

EXAMINERS' REPORT

June 2024 examinations

Subject F101 — *Health and Care* Fellowship Principles

INTRODUCTION

The attached report has been prepared by the subject's Principal Examiner. General comments are provided on the performance of candidates on each question. The solutions provided are an indication of the points sought by the examiners and should not be taken as model solutions.

QUESTION 1

Part (i) was poorly answered, with part (ii) very well-answered. Bookwork question.

(i)

- A Poisson regression model is a model that can be used to answer questions such: which (combination of) factors can predict the frequency of an event
- The response variable follows a Poisson distribution.
- It uses the natural logarithm (log) function as the link function
- It assumes equal mean and variance of the response variable.
- It assumes independence of observations.
- It is suitable for count data like hospital visits.
- It is appropriate for modelling rare events.
- It can handle overdispersion through extensions like negative binomial regression.
- It is robust to outliers in the response variable.

(ii)

- Age – increase correlated to increased admissions
- Gender – depends – relates to age; younger age and female positively correlated with admissions; uncertain at older ages
- Smoker status – smokers likely to have higher admissions
- Province (geographic location) – depends on number of factors within each province, e.g. access - remote facilities correlated with fewer admissions
- Chronicity – higher chronicity, higher admissions
- Income/Occupation – depends; poorer individuals expected to have poorer health hence more admissions; however, may also have reduced access.
- Previous admissions – prior admission associated with increased probability of re-admission or future admission
- HIV status – positive status associated with more admissions, dependent on treatment adherence
- Weight – correlation depends – increased below a certain threshold and above another threshold
- Family history of certain conditions – great family history/prevalence associated with more admissions
- Etc.

QUESTION 2

Overall this question was well-answered by most candidates.

Part (i) was not well answered - many candidates did not know the exact definition of UHC, but some were able to state some of the key points.

Parts (ii) and (iii) were well-answered. The candidates were able to state a wide range of relevant points for the advantages and disadvantages of both systems.

- (i) Universal health coverage (UHC) means that all people have access to the full range of quality health services they need, when and where they need them, without financial hardship.

- (ii) Advantages and disadvantages of private health

Advantages:

- Private health providers tend to be more efficient than the government
- This however, depends on the effectiveness of the regulations in place
- Members of the public tend to have access to a wide range of choices
- The quality of health care tends to be better – shorter waiting times, etc.
- Tends to be more innovative

Disadvantages

- Private health care tends to be expensive
- Especially if not subsidized by the government
- It may lead to an unequal society if most people cannot afford it and there are no viable alternatives.
- If not well regulated, the system can be inefficient and exclusionary to those requiring care the most (sick, poor)

- (iii) Advantages of National Health Insurance scheme for all citizens

- The system can be managed more prudently in line with social insurance principles.
- Accessible to all citizens, regardless of means
- Free at the point of service for covered healthcare services for those who won't otherwise be able to afford it
- Some economies of scale can be realised, e.g. be able to get volume-related discounts from service providers given the size of the scheme

Disadvantages

- The system can become too complex to manage – in terms of data management etc
- Access depends on the availability of facilities and doctors, and these may not be equally available across any country.

- Bureaucracy might stifle innovation and lead to inefficiencies.
- Comprehensive benefits package may be too costly to provide
- May result in a very high tax burden for taxpayers
- Vulnerable to corruption
- High quality of care is not guaranteed

QUESTION 3

This question required candidates to apply their bookwork knowledge of capital and solvency impacts as well as the investment decision process to three scenarios given for the LTCI market. Most candidates were able to score well on this question. Most candidates performed well on part (i) but were unable to generate enough points and/or apply their points in part (ii). For part (i), candidates were able to discuss the impact on the assets and liabilities as well as on the underlying solvency capital requirement. For part (ii), credit was not given for general investment points, credit was only given where the candidate clearly explained the link to the information given under each of the scenarios.

(i)

(a)

If cash benefits are provided, then there will be no impact

Unless there is pressure to provide higher cash benefit increases as a result

If the cost of nursing care is covered (indemnity-type benefit) higher nurses' salaries will mean the cost of providing nursing care benefits will be higher than expected.

This would mean lower profits projected in the premium technical provisions which would mean a higher technical provision liability on the balance sheet

And thus lower eligible own funds used in determining the solvency coverage ratio (i.e. liabilities increase whilst assets remain the same – solvency ratio decreases)

(b)

Blue Bank is one of the counterparties that NurseInc holds funds with which means they have a lower counterparty default risk

This would mean that the SCR requirement for counterparty default risk would be lower thus lowering NurseInc's overall solvency requirement

This depends on the relative holding in Blue Bank, i.e. exposure.

