

UNIVERSITY OF CAPE TOWN



DISSERTATION SUBMITTED IN FULL FULFILMENT OF THE
REQUIREMENTS FOR THE DEGREE OF MASTER OF
PHILOSOPHY IN ACTUARIAL SCIENCE

**Analysing the structure and nature
of medical scheme benefit design in
South Africa**

Author:

Josh Tana Kaplan

Student Number:

KPLJOS002

30th November 2015

The copyright of this thesis vests in the author. No quotation from it or information derived from it is to be published without full acknowledgement of the source. The thesis is to be used for private study or non-commercial research purposes only.

Published by the University of Cape Town (UCT) in terms of the non-exclusive license granted to UCT by the author.

Abstract

This dissertation intends to shed light on open-membership medical scheme benefit design in South Africa. This will be done by analysing the benefit design of 118 benefit options, so as to provide an overview of the structure and nature of the benefit offerings available in the market in 2014. In addition, affordability of these benefit options was analysed in order to identify whether or not there exist connections between the benefits on offer and the price of cover. This paper will argue that at present, the large number of benefit options available in the market, the lack of standardisation between benefit options, together with the mosaic of confusing terminology employed in scheme brochures, creates a highly complex environment that hampers consumer decision making. However, this implicit complexity was found to be necessary owing to the incomplete regulatory environment surrounding medical schemes. The findings of this investigation show that benefit design requires significant attention in order to facilitate equitable access to cover in South Africa.

Keywords: South Africa, healthcare, medical scheme, benefit options, benefit design, affordability.

DECLARATION

I hereby declare that:

1. this is my own unaided work, and that each significant contribution to, and quotation in, this dissertation from the work of other people has been cited and referenced.
2. neither the substance nor any part of the thesis has been submitted in the past, or is being, or is to be submitted for a degree at this University or any other University.

I grant the University of Cape Town free license to reproduce for the purpose of research either the whole or any portion of the contents

J Kaplan

February 2015

ACKNOWLEDGEMENTS

A massive thank you must be said to my supervisor, Shivani Ramjee, for her expertise, incredible patience and support that she showed me. The knowledge and passion that she has for her work and the desire she has for her students to succeed is rare. The lessons and knowledge that I have gained over the past couple of years will not be forgotten.

A thank you beyond measure is owed to my family and in particular my parents, Gary and Elana Kaplan. The opportunities they gave me and the respect they have showed me provided me with the motivation to always strive for the best. Everything that I am, I owe to them.

A special thanks to my fellow masters students and friends, Matan Abraham and Richard Taylor. The endless laughs we shared and insightful discussions helped get me through this difficult year.

A special thank you must be said to Barry Childs, Daniel Erasmus and Martin Coxon for all their help and assistance in understanding the intricacies of this complex environment.

Finally, I would like to thank the examiners for their useful comments and insights during the review process of this Masters.

Contents

1	Introduction	7
2	Health System Overview	10
3	The Impact of Regulation on Benefit Design	14
3.1	Self-sustainability and Risk Pool Fragmentation	15
3.2	Prescribed Minimum Benefits	22
3.3	Treating Customers Fairly	27
4	Benefit Design in the Face of Limited Resources	29
4.1	Explicit vs. Implicit Rationing	32
4.2	Price Rationing	33
4.3	Demand Side vs. Supply Side Rationing	35
5	Rationing mechanisms	36
5.1	Demand-side mechanisms	39
5.1.1	Pre-authorisation	39
5.1.2	Benefit Limits	40
5.1.3	Co-payments and Levies	42
5.1.4	Deductibles	43
5.1.5	Medical Savings Accounts	44
5.1.6	Preventative Care and Incentives Programmes	46
5.1.7	Case Management and Disease Management	47
5.2	Supply-side mechanisms	49
5.2.1	Preferred Provider Networks	49
5.2.2	Alternative Reimbursement Mechanisms	52
5.2.3	Treatment Protocols and Formularies	56
6	Elements of Benefits Design	58
6.1	Hospital-Related Benefits	59

