

Actuarial Society of South Africa

MARKING SCHEDULE

24 MAY 2022

Subject F201- South African Health and Care

Specialist Applications

QUESTION 1

This question tested knowledge about gap cover products for both individuals and groups covering topics such as the market, benefits, premium setting and models.

As this was contextualised for a new insurance company wanting to launch a new gap cover product, there is therefore no internal company data available on which to base the product development and pricing, hence the question expecting candidates to understand the market information available and use this as the basis.

1(i) Discuss the market research you would perform to gauge the range of gap cover benefit richness levels that would offer a competitive value proposition. [5]

Part (i) asked candidates to apply the concept of benefit richness to the gap cover market by identifying the market research one could do to build a gap cover market proposition.

Candidates generally did well on this mostly bookwork question. Those who performed poorly did not understand the concept of benefit richness (and spent time writing about other aspects of gap cover), while others did not understand the gap cover market and how these benefits are defined.

Candidates also did not all understand the differences in retail and corporate gap cover in that the premiums are likely to differ.

Gap Cover Benefit Richness

Determine **how many Gap Cover providers** operate in the market...

... and **how many variations of this product** each of these providers are offering.

For example, if most Gap Cover providers offer three variations of Gap Cover products with various levels of benefit richness, then this sets an industry standard for a competitive value proposition.

Determine the various levels and forms of shortfall **reimbursement rates** of all the Gap Cover providers in the market.

For example, the different forms of shortfall reimbursement could include:

- A specified percentage of scheme rate (e.g. 300% of scheme rate);
- A specified percentage above scheme rate (e.g. 200% above scheme rate);

- A specified multiple of the benefit option rate (e.g. 3 times the reimbursement rate of the particular benefit option).

Determine if the Gap Cover products in the market will reimburse **co-payments**, especially in the case of voluntary use of a non-network provider.

Determine whether the Gap Cover products in the market apply **benefit limits** or sub-limits (apart from the regulatory overall annual limit), and if so, to which benefits do these limits apply, and how do the levels of the limits vary between products.

Determine which benefits are **differentiators** in the market between lower and higher levels of benefit richness, for example:

- Shortfalls related to Oncology could typically be covered by more comprehensive Gap Cover products;
- Shortfalls related to Cosmetic surgery could be a rare benefit covered by only a few of the most comprehensive Gap Cover products;

Shortfalls related to Out-of-hospital treatment might not be covered by any Gap Cover products, and could be a market differentiator.

Medical Scheme Benefit Richness

Given that some Gap Cover products could express the reimbursement rate as a function of the particular benefit option's reimbursement rate, it is also necessary to understand the **various levels of benefit richness offered by medical schemes and their benefit options**.

For example, benefit option reimbursement rates could range from 100% to 300% of the medical scheme rate, and these relative levels could indicate the various levels of benefit richness.

The Council for Medical Schemes Annual Reports and Annexures can be consulted to determine the beneficiary volume for each of the benefit options to gauge the demand for the various levels of gap cover benefit richness in relation to the medical scheme benefit option richness.

[Total 5]

1(ii) Outline the rating factors and pricing structures typically used for gap cover products in the South African retail market. [5]

Part (ii) was a short question asking candidates to outline rating factors and pricing structures typically used in the SA gap cover market which was mostly bookwork and poorly answered.

Candidates included benefit design as well as underwriting related discussions in their answers where the question clearly indicated a pricing related question. Candidates made reference to group business, while this question specified the retail market. Other common errors included candidates seemed to think that the medical scheme benefit option selection impacts the gap cover premium, and that gender impacts the gap cover premium. Some candidates referred to the gap cover premiums as "contributions".

Regulations

According to the Demarcation Regulations, gap cover products must:

- Be underwritten on a group basis (in this instance, the policyholders joining on a retail or individual basis will be treated as a collective group and priced the same manner using community rating principles); and
- Not discriminate against a policyholder or potential policyholder on the basis of race, age, gender, marital status, ethnic or social origin, sexual orientation, pregnancy, disability, state of health or any similar grounds; and
- Not refuse a potential policyholder unless where that potential policyholder has previously committed a fraudulent act related to insurance; and
- Be able to require a policyholder to pay a higher premium after a specific age than a policyholder that entered into the contract at a younger age, provided that the same higher premium is payable by all policyholders entering into a product line after a specific age.

Age

The premium table could differentiate by age by means of multiple age bands, where the premium would typically increase with age.

The premium table could exclude certain ages, e.g. above 65 where cover may be declined.

Family Structure

The premium table could differentiate between single (or unmarried) individuals, and families.

The premium would typically be higher for families compared to that of single individuals.

The premium table could exclude a family rate, and only offer individual premium rates, implying a premium per person covered.

Students

The premium table could offer a special premium rate for students that will be lower than that of an adult.

Product Variation

There would be a different premium table per product if the Gap Cover provider offers more than one.

The premium structure per product could be similar or different for the same Gap Cover provider, but the premium levels would differ, i.e. the more benefit rich, the higher the premium.

Commission Level

The commission level could differ by product given the regulations specifying maximum commission levels depending on the premium size, i.e. the higher the premium, the lower the maximum commission level.

Public Availability

The Gap Cover provider can make the premium table publicly available, or not.

If the premium table is not made publicly available by means of a brochure or website publication, then the potential policyholder is likely to obtain the premium rates by means of a quotation process.

Variations in premium based on type of medical scheme membership together with restrictions in movement between options to prevent anti-selection on the gap cover product. For example, the premium for a gap cover product could be set given the policyholder is on a benefit option with high reimbursement levels (200% of scheme rate) and restricts cover to the reimbursement levels for this option to prevent the member downgrading their policy to receive higher gap cover while on a lower medical scheme benefit option.

Timing of Premiums

Premiums are payable monthly in advance.

Premium increases

Premiums increase annually. Usually on 1 January of each calendar year.

[Total 5]

1(iii) Describe how you would determine an adequate premium for this product in the retail market. [10]

Part (iii) was an application about the pricing structure for the gap cover product being based on that used in the market, and that the premium needed to be adequate. Although the question mentions that the insurance company is new, candidates assumed a wealth of internal and granular data would be available to perform this pricing exercise. Some candidates misread the preamble: pricing "structure" vs pricing "point" that does not deviate too far from competitors. Subsequently, the pricing exercise description was weighted heavily towards competitors' pricing. Overall the question was reasonably well answered by most candidates.

