

**Actuarial Society of South Africa**

**EXAMINATION**

20 October 2014

**Subject F201 — Health and Care**

**Specialist Applications**

**EXAMINER'S REPORT**

## Question 1

### Part (i)

*This question required candidates to explain the principle of Social Solidarity and discuss whether full compliance with the self-supporting provisions of the Medical Schemes Act promote this principle.*

According to the principle of Social Solidarity the risks each household faces due to the cost of the healthcare system as well as the delivery of healthcare should be fairly distributed. In other words:

- Contributions should be made according to the ability to pay and
- Healthcare should be provided according to need (and not the ability to pay).

This requires cross-subsidisation **from**

- The healthy to the sick
- Higher income individuals to low income individuals

*(Examiner's comment: The direction of the cross subsidy is very important in a discussion of social solidarity.)*

The self-supporting provision was introduced with the intention to stop cross subsidies the other way around (i.e. from the low income individuals to the high income individuals) and to prevent low cost options from being deliberately under-priced for the purposes of attracting large volumes of new business. (Attracting large volumes of loss-making business on under-priced options could threaten the sustainability of the entire scheme).

In the South African medical scheme market members choose their options based on their healthcare needs as well as what they can afford.

Thus individuals with greater need for healthcare will gravitate towards the most comprehensive option, if they can afford them.

Strict adherence to the requirement that each option must be self-supporting in the sense that each option must achieve at least a breakeven position or surplus on an operation result level implies that:

- No cross-subsidisation is allowed between options. Therefore the younger and healthier members who opt for less comprehensive cover do not cross-subsidise the older and sicker individuals on the more comprehensive options as each option has its own risk pool
- In effect this creates *de facto* risk rating since...
- ...individuals with greater need for healthcare will either pay more for that healthcare OR...
- ...not have access to all the healthcare they require if affordability prevents them from purchasing the appropriate level of cover.
- Continued anti-selective buy-downs will cause this situation to become progressively more unfair in future years.

In the current environment the Prescribed Minimum Benefits imply a minimum cost of benefits and therefore a minimum contribution level. This may be higher than low-income individuals would be able to afford.

Similarly the cross-subsidisation from high-income earners to low-income earners will not occur, or will be hampered. Because the comprehensive options are so much more expensive they will attract higher earning individuals who can afford them. If these options are loss making then these members are being cross-subsidised by lower earning individuals who can only afford less comprehensive options.

The fact that all members of the scheme may move to any option rather than the low cost options being reserved for low-income members complicates the matter further in that high-income individuals are not required to pay more for the same cover in options that are not income rated.

This may be countered to some extent by rating contributions by income. On open schemes income rating only tends to occur on their lower options.

Restricted schemes often income rate the contribution tables across all their options. Restricted schemes also tend to have fewer options than open medical schemes.

As a result restricted schemes achieve a form of social solidarity which is stronger than what open schemes can achieve.

Pensioners often buy down to the low-cost options because of affordability concerns as well as the awareness that their PMB entitlements mean that they will have cover for a number of chronic conditions as well as most hospitalisation, regardless of their option.

Similarly higher earning individuals who do not expect to utilise comprehensive cover may buy down to low-cost options in order to save money.

In conclusion strict compliance with the “self-supporting” provision does not promote the principle of Social Solidarity.

- It is for this reason that the Council for Regulators does not strictly enforce the self-sustaining provisions.

**(Max 8)**

**Part (ii)**

*Part (ii) was well answered. For additional comments see part (iii) below.*

The scheme may consider the following:

- Increase contributions on the reserve depleting options without changing the medical savings account proportions
- Increase contributions across on all options without changing the medical savings account proportions
- Decrease risk benefits on the reserve depleting options
- Close the loss-making options
- Reduce the Medical Savings Account (MSA) contributions
- Realise capital gains
- Reduce non-healthcare expenditure
- Reallocate non-healthcare expenditure between options
- Reduce healthcare expenditure through means other than benefit changes such as managed care, provider contracting or other interventions.
- Invest more aggressively to achieve higher investment returns
- Prepare a motivation and a business plan for compliance to the CMS
- The scheme can seek an amalgamation with another medical scheme

**(Max 4)**

**Part (iii)**

*Parts (ii) was marked in conjunction with part (iii). While part (ii) was well answered part (iii) was very poorly answered in spite of a large number of marks being available.*

*Performing well in this part required candidates to demonstrate the ability to interpret an income statement as well as a basic understanding of the relevant regulations and medical scheme market dynamics, both basic skills that can be reasonably expected of a candidate at this level.*

*Candidates lost marks for the following reasons:*

- *Some candidates did not attempt to perform any calculations. It appears that some candidates did not bring a calculator into the exam room.*
- *Many candidates lost marks because they did not show their calculation steps.*
- *Some candidates only performed calculations on the scheme level and did not consider benefit options separately. This led to easy marks being lost.*

*Any correct calculations that support the point that a candidate is making were awarded appropriate marks. Note that figures calculated using a calculator may not match the figures shown here exactly due to rounding errors.*

**Increase contributions on the reserve depleting options without changing the medical savings account proportions**

In order for the lossmaking options to achieve at least a breakeven operating result in 2015 requires additional contribution increases:

$$[\text{Change in contribution increase required}] = \frac{-[\text{Operational result}]}{\text{Risk contribution income}}$$

- Total increase = 25.26% =  $1.095 \times 1.144 - 1$  for the Galleon option; and
- Total increase = 28.59% =  $1.10 \times 1.169 - 1$  for the Caravel option.

Given that the Frigate and Clipper options are self-supporting we may assume that their contribution increases may remain unchanged.

If the Galleon and Caravel options are priced to achieve breakeven results and assuming that the results for the Frigate and Clipper option remain unchanged then the operating result will increase by R 329.9 million =  $(2240.8 \times 0.144 + 42.6 \times 0.169)$

Ignoring the impact on investment income these increases will increase the Reserves as per Regulation 29 amount to R1 244.2 million  $(914.3 + 329.9)$

Gross contribution income will increase to R4 770.3 million =  $(2987.8 \times 0.144 + 42.6 \times 0.169) + 4332.9$

This would result in the solvency ratio increasing from 19.0% to 26.1%, which would bring the solvency ratio above the minimum solvency requirements.