6.2	Chronic Medicine Benefits	60
6.3	Day-to-Day Benefits	62
6.4	Contribution Rate Structures	64
6.5	Plan Types	65
7	Methodology	68
7.1	Analysing Affordability of Medical Scheme Contributions	68
7.1.1	Eligible Medical Schemes	68
7.1.2	Construction of Benchmark Families	68
7.1.2.1	Income Bounds and Test Levels	68
7.1.2.2	Family Structure	70
7.1.3	Propensity to Spend on Health	72
7.1.4	Impact of Subsidies	74
7.1.4.1	Employer Subsidy	74
7.1.4.2	Tax Basis	75
7.2	Modelling	76
7.3	Benefit Option Analysis	78
7.3.1	Eligible Benefit Options	78
7.3.2	Analysing Benefit Design	79
7.4	Contextualising Benefit Design and Affordability	81
8	Results	82
8.1	Day-to-Day Benefits	88
8.2	Hospital Benefits	93
8.3	Medicine Benefits	103
8.4	Oncology Benefits	110
8.5	Additional Benefits	116
8.6	Affordability Investigation	120
8.6.1	Affordability and Benefit Design	125

9 Discussion and Conclusions	133
9.1 Limitations and Further Research	146
9.1.1 Benefit Options	146
9.1.2 Benefits	147
9.1.3 Findings	148
9.2 Final Comments	149
A List of Medical Schemes	159
B List of Benefit Options	160
C Proportion of affordable options using income bands	162

List of Figures

1	Trend in the number of open schemes and options from 2007 to 2013 . . .	17
2	Trend in the number of beneficiaries and the average number of options per open scheme	18
3	The average number of options on offer by scheme size for open schemes	19
4	Evolution of the LIMS income band and tax threshold	70
5	The grouping and categorisation of the core aspects of benefit design . .	80
6	Share of options analysed versus beneficiary market share by plan type .	83
7	Average beneficiary age and pensioner ratio comparison across the plan types	84
8	Weighted average beneficiary age and pensioner ratio across the plan types	85
9	Variation in monthly contribution rates across plan types	86
10	Weighted average monthly contribution rates across the plan types	87
11	The number of options reimbursing at the different specialist in-hospital reimbursement rates by plan type	97
12	Proportion of options within each plan type that made use of the different hospital networks	99
13	Average beneficiary age, pensioner ratio and monthly contribution rates for options grouped by number of chronic conditions covered	105
14	Distribution of the number of additional chronic conditions covered across plan types	106
15	The chronic conditions covered on two different options	107
16	Distribution of options that pay for specialty medicines by plan type . .	108
17	Distribution of how options cover oncology benefits by plan type	111
18	Do members have a choice of their oncology provider?	113
19	Proportion of options within each plan type which pay for specialist onco- logy medicine	115

20	Number of options found to be affordable under the different bases and income levels using a 50% employer subsidy	121
21	Number of options found to be affordable under the different bases and income levels using a 0% employer subsidy	122
22	The impact of the tax-credit on affordability	125
23	Number of options found to be affordable under the different bases . . .	126
24	Number of affordable options under the different bases and plan types . .	127
25	Proportionate number of affordable options under the different bases and plan types	128

List of Tables

1	Percentage distribution of annual household consumption expenditure by income decile	73
2	Summary of the bases that were used to test affordability	77
3	The number of options containing an ATB across the different plan types	93
4	The existence of a co-payment for specific in-hospital procedures	102
5	Distribution of the number of chronic conditions covered above those included within the CDL	104
6	An example of the differences in the benefit design and demographic characteristics of two Hybrid plans	135
7	Proportion of affordable options using income bands under a 50% employer subsidy	162
8	Proportion of affordable options using income bands under a 0% employer subsidy	163

1 Introduction

South Africa has a dual healthcare system comprised of a strong private sector and relatively weak public sector (Econex, 2013). The private sector is primarily financed through private health insurance. In South Africa, private health insurance is split into two classes of product: medical schemes (governed under the Medical Schemes Act, No. 131 of 1998) and health insurance (governed under the Long and Short-term Insurance Acts of 1998) (Fish and Ramjee, 2007). Medical schemes reimburse their members for actual expenditure on health (known as indemnity business), whereas health insurance may not indemnify policyholders against actual medical expenses- they must offer a sum assured defined in advance of any healthcare provision and may not directly reimburse healthcare providers (McLeod and Ramjee, 2007).

Medical schemes are the primary private health-financing mechanism and operate on a not-for-profit basis and are essentially mutual societies (McLeod and Ramjee, 2007). The schemes are, however, surrounded by for-profit entities who administer, market and provide managed care, consulting and advisory services (McLeod and Ramjee, 2007). Each medical scheme will have a number of product offerings that they market to consumers, known as benefit options. These benefit options differ in design, both between medical schemes and within each medical scheme. According to McLeod and Ramjee (2007), benefit design influences three, sometimes conflicting functions for a medical scheme:

- The marketability and competitiveness of the scheme;
- The extent of risk pooling within a scheme; and
- The manner in which benefits are rationed and delivered.