This may be offset by a lower expected return on funds given lower default risk

NurseCo would also need to consider the impact of their concentration risk if they want to increase their holdings with Blue Bank

(c)

New business growth will put a strain on NurseInc's capital requirement as the higher premium volume will mean additional capital required to cover that new business strain (cash strain and reserves)

Given the new business growth is expected to continue will mean the expected future solvency position will also be impacted

It is expected that there would be a lower solvency ratio going forward

There is also likely to be additional costs to administer the new business and manage their claims and associated expenses which would reduce the NAV of NurseInc and would lower the solvency coverage ratio

However, if the business is profitable, the solvency coverage ratio is expected to improve as experience emerges

[Max 2 per event; max 6, overall]

(ii)

(a)

For cash benefits, no direct impact is expected

For indemnity type benefit payments, the benefits are expected to be higher given the higher salaries

This may mean a higher liquidity requirement in investments (cash or short-dated bonds) in order to meet the higher expected benefit payments

In addition, NurseInc may look at higher yielding assets to help manage the increase in benefit costs – especially if this is higher than CPI

They could consider equity exposure or exposure to corporate bonds offering a higher return

(b)

An improvement in Blue Bank's credit rating means they have a lower risk of default on their deposits

This makes it attractive to invest funds with Blue Bank from a credibility perspective as it would also positively impact NurseInc's capital position

However, the return offered by Blue Bank as well as the marketability of their offerings would also need to be considered

A higher credit rating may come with a lower expected return which may make investing funds with Blue Bank less favourable

Would depend on their attitude to risk; their capital position and how well Blue Bank exposure matches their liability profile

(c)

Additional liquidity would be required to support the expenses and setup of the new business

There may also be more volatility in the claims experience which would mean higher reserves

Overall there would likely be greater investment into assets admissible for the purposes of demonstrating solvency and a move to a closer match with liabilities

– less mismatching and fewer speculative investments

This may also mean a shift to higher liquid assets – e.g. short-term deposits or cash and cash equivalents

QUESTION 4

Part (i)

- *Most candidates scored well in Part (i), a bookwork question*
- *Weaker attempts didn't know the indemnity commission definition at all and either left it out or made up something scoring no marks*
- *Many candidates went into quite a lot of detail around claw back which didn't get any further marks since the question was around the definition of indemnity commission*

Part (ii)

- *Many candidates left their answers as annual premiums and lost marks – exam clearly asked for monthly premium; many candidates would have scored full marks had they converted to monthly*
- *Many candidates calculated the multiple of financing and incorporated this into the calculation of premium – this is what the loading of 30% accounts for so was unnecessary and lost marks as a result*
- *Weaker attempts left out the question entirely or parts of it*
- *Stronger attempts managed to score full marks*
- *Answers using profit and expense loadings as % of final premium were also given credit, but not the finance loading as this was clearly stated as a loading to risk premium in the question*
- *Method marks were given where candidates had the wrong answer but carried the incorrect figures through correctly*

Part (iii)

- *Many candidates mentioned underwriting and claims experience – this is only relevant to the risk rates. The question was around the financial loading for the repayment of the financing. The experience on the book does not impact this since it is not related to profits, but rather certainty that the premiums (and loading on top of premiums) will be paid*
- *Similarly, profitability of the book is not a main driver; size of the premium is however since the financing repayment is given as a % loading to the risk rate*
- *Credit risk is not with the distribution channel but rather the insurer – reinsurance agreement will be between the insurer and reinsurer*
- *The financing is contingent on the policy being in force rather than profitable. Many candidates discussed future profits being used to repay the loan but this is not*

accurate. As long as the premiums are paid, the financing keeps getting repaid. The claims experience impacts the profitability and is separate

- *Candidates would put down points like “risk of default of insurer” but then not explain the impact on the loading for financing – this would only get half the marks available; the question clearly said “Discuss”*

i) Indemnity Commission

- Form of initial commission...
 - ...under which a lump sum is paid in respect of new business written
 - Lump sum could be defined as multiple of premium...
 - ...or % of sum assured
 - Majority of commission paid in advance of premiums written...
 - ...therefore generally involves new business strain
- ½ for each, max 2 marks*

(i) Reinsurance premium:

- RI premium without financing = sum assured x QS% x (1+profit loading) x (risk per R1000 per annum) / 12 / 1000

$$= 500\,000 \times 60\% \times (1+15\%) \times (7.15) / 12 / 1000$$

$$= R205.56 \text{ per month}$$
- RI premium with financing = sum assured x QS% x (1+financing loading) x (1+profit loading) x (risk per R1000 per annum) / 12 / 1000

$$= 500\,000 \times 60\% \times (1+30\%) \times (1+15\%) \times (7.15) / 12 / 1000$$

$$= R267.23 \text{ per month}$$

(ii) Considerations for financing loading:

- Lapses would be the key assumption with the assumed level of lapses reflecting what is expected of the target market
 - lapses impact the ability of the insurer to collect premiums and hence repay the financing
 - the higher the lapses the shorter the average expected duration of a policy and the less time it has to repay financing, hence the higher the financing loading will be, and vice versa
- The amount of new business financing being offered under the proposal
 - In this case 6x first month's premium
 - The financing loading needs to be sufficient to be expected to repay the financing offered, taking lapses and interest rate into account
- Time period (months, years) over which the financing is to be recouped – the shorter the time, the higher the loading
- The base reinsurance premium to which the loading applies
 - The higher the base premium, the lower the loading needs to be to recoup the financing (all else equal) and vice versa

- Interest rate
 - The level of interest rate to discount expected future cashflows will be taken into account in the loading
 - The higher the interest rate and hence larger the discounting the higher the financing loading will be, and vice versa (due to lower present value of future loadings)
- The credit worthiness of the insurer and its ability to repay the financing
 - The better the credit worthiness the lower the risk of non-repayment and financing loading
- The clawback arrangement the reinsurer has with the insurer
 - If the insurer does not need to repay financing on lapsed policies, then the loading will be higher so that the reinsurer can recoup financing faster and to account for added risk
- Competitiveness of the financing arrangements – other reinsurers may also be interested in the business, so the loading needs to be competitive

QUESTION 5

Part i: A reasonable number of candidates were able to derive the rates but there were quite a few basic errors such as not accounting for the fixed administration cost as a monthly amount or multiplying the risk cost by the loadings instead of dividing by 1 – the aggregate loading percentage so that the gross premium has adequate provision. Credit was given for various approaches for calculating the risk premium.

Part ii: While this depended on the approach in Part i, credit was given for approaches which demonstrated that the risk portion doubled.

Part iii: A number of candidates appeared to misread the question and calculated the ratio of the two policy types instead of the claims ratio. A disappointingly low number of candidates commented on the level of the ratios and the implications for value to the policyholders. No credit was given for comments that simply described the calculation or the fixed cost proportion.

Part iv: A concerning number of candidates ignored the directions not to cover benefit changes (and suggested co-payments, waiting periods, benefit limits, exclusions) and also referred to managing claim costs (e.g. through medicine formularies) which did not recognize the fixed benefit nature of the product. Credit was only given for reinsurance where the candidates noted that the cost of such cover would need to be offset by the benefits. Candidates who carefully considered how to manage the proportion of policyholders being admitted and the length of stay once admitted scored well on this question.

(i)

Expected cost per covered admission = $(0.12 \times 3000 + 0.09 \times 4000 + 0.08 \times 5000 + 0.11 \times 8200) / (0.12 + 0.09 + 0.08 + 0.11) = R2022$ [alternatively calc average Length of Stay given >2 days = 2.022 days]

Expected rate of claims per life per annum = $0.18 \times 1.2 = 0.216$

Expected claim cost = $R2022 \times 0.216 = R436.752$ per annum

Admin loading = R300 per annum

Other loadings = 32.5% of gross premium

Premium = $(436.752 + 300) / (1 - 0.325) = R1091.48$ per annum

= R90.95 per life per month

(ii)

Expected claim cost = $R436.752 \times 2 = R873.504$

Premium = $(873.504 + 300) / (1 - 0.325) = R1732.52444$ per annum

= R144.88 per life per month

ii.

For policy in (i) ratio = $436.752 / 1091.48 = 40\%$

For policy in (ii) ratio = $1132.70 / 2122.524 = 50\%$

These ratios are very low and could affect the value of the policy overall considering principles of treating customers fairly.

The policy expenses are probably too high to support benefit per day as low as R1000.

iii.

Risk management measures that could be considered are:

- Underwriting
 - medical underwriting will reduce anti-selection levels
 - but will add to the policy expenses
 - could consider claims underwriting for pre-existing conditions
 - but this may lead to reputational risk that hinders sales
- Pre-authorisation
 - This will ensure that there is medical necessity for hospital admissions longer than 2 days
 - This will also add to the costs but the reduction in cost of cover could offset this.
- Use of networks
 - Limiting the benefits to certain hospitals may help to manage utilization
 - Would need to be an encouragement/incentive to use certain hospitals otherwise it is a benefit change
 - May ensure verification of medical necessity
- Other measures
 - Fraud management measures to prevent moral hazard
 - Eligibility criteria such as maximum age at entry

QUESTION 6

Part(i)

Candidates struggled to answer this benefit design philosophy question. The candidates who differentiated themselves approached this question by identifying a range of relevant problems in the private healthcare market and linked each of these to a benefit design feature that aims to solve the identified problem.

Although the question was specifically asking about benefit design, many candidates veered onto other topics such as underwriting, pricing, risk management, distribution, etc.