Pricing Objective

Establish the pricing objective, which should be to determine a premium for the product that will be:

- Adequate to meet the liabilities arising from the cost of medical expense shortfalls;
- Profitable to a degree that is acceptable to the leadership of the insurance company;
- Affordable for the target market;
- Competitive in the retail South African Gap Cover market.

The pricing objective should be quantified as far as possible (e.g. the resulting premium should be within the market interquartile of similar Gap Cover products to ensure sufficient competitiveness) to enable an objective assessment as to whether the resulting premiums have met the pricing objectives.

Assumptions

Various demographic and economic assumptions will need to be set.

As this premium determination is for the retail market, the following demographic information is unknown about the potential policyholders:

- Age and gender profile;
- Family composition;
- Past claims experience;
- Medical scheme and benefit option selection;

- Propensity to claim and lapse anti-selectively;
- Likely termination experience.

Therefore, assumptions regarding the target market have to be set – especially as this is a new product and a new insurance company.

Whereas this information would be known in the corporate market whereby premiums can be tailored to the specific profile of the employer using with the provided employee data.

The following economic assumptions would also be required:

- Price inflation
- Healthcare utilisation increases
- Healthcare cost inflation
- Tax.

Professional Guidance

The pricing methodology could be aligned to some of the professional guidance notes issued by the Actuarial Society of South Africa, such as the Advisory Practice Note 303 that gives professional guidance on the minimum level and quality of actuarial attention necessary when assessing the adequacy of medical scheme contribution, and could equally be used for Gap Cover premiums.

Data

As this is a new product and a new insurance company, it can reasonably be expected that there is no data available to accurately price this product. Therefore the data has to be purchased from an external company or consulting firm, or the pricing exercise can be outsourced completely.

Detailed medical scheme data would be required for this premium determination, covering open and restricted medical schemes, a large number of claiming beneficiaries and claims data for multiple years.

Caution has to be exercised when using data that spans the period of the COVID-19 pandemic and the resulting national lockdowns as the trends might not be indicative of the future.

Data reasonability checks would be required (such as checks for consistency, completeness and accuracy) to ensure the data is reliable to use for pricing purposes.

Claims Categorisation

Historic claims can be grouped into homogenous groups to allow for more accurate forecasts, such as:

- Emergency department
- Hospital
- In-hospital specialists
- Out-of-hospital specialists
- Maternity
- Oncology.

Strike a balance between homogeneity and credibility.

Benefit Richness Classification

The benefit options used in the data should be classified according to their benefit richness to differentiate between the variations in shortfall, and hence claims payable by the gap cover product given the variety in benefit design of medical scheme options.

The specific classes will be an outcome of the market research contemplated in Question 1(i), such as “hospital plans” or “comprehensive plans”.

Shortfall calculations

The shortfall used in the calculations can be defined as the difference between the amount charged by providers and the amount paid by the medical scheme.

It is unlikely that the medical scheme data will be coupled with details specifying whether a Gap Cover product was applicable to cover the shortfall. If this is obtainable, classify the shortfalls that were covered by Gap Cover, and those shortfalls that were not...

...as some providers change their billing behaviour when they know that their patients have gap cover insurance. These calculations could make adjustments for this.

Benefit limits of the Gap Cover product should be taken into account to align the claims liability to the unique product specifications.

Expenses

Differentiate between fixed and proportional expenses.

Also determine the rate at which the fixed expenses would increase over time, which is likely to be CPI.

Also determine if the levels of the proportional expenses would remain constant over time or not.

Adhere to any regulatory levels, for example, commission.

Calculation of expected cost

There exists a degree of anti-selection when it comes to buying gap cover insurance, since this cover is not bought by all medical scheme members, but only those who expect to benefit from it.

The expected claims cost can be calculated in two ways, one where the denominator is the total medical scheme options' exposure, and one where only claiming families are used.

Using claiming families in the denominator results in a higher average shortfall than using total exposure, which could account for potential anti-selection in the case the total exposure mostly consist of claimants.

Separate expected costs into probability of claiming and the expected costs of claims. Adjust the probability of claiming upwards to account for expected effects of anti-selection.

Results

Supplement the expected claims cost with the expenses to arrive at an estimated premium.

Structure the premiums in the pricing table contemplated in Question 1(ii).

Smooth and round the premiums as required.

Provide a breakdown of the premiums into its main components, e.g. healthcare cost, non-healthcare cost.

Income Statement View

A monthly financial forecast could be constructed in an Income Statement format for the first year to demonstrate the speed at which the Gap Cover product is expected to recover from its initial business strain.

A five year forecast could be compiled in an Income Statement structure to demonstrate the expected sustainability and growth of the Gap Cover product.

Sensitivity Test

Given the array of assumptions relied upon to determine the Gap Cover premiums, the resulting premiums are highly sensitive to the various assumptions used.

To demonstrate the sensitivity, the premium(s) should be recalculated at various levels for each assumption independently.

Competitor Analysis

Leveraging the market research contemplated in Question 1(i), the premiums of the various competitor Gap Cover products can be compared with the resulting premium to assess competitiveness.

To ensure a like-for-like comparison, Gap Cover products with similar levels of benefit richness should be grouped before their premiums are weighed up relative to one another.

Affordability

The premium affordability can be assessed by comparing it to the average monthly healthcare spend per household using per household surveys...

...in conjunction with industry average medical scheme contribution amounts, which may already be considered expensive by potential customers given annual increases in excess of CPI.

This affordability analysis should indicate the particular price-sensitivity in the medical scheme market where there is most demand for Gap Cover: those individuals belonging to the lower-cost benefit options where the benefit richness is low, generating the most out-of-pocket expenditure, but where affordability is already constrained.

Therefore, the resulting Gap Cover premium would only pass the affordability assessment if the monthly premium is lower than R 1 000, and not deviating too far from that of competitors.

