

EXAMINERS' REPORT

June 2023 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

In part i, candidates often didn't elaborate on how key aspects of valuations would be impacted by better diagnostic technology. Specifically, the impacts on the duration, size, and likelihood of liabilities arising (as well as the interconnectedness of these aspects).

*In part ii, many candidates generated a reasonable number of points, but neglected to focus on what was asked for; i.e. **five product design** changes that could be made. Many generated responses related to pricing, reinsurance, etc., which are not what were being looked for in **product design**.*

Additionally, many points were generic, and not linked to the topic at hand, e.g. "introduce exclusions for pre-existing conditions" or "claims management". These are general considerations which should be assumed to be in place for the existing policies. The question required input on how these should be adapted in order to better account for what has been introduced in the question, i.e. higher likelihood of early detection of conditions currently forming part of CI cover

i.

This could have a number of effects on the experience

- The main effect of earlier diagnoses resulting from improvements in diagnostic technologies would be earlier payment of benefits, which would worsen the experience. This is because policyholders would receive the lump sum payout earlier, and the insurer would have to pay out the benefit for a longer period (if there is an annuity portion)
- Potentially more policies which are claimed on in absolute terms, as some people may not have otherwise been diagnosed, again worsening the experience
- For tiered benefits, earlier diagnosis would mean that the severity of claims would be reduced, potentially resulting in better experience. This is because policyholders would receive a lower lump sum pay-out for less severe illnesses, and the benefit would be paid out earlier. If treated and prevented from worsening to stages triggering higher pay-out, further improvement in experience can be expected
- However, for non-tiered benefits, this would mean that claim sizes remain the same, but with earlier payments
 - As a result, reserves might be insufficient to cover the payment
 - It would also mean that the experience would be worse than before
 - UNLESS, claims definitions require greater severity – then diagnostic technology would actually reduce claims incidence rates if early diagnosis translates into successful treatment.
 - Leading to the number of cases reducing rather.
- The overall result on a non-tiered benefit structure would thus depend on the claims definitions
- For tiered benefit structures, there would also likely be a worsening at lower benefit levels

ii.

- **Tiered benefits:** A tiered benefit structure can help mitigate the impact of improvements in diagnostic technologies on the insurer's liability. In a tiered benefit structure, the lump sum payout varies based on the severity of the illness. This means that if a policyholder is diagnosed with a less severe form of a covered critical illness, the insurer would pay out a lower benefit, reducing the liability.
- **Deferred period:** The deferred period is the period between the diagnosis and when the benefit becomes payable. Adjusting the deferred period can also help account for the impact

of earlier diagnoses. For instance, if the deferred period is longer, the insurer would have more time to adjust its reserves and manage its risks effectively.

- **Waiting period:** Longer waiting periods – from the date of policy inception, to when a claim will be accepted can avoid anti-selection and early diagnoses due to diagnostic advances..
- **Update Claim Definitions in Policy Wording:** The insurer can ensure that their claims definitions are clearly defined at what severity a valid claim is payable – this would remove ambiguity as well as act to control at what point a reserve needs to be set up by removing the possibility of lower severity claims not accounted for in the valuation basis.
- **Product exclusions:** Another way to account for the potential impact of improvements in diagnostic technologies is to add exclusions to the product. Exclusions can be added for illnesses that are not covered under the policy or for illnesses that are covered but are more likely to be diagnosed early.
- **Updating underwriting assumptions:** Insurers may need to update their underwriting assumptions to reflect the potential impact of earlier diagnoses on the claims experience. This could involve reviewing the mortality and morbidity rates for different critical illnesses and adjusting the premium rates accordingly.
- **Adding risk factors:** Insurers can add risk factors to the underwriting process to account for the potential impact of improvements in diagnostic technologies. For instance, the insurer may ask policyholders about their family history or lifestyle factors that may increase their risk of developing a covered critical illness.
- **Health and wellness programs:** Insurers can offer health and wellness programs to policyholders as a way to encourage them to maintain a healthy lifestyle and reduce their risk of developing a covered critical illness. This can include access to preventive screenings, healthy living tips, and fitness programs. By promoting health and wellness, insurers can help reduce the incidence of critical illnesses and, in turn, reduce their liabilities.