This paper will focus on the medical scheme component of private coverage and will aim to provide a snapshot of the structure and nature of benefit design in open-

membership¹ medical schemes (hereafter referred to as open schemes) in 2014.

The most recent regulatory change impacting on benefit design together with research into benefit design took place over a decade ago. The consequent lack of research in this particular segment of the open scheme environment provided the central motivation for this dissertation. The Council for Medical Scheme's mandate to maximise access to good quality medical scheme cover, together with their focus on protecting the best interests of the consumer provided the incentive for the analysis to be performed from the perspective of a prospective medical scheme member (Council for Medical Schemes, 2014f). The benefit design of 118 benefit options (out of a possible 172) available in the open scheme market were analysed, with the aim of answering the following questions:

- What common benefit design elements can be observed in the medical scheme market?;
- Do differences exist in the benefits offered by the various plan types and if so, in what way?;
- Can observable and significant differences be seen in the characteristics of the members who have joined the various plan types?;
- What alternatives do prospective members face in choosing a benefit option?;
- How does the structure of benefit design relate to affordability and the price of cover?

An overview of the South African healthcare and medical scheme environments and the challenges they are currently facing is explored in the first section. Literature is then presented on the impact of regulation on benefit design, the tools available to medical schemes to manage benefit design as well as common elements of benefit design. The Methodology section explores the assumptions used and explains the process of how the

¹Open-membership schemes are schemes that are obliged to accept anyone who wishes to become a member at standard rates; Restricted-membership schemes may choose to restrict membership if attached to a larger employer, union or other defined group (McLeod and Ramjee, 2007)

model for analysing benefit design and affordability was established, constructed and tested. An in depth analysis of the results is then carried out, followed by a discussion and contextualisation of the key findings. The remaining sections explore the limitations of this dissertation together with conclusions reached with the ultimate goal of forming recommendations for the industry and highlighting further areas for research.

2 Health System Overview

South Africa's dual healthcare system is characterised by extreme inequalities in the allocation of financial and human resources with the private sector being considerably better resourced, well developed, resource intensive and highly specialised (McLeod and Grobler, 2010). According to McLeod and Grobler (2010), prior to 1994 these inequalities were a consequence of the political climate, but now they reflect the differences that exist between the social, economic and educational status of the populations they serve. A recent report by Econex (2013) estimates that the private sector held 37% of general practitioners (GPs), 59% of specialists, 38% of nurses, 35% of hospitals and 28% of hospital beds in 2013 - despite the fact that only around 28% of the population are receiving some form of privately delivered care. Additionally, the most recent Council for Medical Schemes² Annual Report (2014), states that only around 8.8 million beneficiaries are covered by medical schemes which represents 16.6% of the total population; 55.2% of these beneficiaries are in open schemes (Council for Medical Schemes, 2014c).

These inequalities are exacerbated by the fact that South Africans spend a disproportionate amount of money in the private sector relative to the size of the population the private sector serves (4.3% of GDP spent on the private sector and 4% of GDP spent on the public sector (Day and Gray, 2014)). In addition, over the last few decades the gap between per-capita spending on medical scheme members and public-sector spending has been rising substantially. In 1996, medical scheme spending per-capita was about triple that of public sector spending per-capita and by 2004, the gap had grown to more than seven times (Ataguba and Akazili, 2010). Whilst these statistics appear to illustrate that medical schemes are providing more generous benefits than the public sector they do not take account of utilisation in each sector (amongst other factors), which might provide a possible explanation for the higher level of per-capita expenditure in the private sector. McLeod and Grobler (2010) state that the total expenditure on healthcare is relatively

²The Council for Medical Schemes is the statutory body established by the Medical Schemes Act, 131 of 1998, to provide regulatory supervision of private health financing through medical schemes (Council For Medical Schemes, 2014a)

high compared to other countries and that “the key challenge facing healthcare in South Africa is not a lack of resources but the need to use existing resources more efficiently and equitably” (McLeod and Grobler, 2010:2).

