

Actuarial Society of South Africa

EXAMINATION

2 November 2010 (am)

Subject F201 — Health and Care

Specialist Applications

EXAMINER'S REPORT

QUESTION 1

(i)

This question was based on a rather straightforward application of bookwork, and most candidates performed reasonably well.

The business of a medical scheme means

- the business of undertaking liability in return for a premium or contribution-
- to make provision for the obtaining of any relevant health services;
- to grant assistance in defraying expenditure incurred in conjunction with the rendering of any health service; and
- where applicable, to render a relevant health service, either by the medical scheme itself, or by any supplier or group of suppliers of a relevant health service or by any person, in association with or in terms of an agreement with a medical scheme’.

PlatCo Medical Services,

- accepts a monthly payment in the form of a capitated fee
- in return for which it renders and reimburses health services for employees

Hence it would be reasonable to conclude that PlatCo Medical Services is conducting the business of a medical scheme

Although PlatCo Medical Services is not a separate legal entity, and hence PlatCo could argue that the monthly capitated fee is an internal transfer, and no premium or contribution is present

Unless PlatCo employees’ dependants are also free to make use of the services, in which case a medical scheme would be required to prevent taxation of dependants’ health benefits as a fringe benefit

(ii)

Candidates performed reasonable on this question. Stronger candidates were able to distinguish themselves by applying the characteristics of open and restricted schemes to PlatCo’s specific circumstances, rather than merely listing generic characteristics.

- An open medical scheme is compelled to provide cover to anyone that applies for membership (open enrolment)
- And PlatCo’s employees will share risk with other members of the scheme
- This could be problematic since PlatCo’s employees are likely to be comparatively healthy – all of them are being “fit to work” in a mining environment and all of them younger than PlatCo’s retirement age
- Which may make it more expensive for PlatCo to share its employees’ risks with that of other members of an open medical scheme
- Although PlatCo’s employees could have a relatively higher exposure to HIV/AIDS and the converse may apply
- To prevent cross-subsidisation with other members, an open scheme may want to register a new option specifically designed for PlatCo employees
- Which may not be unrealistic given the size of PlatCo’s employee base
- This will require approval from regulatory authorities
- But it is not possible to ring-fence this option and it should be borne in mind that the option will be open to any members in the public who want to join
- Which could quite possibly be the case given the fact that this option is likely to be priced on an affordable level

- A separate option will also allow an open scheme to structure benefits tailor-made to PlatCo employees
- Specifically through PlatCo Medical Services as a DSP
- And similarly, any of these members will be eligible to make use of PlatCo Medical Services
- Which may not have the capacity to provide services to all of them
- Other members of the public who join such an option could be located anywhere in the country, unable to access PlatCo Medical Services.
- And in the case of PMBs, such members’ utilisation of services will be deemed involuntary and be required to be reimbursed at cost, potentially leading to significant charges
- An open medical scheme may be able to mitigate this through use of a national DSP footprint for “out-of-area” claims or dependants or pensioners who are not in the vicinity of PlatCo Medical Services
- An open scheme’s demographic profile is generally less stable than a restricted scheme. Changes in the scheme’s demographic profile over time may lead to undesirable changes in contributions or benefits in the future. If PlatCo were to establish a restricted scheme, it could expect its membership to be as stable as its workforce – over which it has some measure of control.
- An open scheme is likely to have better brand recognition, which may make it more sellable to employees and/or trade unions as an employment benefit
- An open scheme is likely to have more options available than a restricted scheme. Some employees may appreciate the flexibility of being able to participate in more comprehensive options than the one subsidised by PlatCo, albeit at their own cost
- A large open scheme is likely to have a smaller solvency strain (provided that it presently meets statutory solvency) than a new restricted scheme that would need to build up statutory solvency requirements from scratch
- In a restricted scheme, PlatCo could have employer elected Trustees on the scheme’s Board, allowing it a limited measure of control over the affairs of the scheme
- Whereas Board representation is unlikely in an open scheme, especially a large one
- Although PlatCo should recognise that all Trustees are required by law to represent the best interest of members and not necessarily PlatCo’s, even if they were elected by PlatCo
- An open scheme is likely to make provision for brokerage, which will be an added expense embedded in the contributions
- If PlatCo makes use of a restricted scheme, it will have more control over the structuring of the scheme in a manner that is harmonised with its other employee health benefit arrangements such *e.g* absenteeism management, employee assistance programs, HIV/AIDS programmes, health days, mass flu vaccinations, *etc*
- The recommendation is to go with a restricted scheme