QUESTION 2

Overall, candidates scored well in this question overall. Where candidates didn't score well, it was generally due to writing too few points or mixing up terminology showing a lack of understanding (Stop Loss was frequently incorrectly used instead of Cat XL, and Contingent Loans were sometimes given in the explanation of ART instruments like Cat Bonds or Post-Loss Funding).

i

- *Generally, candidates did well in this part of the question*
- *Some candidates treated Ind Risk XL as being for a specific risk / peril (like out of ICU) rather than at an individual policy /sum assured level – this is different*
- *Some candidates mentioned Stop Loss rather than Catastrophe XoL; this is a subset of Aggregate XoL and duplicate marks were not awarded. Where candidates mentioned Stop Loss instead of Aggregate XoL marks were awarded for valid points made.*

ii

- *Candidates generally scored well in this part of the question*
- *Non-independence of COVID 19 claims was awarded a mark under Cat XoL*
- *Many candidates failed to tie their answers back to the question given around COVID 19 and instead mentioned generic events like flu epidemics*
- *The window period for Cat XoL was not defined by many – this is the main reason why it is not pandemic appropriate (apart from it being unlikely part of the definition of a catastrophe)*
- *Most candidates correctly identified Aggregate XoL as being the most appropriate Non-proportional reinsurance structure for the question being asked*

iii

- *Candidates generally performed more poorly on this part of the question*
- *Many did not generate enough points for the 3-mark question*

i) Three types of excess of loss reinsurance (XOL):

- Risk XL
 - Covers losses up to a specified limit, after which the reinsurer takes over.
 - Relates to individual losses...
 - ...affecting only one insured risk at a time...
 - Useful where large individual losses sometimes occur
- Aggregate XL (or Stop Loss)
 - Similar to risk XL but covers a whole portfolio of losses instead of individual
 - ...above an agreed limit or attachment point...
 - ...and up to an agreed detachment point...
 - ...for a 12-month period...
 - ...comprising one or several classes of business
 - Can provide protection against a series of losses that are not individually large enough to trigger a Risk XL, but that accumulate over time to exceed the attachment point.
- Catastrophe XL
 - Covers a defined common cause or peril (single event)
 - Over a particular time period, usually 72 hours for example
 - Can cover losses from natural disasters or other catastrophic events, and is usually structured to cover losses that exceed a certain monetary threshold or that affect a certain geographic area.

ii) Appropriateness of three types of XOL

- Risk XL
 - could be appropriate if the long COVID-19 claims are proving to be higher individual claim amounts...
 - for example, long duration stays in ICU or require specialist equipment...
 - However, not appropriate for many recurring hospital visits, or for claim events increasing the total volume of claims across the PMI book
- Aggregate XL
 - would be better suited for higher volumes of claims than expected, as result of pandemic and long COVID.
 - The claims experience above the attachment point would be recoverable from the reinsurer and the insurer could take out many cover levels if concerned that claims could spike again in the future (future waves for example)
 - The lower the attachment point the more expensive the cover would be
 - Less useful when the claims are evenly spread over time, as it provides protection only for the portion of the losses that exceed the attachment point during the 12-month period.
- Catastrophe XL
 - Unlikely to be appropriate given pandemic cover not usually included in catastrophe XL...
 - ...and difficult to define a single event in a pandemic with appropriate claim event window

- More suited to risks that are low frequency and high severity, such as hurricanes or earthquakes, rather than pandemics which are high frequency and moderate severity.

However, there are various other factors (such as the attachment points and potential costs) that could impact the insurer's decision to choose a specific type of XOL arrangement.

iii) A contingent loan:

- Is directly proportional to the value of the future profits contained in a block of business...
- ...rather than current assets or collateral...
- ...with repayment of the loan to the insurer being contingent on those future profits
- The contingent loan may have certain conditions attached to it, such as minimum profit levels or a maximum repayment period, that could affect the ultimate benefit to the insurer.
- The cedant may not need to reserve for the repayments within its supervisory returns given the contingent nature
- Insurer experiences an increase to its assets (inflow of cash) equal to the size of the loan
- ...and no corresponding increase in liabilities...

...resulting in an improved solvency position of the insurer

QUESTION 3

This question required candidates to apply their knowledge around the solvency capital for a health insurer. Most candidates were able to attempt all parts of the question, with part (ii) being where candidates appeared to struggle.