It should however be highlighted that the assumption that option membership will remain unchanged regardless of the level of contribution increases is **invalidated** by the following

The increases included in the budget compare well to the  $\text{CPI} + 3\% = 9\%$  which is what we may expect the average increase across the industry to be.

Furthermore, assuming no benefit changes and given inflation and utilisation assumptions healthcare costs are expected to increase by  $1.06 \times 1.035 - 1 = 9.71\%$

If additional increases lead to the contributions being higher than the contributions on options with similar benefits offered by competing schemes then members will have an incentive to move to those other schemes.

Arguably increasing the Caravel contributions by such a large percentage would defeat the purpose of offering a low-cost affordable option.

Members on the lowest option may have very low income and/or very low expected healthcare needs. They may not find the benefits worth the increased contribution any longer and very low-income individuals may opt out of medical scheme membership altogether due to affordability concerns.

Even if the resulting contributions are on a par with market rates, members may still react negatively to the rate of the contribution increase, particularly if this is significantly higher than salary increase rates.

Employer groups may therefore decide to move employees to other schemes with lower contribution increases if the discrepancy between the contribution and salary increases causes unhappiness amongst the workforce.

The members who change schemes could be subject to underwriting when joining another scheme – most will have a three-month general waiting period imposed, but some will also have 12-month condition-specific exclusions imposed. This is unless the member is changing medical scheme as a result of the employer changing schemes.

The younger, healthier members and groups would be able to move to a different scheme more easily. They tend to be in better health and therefore can expect to move schemes without being subject to condition specific underwriting. Some schemes also relax their underwriting policies for young and healthy members in order to attract more of them....

...which would leave Anchor with a worse profile of member on these options than was there before.

Members on the high option would be able to move (buy down) to a more affordable option of the scheme on 1 January without restrictions or penalties.

Members who would move from the high options to the less comprehensive options are expected, on average, to claim less than the ones who stay – they do not perceive the value for money provided by the extra protection at those contribution levels, particularly if they don't expect to utilise all the benefits, based on their current health circumstances.

As a result the high option is now left with a worse profile, and consequently higher average claims on a per-member or per-beneficiary basis.

If the contribution increase was set to counter the expected claims based on a strong assumption that the membership on an option level remains unchanged then the adverse membership movements contemplated above, resulting from the large contribution increases, will invalidate the assumption.

As a result the implemented contribution increases will be too small, resulting in worse than expected underwriting results.

### **Increase contributions across on all options without changing the medical savings account proportions**

An alternative approach to option specific contribution increases would be to increase all contributions (including those of the surplus generating Frigate and Clipper options).

In order to achieve a solvency level of 25% the scheme would need **at least** an additional 7.6% increase (on every option) in risk contribution income over and above the average 9.26% increase already in the budget.

Additional reserves required =  $0.25 * 4332.9 - 822.3 = \text{R } 260.9$  million

Additional increase in risk contribution income required = 7.6%

Increasing contributions is an inefficient way to increase the solvency ratio for the simple reason that the gross contribution income amount is the divisor (or denominator) in the solvency ratio

formula. In addition, savings contributions do not add to members' funds (the numerator) in the solvency ratio, but they do to the denominator. Thus the amount of the minimum reserve level (25% of gross annual contribution income) increases the more as contributions increase.

Overall the scheme would need at least an additional 24.1% =  $(0.25 \times 4332.9 - 822.3) / (0.25 \times 4322.9)$  increase over and above the average 9.26% increase already put through (average overall increase =  $(1.0926) \times (1.241) - 1 = 35.6\%$ ) in order to reach a solvency level of 25%.

This constitutes a very high contribution increase and is likely to make the entire scheme uncompetitive. The market favours schemes based on contribution increases as well as contribution levels.

This additional increase across all options will improve the financial results of the scheme.

However this action will not result in Galleon and Caravel becoming self-supporting.

Furthermore, the comments made above regarding competitiveness and price shock and resulting membership movements are even more relevant in this scenario since it will create incentives for reserve building members on the Frigate and Clipper options to leave the scheme or buy down, which will reduce the extent of cross-subsidisation from these options to the loss-making options.

A significant number of members leaving the scheme due to uncompetitive contributions will lead to an increase in the solvency ratio (all other things being equal) but this would indicate that the scheme is healthy when in fact it is not.

### **Decrease risk benefits on the reserve depleting options**

Decreasing risk benefits would decrease relevant healthcare expenditure, all other things being equal

The required reduction in healthcare expenditure required to break-even is:

- $322.7/2427.9 = 13.3\%$  on the Galleon option and
- 16.5% on the Caravel option.

These percentages imply drastic benefit cuts to non-PMB day-to-day risk benefits, which is what many members value in their medical schemes.

As is the case with additional contribution increases, members would compare the value they derive in terms of benefits to the cost they have to pay in contributions.

This action may therefore prompt the same types of membership movement as contemplated above.

As a result these options may still deplete reserves, and other options may come under more strain than would otherwise have been the case.

However the impact on member behaviour will be somewhat lessened compared to high contribution increases, as most members tend to assign more weight to affordability than to benefit richness when they assess value for money (the assessment of benefit levels is a complicated technical task which must also take into account each member's unique circumstances).

Given the levels of benefit reduction required members and brokers are likely to notice and react negatively.

Reducing benefits on the Galleon option sufficiently to make it self-supporting would bring its benefits closer to the Frigate option (or even make it less comprehensive if the risk profile on the

Galleon option is significantly worse than that of the Frigate option), potentially prompting more members to buy down.

Caravel is the scheme's affordable option (average monthly contribution per family is R42.6 million /  $(2322 \times 12) = R1\ 528.$ )

As such the benefits on the Caravel option are probably at or only slightly above the Prescribed Minimum Benefits level.