[Total 10]

1(iv) Explain the factors that can be taken into account of an employer group to tailor a gap cover premium for the group of employees in the corporate market. [5]

Part (iv) asked candidates to give factors to take into account to price a premium for a group. This question was answered reasonably well with candidates being able to talk about the actual factors to consider for group business. Some diverged to focus on the actual pricing process rather than elaborating on the factors. This is one example of where candidates used lots of 'shoe horning' to bulk up their responses.

Demarcation Regulations

The Demarcation Regulations require the insurer to apply a community rate per employer group. Therefore, the pricing model should incorporate the various rating factors (whether on a group or per employee level), but calculate a single employee premium per month that will apply to all.

Gap Cover Product Selection

If the insurer offers more than one gap cover product with various levels of benefit richness, the pricing model should tailor the premium for each product separately.

The pricing model can assume all the employees from the particular employer group will select one gap cover product...

...or, if the employer will allow the employees to choose a gap cover product, the pricing model can allow for the choice with an anti-selective allowance, with the model output providing a premium per product.

Participation

In the retail business the anti-selection risk has to be quantified at market level, whereas in the corporate business the anti-selection risk can be quantified at an employer level, allowing a more tailored approach to premium setting.

The employer group would pose less of an anti-selection risk when the employer makes participation compulsory for all employees, as opposed to a voluntary basis.

If participation is voluntary, then the extent of the participation or take-up would also affect the anti-selection risk.

The more participation, the more the premium can be reduced to allow for the lower risk of anti-selection.

Employee Group Size

The employer group would pose less of an anti-selection risk when the employee group is large.

The larger the employee group, the more the premium can be reduced to allow for the lower risk of anti-selection.

Age profile

The actual age of each employee can be taken into account to understand the age profile of the employer.

The higher the average age, the higher the expected disease burden, the higher the expected healthcare cost, the higher the premium.

Family profile

The actual family composition of each employee can be taken into account to understand the family profile of the employer.

The more families in the employer group, the higher the premium – although it remains optional to add dependants.

Medical scheme and benefit option selection

The actual medical scheme and benefit option selection of each employee can be taken into account to understand the medical scheme benefit richness of the employee group as a whole...

...and how much scope for medical expense shortfalls exist for the group overall.

Should the majority of the employees belong to the more comprehensive benefit options (e.g. those that reimburse in excess of 150% of scheme rate), the less the scope for gap cover claims, reducing the required premium.

Past claims

The actual past medical scheme and/or gap cover claims of each employee can be taken into account to understand the overall claiming behaviour of the employee group as a whole.

However, it is very unlikely that detailed claims information would be available for each employee.

Alternatively, the overall claims experience for the employee group can be taken into account, if available. For example, in the form of a group claims ratio.

Should past claims data indicate low healthcare utilisation, it could warrant a lower risk profile compared to that assumed in the pricing basis, making a case for a lower premium.

Industry Risk

The industry in which the employer operates can be assessed in terms of how the daily operations potentially increase the likelihood and/or severity of a healthcare event for the employees.

The area of the employer's location can be taken into account, e.g. urban vs rural, as well as potential concentration risk.

Premium Subsidy

Should the employer subsidise the employees' premiums in part or in full, this could reduce the anti-selection and selective withdrawal risk, warranting a premium discount.

Competitor Pricing

The pricing model could include competitor pricing to serve as maximums.

Broker Commission

The pricing tool should allow for broker commission as a variable input parameter.

[Total 5]

1(v) Describe how you would develop this pricing tool for group quotations in the corporate market. [10]

Part (v) was poorly answered relative to the other parts of this question. There were effectively two parts to this question asking candidates firstly to describe how to develop a model to give quotations to prospective groups and secondly to elaborate on the actual client data that would be required.

Stronger candidates were able to focus on the specific modelling aspects required to produce a premium in the first part and give useful outlines of the actual data that one could obtain from a group and that would be relevant for pricing. Others concentrated on pricing for a specific client vs a quoting tool so lost significant time and marks.

Input parameters

The group quotation tool should allow the user to specify the following input parameters (perhaps in the form of a drop-down menu) based on the information received from the employer group:

- Participation: voluntary or compulsory.
- Expected take-up percentage in the case of voluntary participation.
- Product choice in the case of multiple Gap Cover products on offer.
- Industry in which the employer operates

Employee data input

The group quotation tool should allow the user to import the employee data with the various required data fields as received from the employer.

The following information is required for each employee:

- Name & Surname or Employee number
- ID number
- Date of birth
- Family size
- Medical scheme
- Benefit option

- Past claims experience (if available)

A data specification document needs to be drawn up to send to interested employers. This is to ensure the appropriate data sets are received for quotation purposes.

Any missing information could lead to an inaccurate quotation – potentially a quotation where the employer could miss out on a premium discount.

Risk Premium Discounts

Discounts can be granted based on:

- **Group size:** The larger the employee group, the more the premium can be reduced to allow for the lower risk of anti-selection. An exact discounting methodology should be defined (e.g. how would the discount differ between an employer with 500 employees relative to one with 5 000 employees) and allowed for in the pricing tool.
- **Compulsory participation:** a discount can be granted for employers specifying compulsory participation. The exact discount needs to be quantified and allowed for in the pricing tool.
- **High uptake in voluntary participation:** The more participation, the more the premium can be reduced to allow for the lower risk of anti-selection. The exact discounting methodology should be defined (e.g. how would the discount differ between an employer with 25% uptake relative to one with 75% uptake) and allowed for in the pricing tool.
- **Comprehensive benefit options:** the more comprehensive the benefit options chosen by the employees, the more the premium can be reduced to allow for the reduced scope for gap cover claims. The exact discounting methodology should be defined (e.g. how would the discount differ between an employee with a medical scheme reimbursement rate of 150% relative to one with 200% rate) and allowed for in the pricing tool.
- **Favourable past claims experience:** the lower the historic healthcare utilisation, the more the premium can be reduced to allow for potential low healthcare utilisation in the future. The exact discounting methodology should be defined (e.g. how would the discount differ between an employer with a claims ratio of 25% relative to one with 75% claims ratio) and allowed for in the pricing tool.

Expenses

The group quotation tool should allow the user to change the expense levels if need be, but generally these input assumptions should remain the same as for the retail market...