(iii)

This question tested the fairly common theme of product pricing, but in an environment where conventional data sources are not readily available. Few candidates appreciated that PlatCo Medical Services would have some form of financial records and/or a financial system, even if it does not have accurate claims/utilisation records. Furthermore, a significant portion of PlatCo Medical Services expenditure would be relatively fixed in nature (e.g. salaries) making the recovery of these expenses from a capitation fee a relatively straightforward exercise. Few candidates picked up on the structural shift in fee-for-service claims, which will be paid by the medical scheme in contrast to the past practice of being paid by PlatCo Medical Services. Candidates who performed well in this question had properly structured answers, dealing with each sub-component of the contribution pricing in a clear and succinct manner.

Calculation of the cap fee

- Use the operational costs of PlatCo Medical Services as a starting point
- These costs need to be adjusted for a number of factors, including
 - o Fee-for-service costs associated with out-of-area providers are presently being paid by PlatCo Medical Services but will in the future resort with PlatMed. Consult PlatCo Medical Services’ financial records to make an appropriate adjustment
 - o PlatCo Medical Services provides occupational health which will not be covered by PlatMed. An appropriate adjustment will need to be made to ensure that the occupational health costs are not costed into PlatMed’s budget
 - o PlatCo Medical Services may be providing services to private patients from other medical schemes. If this is the case the cost structures of PlatCo Medical Services will need to be adjusted to ensure that there is no undue cross-subsidy within PlatCo Medical Services between external private patients and patients from PlatMed.
 - o PlatCo Medical Services’ costs may need to be adjusted upwards if it is not presently providing all PMBs to the workforce, and if doing so is expected to affect its operational costs
- Require data from PlatCo Medical Services to ensure that this adjustment can be made. Most likely PlatCo Medical Services will only have financial records at its disposal for these purposes. Potentially also a claims or utilisation system although indications are that this may not be available.
- Will have to add VAT to PlatCo Medical Services’ costs as PlatMed will not be able to claim back VAT
- Appropriate assumptions will need to be made for inflation of PlatCo Medical Services’ expense items (salaries, *etc*) into 2011. PlatCo Medical Services may be able to provide its 2011 budgets for this purpose
- Need to make an assumption as to the dependants that will join PlatMed
- And the proportion of these dependants that will live in geographic proximity to PlatCo Medical Services
- This assumption may be informed by PlatCo’s proposed subsidy policy w.r.t. dependants – take-up may be low if PlatCo does not subsidise dependants’ contributions
- Once these assumptions were used to establish an expected membership base, this can be used to translate PlatCo Medical Services’ costs attributable to PlatMed into a capitation fee.

Calculation of contributions

An estimate will need to be derived for the fee-for-service expenditure outside of PlatCo Medical Services’ facilities.

- PlatCo Medical Services will be able to refer patients to external medical facilities
- And this will be for PlatMed’s account
- PlatCo Medical Services’ financial records could give an indication of the expenses presently being incurred in external medical facilities
- This may need to be adjusted similar to PlatCo Medical Services’ other costs as described above
- This structure could be argued to incentivise PlatCo Medical Services to refer more rather than less over time, as referrals will not be for its account
- So it may be prudent to allow for some increases in external fee-for-service costs
- Will need to provide for inflation into 2011
 - Assumptions as to RPL, medication, hospitalisation, etc
 - Assumptions for utilisation escalation

- For monthly budget, need a seasonality assumption. Which may be difficult to draw from PlatCo - Medical Services’ records since these would likely only break down by payment month
- External data sources could be useful
- But may only be of limited use since the fee-for-service component being priced as only for those - services not available in PlatCo Medical Services
- Need to provide for “out-of-area” utilisation by employees on leave or dependants not within geographical proximity of PlatCo Medical Services