This means that there is not sufficient scope to cut Caravel benefits to such an extent (16.5%) that it will make the option self-supporting.

**Reduce healthcare expenditure through means other than benefit changes such as managed care, provider contracting or other interventions.**

The scheme may also consider actions that will reduce healthcare expenditure through a reduction in utilisation and/or the costs of claims.

Examples of such interventions include managed care programmes, contracting with providers, and the creation of Designated Service Provider networks (which is useful in managing the cost of PMBs)

The value of introducing such measures will depend greatly on the measures that are already in place. In order to extract additional gains a measure would have to result in a reduction in healthcare costs that exceeds the cost of the intervention itself.

**Close the loss-making options**

If it is closed then all members on the highest (Galleon) option will have to "buy down" or leave the scheme to find similar cover elsewhere.

If they remain on the scheme, their reduction in contributions would not be expected to be met by a similar reduction in claims, because more expensive options tend to have more older, higher-claiming members than more affordable ones (higher utilisation and more severe cases).

This is because the effect of demographic profile on expected healthcare cost is far stronger than that of benefit richness.

Only the worst healthcare risks are expected to “buy up” from the lowest option if it is closed, the anti-selective terminations again putting extra strain on the remaining membership.

Members who leave the scheme are expected to be better healthcare risks than the ones staying (as discussed above). The anti-selective terminations would therefore put even more strain on the remaining options.

The narrower range of remaining scheme options may not be suitable for the needs of employer groups on the scheme (i.e. the range of options do not offer cover for its entire workforce as there is insufficient affordable cover for lower-income employees and insufficient comprehensive cover for high-income employees or executives).

Anchor would therefore be in danger of losing employer groups (including the members on the reserve-building mid-range options) to schemes with wider ranges of options.

As a result the remaining Frigate and Clipper options would be expected to record poorer underwriting results or may now be in danger of incurring deficits themselves.

If this leads to the Frigate and Clipper options becoming unsustainable or uncompetitive, then the scheme itself will no longer be sustainable.

### **Reduce the Medical Savings Account (MSA) contributions**

The scheme could reduce the medical savings account percentages (for example take the 25% MSA contribution on the Galleon option and reduce it to 15%).

This would reduce the gross contribution income (improving the solvency ratio).

Alternatively the scheme can increase risk contributions by a larger percentage but reduce the increase on gross contributions (which is what members will tend to focus on) by lowering the MSA proportion.

Given that day-to-day benefits are most likely paid from MSA on the options that have savings this would constitute a benefit reduction from the point of view of the members.

### **Realise capital gains**

The scheme has significant funds (6% of total members' funds) in the revaluation reserve, which represents unrealised capital gains. The revaluation reserve is not included in the accumulated funds as per Regulation 29 for the purposes of calculating the solvency ratio.

Realising these capital gains by selling the relevant assets would increase the Regulation 29 reserves to the full R874.8 available in the Total Member Funds. This simple step would increase the solvency ratio to 20.2%.

It may however not be a favourable time to sell the assets – the scheme may end up foregoing future capital gains in order to gain a short-term improvement in the solvency ratio.

Another aspect is to consider whether the scheme holds any assets that are inadmissible for the purposes of the solvency calculation. Converting these to admissible assets will also help to improve the solvency ratio.

### **Reduce non-healthcare expenditure**

The scheme may improve its financial results by reducing non-healthcare expenditure (for example by negotiating a better fee for administration services).

Non-healthcare expenditure as a percentage of risk contributions is  $6.2\% = 211.2 \div 3422.0$  while as a percentage of gross contribution income it is 4.9%.

The CMS guideline for non-healthcare expenditure is 10% of contribution income. The low percentages for this scheme (particularly given the fact that it is an open medical scheme that pays commission) indicates that non-healthcare costs are quite low. The scope for further reductions in non-healthcare expenditure (without compromising business functions and service levels) is therefore likely to be limited.

### **Reallocate non-healthcare expenditure**

For the first three options non-healthcare expenditure represent around 6% of net contributions. On the Caravel options it is higher at 14.3% of contributions.

The scheme may choose to allocate non-healthcare expenditure to options differently (for example the same fixed fee per member for all options or a reduced fee for the Caravel option) with the intention of improving the operating results of the loss-making options.

It is however important to note that the scheme must allocate costs correctly. If the administration fees are explicitly defined in an administration agreement with a third-party administrator then the scheme will not be able to reallocate administration expenses without first renegotiating the administration agreement itself.

Self-administered schemes have more flexibility in allocating expenses

The scheme should however remain aware of any cross-subsidies on a non-healthcare cost level as these may expose the scheme to changes in plan mix.

Certain components of non-healthcare expenditure cannot be re-allocated at all (for example CMS levies are a fixed fee per beneficiary).

**Invest more aggressively to increase contribution income**

The rate of investment income shown in the budget is approximately 8.0% compared to assumed CPI inflation of 6%).

The scheme may be able to pursue higher returns by adopting a more aggressive investment strategy...

...as long as it continues to invest within the constraints set on Annexure B of the Regulations.

Given that the scheme is currently below the minimum solvency level adopting a risky investment strategy is not recommended, as any capital losses would further reduce the level of reserves.

An investment strategy with a focus on capital preservation is advisable as long as the scheme holds reserves below the minimum level.

Furthermore growth assets such as equities which generate investment return primarily through growth in assets values (market prices) as opposed to investment income (dividends) will accumulate further unrealised gains, which would not be included in the solvency ratio calculation until they are realised.

Interventions such as a reduction in non-healthcare costs or changing the investment policy of the scheme will not impact members directly and are unlikely to cause members to change their behaviour in the short term.

### **Amalgamate with another medical scheme**

Anchor may seek to amalgamate with another medical scheme that has a good risk profile and/or a high level of reserves. This is easier said than done.

The fate of the loss making options will depend on how the option structure will be changed in order to accommodate the incoming members and which options those members will join.