...unless the insurance company is willing to sacrifice certain expenses (such as the profit margin) in the case of a competing quotation that needs to be outperformed.

Commission

The group quotation tool needs to adhere to the maximum commission regulations, i.e. as the resulting premium is tailored to the specific characteristics of the employee group, the commission level needs to dynamically change to be acceptable for the tailored premium.

The pricing tool could recommend a commission level based on the premium output.

Or the pricing tool could give a warning whether a commission level was used that exceeds the regulatory maximum.

Pricing Tool Workings

The Group Quotation tool needs to determine a risk premium per employee based on the profile of that employee (in terms of age, family size, medical scheme benefit option and past experience).

The tool needs to calculate an average of all the risk premiums such that all individuals in the group pay the same premium.

The calculation of the average risk premium could be performed separately for each product and family structure.

The final step in determining the premium for corporate clients is to add non-risk premium loadings on the risk premium rates to ensure the premium rates incorporate sufficient margin to cover the expenses related to this product.

[Total 10, Available 12¾]

QUESTION 2

This question was based on a graph of the industry solvency levels over time up to and including 2020. The graph implicitly referred to the significant increase in solvency levels in 2020 which were as a result of the impact of the Covid-19 pandemic. The question did not make explicit reference to Covid-19 and all candidates could attribute the change in solvency levels to the pandemic.

2(i) Explain, with reference to the above graph, why the industry average solvency levels increased significantly in the 2020 calendar year. Define all terms used in your explanation. [8]

Solvency levels increased across most medical schemes in 2020 as a result of the impact of the **COVID-19 pandemic** and the subsequent **lockdown** that was enforced by the South African government.

Given the limitations in terms of accessing care, particularly elective treatments, claims experience was much lower than would have been expected in a normal year across all benefit categories, particularly in-hospital claims.

Although the solvency levels appear higher for **restricted medical schemes** compared to **open medical schemes**, it is not to say that the COVID-19 pandemic had a different impact on open medical schemes relative to restricted schemes, but rather that the relative solvency levels were different to begin with prior to the COVID-19 pandemic.

Historically, most open medical schemes reported solvency levels bordering the minimum **prescribed solvency levels** (while most restricted medical schemes reported solvency levels far above these levels), but the COVID-19 pandemic resulted in solvency levels far above the minimum prescribed solvency levels for all medical schemes.

The following terms were used in the explanation above and are therefore defined below:

Solvency

In terms of Regulation 29 to the Medical Schemes Act, a medical scheme is required to maintain a minimum level of accumulated funds (i.e. assets in excess of its liabilities) of 25% of gross annual contributions.

Prescribed solvency levels

A newly registered medical scheme must maintain accumulated funds, expressed as a percentage of gross annual contributions, of:

- 10% during the first year after registration
- 13.5% during the second year

- 17.5% during the third year
- 22% during the fourth year
- 25% during the fifth year.

The prescribed solvency levels above are illustrated by the grey area starting at 10% in the year 2000.

Open medical schemes

Open medical schemes are required to accept all membership applications.

It will be difficult for an open medical scheme to achieve the same high solvency level compared to a restricted medical scheme due to:

- An unstable membership level as a result of voluntary participation
- Increased risk of anti-selection
- Relatively more marketing expenses.
- Increased pressures to keep contributions at very competitive levels

Restricted medical scheme

Restricted membership medical schemes must accept all applications that meet their eligibility requirements.

COVID-19

The World Health Organisation (WHO) declared a pandemic resulting from a global outbreak of a new virus towards the end of 2019, COVID-19.

This new virus is an influenza-like disease but spreads faster than influenza with those infected experiencing higher levels of morbidity and mortality.

Those most at risk of suffering complications from the virus have been identified as the elderly, those with heart and lung conditions and those with co-morbidities.

A few months since the first worldwide confirmed case, South Africa experienced its first confirmed infection with the new virus. Shortly thereafter, the disease spread at a rapid pace such that the President declared a national disaster in South Africa.

National lockdown

The virus continued to spread at a rapid pace, which triggered the President to announce a nationwide lockdown for an undetermined period of time to curb the spread of the virus in the country.

During the lockdown, everyone was required to stay at home and only leave their homes under strictly controlled circumstances.

Since the start of the COVID-19 pandemic, medical schemes have seen a reduction in demand for healthcare services.

In some cases the reduction is real, such as trauma or alcohol and drug related hospital admissions. These cases were avoided while strict mobility restrictions remained in force over 2020.

In most cases, though, the reduction in demand for healthcare services arose from deferred elective, non-urgent healthcare, such as major joint replacements, cataract surgery and tonsillectomies. These cases have not all been avoided, but will rather return to levels similar to those before the pandemic once COVID-19 becomes an endemic infection.

As a result of the lower healthcare utilisation during the National lockdown, most medical schemes experienced improved claims ratios.

Those medical schemes that implemented relief solutions would have experienced a less pronounced improvement in the claims ratio.

The improved claims ratios resulted in improved net healthcare results in the bottom line of the Statement of Comprehensive Income...

...which added additional surplus to the accumulated funds...

...leading to improved solvency levels.

[Total 8]

2(ii)(a) Discuss how a typical medical scheme (conforming to the trends in the graph above) can approach annual contribution increases given the industry-wide increase in solvency levels. Assume this medical scheme is not considering an amalgamation in the near future. [12]

Part (i) was very well answered by all candidates. Although relatively basic, candidates demonstrated good bookwork knowledge and followed the instructions in the question to ensure they covered all the requirements. They were also able to explain why solvency levels increased and correctly analysed the numerator and denominator of the solvency formula to explain the impacts of changes on each aspect and the inter-relationships.

Every year, medical schemes increase their contributions to ensure that they can meet the expected cost of their members' claims in future and that they remain solvent.

COVID-19 had a significant impact on medical scheme member claims leading to different claims experience compared to pre-COVID-19 periods.

It has also increased the uncertainty regarding expected future claims, given that the future impact of COVID-19 remains unknown.

In dealing with this uncertainty regarding future claims, medical schemes have adopted very different pricing strategies.