For part (i), candidates needed to discuss benefit design features that specifically related to claims. Thus, no credit was given where non benefit design items were discussed nor where benefit design features unrelated to claims were discussed. Some candidates also forgot to include the impact on marketability of their proposed benefit design features.

Surprisingly for part (ii), few candidates were able to perform this calculation. Some candidates failed to include the correlation coefficients or subtracted instead of added the correlation terms.

For part (iii), most candidates were correctly able to discuss the effects of correlation and diversification benefits.

Part (iv), required candidates to realise that using additional capital towards the reserves in fact lowers the amount of free capital. It is also only the amount of free capital remaining that can be used towards decisions such as changing investment strategy, new business etc. If any of these aspects change, then the underlying solvency requirement will change which will likely require more of the free capital to be used towards the reserves to maintain solvency given the change in underlying risk profile. In addition, candidates needed to look for breadth in their points to score well.

*For part (v), candidates again needed to look for breadth in their points to score well. Candidates that scored well were able to distinguish points from part (iv) which discussed the **impact** as opposed to part (v) which discusses the **reasons why** this capital decision would be made.*

(i)

- For indemnity products, have agreements in place with providers of care
 - o May limit choice for policyholders for carers and settings of care, reducing marketability
- Offering cash not indemnity benefits
 - o Indemnity is likely to be very expensive given the uncertain increases in cost of care – especially if specialised/nursing care is covered.
 - o Policyholders will prefer indemnity, however, this would make the products prohibitively expensive, so cash benefit products may still be marketable.
- Having a deferred period – the longer the deferred period, the less the risk, however, may leave policyholders vulnerable during the deferred period
- Limited payment term after inception – may be very unpopular – vulnerable policyholders after term elapsed
- Definitions of incapacity – the more stringent, the less the risk,
 - o However, significant negative impact on marketability if too stringent.
- Unit-linked designs
 - o Transfers some/all investment risk to policyholder
 - Depending on fund protection and or guarantees
 - o Policyholders may find unit-linked options attractive as it acts like a savings policy in case they don't claim
 - o However, these will be very complex – charges, investment funds, returns, etc. – which may impact marketability
 - o Also, risk of policyholder not understanding their risks, i.e. the impact of risk charges reducing unit fund value; and negative press may affect future marketability
 - o Level of unit fund protection – lower (or no) fund protection significantly reduces the risk to insurer, and marketability reduced
 - Policyholders value the security of knowing some of their investment is protected
 - o Knowing fund value may be depleted if risk charges exceed investment returns, and that there is even a risk of cover lapsing in the absence of guarantees if fund value becomes exhausted – will impact marketability
 - However, insurer may offer a guarantee that cover will not lapse if fund becomes depleted – added risk, but added marketability and better match to policyholders' needs.

(ii) Aggregated capital requirement

$$\begin{aligned} &= \text{root of } [(\text{sum of squares}) + \text{matrix sum}(\text{Corr} \times \text{Capi} \times \text{Capj})] \\ &= \text{root of } [(150^2 + 10^2 + 15^2) + (2 \times 0.5 \times 150 \times 10) + (2 \times 0.2 \times 150 \times 15) + (2 \times 0.3 \times 15 \times 10)] \\ &= 159.11 \end{aligned}$$

(iii) The sum is 175 which is greater since the risks are not 100% correlated and hence there is benefit from diversification.

(iv)

- The company will have a lower level of free assets
- This would restrict its investment freedom
- And also the limit the amount of business growth it can sustain
- And the amount of profit that can be distributed

- The cost of capital for the insurer will be higher – assuming reserves generate lower expected returns
- Resulting in lower return on capital
- May delay emergence of profit – and hence taxes

iv)

- Insurer's actuary may have assessed the prudent reserving level is higher than the statutory minimum
 - o Based on the own risk and solvency assessment
 - o Significant uncertainty around LTC incidence rates and length of time for which payments will need to be made
- Actuary has professional responsibility to ensure that reserves are adequate and not just meeting statutory level
- External events/experience changes may result in solvency level being variable at different valuations
 - o Being too close to the minimum requirement may risk it dipping below and possible regulatory intervention
- Company specifics may mean that statutory approach deemed not appropriate – onerous products
- Also statutory minimum may be determined on an outdated basis or not allow for all the risks the insurer believes it is facing – people living longer requiring care

QUESTION 4

This question required candidates to have an understanding of what risk adjustment is and why it is a beneficial measure, as well as understand how to do a risk adjustment calculation. Overall this question was very poorly answered by candidates, this is largely due to candidates either not showing their workings/calculation steps or candidates simply did not know how to correctly do a risk adjustment calculation.