Other elements of contribution pricing

- PlatMed will need to provide for solvency in accordance with Regulation 29
- Which requires a 10% solvency margin at the end of the first year of registration
- Contributions may therefore need to be priced to make provision for sufficient surpluses
- Although the employer could also inject funds directly into PlatMed for solvency purposes
- Which will be more efficient given the nature of the solvency calculation
- Need to make provision for non-health expenses
- Based on quotes from third-party administrators
- Need to allocate non-health expenditure to principal / adult / child contributions
- Least risk is to allocate all non-health to the principal member, thus preventing any cross-subsidy of non-health expenditure from dependants (who may not join the scheme)
- Compare contributions to other medical schemes operating in the same space as a validation
- Although PlatMed membership is a condition of employment, PlatMed still needs to be competitively priced to ensure that there isn’t undue pressure from members or unions to open membership to other commercial schemes – hence important to consider competitiveness of contributions
- Make provision for investment income, which will likely be minimal in the first year and could therefore realistically be ignored

(iv)

Given that this question was based on bookwork, it was disappointing to note that most candidates did not receive relatively high marks for this question.

- Are all employees eligible for the subsidy?
- What is the subsidy in the event of early retirement?
- Does the retirement subsidy continue for dependants after the death of the principal member?
- What subsidy, if any, is payable in respect of the dependants following the death of the principal member while still in service?
- Until what age are children of the principal member subsidised?
- Does this differ for those who are studying vs not studying?
- Are there any limits to the number of dependants being subsidised?
- Will all types of dependants registered on PlatMed (such as extended family members) also be subsidised?
- Will there be any obligation with respect to former employees?
- Are there any exceptions?

(v)

This question was poorly answered. Amongst others, it was disappointing to see that several candidates assumed a simplistic and linear relationship between a medical scheme’s contributions and the associated PRMA liability, without attempting to relate the PRMA valuation basis to the sustainability of the medical scheme. Very few candidates considered the possibility that any reductions in the PRMA liability would be offset by an increase in the employer’s annual subsidy costs if the medical scheme were to increase its contributions for active members to maintain its financial position.

- It may not be possible to demarcate pensioners based on income - i.e. there could be low-income active members or (in the future) high-income pensioners
- An income-based contribution table will create a cross-subsidy from lower income members to higher income members
- Since there are presently no pensioner members in the scheme, it could theoretically be possible to introduce an income-based table without any impact on the scheme’s finances in the short term
- This will increase the normal community rated cross-subsidy from young to old members, since older members, who generally claim more, will now also contribute less
- So this will increase the cross-subsidy liability
- But such an income-table will not be sustainable. As more members retire, contributions will have to increase to make up for the lost income of pensioners moving into lower income categories
- Such an increase could be applied across the board to the whole income table or only to certain income bands
- If the increase will be applied to higher-income (predominantly active) members, the PRMA liability may remain smaller but PlatCo will be affected through an immediate higher cash flow requirement in terms of higher subsidies for active members
- Conversely if the increase is applied to lower income (predominantly pensioner) members, the PRMA liability will increase to reflect the higher post-retirement subsidy
- Hence PlatCo will inevitably have to finance the cost associated with pensioner members
- An actuary valuing the PRMA liability could therefore not responsibly reduce the liability based on an artificial reduction of low-income contributions. The PRMA valuation basis should be strengthened to reflect the anticipated future increases that such a dispensation is expected to require.
- The decision to introduce income-based contribution tables resorts with the medical scheme’s Board of Trustees and not with PlatCo.

(vi)

This question was poorly answered. Most candidates failed to consider the secondary effect that a contribution increase would have on a medical scheme’s solvency requirements, as well as the employer’s subsidy costs. Some candidates also considered the impact on the employer’s PRMA liability, and credit was awarded for valid considerations.