The need for solvency

Capital is required by medical schemes to ensure that they are able to meet their claims liabilities as required. Capital acts as a buffer to protect the medical scheme from (unexpected) adverse experience, and gives members the assurance that sufficient funds exist to ensure that future claims will be paid. The more capital a medical scheme holds, the less likely it is to go insolvent.

However, to hold too much capital is economically an inefficient use of resources.

General approach to contribution increases

Healthcare costs for a medical scheme increase each year in line with medical inflation. As healthcare costs increase over time, so do the claims paid by the medical scheme. To ensure sustainability, medical schemes are required to increase contributions to match the expected healthcare claims of members in the following year.

Medical inflation consistently increases at a higher rate than consumer price inflation. These increases are driven by additional utilisation of healthcare services from medical scheme members each year. Various factors contribute to increasing utilisation, such as ageing, increasing chronic condition prevalence and the introduction of new healthcare supply. Medical inflation in prior years provides a strong anchor to predict future medical inflation.

Historically, medical inflation has been three to four percent in excess of CPI per annum.

Impact of COVID-19 on medical scheme contribution increases

The reduction in the demand for healthcare services, or utilisation discontinuities, is persisting in 2021 and 2022 as a result of ongoing COVID-19 infection. However, clear trends emerged in 2021:

- Claims for non-COVID-19 healthcare services in between COVID-19 waves are higher than that experienced before COVID-19.
- The strength of the disruption of COVID-19 on healthcare utilisation is waning as the virus gets closer to endemic infection levels. Health-seeking behaviour is returning as more people are vaccinated, and projections for future COVID-19 peaks are lower than before.

These trends must be considered when increasing contributions to ensure that medical schemes can meet future member claims, while maintaining its reserves at statutory solvency levels.

A typical medical scheme with a high solvency level could see this as an opportunity to implement lower contribution increases...

...to reduce the solvency level to a level closer to the prescribed levels...

...which could be a plea from members to promote affordability...

...or a strategic directive to be more efficient with capital management.

In an environment of utilisation uncertainty, this medical scheme can adopt a **short-term pricing approach**, assuming temporarily suppressed utilisation persists over time.

Short-term pricing approach

Short-term pricing sets contribution increases based on currently suppressed utilisation levels and does not account for systemic increases in healthcare costs. The strategy ignores the fact that, irrespective of the extent to which utilisation discontinuities persist, healthcare claims will continue to increase with systemic utilisation increases.

Medical schemes generate surplus while healthcare utilisation levels remain temporarily suppressed.

As COVID-19 becomes an endemic infection, claim levels increase in line with the systemic inflation over 2020 and 2021, but beyond the contribution levels that have not been increased by systemic inflation.

Contribution levels could potentially not be sufficient to cover expected claims, and could necessitate 'price shocks' to return to required levels.

Funding the gap between contributions and healthcare claims

The points made in this sub-section below are repetitive of points made earlier – marks are available to candidates who can explain the concepts in different ways given the fundamental nature of this concept.

Medical schemes can use the reserves to support short-term affordability for members by funding the gap between contributions and healthcare claims, by increasing contributions by less than what is required, and paying the shortfall from member reserves.

Medical schemes can temporarily reduce contribution increases, to support member affordability, funding the gap between medical inflation and contribution increases through reserves in the short-term.

Healthcare claims increase to the underlying systemic levels with no utilisation discontinuities. Contributions increase by less than the healthcare claims increase.

The gap between healthcare claims and contributions is funded by excess reserves. The scheme will need to set future increases in line with the return to systemic medical inflation levels.

Assuming reserve levels are adjusted to account for latent non-COVID-19 demand, current reserve levels will only be sufficient to fund the gap between healthcare claims and contributions for 18 months on average, with a price shock for members from year 2.

This strategy places strain on the multi-year affordability of members. While strengthened reserve levels are released gradually, contributions still require a substantial future shock or a series of above medical inflation increases to align contributions and claims.

Deferred contribution increases to provide relief to members while reducing risks of price shocks. Effectively lower contribution increases for the year but without price shock to get up to required levels in future years.

[Total 12, Available 14,5]

2(ii)(b) Discuss how a typical medical scheme (conforming to the trends in the graph above) can approach annual contribution increases given the industry-wide increase in solvency levels. Assume this medical scheme is indeed considering an amalgamation in the near future. [10]

Part (ii) was an in-depth question given in two parts about how a scheme could manage its solvency levels ordinarily and in the case of an amalgamation. Candidates seemed to be unable to give sufficiently robust advice for both situations.

In the case where amalgamation is not considered, candidates were expected to discuss pricing strategies and demonstrate knowledge about having to balance affordability and sustainability of the scheme. This required thinking about both short term and long term needs of the members and the scheme.

Candidates tended to struggle the aspects around amalgamating schemes and how schemes would need to balance maintaining solvency levels while not being over-capitalised so that they continue to be as viable (and sufficiently funded) as possible without passing on excess reserves when amalgamating. Stronger candidates considered amalgamations from both perspectives of the scheme amalgamating into a larger well funded scheme and the larger scheme itself. This part of the question was not asking about the amalgamation process itself, which some candidates went into detail about.

A typical medical scheme considering amalgamation needs to remain attractive as an amalgamation partner, and contribution increases could affect factors driving attractiveness.

These factors include:

- Competitive levels of contributions
- Historic contribution increases relative to inflation and the market
- Expectations of future contribution increases
- Number of members and/or beneficiaries and changes thereof over time
- Solvency levels and changes thereof over time
- Projected solvency levels

Therefore, a medical scheme contemplating amalgamation has to balance its attractiveness to an amalgamation partner in addition to all the other factors applicable in Question 2(ii)(a).

Reserves will have to be retained at high levels (but not too high so as to appear economically inefficient)...

...which will require higher contribution increases compared to a scheme not contemplating amalgamation.

In an environment of utilisation uncertainty, a highly solvent medical scheme considering amalgamation in the near future can adopt a **systemic inflation matching approach**, assuming suppressed utilisation will not persist, but will rather return to previous levels.

Systemic inflation matching approach

Systemic inflation matching sets contributions to account for systemic utilisation increases, and uses historic medical inflation trends to predict the future systemic medical inflation.