### **Prepare a motivation to the CMS**

Using the arguments above a response may be drafted to the office of the Registrar, explaining why making all options self-sustaining would not be in the best interests of the scheme and its members.

This may take the form of a longer term business plan indicating how the scheme will become compliant with the solvency requirement within, say, 5 years if immediate compliance would cause too much disruption.

### **Concluding remarks and recommendations**

The Medical Schemes Act requires that a medical scheme should have at least 6 000 members in order to be considered sustainable. The CMS also publishes a guideline for the preparation of business plans for new options which recommends that each option should have at least 2 500 members. Given that this is only a guideline the fact that the Caravel option has fewer than 2 500 members is technically not a matter of non-compliance.

Implementing the necessary changes all at once would cause too much disruption, putting the scheme at risk of unpredictable negative consequences.

Abruptly closing the deficit making options would be the most disruptive and is not recommended.

Implementing such large contribution increases or benefit reductions in one year would also be disruptive and is likely to lead to adverse member reaction.

The Trustees should be advised to take a longer-term view and gradually address the issues raised by the CMS over a number of years (in the form of a long term reserving and pricing strategy).

All of the above courses of action interact with one another. For example, if all capital gains are realised then the contribution increase required to reach a 25% solvency level will be somewhat lower.

An optimal combination of all of the above actions (e.g. contribution increase and benefit reduction together with the realisation of capital gains) therefore needs to be considered.

In order to achieve long-term sustainability the scheme will need to generate operating surpluses rather than relying on investment income to maintain solvency.

The assumptions underlying the budget may be revisited and adjusted if they prove to be inappropriate.

*Additional examiner's comments*

*Some candidates suggested that the scheme can reduce contributions in order to improve its solvency ratio. While this is technically true this is not something that the candidate, in the role of an actuary advising the scheme, should recommend as the consequences of such an action on the scheme's future sustainability will be dire.*

*Certain candidates suggested that the scheme may use reinsurance and other risk transfer arrangements in order to help the scheme become compliant. There are two problems with this recommendation. The first is that such arrangements do not result in a lower solvency*

*requirement under the current regulatory regime. The second is that reinsurance comes at a cost (the reinsurer's profit margin) meaning that it cannot be used as a tool to reduce expected (average) costs, only to protect against claims volatility and/or catastrophic claims.*

**(Max 27)**

## **Part (iv)**

*In this part students were asked to describe the factors that should be considered in an analysis and projection of utilisation (for the motivation that the regulator asked for).*

*A number of candidates failed to complete the second part of the question which was to indicate the best utilisation measure for each of the categories, leading to marks being lost.*

*The inclusion of a time unit in any utilisation measure is critical to such an analysis. NOTE that the time unit used in the utilisation measure does not matter so long as it is applied consistently. Thus the utilisation rate measures below could be on an average per beneficiary per month or a per annum basis.*

*Some candidates listed a number of the factors to consider in the analysis (such as level of benefits or the existence of managed care interventions) but did not receive credit as they failed to consider **changes** in these factors (such as the introduction or removal of a managed care intervention).*

### **Utilisation measures:**

#### **Hospital utilisation**

Average number of hospital bed days per beneficiary per time unit

This can be broken down into its constituent parts, namely:

- Admission rate per beneficiary per time unit
- Average length of stay per admission

Results may also discriminate on the level of care (for example the number of inpatient days spent in ICU, High care or general wards)

#### **Consultations**

Average number of visits per beneficiary per time unit

This may be calculated separately for specialists and GPs

### **Procedures**

Average number of procedures performed per beneficiary per time unit

This may be calculated separately for in-and out-of-hospital procedures.

And should also allow for the mix of types of procedures

### **Medicine**

- Average number of scripts per beneficiary per time unit
- Average number of items dispensed per script

This may be calculated separately for chronic and acute medicine

### **Pathology**

Average number of tests performed per day in hospital or per consultation.

This may be calculated separately for in-and out-of-hospital pathology

### **Radiology**

Average number of scans/x-rays/other diagnostic procedures per beneficiary per time unit

### **Factors to consider:**

You must consider the period of time to be for the data that will be used in your analysis.

- Too short a time period will lead to a lack of credibility
- Too long a time period may lead to results that are not relevant to the matter of utilisation increases for 2015.
- Too recent a time period may not include claims that have been incurred but not reported.
- A time period with unrepresentative seasonality will skew the results.

Were there any changes in how claims were submitted or reported, as this would cause a sudden change in your utilisation measure? If not allowed for this can lead to inaccurate results.

Were there any changes in regulations such as changes in the definition of Prescribed Minimum Benefits?

Consider any changes in factors influencing the demand for healthcare:

- Membership changes impacting demographic mix (age, gender at least), could be as a result of rapid changes to the beneficiary population in the scheme or option (due to new business, resignations, option migration and remaining business.)
- Changes in the burden of disease including the chronic status of the beneficiaries and the rise of new diseases/conditions.
- Changes in the geographic location of members (urban beneficiaries tend to utilise more healthcare than their rural counterparts.)
- Changes in provider behaviour such as referral patterns by doctors (including the ordering of pathology and radiology)
- Changes in reimbursement methods (such as a change from fee-for-service to a capitation arrangement) that could impact supplier driven demand?
- The impacts of any managed care initiatives introduced or halted over the period.
- Changes in benefits design over the period including changes to benefit limits, co-payments and deductibles. A large increase in the acute medicine limit or a reduction in co-payments is expected to lead to increased utilisation, for example.
- Changes in technology that may impact utilisation (increasing utilisation of new technologies and drugs and declining utilisation of obsolete ones.)