Candidates also seemed to not appreciate the “action word” in the question and tended not to fully discuss the issues as was asked and rather attempted to write in point form.

Part(ii)

Candidates performed well in this question by not only describing the relevant nature of the procedures (and the reasons why) but substantiated their answers by contrasting the procedures that would be irrelevant given the product philosophy.

Candidates are not expected to have a clinical background for this examination, but those who are exposed to the healthcare industry and who accumulated some medical knowledge managed to differentiate themselves in this question with insightful clinical dimensions and valid examples.

Some candidates did not follow the instruction of the question, and rather suggested ways how to identify the relevant range of procedures to be offered within this product design, for example conducting a market needs analysis.

Part(iii)

Candidates usually perform well in pricing questions, but in this particular question only a few were able to differentiate themselves by applying their prepared pricing response to the context of this question. For example, candidates who did not realise that the procedure would be performed with certainty upon sale explained in detail how claims incidence rates would be estimated, which did not attract any credit.

PART (i)

The candidate can discuss any six of the following product benefit design themes for one mark per theme:

- Certainty
- Transparency
- Prepaid or upfront payment
- Out-of-pocket expenditure
- Cash-paying target market
- Simplicity
- Flexibility

Certainty

In the eyes of the patient, the cost of private healthcare is highly uncertain due to:

- **Information asymmetry:** the severity of the healthcare cost depends on the condition diagnosed and the treatment prescribed which is not known to the patient upfront.
- **Tertiary healthcare:** the uncertainty of cost is exacerbated in the case of tertiary care as a typical individual would not have experienced hospitalisation frequently in their lifetime to understand the variability in healthcare cost.
- **High increase in tariffs:** The cost of private healthcare has increased at levels more than consumer price inflation over recent years.

Therefore, a product that introduces certainty of tertiary healthcare cost would provide peace of mind and increase the propensity to generate demand for such a product.

Transparency

Patients are often shocked when they receive their various medical bills and experience this as hidden fees being revealed after a healthcare service has been rendered due to:

- A healthcare provider cannot always communicate the healthcare cost upfront. This can either be due to the provider not wanting to disclose their tariffs in the market, or due to the patient's condition and treatment not being known upfront.
- A typical hospital patient would receive separate bills from the hospital, surgeon, anaesthetist, radiologist and pathologist.
- PMI policyholders are not always aware of the various co-payments and deductibles they are subject to, and they often blame their healthcare provider for not communicating these upfront.
- A PMI policyholder may be interested in this product where the surgery or medical procedure is not covered by their PMI benefits, for example, cosmetic surgery.

Therefore, a product that can remove the “shock value” associated with medical bills and introduce transparency of cost upfront would provide peace of mind and increase the propensity to generate demand for such a product.

Prepaid or upfront payment

Offering a product that enables pre- or upfront payment enhances the certainty experienced by the patient as his or her expectations are managed by clear communication.

Prepayment can avoid the “shock value” associated with in-arrears medical billing, and increase the propensity to generate demand for such a product.

The prepaid feature implies that recurring premiums, contributions or payments are not required.

Out-of-pocket expenditure

PMI policyholders often question the value-for-money of their cover when paying expensive premiums or contributions, while often incurring out-of-pocket expenditure due to limits being reached, co-payments or depleted medical savings account.

In this instance, the product is targeted towards cash-paying patients, which implies the cost of the Prepaid Global Fee will be paid out of the patient's pocket, but such a patient could view any higher-than-expected cost as an out-of-pocket payment such as additional fees due to medical complications, or hidden fees.

Therefore, a product that can guarantee zero additional out-of-pocket expenditure – for the specific treatment required – would provide peace of mind and increase the propensity to generate demand for such a product.

Cash-paying target market

A key problem is the issue of affordability. While healthcare is a basic requirement, the general population is diverse in its affordability levels. Thus, there is a primary level of demand with additional services demanded by those with higher affordability levels.

This is a product that consulting surgeons can offer to their cash-paying patients as an alternative to referral to a state waiting list for needed care. This product can provide relief to the State's healthcare burden and reduce waiting times.

This product also provides an opportunity for patients without insurance cover to opt for care within the private healthcare sector.

The fact that this product can be paid in cash, makes this product so much more flexible in terms of how this cost can be funded. The patient can obtain a loan, crowd-fund or pay with savings or disposable income.

The use-it-or-lose-it concept does not apply, but rather buy-as-needed.

This product is voluntary and can be purchased on an as-and-when basis.

Repeat purchasing of this product is possible, making this an innovative product feature.

Simplicity

Health insurance products have complex benefit designs – members, policyholders and/or patients hardly have a comprehensive understanding of these products.

While this product is simple in its nature: pay a once-off fee for a single procedure - in full.