For part (i), some candidates failed to convert their answer into an annual cost at the end, and in some cases incorrectly used total costs instead of cost per admission early on in the calculation. Candidates needed to show their full workings to score all the marks.

For part (ii), candidates needed to link their answer to risk adjustment or discuss efficiency of resources. This would demonstrate the appropriate application to what is being asked.

For part (iii), candidates struggled to perform these calculations or in some cases appeared to have misread what was asked for. They needed to use the admission volumes as weights, which is something only a few were able to do. Candidates again need to show their full workings to score all the marks.

For part (iv), candidates were awarded some method marks as the answer for part (iv) depended on the calculations done in part (iii). Very few candidates linked comments back to what the results meant in terms of the hospital's ability to manage trauma and non-trauma admissions. This again required applying knowledge of case mix adjustments.

- (i) Expected cost per admission for 2022 was $21\,800 \times (1.07) \times (1.017/1.005) = 23\,604.52$
Claims experience was higher therefore hospital must repay $23\,900 - 23\,604 = R295.48$ per admission

So total of $R295.48 \times 6400 \times 12 = R22\,692\,909.85$ for 2022

- (ii) The aim of the agreement is to incentivize the hospital to improve efficiency
The case mix adjustment aims to allow for the mix in cases arriving at the hospital
So that the hospital is not penalized for the increase in the cost per admission being due to a higher case mix
So if the trauma cases are more serious then this should be allowed for in the case mix adjustment
But the higher cost per case could increase variability and hence there will be more stable experience if these are removed
The insurer would want the hospital to also have an incentive to manage the trauma cases efficiently

- (iii) The adjusted case mixes are calculated as follows:

$$2021: (5800 \times 1.005 - 300 \times 2.8) / 5500 = 0.9071$$

$$2022: (6400 \times 1.017 - 400 \times 2.9) / 6000 = 0.8915$$

Adjusted cost per admission:

$$2021: (21800 \times 5800 - 300 \times 86000) / 5500 = 18298.18$$

$$2022: (23900 \times 6400 - 400 \times 92880) / 6000 = 19301.33$$

In table form:

	2021	2022
Net cost per admission	18,298.18	19,301.33
Net number of admissions pm	5500	6000
Case mix	0.9071	0.8915

- (iv) Expected admission cost for 2022 = $R18\,298.18 \times 1.07 \times (0.8915 / 0.9071) = R19\,241.81$
So excess cost is now only R59.52 per admission and refund to insurer is R4 285 294.56

There was a 33% increase in the number of trauma admissions
These admissions have a higher case mix factor
So removing them reduces the case mix factor
And the change in the case mix factor is now a reduction
So although the increase in the cost per admission rate is now lower
The reduction in the case mix factor increases to reflect the inefficiencies
Hence there is still a refund due to the insurer but it is lower – meaning that inefficiencies exist in managing trauma cases
These should be investigated

QUESTION 5

Overall, while there were candidates who demonstrated a solid understanding of primary healthcare insurance product design and provided comprehensive and accurate responses, there were also candidates who struggled with certain aspects or failed to address all the required points. It is recommended that candidates further develop their understanding of primary healthcare insurance, benefit design concepts, and the factors influencing product design to enhance their performance in similar examination questions.

(i)

The majority of the candidates showed a strong understanding of the basic definitions of primary, secondary, and tertiary healthcare. They were able to identify these as progressive stages in healthcare. Many responses also included clear examples of healthcare providers or situations at each level, which demonstrated their ability to apply these definitions to real-world scenarios. There were however some common misconceptions. Some candidates had an inaccurate understanding of secondary care, often equating it strictly with inpatient hospital care. While secondary care often takes place in hospitals, it can also include outpatient specialist care. It is important to highlight the role of referrals in accessing secondary and tertiary healthcare services, which was sometimes overlooked. There were instances where candidates provided incomplete or cut-off responses, resulting in unclear or missing information. This suggests a need for better attention to detail and thoroughness in responses. The complexity of healthcare definitions was also occasionally oversimplified or generalised. This lack of specificity suggests that there might be gaps in understanding or the need for more comprehensive knowledge of the topic.