- For hospital admissions you need to account for changes in case mix. For example, the number of hospital bed days would be influenced by factors affecting length of stay such as a different mix of admission types (more major surgeries, more pneumonia cases resulting from a harsher winter).
- Seasonality during the year will need to be considered and adjusted for if the analysis is not based on full years.
- A Diagnostic Related Grouper will be a useful tool to adjust for changes in case-mix, particularly if you want to measure changes in admission rates or average length of stay by diagnostic related group.
- On hospital claims you also need to deal with factors such as adjacent admissions (patient was transferred to another hospital) and readmissions. Are these consistently counted as separate admissions or part of a single hospitalisation “event”?
- Changes in protocols or formularies (for example an increase in the CD4 count threshold for treatment with ARVs will result in increased utilisation of ARVs)
- Changes in the diagnosis criteria or definition of diseases. A change in the criteria for diagnosis of a condition may lead to different numbers of patients being diagnosed and treated.
- Impact of changes to reimbursement arrangements with providers (such as capitation agreements). This could impact the utilisation of the specific services as well as downstream services.
- Increases in awareness of benefits – for example as a result of the CMS's campaign to increase awareness of PMB entitlements.

This past utilisation experience must then be applied to the expected demographics for 2015 in order to project future utilisation trends. The results of this projection would then be used to motivate the utilisation increase assumption used in the budget.

**(Max 12)**

**Part (v)**

*This part is based on bookwork and was well answered.*

The only premium penalties that are allowed are late joiner penalties (LJPs)

They can only be applied to beneficiaries who apply to join the scheme when they are at least 35 years old.

Maximum penalties are prescribed in regulation; schemes have discretion up to the maximum.

The maximum penalty applies to the portion of the contribution relating to the principal member or dependant to whom the penalty applies, but...

...does not apply to any beneficiaries who were covered from before 1 April 2001 without a break in cover exceeding three consecutive months.

LJPs may continue to be applied after transfer to a different scheme.

The creditable coverage period is the period of which a person was a beneficiary of

- a South African medical scheme, registered with the Council for Medical Schemes,
- an entity doing the business of a medical scheme but which was exempted from the provisions of the Medical Schemes Act at the time of being a beneficiary,
- medical cover from the SANDF as a uniformed employee of the SANDF or as a dependant of a uniformed employee of the SANDF, or
- the Permanent Force Continuity Fund.

Any period of coverage as a dependant under the age of 21 years is excluded from creditable coverage.

The onus to provide proof of creditable coverage is on the late joiner.

Acceptable proof includes

- membership certificates, or
- a sworn affidavit with the necessary detail (the relevant periods in which he or she was a member or dependant and the name or names of the relevant medical schemes or other relevant entities corresponding with such periods) and that reasonable efforts have been made to obtain documentary evidence of such periods of creditable coverage, but have been unsuccessful in cases where reasonable effort to obtain membership certificates were unsuccessful.

Schemes are required to provide previous members with coverage certificates upon request.

Should the beneficiary produce proof of membership after joining the late joiner penalty will not apply

The penalty period is calculated as:

$$A = B - (35 + C)$$

with A = Penalty period (in years)

B = Age of late joiner at time of application (in years)

C = Creditable coverage (in years)

The maximum allowed penalty for a given penalty period is defined as follows:

Penalty period	Maximum allowed penalty as percentage of
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	applicable contribution
1 to 4 years	5
5 to 14 years	25
15 to 25 years	50
25 years or more	75

**(Max 9)**

**Part (vi)**

*This question was poorly answered.*

*Common mistakes included unnecessary explanation of the underwriting medical schemes may apply in South Africa, attempting to modify pricing methodologies to fit the problem and not completing the task at hand, which was to explain the process you would follow to update the underwriting policy. Several candidates made the (unsubstantiated) assumption that Anchor Medical Scheme's underwriting is much stricter than those of competitors in every aspect (not just group and broker concessions) and failed to consider the possibility that its underwriting policy may be too lax.*

*There appears to be a belief amongst candidates that the demographic profile of a group is the best measure of how risky such as group is. This is based on the assumption that younger beneficiaries always have a better risk profile than older lives, which is not necessarily true: If Scheme A applies maternity waiting periods while other schemes do not then it will see an influx of younger females of child bearing age but the anti-selection effect will be significant.*

Updating the underwriting policy should be done with reference to the actuarial control cycle. This entails defining the problem, design a solution and monitoring the results, all in the context of the external environment and professionalism.

**Defining the problem**

Anti-selective behaviour from new members needs to be minimised through appropriate underwriting.

Underwriting should however not be so strict that the scheme fails to attract the new members it needs in order to grow.

Sources of anti-selection need to be identified.

The cost of applying underwriting must be recouped through a reduction in claims that results from the underwriting.

Therefore the costs and savings resulting from different underwriting practices need to be estimated.

### **External environment**

Laws and regulations allow defined general waiting periods and condition-specific exclusions under defined circumstances.

Condition-specific underwriting may only be applied to conditions for which medical advice, diagnosis, care or treatment was recommended or received within a twelve month period prior to the date of application for membership.

PMBs are exempt from waiting periods under some circumstances.

Competitors have different underwriting practices, specifically for large, single-risk, compulsory groups and certain brokers.

### **Using scheme data in implementing the actuarial control cycle**

The data must be adequate, accurate and relevant.

The anti-selective potential in compulsory, single-risk groups is lower than for individual members. Groups should therefore also be analysed separately.

Some brokers write business that, on the whole, builds reserves for the scheme. Brokers with enough business on the books to render their data credible should be evaluated separately.

For underwriting purposes, no distinction has been made between sources of business in the past, so the level of underwriting present in the data can be assumed to be the same for all business that joined at times where the same underwriting regime applied (i.e. for the same exclusion list).

There will be some beneficiaries who joined and were exempt from underwriting (for example if they joined during the concession period for 1 January starting dates). We can therefore compare the experience of these members to those who were underwritten.

**Identifying conditions for which anti-selection is a concern:**

Anti-selection could have occurred where members joined the scheme, claimed for a condition (possibly quite soon after joining) and then left the scheme again.

Conditions with high total claim amounts (over all members) and high individual event costs should be investigated. These conditions can be analysed by grouping total past claims by diagnosis and/or procedure, and considering the highest past individual claim events.