Cash paying patients may not necessarily be aware of the complexity of health insurance benefit design and nonetheless may be attracted to the simplicity of this product.

The simplicity is further enhanced given that this product does not rely upon cross-subsidisation – a concept not always appreciated by laypersons.

Flexibility

Health insurance products are highly regulated, resulting in little to no variations in benefit designs between insurers, and thereby limiting the scope for tailored solutions.

This product can be treated like an optional top-up benefit to a health insurance product, making this product a flexible solution.

PART (ii)

As the Prepaid Global Fee is intended for cash-paying patients, affordability is critical to ensure this market will be able to afford a once-off expense in advance. The nature of the surgeries or medical procedures is therefore driven by factors affecting the affordability of the product.

Frequent/high demand

The considered surgeries or procedures should be performed frequently by healthcare providers which translates into a direct high demand for the Prepaid Global Fees while frequently performed procedures also generate high volumes of granular data that is advantageous for analytical and pricing purposes.

Frequently performed procedures also have the ability to stimulate efficiencies, translating into fewer complications, faster theatre times and stability in cost.

Examples of frequently performed procedures include cataract removal, tonsil removal, appendix removal, wisdom teeth extraction, hip replacement, knee replacement, shoulder replacement, and scopes.

Low complication rate

The considered surgeries or procedures should have low complication rates, i.e. where patients do not often require additional medical attention during the procedure while in theatre and/or during recovery.

That is, the surgeries or procedures should be deemed a low-risk procedure such that the theatre time is predictable and the probability of utilising higher levels of care is low.

Surgeries or procedures with high complication rates are likely to be expensive and volatile due to unpredictably long theatre times, and recovery in expensive wards such as the Intensive Care or the High Care units with unpredictably long lengths of stay.

Surgeries or procedures with low complication rates are likely to be more affordable and have more stable costs to assist in predictable pricing and lower required margins for risk.

Low mortality rate

The considered surgeries or procedures should have a low mortality rate as a high mortality rate is often as a result of (or associated with) a high complication rate, which can result in expensive and unpredictable pricing.

Small variability in cost

The considered surgeries or procedures should have a small variability in cost to assist with the predictability in pricing.

This implies that the considered surgeries or procedures should have:

- small variability in theatre times;
- small variability in the nursing staff involved (number of nurses and speciality of nursing skills);
- small variability in the medication used (used during the surgery, during recovery and those dispensed to be sent home with the patient);
- small variability materials and consumables used during the surgery;
- small variability in length of stay;
- small variability in the level of care.

Short theatre time

The considered surgeries or procedures should have a short duration in theatre to assist in the affordability of the product.

The short theatre time is also indicative of the potential low risk associated with the procedure and the efficiency at which the procedure can be performed.

Short length of stay

The considered surgeries or procedures should have a short length of stay, implying a fast in-hospital recovery time to assist with the affordability of the product.

It could be the aim to consider day cases only where no or only one overnight stay is typically required. If the care required during recovery could be provided in the home setting this would also reduce costs and improve affordability.

Preferably the in-hospital recovery should be spent in lower level of care (i.e. the general ward) with a small probability of long lengths of stay in higher levels of care.

Sufficient supply of healthcare providers

The considered surgeries or procedures should have sufficient surgeons or medical specialists available or willing to perform these procedures.

The considered surgeries or procedures should be commonly done by surgeons to be considered fairly routine surgery.

Other valid considerations

- Once-off procedures, or procedures where the likelihood of a subsequent procedure is very low.
- Single surgeries or common combinations of procedures that can be performed during the same admission (e.g. tonsillectomy and adenoidectomy, or breast enlargement and breast lift).
- Procedures of which the cost is somewhat age-agnostic.
- Minimal need for specialised equipment or facilities.
- Elective, non-emergency, and/or planned procedures that could lend itself to pre-authorisation.
- Procedures that are typically not covered by PMI products.

PART (iii)

Hospital Data

The time period of the data should be recent, but the actuary should be careful of data during the calendar years of 2020 and 2021 as the data might be distorted by the COVID-19 pandemic.

The data should be used to ascertain the severity of the procedure cost only, while there is no need to estimate utilisation trends or claims incidence rates. We know with certainty that this procedure will be performed upon sale (i.e. the probability of occurrence is 100%).

The hospital data should provide historic fees for these procedures that should be sufficient to cover or make sufficient contribution towards hospital costs including:

- Catering costs
- Payroll
- Administrative expenses
- Medical Support Services
- Repairs and replacements
- Operational costs
- Profit.

The above investigation could be performed by means of an activity-based costing exercise.

Identify the relevant CPT codes for each procedure while liaising with a healthcare professional or a clinical coding specialist to understand the implications of including or excluding certain CPT codes.

Apply rules to the data as per protocols or clinical entry criteria, for example

- Age limits: is the procedure for children only, or adults only.