Prior to the implementation of the Medical Schemes Act in 2000, medical schemes in South Africa were able to manage their risk by applying traditional insurance underwriting principles to avoid, exclude or price for risk, i.e. they were allowed to ‘risk rate’ potential members. This meant that contribution rates could be charged that matched the risk profile of the potential member. This resulted in the elimination of existing cross-subsidies between the young and old and between the healthy and sick and made medical scheme cover largely unaffordable to those who needed it most (Doherty and McLeod, 2002). Age rating, underwriting loadings and discounts allowed schemes to price the risk that they did accept accurately. Doherty and McLeod (2002) state that with risk-rating, “high-risk members-typically the elderly or chronically ill-had their contributions loaded, were given life-long exclusions for pre-existing conditions or were denied membership completely” (Doherty and McLeod, 2002:2). This system was seen to be inequitable and contrary to the principles of social solidarity³ that the South African health system was moving towards.

The Medical Schemes Act 131 of 1998, was introduced to facilitate and promote equitable access to privately funded healthcare through the expansion of coverage and the benefits on offer (Theophanides *et al.*, 2012). The Act is founded on social solidarity principles which encompasses open-enrolment, community-rating and prescribed

³“Mutuality is the normal form of commercial insurance. Applicants contribute to the pool through a premium that relates to their particular risk at the time of the application, perceived as well as it can be at that time on the basis of all the facts that are available and relevant. The pooled funds then pay those insured who suffer losses in accordance with the scale of their losses. Solidarity is a concept that has some similarity to mutuality, but also a profound difference. The similarity is that losses are paid according to need, and the difference is that contributions are made not in accordance with the risks that each applicant brings in with him, but perhaps according to ability to pay, or just equally. Solidarity is the basis of what goes under a social insurance or national insurance” (Wilkie, 1997:4)

minimum benefits (PMBs)⁴ (Fish and Ramjee, 2007).

Open enrolment and community-rating ensure that open schemes are obliged to accept anyone who wishes to become a member at standard rates and that schemes cannot charge differential contribution rates on the basis of members' risk profiles, whilst PMBs ensure that each member has access to a defined minimum level of cover (McLeod (2005) ; McLeod and Ramjee (2007)). Doherty and McLeod (2002) comment on this issue and state that whilst PMBs and open enrolment might raise the costs of cover for younger individuals, the intention of the Act was that the collective efforts of "opening up schemes to a large low-income market, creating larger risk pools and applying pressure to compete on the basis of efficiency, would bring down the costs of cover for most members" (Doherty and McLeod, 2002:3). Despite the intentions of the Act to facilitate equitable access to cover, the move to solidarity principles was not accompanied by compulsory membership which is essential to stabilise risk pools and ensure its successful implementation (McLeod, 2005). Investigations by Ranchod *et al.* (2001), Broomberg *et al.* (2006), Fish and Ramjee (2007), Makofane (2009) and Kaplan (2013) all demonstrated that cover is concentrated in the top-two income quantiles, with cover being largely unaffordable for low-income families⁵- one of the consequences of this unfinished regulatory environment.

The low proportion of the population with private coverage together with the quality differences that exist between the public and private sectors, highlight the urgent need for a solution, either in the form of increasing affordability of medical scheme contributions, or the introduction of a National Health Insurance (NHI)⁶ or Social Health Insurance

⁴PMBs consist of: A list of some 270 diagnosis and treatment pairs (introduced on 1 January 2000); Emergency medical conditions (introduced on 1 January 2003); Diagnosis, treatment and medication according to therapeutic algorithms for 25 defined chronic conditions (introduced from 1 January 2004) (Actuarial Society of South Africa, 2014)

⁵Kaplan (2013) identified low-income families as all those where the principal member's income fell between a lower income threshold of R3 361.07 and an upper income threshold of R10 954.58

⁶National Health Insurance is where a class of income earners contribute, and all citizens of the country are covered (McIntyre and Van den Heever, 2007)

(SHI)⁷ to correct these imbalances. South Africa is on the brink of effecting such change to its health system: “a change based on the principles of social solidarity, equity and fairness” (Department of Health, 2013:2).

“The NHI is a financing system that will make sure that all citizens of South Africa (and legal long-term residents) are provided with essential healthcare, regardless of their employment status and ability to make a direct monetary contribution to the NHI Fund” (Department of Health, 2013:3). There has been little comment on the role of medical schemes within NHI, with the most recent document (the NHI Green Paper) remaining silent on the potential role to be played by schemes. The Green Paper states that membership of the NHI will be mandatory, however, members may continue with voluntary private medical scheme membership if they choose (Department of Health, 2011). It then goes on to state that medical schemes’ role under the NHI may evolve to include top-up insurance cover (Department of Health, 2011).