This maintains contribution levels in line with expected healthcare claims. Should utilisation discontinuities persist in the future, the medical scheme will still have priced contributions to match the expected systemic increases in healthcare claims.

Medical schemes continue to generate surplus while COVID-19 utilisation discontinuities persist. Surplus can be used to defer contribution increases to reduce the financial impact on members.

As COVID-19 becomes an endemic infection, claims levels increase in line with the systemic inflation over 2020 and 2021, and contribution levels match the claims levels.

Under systemic inflation matching, members are significantly less exposed to future price shocks.

If medical schemes can find innovative ways to maintain affordable increases while matching systemic inflation, members enjoy significant improvements in both short-term and long-term affordability.

Use of surplus to support affordability

The points made in this sub-section below are repetitive of points made earlier – marks are available to candidates who can explain the concepts in different ways given the fundamental nature of this concept.

Medical schemes can use excess reserves to support short-term affordability for members by deferring the contribution increase, by increasing contributions in line with what is required, but only implementing the increase later in the year to reduce the impact of the increase on members.

Medical schemes can ensure member affordability by deferring the implementation of contribution increases. Contribution levels are increased in line with medical inflation, while the strengthened reserve position is leveraged to defer implementation of increases. This strategy enables short-term affordability for members by reducing the real increase in contributions felt by members across years.

The strengthened reserve position of the scheme is used to defer the implementation of the contribution increase in years where utilisation discontinuities persist.

Solvency position of the scheme has been balanced, ensuring long-term sustainability despite utilisation volatilities. Reserve levels remain stable after the deferred increase period.

Strengthened reserve position of the scheme has been leveraged to lower the real increase experienced by members per annum and smooths future increases.

This ensures the correct expectations and budgeting is set to maintain long-term member affordability, without price shocks, while ensuring members still enjoy short-term affordability relief.

[Total 10]

QUESTION 3

- (i) **Define the term “non communicable diseases” and explain the significance of these diseases in the South African medical scheme market. [3]**

Part (i) was a short but revealing bookwork question. It asked candidates to define non communicable diseases (NCDs) and explain the significance of these diseases on the SA medical scheme market. Those candidates who got the definition correct tended to do well in the question. However there were a significant proportion of candidates who confused communicable diseases and non communicable diseases which we expect to be well known at this exam level, and well known given the pandemic.

Non communicable diseases refers to those diseases that are acquired by means other than through contact (characteristically non-infectious and non-transmissible among people)

It usually refers to chronic diseases which are of long duration.

The four main types of non-communicable diseases are cardiovascular diseases (like heart attacks and stroke), cancer, chronic respiratory diseases (such as chronic obstructed pulmonary disease and asthma) and diabetes

The chronic character of these diseases demands long-term care and they impose a continuous burden on the health system.

In South Africa the prevalence of these diseases is on the increase which further escalates the numbers of people requiring ongoing medical treatment and hospitalization, increasing healthcare costs.

The increase in the prevalence of NCDs impacts both the public and private health sectors with the disease burden adding to the already stretched capacity in the former and increasing costs of claims and hence contributions in the latter.

[Total 3]

- (ii) Define the terms “preventative care” and “wellness”, including examples, in the context of medical scheme benefits. [4]

Part (ii) revealed a poor understanding of wellness, wellness programmes and where medical scheme benefits start and end in this regard. Many candidates incorrectly referred to current loyalty and / or rewards programmes as being part of medical scheme benefits with clients getting access to gym discounts, flights, shopping discounts, and other non healthcare benefits from the medical scheme.

Stronger candidates referred to wellness programmes more broadly focusing on the different aspects that these can encompass to promote healthier living. Again, those who understood how wellness works in the medical scheme context scored well. Most correctly defined wellness and preventative care and could distinguish that one is a subset of the other.

Preventative healthcare consists of measures taken for disease prevention or early identification through proactive screening. Prevention can be actioned at various levels including primary, secondary and tertiary.

Examples of preventative care include avoiding the development of risk factors, disease screenings such as for cancers, regular GP check ups to detect any health issues, basic dentistry (to avoid the need for more advanced dentistry), and immunisations.

The theory behind preventative healthcare is that higher costs in the short term (through regular checkups, screening, etc.) could reduce the incidence of high- severity and hence high costing cases in the future.

Wellness refers to an individual’s general state of health, particularly regarding effort expended on preventative efforts such as maintaining a good level of fitness, maintaining a healthy diet and avoiding smoking and alcohol.

As such wellness is a subset of preventative care, focused on lifestyle related factors that could impact one’s state of health over time, with a healthier lifestyle resulting eliminating or reducing the risk of the onset of NCDs.

Wellness benefits that may typically be offered by a medical scheme could include access to dieticians, biokinetics, emotional wellness programmes and incentives to change poor lifestyle behaviours.

There may be specific wellness benefits catering for children such as eye and hearing screening as well as for specific needs for men and women.

A maternity wellness benefit may also be available to support mothers during pregnancy to ensure the health and wellbeing of the mother and unborn child.

[Total 4]

- (iii) Describe analyses you would do to determine the impact of mental health conditions and non-communicable diseases on the scheme. Your analysis should include reference to the incidence, prevalence and costs of these conditions. [15]**

Part (iii) was very poorly answered. The question gave candidates some guidance on how to structure their answer by referring to incidence, prevalence and costs for NCDs and mental health conditions. The question was a basic experience analysis question asking candidates to work through the medical scheme data to understand chronic disease registration levels and what members were claiming for and these costs. Candidates covered limited breadth and depth to score good marks. Many correctly identified that ICD-10 codes are needed in the data to do the analysis.

Identifying the conditions

Mental health conditions and non communicable diseases cover potentially a broad range of health conditions.

The data analysis could assist in identifying which of these conditions are of most interest to the scheme and thereby narrow down the scope of the analysis to the most prevalent or highest costing conditions, for example

Or the analysis could focus on all of these conditions to support a comprehensive understanding of the extent to which the scheme is impacted in terms of membership and costs to aid in how to respond to the issues

The scheme is required to provide cover for the Prescribed Minimum Benefits (PMBs) which includes a Chronic Disease List (CDL), requiring coverage for 25 chronic conditions.