Contributions

Merits and consequences to PlatMed

- Solvency requirements are a function of contribution income. Higher contributions will lead to a higher solvency requirement.
- Therefore this route is undesirable for PlatMed

Merits and consequences to PlatCo

- The inefficiency of funding solvency through higher contributions means that it will be more expensive for PlatCo to subsidise these higher contributions than pay a grant

- This is because PlatCo subsidises a large proportion of contributions
- Therefore no merits to PlatCo to have solvency funded through a contribution increase

Grant

Merits and consequences to PlatCo

- PlatCo should be aware that once funds are injected into PlatMed, it is impossible for those funds to be transferred back into PlatCo
- Although indirectly this could happen should PlatMed institute reductions (or smaller increases) in future contributions, which would reduce PlatCo’s future subsidy expenditure
- Provided that PlatMed does not use any surplus funds to enhance benefits
- These grants should only be required in the first five years until 25% statutory solvency is attained

- After which additional grants should be unnecessary
- Unless PlatCo’s employee base grows significantly

Merits and consequences to PlatMed

- In a grant scenario PlatMed can price contributions in such a manner as to ensure that the scheme would break even before or after investment income, before any grant from PlatCo
- PlatMed will therefore be priced more competitively compared to other/open medical schemes
- PlatMed may not necessarily have a guarantee that PlatCo will provide such grants in the future. Ultimately the scheme remains responsible for its own solvency

QUESTION 2

This question was based on straightforward bookwork and was well answered.

(i)

- Price risk: The capitation fee paid to YMCO is insufficient to cover YMCO’s claims costs and overheads and profit requirements
- Intensity risk: YMCO is required to render more services per encounter than anticipated.
- Severity risk: Cases are more severe than anticipated by YMCO.
- Frequency risk: The number of UltraMed members that need treatment is higher than anticipated.

(ii)

Candidates’ performance on this question varied significantly, with stronger candidates able to clearly distinguish themselves. It was unfortunate that several candidates approached this question almost like a pricing exercise, listing generic projection considerations rather than attempting to analyse the validity of the assertions made by YMCO and looking for alternative explanations.

Demographic analyses

- It has to be established whether the increase was caused by a demographic shift as asserted by MCO, or whether there are other contributing factors
- An analysis of trends in demographic indicators for the Budget Plan should be performed
- This data should be readily available from UltraMed’s own records.

- Use to determine whether average age, gender distribution, family size, region or any similar factors have changed significantly over the past few months
- The nature of the increase in chronic medication should be established
- Actual claims could be analysed to determine which beneficiaries are actively utilising chronic medication
- But preferably one should obtain chronic authorisation data from YMCO to break this down by chronic condition
- It would also be useful to perform demographically adjusted analyses of actual versus expected claims over time to determine whether changes in demographic variables adequately explain changes in claims experience
- This could be done using a GLM or a similar model
- Although it needs to be recognised that there could be risk factors not allowed for through such a model
- Alternatively one could analyse claims for those beneficiaries that remained on the Budget Plan during the full period between Jan 2009 and Sept 2010 and determine whether these members’ claims have increased significantly
- Investigate whether the Budget option suffered from buydowns from higher options. This would likely result in a deterioration of the Budget option’s profile
- Investigate the nature of hospital cases and CDL conditions. E.g. A high prevalence of so-called ‘lifestyle diseases’ such as diabetes or hypertension could suggest that the option attracted a more affluent, more expensive profile.

Claims analyses

- Investigate to see whether the increased claims experience can be attributed to primary or secondary or tertiary care
- And further break these down by particular disciplines or benefit categories increased more significantly than others
- Increases in hospitalisation should ideally be analysed by breaking down into admission rate, length of stay (if possible), and cost per case
- Preferably broken down by an appropriate diagnostic grouper to allow for changes in case mix
- Although obtaining the data to do this could be difficult depending on YMCO’s hospital authorisation system and their willingness to share data
- Similarly investigate individual practices’ claims experience to determine whether there are certain practices that increased significantly, potentially due to fraud or abuse
- Although it needs to be recognised that such a calculation is complicated by the fact that the option grew and that beneficiaries are free to use any providers within the network
- One way to analyse this would be to analyse claims for beneficiaries who remained on the option since inception and break these beneficiaries’ claims down by practice number to identify trends