For individual cases with high claim amounts, care should be taken to ensure that irregular cases with special circumstances having a negligible probability of being repeated are not given too much credibility in the calculations. (e.g. outliers).

Care should be taken to allow for reopened and/or adjusted claims.

The joining, claiming and termination patterns for the identified diagnoses/procedures can then be analysed. The distributions of time between joining and claiming, and between claiming and terminating membership should be evaluated per diagnosis/condition. The high-costing conditions with short durations between joining, claiming and terminating should be considered for exclusion. In addition, conditions with a short duration between joining and claiming without having terminated should also be considered.

Given there is enough credible data, the above can be ascertained by grouping claims and exposure data by duration since joining and age band, and calculating the incidence of the diagnosis/condition per duration. If the incidence is higher at shorter durations, they could be candidates for exclusion.

Staff with clinical expertise can now be used to ascertain whether the identified conditions lend themselves to anti-selective behaviour in practice, and how it can be detected in the most cost-efficient way.

It is preferable to use information that comes at no extra cost to detect the presence of the identified conditions, keeping in mind the regulatory criteria. This could include information from the application form, such as:

- Any current prescribed medication being taken
- Any current medical conditions for which the person is being treated or for which treatment has been recommended in the preceding 12 months
- Any future scheduled medical treatment

The financial effectiveness of requiring additional medical tests for pre-existing conditions could be evaluated by comparing the estimated cost savings resulting from the more informed underwriting decision to the costs of the tests.

The scheme's claims data and/or tariff files can be used to compare the cost of claims and the cost of underwriting tests.

Given that the scheme is not allowed to apply exclusions to PMBs, no extra tests should be required for PMBs.

The underwriting practice derived from the exercise up to this point can now be compared to competitors' underwriting practices. Underwriting does not need to be far stricter than that of competitors to deter anti-selection.

In addition to underwriting at the joining stage, it may be possible to prove from the scheme's claims data available at claims stage if a member was guilty of non-disclosure at the point of application (i.e. giving incorrect information on the application). In these cases the claim can be denied.

**Identifying members for which a general waiting period should be applied:**

It is not clear from the question whether general waiting periods are currently applied.

- If they are, their application does not need to be stricter than that of competitors in order to avoid anti-selection, assuming contributions and benefits are market related.
- If they are not, they should be introduced in order to avoid anti-selection against the scheme, since they are applied in the market.

There may be an opportunity to be more attractive than competitors for reserve-building members if the application of general waiting periods is more relaxed than theirs.

Factors to be considered for applying a general waiting period should be practical, relevant, not correlate too closely with other rating factors, and not be open to manipulation.

As such, the most usable factors are age, some biometric information (weight, height, body mass index), and

Answers to the lifestyle questions (smoking and drinking habits, etc.) and medical questions (chronic conditions, etc.) on the application form.

- If general waiting periods have never been applied, the data is free of bias related to waiting periods and can be used as is.

- If general waiting periods had been applied at some point in the past, data should be adjusted in order to avoid including experience that was biased by the underwriting imposed. This can be done by removing data applicable for a period after joining (maybe a year).

New members' data can be grouped into cells according to the mentioned rating factors, assuming the rating factor data is available, and combining "similar" cells or widening bands where data is too sparse for credible inference.

The loss ratio over a credible amount of time for each cell can be derived. Where the loss ratio is low enough for the members in that cell to be reserve-building, they do not need to be subject to a general waiting period.

Care needs to be taken with the historical underwriting practices of competitors in order to avoid incorrect inferences, since anti-selection is heavily influenced by the relative strictness between schemes.

### **Relaxing underwriting for groups**

Single-risk (in other words employees in the group do not have a choice of various medical schemes), compulsory groups pose a far lower anti-selection risk than individual members. These are groups where membership of a medical scheme is compulsory through conditions of employment, and the scheme is the only choice for the employees.

Due to the reduced anti-selection risk, underwriting can be relaxed, thereby reducing the cost of underwriting for the scheme and making the scheme more attractive for larger reserve-building groups through a less burdensome joining process and providing cover for employees that would otherwise have been underwritten.

An analogous process for determining general waiting period criteria can be used to determine the criteria for granting an underwriting concession for a group.

Here the group rating factors will be the average age of the members and/or beneficiaries of the group, the pensioner ratio of the member and/or beneficiaries of the group (depending on whether it provides information additional to the average age), the industry and geographical location(s) in which the group is active, the prevalence of different chronic conditions in a group, and the past claims experience of the group.

All of the above data may not be obtainable, especially chronic conditions and past claims experience. In such cases, the group concession can possibly be granted if the values for the known rating factors are well within the underwriting limits.

Since group concessions have never been applied, the scheme's historical exposure and claims data for groups can be used; it will be free of the effects of underwriting.

Anti-selection risk is lower for larger single-risk, compulsory groups because the needs of more people need to be considered in trying to identify the scheme with the most cost-effective benefits for all their individual circumstances. The bigger the group, the more competing objectives will have to be taken into account. It is therefore important to grant concession to groups of sufficient size. This would be difficult to obtain from past data because it does not contain data for groups who joined without any underwriting. The market practice with regards to group size can be used as a starting point, and the experience monitored.

**Relaxing underwriting for certain brokers:**

Brokers with enough business on the scheme's book to give a credible loss ratio estimate can be considered for underwriting concessions if the loss ratio indicates a reserve-building book of business and continued reserve-building new business.

The above can be evaluated by grouping the scheme's exposure and claims data by broker, and calculating the loss ratio for each broker's existing book (i.e. also allowing for expenses related to each broker's book), as well as considering the demographic profile of his/her recently written new business (maybe for the last year).

In this way, the broker is spared the administrative burden of stricter underwriting, and the scheme has access to a book of reserve-building membership.

### **Monitoring experience**

The claims experience relating to the underwriting policy should continuously be monitored and fed back into the actuarial control cycle with regards to underwriting decisions (i.e. the excluded conditions, criteria for imposing general waiting periods and criteria for granting concessions given to certain groups and brokers, and whether existing concessions should remain intact).