These chronic conditions are defined in terms the International Classification of Diseases, or ICD codes which are diagnosis codes developed by the World Health Organization (WHO). They identify the health condition, or diagnosis.

ICD codes are often used in combination with the CPT codes to make sure that the health condition and the services match.

The Medical Schemes Act prescribes that all healthcare providers are required to use the ICD codes when diagnosing patients and submitting claims to medical schemes.

Some NCDs, such as diabetes, hypertension, hyperlipidemia are part of the chronic disease list of the PMBs which will support easy identification of members affected with these diseases.

However, mental health conditions covers a broad category of conditions and not all of these conditions are PMBs and not all are of a chronic nature. For example, bipolar mood disorder and schizophrenia are more severe mental health conditions which are part of the CDLs.

The number of chronic conditions covered also depends on the rules of scheme and benefit eligibility per benefit option as to what is covered. Members on the more comprehensive option

of this scheme enjoy access to cover for more chronic conditions than the CDL and therefore these should also be considered if these are NCDs and/or mental health conditions.

Therefore, the affected individuals may be identified from chronic registration data for these chronic diseases which indicates that these members are already registered for these conditions to access scheme benefits.

They may also be identified from the claims data for those claiming for the benefits directly or indirectly affected by these conditions.

By considering comorbidities for these conditions, for example members with diabetes and mental health conditions, members can be stratified further into those with one of the conditions or more and grouped accordingly depending on the comorbidities present among the membership.

The analysis can be narrowed down to focus on specific conditions, for example diabetes, hypertension and hyperlipidemia depending on which are the most prevalent conditions and/or the highest costing conditions for the scheme and the underlying employers

Prevalence and incidence rates

Prevalence refers to the overall level of cases for each condition among the medical scheme's membership base. It is usually expressed as a percentage of the total membership.

Incidence is defined as the rate of new diagnosis (or registration) of a condition.

Identify trends in prevalence of these conditions over time to assess how it is changing over time relative to the membership of the scheme – for example, are new members joining with chronic conditions, young and healthy members leaving the scheme, chronic members remaining and ageing, etc.

With co-morbidities it will be important to identify what these are, as there are many possible combinations and one could group them by types of conditions and/or number of comorbid conditions

Analysis of the prevalence of comorbidities over time would give an indication of the burden of disease and the severity of cases, for example, the number of diabetics who have developed chronic kidney disease due to their diabetes.

Analysis of the incidence of these conditions can be done by:

- Identifying the number of beneficiaries registering for each condition for the first time in the year of interest
- Identifying the number of beneficiaries with a comorbidity or more comorbidities for those already affected by one or more of the conditions
- Identifying those registering for a mental health condition as a comorbid condition
- Identifying those with mental health condition(s) who are registering for a NCD

The latter two will assist to identify the impact of mental health on the membership base and this inter-relates with NCDs.

Those diagnosed with comorbidities in each year may be indicative of cases are poorly managed, or unmanaged.

Costs of claims

The costs associated with each of these membership categories can then be quantified at various levels based on actual claims incurred over a given period of time.

Ensuring that the data is suitably run off so that there is no under-estimation of claims that are incurred but not reported.

- Claim costs for the medical scheme overall to assess total exposure and costs
- By demographic such as age, gender, family size, to identify which members may be most affected, and how this compares to the exposure data for each category of membership
- For each benefit option to identify anti-selection, benefit option appropriateness, benefit design considerations and movements between each benefit option
- By benefit category for example in hospital versus out of hospital costs to understand the nature of spend
- Further detail of benefit categories for example spend on medical specialists, chronic medication, pathology testing, etc can assist to illustrate how members are utilizing benefits and which benefits are most involved in the provision of care
- One can also go into detail to understand the spend on current relevant preventative benefits including wellness benefits to understand if these beneficiaries are utilizing the benefits
- Hospital admission rates will reveal the degree of severity of the conditions
- For each employer group to support understanding their workforce health profile (and similarly individual members which may illuminate aspects of anti-selection)
- By geography, to support understanding of potential environmental or cultural aspects that may impact on health status
- Where a member has more than one NCD care needs to be taken to not double count the cost against all conditions and either create categories for the combinations of conditions or try to separate out the costs for each condition using the ICD codes and treatments for the conditions

There may be members who are incurring claims for the conditions but are not yet registered for the conditions. Identifying members with the ICD-10 codes of interest may give insight into those at risk of developing the conditions or those who already have the conditions but are not yet registered.

This process could support the identification of members for active targeting for disease prevention or disease management.

Impacts of covid

A longer period of time for the analysis may reveal trends in the costs of claims to be considered alongside the underlying changes in incidence and prevalence rates to show how costs are increasing in line with effects of the pandemic as stated by the employer. It will therefore be important to consider claims prior to the pandemic and during the pandemic to be able to make a meaningful comparison, allowing for any changes in membership in the interim.

The COVID19 pandemic may have resulted in some members not getting their chronic medication regularly or going to their doctor for regular monitoring of their condition. This may lead to a deterioration of their chronic condition and the onset of other related conditions such as cardiovascular and kidney conditions.

By analysing the experience separately for those directly affected with covid – claiming for a positive test result at any point during the pandemic period – one can identify if these members claims have changed over the period, for example diagnosis of a mental health condition.

Moderate and severe cases of COVID19 may also result in the diagnosis of conditions that the member was not aware of, whether these were pre-existing or triggered by the COVID19 infection.

Similarly, one could analyze all families with a positive covid test result to identify a broader range of beneficiaries directly and indirectly affected.

Further analysis for those hospitalized with covid may also reveal further impacts.

[Total: 15]

- (iv) **Suggest how you would approach the benefit review to assess benefits currently offered to members and any new benefits to assist the scheme to address the employer's concerns.** [7]

Part (iv) was an open question about benefit reviews which candidates could have tackled from a number of angles including assessing current benefits, analysing competitor benefits, understanding claims experience, etc. Candidates tended to reasonably well in this question by referring to general and specific approaches to tackle wellness benefits and other related benefits including the process of doing so.