(ii)

Overall, the candidates exhibited a strong understanding of the primary care benefits typically included in health insurance products. Many candidates provided specific examples of the benefits, rather than offering vague or general explanations. This specificity indicates an understanding of real-world applications and enhances the clarity of their answers. A few candidates confused primary care benefits with more specialised or secondary care services, such as surgeries or specialist consultations. This suggests a lack of understanding of the primary-secondary care distinction. A few candidates did not provide a wide range of examples, instead focusing on a limited set of benefits. This might give the impression of a limited understanding of the subject. A better understanding of the distinction between primary and secondary care, as well as a more comprehensive approach to listing potential benefits, could enhance the quality of the responses.

(iii)

The candidates generally exhibited a sound understanding of the fundamental aspects of primary healthcare benefit design. They provided insightful suggestions on structures such as indemnity benefits, co-payments, provider networks, and medical savings accounts. Some candidates missed the opportunity to discuss in-depth the potential limits on benefits, such as caps on the number of visits per year or lifetime maximums. These are key aspects of benefit design and help manage the insurer's risk. Some candidates offered responses that were overly vague or general, failing to provide specific examples of potential benefit structures. In an F101 examination, it's crucial to provide precise and detailed answers.

(iv)

Overall, the candidates displayed a good understanding of the factors to consider when designing the benefit package for a primary healthcare insurance product. Common mistakes made by the candidates include lack of specificity in addressing the specific factors to consider when designing the

benefit package for a primary healthcare insurance product, providing superficial analysis without in-depth explanations or examples, overlooking important factors such as customer acceptability and the competitive landscape, insufficient discussion on regulatory considerations and the integration with state benefits, and the use of vague language and generalisations. These mistakes resulted in less precise and less effective responses that did not fully address the question's requirements.

(i)

Primary healthcare refers to the first point of contact between patients and the healthcare system, which includes preventive and promotive services as well as basic curative care. This level of care involves health promotion, disease prevention, diagnosis, treatment of common illnesses, and the management of chronic diseases.

Secondary healthcare refers to specialised services provided by medical specialists or healthcare facilities, such as hospitals, for more complex medical conditions that require advanced medical intervention.

Tertiary healthcare involves highly specialised medical care provided by specialised hospitals or medical centres for patients with complex medical conditions or who require intensive care, including highly specialised diagnostic procedures and surgery.

(ii)

- General Practitioner consultations.
 - Dentistry benefits (consultations and minor treatments).
 - Eye care benefits (consultations, tests, lenses, frames).
 - Preventive healthcare services, such as vaccinations and health screenings.
 - Wellness programs, such as nutrition counselling.
 - Chronic disease management, such as diabetes and hypertension management.
 - Maternal and child healthcare services, including prenatal care and paediatric care.
 - Mental health and behavioural health services, including counselling and therapy sessions.
-
- Telehealth services, including virtual consultations with healthcare professionals.
 - Home healthcare services, including nursing care and rehabilitation services.
 - Prescription drug coverage, including generic and brand-name medications.
 - Basic radiology such as X-rays.
 - Pathology such as blood tests.
 - Rehabilitation services, including physical therapy and occupational therapy.
 - Alternative medicine services, including acupuncture and chiropractic care.
 - Health education and counselling services, including smoking cessation and stress management.
 - Minor procedures in the General Practitioner's room.

(iii)

Frequency design

This design limits the number of visits a policyholder can make to a primary healthcare provider, such as a GP or nurse practitioner, during a certain period, such as a year.

Depending on the budgetary constraints of the target market, the product can offer unlimited frequency of benefits, e.g. unlimited GP visits.

Monetary amount design

This design sets a limit on the total amount that the insurer will pay for primary healthcare services, such as GP visits or diagnostic tests, during a certain period.