The exercise for identifying excluded conditions should be repeated regularly (say annually) or when regular claims monitoring indicates that an unlisted condition might have become a source of anti-selection.

Competitors' underwriting criteria should be monitored continuously as far as possible (relevant information may be available from brokers, call centres or marketing material) to ensure the relative strictness of the scheme's underwriting is at the appropriate level.

The criteria for general waiting period concessions, group underwriting concessions and broker underwriting concessions should also be monitored continually to ensure they do not attract reserve-depleting business.

When a credible claims history shows loss-making results for groups or brokers with underwriting concessions, the decision should be revisited carefully:

- If it is likely that the whole group or the broker's whole book will leave the scheme, it is in the best interest of the scheme to retract the underwriting concession.
- However, if it is likely that the existing loss-making members will be left on the scheme while new young and healthy business will be channelled to another scheme by the group or the broker when retracting the concession, it is in the best interest of the scheme to keep the underwriting concession in force.

The minimum group sizes for which underwriting concessions are considered should be monitored by considering the loss ratios of groups of different sizes for which concessions were granted when enough data becomes available over time for a reasonable assessment of their loss ratios.

**(Max 22)**

## **Part (vii)**

*This part was very poorly answered as candidates struggled to list any but the most obvious risks.*

### **Claims risk**

Claims risk refers to the risk of total claims being higher than what was allowed for during contribution setting.

Its impact can be divided broadly into the impact of cost per claim and the impact of frequency of claims.

Since the underwriting policy has not been updated for some years, the criteria for imposing waiting periods (i.e. demographic and lifestyle information) and exclusions (list of excluded conditions) may have diverged from the market practice.

The scheme's underwriting practices may now lend itself to anti-selection by members (see "membership" below) and may result in claims that are higher than allowed for when contributions were set.

### **Membership risk**

Anti-selection occurs when a member/policyholder purchases an insurance contract because he believes that his risk is higher than the insurer has allowed for in the pricing. Anti-selection is also recognised as the tendency for sick or sub-standard lives legitimately to review policies or take up options providing additional cover without evidence of health.

Anti-selection relates to the rational behaviour of members/policyholders rather than illegal or fraudulent behaviour.

In a competitive environment, anti-selective behaviour is driven by the differences in underwriting policy of the competing schemes.

In order to avoid attracting members who will use the similar benefits for a similar contribution offered by a competitor, the underwriting policy must be at least as strict as that of the competitor for unhealthy risks. Here underwriting may not be as strict as those of competitors, since it has not been updated since 2005. This could result in contributions having to be set at uncompetitive levels and/or financial deficits.

There is also the risk that the underwriting policy is too strict, in which case the scheme (which is an open medical scheme) will fail to grow.

In order to avoid deterring reserve-building members from joining the scheme, underwriting must not be more cumbersome for these members or intermediaries than those of competitors for good risks. Here the same underwriting is applied to all members, while competitors relax underwriting for large groups and VIP brokers. Large groups and VIP brokers do not have the benefit of reduced underwriting that would ease their administrative. Reserve-building membership from large groups and VIP brokers could as a result be channelled towards competitors, where they would benefit from relaxed underwriting. The scheme may be forfeiting this potentially reserve-building member growth.

### **Expense risk**

Underwriting is only sensible if the claims cost that are “saved” through underwriting is more than the cost of applying the underwriting.

Expenses related to underwriting include new business administration costs (mainly staff remuneration, systems and communication), cost of medical tests being requested, costs of non-disclosure investigations and concomitant legal costs.

Competitors may not apply underwriting to the same extent and for the same diagnoses as this scheme. Since the scheme is not exposed to anti-selection for these conditions in the competitive

environment, the costs of applying the underwriting may not be recouped via lower claims for these conditions.

The scheme applies the same underwriting to all new members, regardless of whether they come from a large compulsory, single-risk group (i.e. the scheme is the only one available to employees in their conditions of employment or subsidy policy), or a VIP broker. The administrative burden on the scheme is therefore not eased for business from these sources, even though the health risks they carry are significantly lower than for other new business. The cost of underwriting in these cases may therefore not be countered by a reduction in claims.

The scheme will have some expenses that are fixed (i.e. they do not depend on the size of the membership), especially if it is self-administered. The lower the membership, the higher the contribution each member has to make towards these costs. Deterring membership growth through stricter underwriting than the market, as is the case here, will result in lower membership, a higher contribution towards fixed costs from each members and hence higher, less competitive contribution rates.

The risks above are not independent, and often mitigating steps for one risk would exacerbate another risk. A balance needs to be struck between the different risks.

**(Max 5)**

## Question 2

### Part (i)

*Question 2 required candidates to discuss the implications of no reform of the medical schemes regulatory environment occurring within the next decade. As such the examiners expected candidates to use logical arguments to support their conclusions as to the long-term implications.*

*This question was poorly answered. Many candidates did not discuss the consequences but instead described the current environment in a great level of detail. Candidates also attempted to propose ways in which the regulations should be corrected, which is not what was asked.*

### **Open enrolment, community rating and the absence of Risk Equalisation**

Because of the imposition of community rating without risk equalisation the most important factor in determining a scheme's healthcare expenditure is the risk profile of its beneficiaries (age, gender and chronic status).

This forces medical schemes to compete on the basis of their demographic profile instead of the more desirable basis of funding quality healthcare as efficiently as possible.

The situation has created a phenomenon commonly known as the "actuarial death spiral". Schemes with poor profiles find that they cannot sustainably offer the same level of benefits for the same contribution levels as schemes with better demographic profiles, leaving them unable to compete.

Uncompetitive schemes will lose members to their competitors and find it hard to attract new business. Since it is easier for the younger and healthier members to move between schemes (due to underwriting) this will lead to the scheme's risk profile deteriorating even further as time progresses.