- It needs to be established whether the increased claims experience is due to an increase in frequency or severity of claims
- An analysis of changes in the severity of claims is complicated by the fact that we cannot access specific tariffs over the year
- As the increases negotiated by YMCO could have differed from RPL increases
- This could be investigated on a very high level by comparing aggregated claims data (which is based on actual claims paid rather than RPL tariffs) to detailed claims data for 2008 and 2009 separately
- Although ideally you would need the aggregated claims data to be broken down in more categories to allow for such an analysis
- Need to establish whether there is an increased prevalence of PMB codes over time
- Adherence to formularies and protocols could be checked to establish whether YMCO is managing claims properly

- Since YMCO would have provided these to UltraMed as part of its benefit rules, it should be available
- Need to establish whether recent increases in claims experience can be attributed to expensive once-off events (such as a small number of high cost hospital cases) or whether it is a sustainable trend
- A clinical assessment of the nature of hospital cases might be required to do this

IBNR

- The long IBNR tail of YMCO should be investigated
- Detailed claims data should indicate actual run-off patterns and changes in these over time
- Given the size of the IBNR, the projections on which YMCO based their requested increase is likely subject to significant uncertainty
- Since YMCO did not perform rigorous IBNR calculations in 2009, and given the magnitude of the IBNR, it is likely that YMCO under-priced its 2010 capitation rates
- And the 40% increase required could potentially be aimed to recover their resultant 2010 losses *in addition to* allowing them to reach their management targets in 2011
- It would be useful to independently verify the IBNR calculations provided by YMCO
- Given the long tail of the IBNR, processing patterns could be volatile and a chain ladder might yield incongruent results
- The IBNR could also be established using loss ratio methods e.g. comparing the results of the GLM model to actual paid claims. But these methods are likely to be inadequate if claims patterns increased more rapidly than explained by demographic characteristics
- Hospital authorisation data could also be useful to validate the hospital component of the IBNR

Other considerations

- Should investigate whether YMCO’s 15% expense and profit requirement is reasonable
- Given the fact that the Budget option’s contributions are likely to be low, the fee is probably reasonable especially if compared to most medical schemes’ administrative and managed care expenditure
- Obtain quotes from YMCO’s competitors to assess whether the increase they require is market-related

(iii)

Very few candidates considered the incentives created by either fee structure. Some candidates failed to appreciate that YMCO was still going to be responsible for the application of managed care in the second option. Although credit was given for any valid considerations, candidates generally performed significantly poorer than expected in this question.

Split risk into primary / secondary & tertiary

- The definition of “secondary” (and primary and tertiary) care should be carefully established to ensure that no disputes will arise after the cap fee was agreed
- UltraMed needs to cost secondary and tertiary care
- The data provided by YMCO should form a useful basis for this costing
- The tariffs in this data should be adjusted to UltraMed’s tariff rather than RPL, which should not be a complex exercise

- But some allowance should be made for the fact that UltraMed will manage these claims and not YMCO
- The allowance could be in either direction depending on whether UltraMed believes its own authorisation and management processes to be more or less effective than YMCO’s
- Which may be difficult to establish objectively
- UltraMed could also look towards claims experience in its other options as a basis for pricing these benefits.
- Adjusted for demographic differences
- And differences in benefit structures
- Need to obtain a quote from YMCO for capitation of primary care only
- And verify this quote using the data already provided by YMCO
- Bearing in mind that the tariffs in YMCO’s data is inflated
- Can use the provided aggregated claims data to make high-level adjustments to this data
- Can also obtain quotes from YMCO’s competitors to verify the primary care cost
- Should bear in mind that under this arrangement, YMCO is arguably incentivised to refer patients into secondary and tertiary care
- Which is likely to result in higher cost to UltraMed
- And lower costs to YMCO
- May want to provide for this in pricing, or rely on stringent authorisation processes
- Or share some of the secondary and tertiary risk with YMCO to ensure a proper incentive