Unit design

The design of the benefit needs to specify the unit of the benefit entitlement, which is typically “per life” or “per family”.

The design of the benefit also needs to be specific to the time period of the benefit entitlement, which is typically “per annum”, but can also be “per lifetime”.

For example, 4 GP consultations per family per annum.

Co-payments/cost sharing

This design requires the policyholder to pay a certain percentage of the cost of a primary healthcare service, such as a GP visit or medication.

The co-payment can be expressed as a monetary amount, or it can be a percentage of the cost.

Scope of cover

Do the benefits include consultations...

...and/or medication...

...and/or minor in-room procedures...

...and/or basic pathology and radiology.

The richness of the benefits can further be determined by the provider network – the wider the network, the more accessible healthcare becomes.

Medical savings account

Some benefits may not be funded from risk element of the premiums, but rather by MSA

(iv)

Demographic profile of the target market, such as age, gender, and location, to tailor the benefit package to their specific healthcare needs.

Prevalence of diseases and health conditions that are most common in the target market.

The availability of primary healthcare facilities in the target market, and the quality of care provided by these facilities.

The cost of primary healthcare services in the target market, and the affordability of these services to the target market.

The degree of competition in the primary healthcare market, and the price sensitivity of the target market.

The scope of primary healthcare services that are currently covered by other health insurance products in the market.

The regulatory requirements for health insurance products in the market, and the level of compliance required for the new product.

The financial sustainability of the product, including the premium structure, benefit limits, and cost-sharing arrangements.

The impact of medical inflation on the cost of primary healthcare services over time.

The level of innovation and technology adoption in the primary healthcare market, and how the new product can leverage these trends.

The feedback and input from healthcare providers and industry experts in the primary healthcare market.

The cultural and linguistic diversity of the target market, and how the new product can address these needs.

The level of risk associated with the new product, and how to mitigate these risks through appropriate risk management strategies.

The potential for the new product to attract new customers or retain existing ones, and how to market and promote the product effectively.

The level of customer satisfaction and engagement with the product, and how to continuously improve the benefit package based on customer feedback.

QUESTION 6

Candidates performed well in this question. Strong candidates were able to correctly identify the data limitations and how to address this problem and identified the additional factors to be considered. The weaker candidates could not distinguish between pricing a long-term contract and a short-term contract like this one, they discussed calculating NPVs using risk discount rates etc.

i.

- Tax rebates, e.g. lower tax on profits
- Pricing, product design, monitoring and evaluation support/advice
- Funding for the development and marketing of such products
- Government assistance/guarantees if experience worse than expected
- Favourable regulatory environment, e.g. lower capital requirements, limited underwriting restrictions

ii. Costing

- Important to set the costing objectives upfront – this can be to determine an affordable contribution rate to attract new members and to prevent buy-downs by existing members, while maximising the return on capital for the shareholders.
- Costs will depend on the benefit design– factors such as benefit limits, demographic characteristics of the target market.

Historical data

- Collect available data on covered benefits – doctor visits, radiology, pathology and medicine costs,
- This can be obtained from existing plans with adjustments based on publicly available information.
- If possible the data can be broken into age bands, by region, sex, family size

- Based on this data, determine the average costs per policyholder per month
 - o Based on this historical data, allowing for suitable adjustments
 - o In suitable categories such as age bands, region, sex, claim type
- Make suitable adjustments for a different target market that is likely to have a different claiming behaviour.
- Adjust the historical costs to reflect future prices
 - o Tariffs for private services may be publicly available
 - o Otherwise make use of inflation statistics available
 - o The insurance company can also negotiate tariffs with service providers upfront
- Adjusting for expenses
 - o Expenses include commission expenses, direct administration expenses and overheads
 - o Commission expenses can be added as a percentage of the expected costs
 - o Admin expenses can be added as a fixed monthly cost
- Risk Margins
 - o Given that this is a new product, there will be a lot of uncertainty
 - o Margins can be added to the costs to reflect this uncertainty
- Profit Margins
 - o A private insurance company can add profit margins to the expected costs
 - o This will be based on the return on capital objectives of the shareholders.
- Investment income
 - o Surplus funds will be need to be invested and these are expected to yield investment income
 - o The investment income can improve the profitability of the business or be used to lower the premium rates.
- Premium rates
 - o Based on the expected profile of policyholders, and the company's pricing approach
 - o The premiums can vary by age and any other acceptable rating factors.
- Sensitivity analyses can be conducted to test the impact of changes in key assumptions made.
- The impact of other factors needs to be considered such as:
 - o Reinsurance terms and costs
 - o Tax
 - o The impact of the government incentives on overall cost to the insurer and which, if any, to pass to policyholders