Typically the actions required to make an unsustainable scheme more competitive (lower contributions and enhanced benefits) will harm its sustainability even more.

Eventually such schemes become financially unsustainable and must either be liquidated or amalgamate with another medical scheme.

This dynamic has contributed to the rapid consolidation of the medical schemes industry through the reduction in the number of medical schemes in the market.

In the long term this will result in a small number of large medical schemes dominating the open schemes market – in other words an oligopoly. An oligopoly can result in various forms of collusion, which reduces competition and leads to higher prices for consumers.

Consolidation will also create pressure on other stakeholders:

- Healthcare providers (oligopoly negotiation power)
- Administrators, managed care providers, etc.

These other stakeholders will then be under pressure to consolidate as well.

These pressures have been more pronounced in the open schemes market due to increased competition compared to those faced by the majority of restricted schemes.

Most (but not all) restricted medical schemes face less intense competition, particularly if they are associated with a sponsoring employer/industry and membership of the scheme is mandatory for their employees.

However, restricted schemes are commonly compared to open medical schemes. A restricted scheme with a poor demographic profile will find that members and employers will consider open scheme alternatives if these offer a better value proposition.

Medical schemes are therefore incentivised to focus on the recruitment and retention of lower risk (younger and healthier) business through

- Cherry picking initiatives, for example, supplementary products (such as risk rated health insurance products); and
- Targeted marketing campaigns

Extensive marketing is expensive and this channels funds that could be used to purchase healthcare towards non-healthcare expenditure.

Open enrolment and community rating in the absence of mandatory cover and risk equalisation is not sustainable.

### **Mandatory cover**

One of the biggest challenges facing open medical schemes is the fact that medical scheme membership is not mandatory in an open enrolment environment.

Open schemes try to manage this by focusing on the recruitment of large corporate clients where membership of the scheme is mandatory for employees.

As contributions become more expensive this exposes the entire open schemes **industry** (not just individual schemes) to anti-selective risks as individuals with lower healthcare utilisation expectations opt out of the industry altogether whereas the members who opt to remain medical scheme members will be those who expect to utilise their benefits.

The situation is further exacerbated by the uncertainty regarding the demarcation between medical scheme cover and health insurance. Since health insurers are not subject to the same restrictions as medical schemes they are able to offer products that appeal to lower risk members,

who may choose less comprehensive medical scheme options or forego medical scheme cover completely.

These anti-selective effects are heightened by the limited underwriting that schemes may impose.

At some stage in the future a number of these corporate groups with good risk profiles may find that they can provide the same cover more affordably by means of a restricted medical scheme for their employees, leading to the creation of a number of new restricted medical schemes.

A large proportion of open scheme business includes individual self-paying members for whom membership is not mandatory at all.

This situation puts the open medical schemes industry at a disadvantage compared to restricted schemes with mandatory membership. Over time this will lead to open schemes having poorer demographic profiles and higher contributions compared to restricted medical schemes with stable profiles. Historic differences between restricted and open scheme contribution increases support this argument.

If a large number of medical scheme members drop out of the system this will increase the burden on the public healthcare system...

...as well as a burden on the economy in general as the lack of suitable insurance cover exposes individuals to hardship due to catastrophic medical costs and poor health as a result of individuals not accessing primary and preventative healthcare.

### **Prescribed Minimum Benefits**

Prescribed Minimum Benefits imply that there is a minimum cost to providing benefits.

The cost of providing PMBs is also at risk of growing at rates that exceed CPI inflation due to the fact that the Regulations to the Act require that PMB claims should be reimbursed “in full, without limits or co-payments” by the scheme.

This clause has been interpreted by the regulator as “reimbursement of the claim at the amount invoiced by the provider, whatever that may be” and has been enforced as such.

In the absence of a common reference price list in the aftermath of a court case between providers and the Department of Health, as well as the abolition of ethical tariff guidelines by the Health Professions Council of South Africa (HPCSA) this has created a “blank cheque” situation where providers may charge any amount for a PMB claim and expect to be reimbursed in full.

While most practitioners have not abused the situation, certain individuals have done so.

This does however put additional pressure on the cost of providing benefits, over and above utilisation changes and price inflation.

Increasing pressure to control PMB claims will lead to increased use of Designated Service Provider (DSP) networks by schemes.

### **Low-income market**

In South Africa (which is a relatively poor country with a very high Gini coefficient) the minimum cost of providing benefits means that a large proportion of citizens cannot afford medical scheme cover without some assistance (for example subsidies or tax incentives).

Currently in South Africa the tax incentives do not encourage low income employees to join medical schemes as the tax rebate is too small and an individual needs to be an income tax payer (i.e. earning above the income tax threshold) in order to benefit from it.

Contributing to medical schemes' inability to offer affordable cover is the requirement that each option must be self-supporting...

...as well as the fact that schemes are not allowed to reserve options for a particular group of members (such as low-income individuals).

Thus a cross-subsidy from higher to lower income earners is difficult to achieve.

In the long run this limits the medical scheme industry's ability to expand coverage to the low-income market, which in turn means that the industry will be faced with limited growth prospects.

### **Solvency**

The required minimum reserving level is 25% of gross contributions. In an environment where this formula is strictly enforced by the regulator we may expect that schemes will target solvency levels of 25% or slightly higher.

In the case of large medical schemes risk based capital calculations show that these schemes actually require much lower reserve levels.

In such cases reserves significantly in excess of the 25% level are arguably unnecessary and investment return on the excess capital will not be maximal given the constraints on investment in Annexure B of the regulations.

Open schemes competing in the market would therefore be tempted to use the excess reserves to subsidise contribution increases in order to improve their competitive position.

Smaller schemes may also target 25% solvency ratios since that is all that is necessary to comply with the regulations. However given their small size Risk Based Capital measures may indicate that these schemes should be holding reserves far in excess of 25%.

Such small schemes with insufficient levels of reserves are exposed to the risk of insolvency as a result of adverse claims experience caused by random variation.

**(Max 13)**

**[Grand Total 100]**