Management fee only

- The management fee is likely to be equal to 15% of the capitation fee, as this is the loss ratio target indicated by YMCO
- Unlikely that YMCO will provide UltraMed with its discounted tariff schedules as part of the agreement
- In which case the costs paid by UltraMed will increase by the tariff differential
- Which can be determined on a high level by comparing YMCO’s aggregated data with detailed claims data
- No incentive in this structure for YMCO to manage costs
- Some form of risk share or performance-based fee is therefore advisable

(iv)

Although this question was based on bookwork, some candidates did not provide a proper exposition of the considerations pertaining to DSPs and involuntary usage, reverting instead to a rather simplistic interpretation of how PMBs should be reimbursed.

PMBs break down into

- defined Diagnosis-Treatment Pairs (DTPs)
- Emergency medical conditions
- A number of defined chronic conditions - Chronic Disease List (CDL)
- And diagnosis and treatment and care associated with the CDL

- Provision of PMBs may be provided through a Designated Service Provider (DSP)
- A co-payment or deductible may be applied for service obtained outside of the DSP
- Except if such use was involuntary
- In which case it has to be paid in full, at cost

Usage is deemed involuntary if:

- The service was not available from the DSP
- Or if the service could not be provided without unreasonable delay
- immediate medical or surgical treatment for a prescribed minimum benefit condition was required under circumstances or at locations which reasonably precluded the beneficiary from obtaining such treatment from a DSP
- there was no DSP within reasonable proximity to the beneficiary’s ordinary place of business or personal residence.

(v)

It is disappointing that this question was poorly answered, even though it covered an issue which was topical and widely published in South Africa during 2010. A small number of stronger candidates (arguably those with some practical experience) were able to generate several valid points.

DTP issues

- DTPs are defined in terms of a diagnosis and treatment.
- The diagnosis is often uncertain because the regulations do not provide a direct mapping to ICD code.
- The treatment is often uncertain because it is broadly defined (e.g. “medical management”) sometimes with poorly defined or undefined treatment protocols.
- And treatment protocols also make reference to Public Hospital Practices, which are sometimes inconsistent between hospitals or provinces, or as yet undefined
- The claims data provided by YMCO may not have adequate procedural coding for hospital cases

- Some DTPs can be provided out of hospital. The identification of these can be even more problematic, for the same reasons
- Hospital admissions for diagnostic purposes may in some cases be regarded as a PMB only once the outcome of the diagnostic procedure is known
- And this outcome is unlikely to be captured in YMCO’s claims system

CDL issues

- CDL conditions are to be provided through published therapeutic algorithms
- That can be subject to change over time
- It can be difficult to assess out-of-hospital claims pertaining to medical management of a CDL condition, e.g. the categorisation of a consultation as to whether or not it relates to medical management. These claims typically need to be assessed against an appropriate treatment protocol.

- Treatment protocols are often dependent on components that are not available from claims data, such as test results or a patient’s response to a certain type of treatment

Emergency issues

- Emergencies are included as a PMB condition, but are poorly defined.
- It can be hard to ascertain retrospectively whether a specified claim was an emergency

DSPs and involuntary use

- YMCO may not have a specified DSP for all specialities, especially some specialised disciplines

- It can be difficult to assess retrospectively whether PMB services at non-DSPs were obtained involuntarily. E.g. proximity to facilities may not be available from systems

General coding issues

- Complete ICD coding only became a regulatory requirement in 2006, so accurate ICD coding is often not available for periods before that
- ICD coding is still often inaccurate or unreliable
- ICD codes for consultations are often inaccurate, especially for patients that were not ultimately diagnosed with the condition related to their consultation
- Claims systems generally don’t treat multiple ICD codes in a consistent manner. YMCO’s system appears to only capture one ICD code per claim line.
- Similarly claims for a diagnosis for a PMB condition (e.g. pathology) cannot be categorised as a PMB unless the outcome of the diagnosis is known
- ICD coding alone is not always sufficient to determine whether a claim was a PMB condition
- The required procedural (e.g. CPT) or other coding may not be available from YMCO’s systems