- Length of stay limitations: if the intention is to consider day cases only, then exclude data points where the length of stay exceeds 1 day or procedures with a high proportion of cases with more than 1 day length of stay.
- Level of care: if the intention is to consider cases with limited probability of higher levels of care, then exclude data points where patients required care in High Care or ICU wards or procedures where patients often required care in High Care or ICU wards.
- Consider trimming the distribution: exclude a specified portion of the left and right tail of the probability distribution to discard likely outliers.

Perform a scenario test where the above data points are excluded, and another scenario where no data points are excluded, and use the relative difference of these scenarios to quantify the risk associated with complications.

Investigate the data whether the hospital typically owns the equipment required to perform the procedure, or does the specialist need to bring the required equipment, and quantify the difference of the usage fee between the hospital and the specialist.

Investigate whether the data includes cases where the procedure can be done with local anaesthesia, or general anaesthesia only.

Investigate whether the data reveals common procedure combinations, e.g. colonoscopy and gastroscopy that should be grouped as one product...

...and assess whether the combined cost can be less than the sum of the individual procedures.

Investigate whether the data reveals if there are multiple procedures per patient and whether there are cost differences in these cases, e.g. if one patient requires two cataract removals or multiple teeth extractions.

Protocols

Incorporate the relevant protocols of this product in the pricing, for example:

- The bill of the materials and consumables can be agreed upfront and priced for as the sum of each material, assuming the healthcare professionals will abide by these prescribed materials.
- The maximum theatre time can be agreed upon and priced for using this maximum theatre time.
- Protocols (like the above) can also be informed by the historic data, while liaising with a healthcare professional to appreciate the clinical nuances.

Provider networks

Set up a network of efficient providers and negotiate favourable rates to assist in affordability of the overall product:

- Specialists
- Anaesthetist
- Pathology labs

- Radiology.

The negotiation strategy should include that these products enable a new market to be channelled to these providers while appreciating that these are not PMI policyholders, but cash paying patients.

Determine the healthcare cost

The healthcare cost per procedure would represent the sum of the following:

- Hospital cost
- Medication cost
- Specialist fee
- Anaesthetist fee
- Pathology fee
- Radiology fee.

The healthcare cost should be sufficient to cover all the fees, and there is no cross-subsidisation mechanism.

Expenses

The following expenses need to be added to the healthcare cost to build the Prepaid Global Fee:

- Administration fee
- Bank charges
- Risk margins
- Profit margin.

Tax

Value-added tax needs to be added to the final price.

Rounding

The final sales price should be rounded (perhaps to the highest R100), as well as each agreed tariff for each provider.

Future prices

The components of the Prepaid Global Fee should increase with inflation every year to align with the inflationary practice in the private healthcare market.

Competitive Comparison

A competitive comparison would be difficult to perform as similar products are unlikely to be available in the market.

And if there are comparable products in the market, it is unlikely that the cost breakdown would be publicly available.

QUESTION 7

Overall, the question was well-answered, with candidates being able to apply themselves to the benefits, the risks and the managing of these risks of adding a new/novel benefit to their PMI plans.

For Part i, the key points related to the increased marketability of the plan, and the potential improvement in members' health. In part ii, candidates lost some marks for not "discussing" their points. The key risks related to anti-selection (both joining and lapsing), pricing/cost, uncertainty, efficacy. In Part iii, candidates often generated and described too few points around managing the risk of offering this extra benefit.

i.

Advantages

- Better health outcomes for obese individuals
 - o Reducing obesity reduces the risk of a multitude of other health conditions,
 - E.g. diabetes, heart disease, etc.
 - Which are very costly to manage and treat, and result in frequent hospitalisations
 - o Better health outcomes result in lower utilisation of healthcare resources (medicine, visits, hospitalisations)
 - And reduced healthcare expenditure overall, which could make the product more profitable
 - (or premiums can be made more attractive to the market).
- Goodwill from policyholders
 - o Offering the benefit seen as insurer truly caring about policyholders' wellbeing
- Marketing and sales benefit
 - o May be a unique benefit in the market
 - o Making it attractive for brokers to sell this PMI product
 - o If valued by the market, can potentially sell at a higher price → higher profits
- If attractive and sales increase, higher business volumes to spread overheads, resulting in further economies of scale

ii.