The benefits of interest can be segmented according to the membership base's levels of risk relating to lifestyle related chronic conditions:

1. Benefits that would support members to remain healthy (for those who are currently considered to be healthy),
2. assist those who are at risk of developing a chronic condition to improve their health so as to reduce or eliminate that risk,
3. and to support those who already have a chronic condition (or co-morbidities) to manage their conditions better and improve their underlying health so as to positively impact the severity of the disease.

This can lead one to consider benefits as follows:

1. Preventative care including wellness type benefits for early detection of any potential chronic condition emerging and to assist members to manage their lifestyles to remain healthy (or improve somewhat as may be needed)
2. Day to day benefits including comprehensive preventative care benefits including wellness type benefits, considering for example annual GP check ups and health assessments so that risks for developing health conditions can be monitored and managed
3. The above together with the scheme's managed care offerings to actively manage chronic conditions

Depending on the results of the analysis in question (iii), one should have a view of the most prevalent and highest costing claiming categories which can also direct the focus of the benefit review.

Prescribed minimum benefits

Many, if not all, of the chronic diseases analysed are likely to be part of the CDL of the PMBs which means that the scheme needs to cover these benefits in full, subject to the rules of the Scheme; for example, benefits are accessible via service provider networks.

Where there are chronic conditions (including mental health conditions) that are not part of the CDLs, these will need to be evaluated against similar benefits for the CDLs to identify if coverage is more or less comprehensive than the PMBs.

Preventative care benefits including wellness

Consider the benefits included in the preventative care package – these should include benefits for accessing support services to deal with underlying modifiable risk factors such as diet, exercise, substance usage and emotional wellbeing.

Accessing benefits may be through networks of service providers for each type of benefit or through any service provider, which may differ by benefit option to differentiate the benefits

Benefits may be limited by overall benefit limits per annum or limits on the frequency of use, co-payments, eligibility rules, and other risk sharing mechanisms.

Assess wellness benefits offered by the medical scheme compared to those offered by each employer group to identify the total wellness offering to members / staff. This will help to identify if there are any gaps in the current medical scheme offering and what these gaps are.

A comparison of wellness benefits to those offered by other comparable restricted medical schemes and open schemes to identify other benefits to enhance the existing offering (and to remind employers of the comprehensive nature of the existing benefits if applicable)

Any wellness benefits added would need to be with appropriately accredited healthcare service providers (for example interventions such as meditation, yoga, etc would not be classified as medical expenses).

Consider adding mental health benefits involving access to counselling services provided by a registered counsellor (which is a lower cost intervention compared to accessing higher levels of care, for example, a psychiatrist)

Psychologist visits may already be provided for under an allied health type benefit

Psychiatrist visits may already be provided for under medical specialist benefits

Review the effectiveness of the scheme's managed care arrangements for those who are already registered for a chronic disease and participate in a disease management programme

Suggested additions to wellness benefits would need to be costed based on expected costs per unit and assumed utilisation rates, together with any proposed benefit designs to determine if they are viable.

The expected costs of any benefit changes would need to be assessed against any potential cost savings from chronic conditions averted and improvements in health status.

[Total 7]

- (v) **Outline a framework to determine the return on investment (ROI) for each of the additional benefits for the medical scheme and explain how the respective employers would measure ROI from their perspective. [6]**

Part (v) was poorly answered. As a higher order question, it was well defined for candidates to explain how to do a cost benefit analysis about how the 'investment' in wellness benefits can have positive yield for the scheme and for the employer. Most candidates were able to identify the yield for the employer from reduced absenteeism, presenteeism and other benefits. However not many were able to do so clearly for the impact on the scheme.

Measuring the return on investment is equivalent to performing a cost benefit analysis for the proposed additional benefits

As the benefits and costs of the additional benefits need to be measured and compared in monetary terms

The scheme will want to measure the cost of each benefit enhancement, for example adding dieticians to the wellness benefits available to members

And similarly for those additional benefits, quantify the expected cost savings yielded from this benefit

Ideally, members who have utilized the wellness benefits should exhibit improved health status and therefore lower claims costs as a result of less severe illness / aversion of a chronic event / aversion of a hospital event.

In practice it is very difficult to link the wellness utilization to potential claims experience that could have been incurred had the intervention not taken place.

As the scheme is relatively small, there may not be a lot of data to work with, but one can look at the claims experience of those who have utilized such wellness benefits

And compare this to the claims of those with similar demographics who have not used the wellness benefits.

On a risk adjusted basis, this may provide some insight into the different claiming patterns, if any.

Other factors that are not evident from the medical scheme claims data could be driving improved health status or worse health status of such members and as such it would not be possible to accurately quantify these differences.

However if one were to consider longitudinal data over several years and track the claiming behavior of several members who have engaged with wellness benefits, it may be more evident as to the effect of these interventions.

This would depend on the amount of wellness data available, which is likely to only be the utilization data of the wellness benefits, unless the scheme has had wellness initiatives from which data has been collected to enhance understanding of the member.

For the employer(s), a healthier employee is likely to result in the following changes which can have a direct impact on the cost of labour for the business including:

- Reduced levels of absenteeism or unplanned leave (relative to a baseline level of absenteeism) – these can be measured against the number of days of sick leave taken
- Improved levels of productivity (again relative to a baseline level, assuming productivity can be measured objectively) – measuring this would need to be with reference to the type of work and output measures which may be difficult to measure
- Improved presenteeism which is very difficult to measure (referring to those being at work despite being unwell) but does impact productivity
- Aspects such as workplace accidents or injuries which could be influenced or impacted by employees not being well or fully present at work
- Staff turnover (this can be driven by many factors which may or may not be linked to wellness, so one would need to establish if underlying causes are clear)
- Claims for experience rated disability / life insurance / critical illness insurance

Any improvements in the above would result in a cost savings to the employers, relative to any cost increases for the medical scheme contribution as a result of the additional benefits, if any.

The analysis could be supplemented with research on the impacts of wellness benefits on workplace activity and potential cost savings related to improvements as a result.

Other benefit changes could include increasing benefits for CDL conditions which could be measured by lower future contributions to the scheme due to managed care activities (including wellness programmes) as the employer subsidizes the contributions.

[Total 6]

END OF MARKING SCHEDULE