QUESTION 7

Overall, this question was fairly well-answered, with parts i and ii being bookwork. For Part ii, some candidates did not explain the managed care intervention in sufficient depth, nor how it would actually reduce the insurer's risk. Part iii was not well answered and points tended to be superficial, and many were uncertain of exactly how a MCO offers and charges for their various services.

- i) Managed Care is the process whereby an insurer intervenes in the provision of medical care with the dual objective of optimising the quality of treatment/care for the policyholder and controlling the cost of the care provided.
- ii)
 - Pre-authorisation of hospital admissions
 - o Providing a service that authorises (or not) all planned hospital admissions

- Ensure that admission is covered within stated policy benefits
 - Ensure that applicable co-payments are levied; or if limits reached, that claims are not authorised
 - Communicate to both policyholder/insurer outcome of pre-auth
 - Ensure network hospitals used
- High-cost case management
 - Monitor and intervene in care of high-cost cases
 - Reduce wastage/unnecessary services/ensuring protocols followed
 - Assist with discharge planning
 - Communication of alternatives with family members
 - Setting of care management
- Preferred provider networks
 - Decide which hospitals, doctors, specialists, pharmacies to include in networks
 - Ensure policyholders aware, and only use DSP's – levy co-payments otherwise
 - Can secure volume discounts
- Treatment protocols
 - Set treatment standards for in- and out-of-hospital treatments
 - To ensure quality of care and reduce unnecessary care
 - Monitor adherence to protocols; intervene if not followed
 - Assists in managing costs
- Medicine formularies
 - For various classes of drugs; or diagnoses, specify specific drugs covered
 - E.g. generics where exists; alternatively members pay difference
 - Ensures appropriate medication at best price.
- Alternative reimbursement arrangements
 - Can contract with providers – negotiate tariffs/volume discounts, etc.
 - Risk sharing arrangements, e.g. capitation, fixed fees, per diem rates
 - Reduces incentives created by FFS/manages costs
 - Can incentivise quality – sharing in upside benefit (on risk-adjusted basis)
- Quality measurement and reporting
 - Across all Managed care interventions; monitor impact and report on key quality metrics
 - Analyse utilisation and performance by providers – across networks – on risk-adjusted basis
 - Use results to intervene or amend contracting
 - Or update protocols, formularies, etc. to improve future experience

iii)

- Given that there are multiple MCO's tendering, a good value proposition is required to win the business.
 - A stronger value proposition, may also allow you to tender successfully at a higher price.
- Your MCO is established, so may have a good reputation, plus significant experience in the delivery of managed care services in the industry – which could be highlighted in the proposal – may give some advantage over competitors
- Also, good industry networks and relationships may assist in being awarded the contract.
- Price is an important consideration for insurers when evaluating alternative options – hence aim to be competitive in the tender
 - May tender low to win the business (if can be subsidised by other business).
 - With possibility of increasing cost later – perhaps on a performance-based basis
 - Or if value offering significant and insurer's loyalty ensured down the line
- However, price is not the only consideration

- The decrease in healthcare costs & increase in quality of care (and management of overall risk) are key considerations for managed care interventions
- Provide ROI projections to insurer based on past experience with other insurers, adjusted for the profile of the insurer's book –
 - this can be per managed care intervention and in aggregate
 - Project positive cost impact of increase in quality on profile of lives downstream
- Offer a range of interventions (as outline above) – the more comprehensive, the more attractive the tender will be
 - The more sophisticated the interventions/services and the employing of cutting-edge technology can enhance the value that can be derived – outline these
- Offer additional value-add services (possibly free of charge?)
 - Dynamic contracting; real-time monitoring and reporting on key metrics, standardised reports, etc. tailored to the insurer's needs and requirements
 - Add personal touch; dedicated relationship manager(s) and other key resources to the contract.
- With the tender itself – submit on-time; professionally type-set, bound, in-colour – creating a good impression; Tailored to the needs and requirements of the insurer.