Key risks

- Cost
 - o "Slimbo" comes at a significant price tag (R3000p.m, or R36000pa per policyholder).
 - o If a significant number of PMI policyholders are on "Slimbo", it will cost the insurer significantly – will depend on the risk pool of the insurer

- There is a risk that high demand for the drug may keep prices thereof high for an extended period of time, or that a cheaper generic may not become available soon
- The high cost of “Slimbo” may outweigh the benefits, overall, of covering it for policyholders
 - i.e. the better health outcomes and reduced healthcare costs for obese policyholders
- This will reduce the profitability of the insurer’s offering and may require premium hikes in future
- Making the insurer less attractive to the target market and especially to those not suffering from obesity.
- Anti-selection
 - The insurer may become the insurer of choice for the clinically obese, especially if other insurers do not cover “Slimbo”
 - Attracting a larger number of obese policyholders will worsen the insurer’s overall risk pool
 - given the association between obesity and a multitude of health-related conditions
 - This will also necessitate premium increases for the increased risk
- Clinical efficacy
 - Some clinical benefit have been established, but currently still very little information on its efficacy is available
 - i.e. is the benefit permanent? Or do policyholders need to keep using the drug to continue experiencing the benefit of reduced bodyweight
 - Drug side-effects? Or other, negative impacts on health?
 - Lifestyle factors – is the drug effective on its own or more effective in combination with lifestyle adjustments
 - If the latter, risk of reduced efficacy, lower benefits compared to high cost
- Regulatory risks
 - Local approval of drug may take time
- If addition makes insurer very attractive, could possibly result in diseconomies of scale
 - Service levels dropping, claim processing slowing, etc. resulting in unhappy policyholders
 - Significant systems and other infrastructure upgrades, additional staff, etc. required
- Reputational risk
 - If have eligibility criteria and policyholders want to access drug don’t meet insurer’s criteria
 - If drug has side-effects/unintended consequences – could blame the insurer

iii.

- Anti-selection
 - Could limit anti-selection via underwriting (if permitted) and charging higher premiums (if permitted) for those at a higher risk
 - Pre-existing exclusions can be applied to new/existing policyholders or waiting periods before policyholders become eligible for the benefit.
 - Requiring co-payment on “Slimbo” shares the cost between policyholder and insurer
 - If lifestyle factors impact efficacy, this will incentivise policyholders to also adjust behaviour accordingly
 - Similarly limiting the maximum amount of cover for “Slimbo”
 - Strict clinical criteria for qualifying for benefit,
 - e.g. BMI > x; co-morbidities; bodyweight > x, etc.
 - Having a disease management programme for obesity to ensure drug adherence, consultations and to provide education and encouragement for lifestyle-related behaviours
 - Self-payment through an MSA
- Cost
 - Price agreements with providers
 - Only available from network providers (e.g. pharmacy group)
 - Only covering generics (if available)
- Reinsurance
 - Can assist with data, modelling efficacy, pricing, etc. regarding cover for “Slimbo”
 - Reinsurance can assist with risk transfer, e.g. Quota share, XoL cover to limit some risk exposure
- Efficacy
 - Continually monitoring performance of drug; emerging research; side-effects, etc.

QUESTION 8

Overall, this question was not answered well.

In some cases, it may have been due to poor time management, as some candidates did not attempt part or all of the question, possibly due to running out of time and not reaching the end of the paper.

In other instances where the question was attempted, most candidates did not understand the reason for using income bands to set different contributions, which is to provide low-income earners with access to healthcare based on their ability to pay, and therefore have higher-income earners subsidise their contributions for the same benefits. Most candidates instead answered that income is used as a rating factor as a proxy for health, where low-income earners would be worse risks than high-income earners, and as such low-income earners would pay more and high-income earners would pay less. Given this, question (i) was not well-answered.

Following on from this, question (ii) was also poorly answered because the reasons given were based on how to use income to determine the risk and price accordingly, versus other rating factors, such as age, gender etc.

Question (iii) was answered too generally, i.e. the candidates did not give reasons specific to why this entry-level hospital plan (as compared to other plans) had worse experience this year (as compared to previous years).

Question (iv) was not answered well where candidates assumed that income was being used to price for risk. As a result, answers given related to pricing according to the risk of the policyholders within each income band.

Question (v) was generally answered well, as candidates could identify the commercial and operational factors that would be impacted due to a change in the plan.

(i)

- Income bands are sometimes incorporated into PMI products to increase access to PMI benefits for lower income individuals.
 - o Lower income individuals may also be of younger age and have better expected health experience (converse is true for pensioners, but through this option they get access to care which may otherwise have been unaffordable)
 - o Lower income individuals also may have lower levels of access to healthcare, reducing their utilisation
- On this plan, a higher income individual will be charged a higher premium/contribution than a comparatively lower income individual. However, both parties are entitled to the same PMI benefits.
- This is a product design feature which enforces a cross subsidy from the wealthy towards the less wealthy.
- Jointly, income banded options can be used to discourage high income individuals from buying entry level options as they may be paying as much for an entry level income banded option as they would pay for a non-income banded more comprehensive option.

