on the occurrence of an insured event as specified in the policy.

Scope of health insurance business:

General insurers and health insurers may offer individual and group health insurance products on either indemnity and/or benefit basis.

Life insurers may offer individual and group health insurance products on benefit basis. Life insurers may also offer health insurance product under unit linked platform, provided that a life insurer shall not offer indemnity based products either individual or group.

Credit linked products can be offered up to the loan period not exceeding five years.

Overseas or domestic travel insurance policies may only be offered by general insurers and health insurers.

Health insurance products of life insurers shall also be subject to the provisions in the Schedule I of these regulations, wherever applicable.

Pricing:

Premium shall remain unchanged for the policy term. Insurers may offer facility of premium payment in installment.

Insurers may devise mechanism(s) or incentive(s) to reward policyholders for early entry, continued renewals, favourable claims experience, preventive and wellness habits and disclose upfront such mechanism or incentives in the prospectus and the policy document. Provided that what is proposed to be covered as part of wellness and preventive habits be clearly defined in each and every product.

Product design:

Insurers shall ensure that they offer health insurance products to cater to all the age groups.

Insurers may design products specifically for senior citizens, students, children, maternity and any other group as specified by the Competent Authority.

Insurers shall endeavor to offer coverage for persons with all types of existing medical conditions.

Pre-existing diseases and specific waiting period:

Waiting period for pre-existing diseases disclosed by the persons to be insured, shall be maximum up to 36 months of continuous coverage under the Health Insurance policy. Insurers may endeavor to have lesser pre-existing disease waiting period and specific waiting period in the health insurance products, provided that the above waiting period norm of pre-existing disease shall not be applicable for Overseas Travel Policies.

Moratorium: After completion of sixty continuous months of coverage (including portability and migration) in health insurance policy, no policy and claim shall be contestable by the insurer on grounds of non-disclosure, misrepresentation, except on grounds of established fraud. Earlier this period was 8 years.

[Max 11]

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