QUESTION 8

The question related to a specific circumstance of a newly established company implementing an innovative product in a developing country. Many candidates provided generic responses relating to aspects such as pricing instead of demonstrating application to the specifics of the question. This was particularly the case in part (iii). It was also evident that candidates had not managed their time effectively and were rushing through this question. In part (i) candidates needed to cover the breadth of points relating to the rationale for the product. For part (ii) candidates needed to consider the perspectives of both the insurer and the policyholder. Part (iii) required application to the specifics of the question, notably the lack of data and the potential role for a reinsurer to support product development (not to simply provide data). Many candidates missed the points about the other product features and risk management approach. Parts (iv) and (v) were reasonably well answered but also needed to demonstrate application to the specifics of the question.

- i) General commercial and economic environment
 - What is the need for the product and the reasons for introducing the solution?
 - Is there a gap in the market and what is the gap:
 - What healthcare indemnity products already exist in the market
 - Do any competitors sell this type of indemnity product and what is their product design, pricing and experience
 - Industry is developing and may influence affordability, attractiveness, market, etc.
 - Does this provide an attractive top-up cover to existing products?
 - Could we attract clients that would not normally buy healthcare cover i.e. are we attracting a new client base?
 - Perhaps there are a number of group clients where the members want more cover than that offered through their employer arrangements
 - Is this a “cheap” way to get more cover than buying all from one insurer
 - The types of individuals and groups that would be attracted to such a product to meet their needs?
 - Do these individuals or groups have existing cover or would they be new to the insurance environment?
 - What is the nature of public healthcare and how does this product work in this context
 - Regulatory considerations

- Tax applicable – developing economy, may have incentives
- ii) Specify the problem
- How to set the appropriate premium for this product so as to balance the profitability and attractiveness of the solution
 - How to set the premium given the insurer is new to the market and the product may also be new to the market
 - What are the policy terms and conditions to mitigate adverse selection including:
 - minimum and maximum age at entry
 - renewability / policy duration
 - eligibility
 - underwriting
 - premium structure
 - Should ABC take out reinsurance to protect against volatility especially during the first few years? How does this affect the premium and expected claims patterns?
 - How will the product be sold, for example through brokers, direct to consumer via telesales, email and / or online? How will this choice of distribution channel affect the expenses and the resulting premium?
 - How does the policy address an existing healthcare financing need?
- iii) Develop the solution
- There may be insufficient own data as new insurer
 - Need to look at other data sources for example
 - approaching a reinsurer who has a more developed book and indemnity solutions
 - working with consultants who have experience with these types of products
 - Data sources need to include claim frequency and severity
 - Look at claims development over time
 - Model the incidences where they would reach the threshold and then the range of claims in excess of this
 - Consider the levels of threshold and sum insured
 - Model (or simulate) claims with multiple threshold and sum insured combinations
 - Operationally consider how would claims be collected, validated and assessed
 - Assess underwriting and claims assessment
 - Consider target client base -do they have access to medical insurance or rely on the state for initial cover, or pay out of pocket
 - Consider expenses involved and profit requirements
 - Consider the impact of using different distribution channels
 - Consider whether this is more suited to group or individual business and incorporate into the pricing appropriately
 - Consider the impact of anti-selective purchasing of the cover
 - One would need to ensure that the claims and policy administration systems are able to deal with the policy features.
 - Consider the need for reinsurance, particularly given that the insurer is new in the market and the product is new
 - As the product is an indemnity health insurance product, consider service provider networks that could be used to support better fees and quality of care for policyholders
- iv) Monitoring the experience
- This would be critical in this case as it is a new solution
 - Monitor levels of uptake by new policyholders,
 - levels of threshold and sums insured selected

- claims experience
- Consider whether there is any anti-selection present and the impact of this selection
-
- Consider changes in the marketplace around competitor offerings, their pricing and product designs
- Consider expenses incurred both for new business strain and ongoing expenses and how these develop
- Monitor reputation and customer acceptability of product – does it meet their needs/expectations

v) Professionalism

- You need to ensure that all local legislation is adhered to
- And local actuarial guidance on product development and pricing