(ii)

- In order to be enforced, this requires proof of income for each individual applying to be part of the PMI option.
- This may be difficult to verify for those who receive more than one income, but don't disclose these
- Self-employed individuals may not derive an income from their business directly for themselves
- Certain individuals may have irregular income, e.g. commission based, which means one year's income may not be a true reflection of their actual income averaged out over a longer period.
- Different employers may define 'income' differently, e.g. bonuses and allowances – included or not?
- Extra costs involved in gathering, analysing, storing income/salary information

- May need to review income each year, especially for those in lower income bands and who may have changed jobs, become employed or received promotions without disclosing
- If multiple lives covered on the policy, their combined incomes need to be considered
 - o Which could increase complexity or opportunities for non-disclosure
- Complexity in appropriately selecting income bands and relative pricing of each band and inflating each year
- May not achieve desired level of cross-subsidising if pricing of higher income bands incentivises wealthier individuals to join other options that are similarly priced and more comprehensive

(iii)

- Entry level income banded options tend to attract poor risks as lower income individuals are less likely to seek PMI cover unless they deem the need for it outweighing the cost of purchasing it (i.e. characterized by anti-selection).
- Lower-income individuals may also be pensioners, who are expected to have more healthcare needs
- Competitors may be offering fewer comprehensive benefits on their entry level options and so the large insurer is attracting more of the poor risks.
- Competitors may be offering their entry level option at a less competitive price point and so the large insurer is attracting more of the poor risks.
- Competitors may have closed or changed their income-banded options and so their lower income PMI business is being channelled towards the large insurer as this is the most attractive or only PMI product in the market.
- If the insurer's risks in the income-banded option are geographically concentrated there may have been an outbreak of or marked increase in a particular disease affecting the target market which has led to increased claims for these groups.
- There may have been a big marketing drive to increase the volume of business on this entry level option. The business mix may have been poorer than was previously on the option resulted in the severe loss experience.
- The checking of income bands and the allocation of policyholders to an income band may not have been rigorously applied which may have resulted in a lower premium/contribution collection which could have contributed towards more severe losses.
- There may have been various claims stage and operational inefficiencies which may have contributed towards the experienced loss if this plan is administered separately/has its own team.
- Successfully appealing to the lower-income population and fewer in higher-income populations (than expected) may result in worse claims experience
 - o The link between income and health is well-established
 - o Especially since underwriting for poor risks is limited in a community-rated environment

(iv)

- The impact will depend on the direction of the income band shift.
- In order to reduce the loss, claims have to decrease or premiums/contribution income has to increase.
- By shifting the income bands down: allowing fewer policyholders to be in the lower income bands and shifting more policyholders to be in the higher income bands, that are associated with higher premiums/contributions, the entry level hospital plan will receive larger premium income (assuming policyholders remain on the option and no new policyholders join)
- If claiming behaviour continues as per last year, the loss should be less severe and so align with the manager's view.
- Additionally moving the income bands down may make the plans less affordable to more of the lower-income market
 - Who are expected to have worse health, hence improving experience on the plan,
 - But, the higher income earners will also see less value in the option now, and switch plans
 - Leaving a worse-off risk pool in the option, exacerbating the problem
 - The overall impact will depend on the relative profile of the lives leaving but if it is a small plan and is already making losses, less lives leads to less contribution to overheads and likely more losses
- If the income bands are shifted up, the plan may be more attractive to wealthier individuals - they are expected to have better experience
- However, the plans will also be more attractive to even lower income individuals if the lowest band is moved up, which may further exacerbate the problem
- The overall impact depends on the relative movement onto the plan, but higher volumes should result in economies of scale.
- Overall, it seems that an upward shift in income bands on the option will be most favourable due to plan being more attractive overall.
- If a shift is favourable compared to competitors' income bands, may attract more members/lose fewer members
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(v) Commercial:

- Any income band shifts may be viewed negatively by:
 - The regulator: who may disallow such changes
 - Policyholders: who may withdraw from the product (or may also result in selective lapses/joins depending on direction of change)
- A thorough modelling exercise needs to be done to ensure that the income band shifts would actually be beneficial to the option's experience and what magnitude of shift is required (what is the aim of management).
 - Scenario tests and more granular sensitivity tests will be required
- Competitors' income band options should be considered as a misalignment here may cause a change in business mix or anti-selection

- Other alternatives should be considered – such as reducing benefits, applying copayments, using networks. No decision should be made unless alternatives have also been considered.
- Consider implementing change over several time periods instead of once-off in order to reduce the impact to the policyholder

Operational:

- Systems would need to be updated to reflect the new premiums/income bands.
- Marketing material would need to be updated and distribution channels would need to be made aware of the changes.
- Income verification may need to be done to place policyholders into the correct income bands which is timely and costly.
- All these will add to the expenses of the entry level option and negate potential “positive” impact of income band shifts.