The pending introduction of the NHI thus raises a number of questions for the medical scheme industry and for consumers: Will medical scheme cover be necessary under an NHI system? What are the potential roles that medical schemes could fulfil within the context of the NHI? How does the introduction of the NHI influence the current medical scheme environment and what impact might this have on the consumer?

Medical schemes continued existence after the implementation of the NHI is obstructed by the incompleteness of the existing regulatory environment (Ramjee and McLeod, 2010). The combined effect of voluntary membership, community rating and open-enrolment, together with the absence of a risk equalisation mechanism has a destabilising effect on the medical scheme market (Ramjee and McLeod, 2010). According to Ramjee *et al.* (2014) “the case for the continued existence of medical schemes in a post-NHI healthcare environment rests on the ability of schemes to contribute to national social solidarity goals and on the promise of subsidiarity (i.e. that medical schemes can provide an efficient and sustainable insurance solution)” (Ramjee *et al.*, 2014:5).

⁷Social Health Insurance is where a class of income earners contribute and only those contributors and their dependants are covered (McIntyre and Van den Heever, 2007)

Whilst the role of medical schemes under the NHI is uncertain, their continued existence upon implementation could reduce the burden on the NHI and hence the Government, particularly in the early stages of introduction. In addition, the medical scheme market has an older age profile and hence a heavier burden of chronic disease, eliminating the NHI's responsibility for this high risk pool (McIntyre and Van den Heever, 2007). Broomberg *et al.* (2006) agree, and state that "since medical schemes are already well entrenched, they could provide an efficient and effective platform for the expansion of health insurance coverage to low-income households without current cover" (Broomberg *et al.*, 2006:19).

The issue of a single tier⁸ versus a multi-tier⁹ system is an additional area that needs to be considered before the NHI can be implemented and raises a number of questions concerning benefit design: Will everyone have access to the same package of benefits?; and What would a common package of benefits look like? Whilst universal coverage and the NHI do not necessitate a single-tier system, it is argued that such a single-tier system would be unaffordable in the context of South Africa's economic development (McIntyre and Van den Heever, 2007). In addition, the lack of clarity regarding how the NHI will be financed is a major obstacle that prohibits further development and provides greater uncertainty regarding medical schemes' role within the framework (Ramjee and McLeod, 2010).

3 The Impact of Regulation on Benefit Design

Medical schemes, and by extension their benefit options, are tightly regulated under the Medical Schemes Act 131 of 1998 and their adherence to the Act is monitored by the Council for Medical Schemes (CMS). Owing to the fact that each benefit option is required to be approved and registered with the CMS, their design needs to meet the stringent

⁸where all South Africans have access to exactly the same range of services and types of health care providers

⁹where there are differences, particularly in terms of the type of provider that can be used by different groups

requirements set out by the Act. This includes, inter alia, the nature and structure of the benefits they can offer and how they market their options to the consumer. It is thus important to recognise both their existence and the impact that these regulations have on benefit design.

3.1 Self-sustainability and Risk Pool Fragmentation

In the medical scheme environment pooling risks together allows the costs of those at higher risk of high medical costs to be subsidized by those at lower risk. By combining large pools of risks, risk pooling through the law of large numbers, enables the actuary to estimate the expected future costs to the scheme with an acceptable degree of confidence and hence, the larger and more diverse the risk pool, “the more stable and predictable the results and the lower the risk of insolvency” (McLeod and Ramjee, 2007:11). When healthier individuals perceive no economic benefit to purchasing medical scheme coverage, the risk pool becomes increasingly skewed to those with higher expected claims- also referred to as anti-selection (American Academy of Actuaries, 2009). Thus in order to ensure its sustainability, the scheme needs to design options that will attract as healthy and as large a group as possible in order to subsidise the sick members who will have higher claims ratios¹⁰. Benefit design in a community-rated environment therefore aims to attract an appropriate risk pool that will improve the sustainability and continued existence of the scheme.

Risk pooling can occur either at the option level (where each option’s risk pool is considered separately and community rating occurs within each benefit option), the scheme level (where the risk pools of the benefit options within a scheme are combined and treated as a single risk pool for community rating), or the industry level (where the risk pools of all schemes are combined into a single risk-pool and community rating thus occurs across the industry). In South Africa, risk pooling occurs at the option level and schemes are required to treat each option as a separate risk pool for community rating.

¹⁰incurred claims as a percentage of earned premium income

Each benefit option is required by law to be self-sustaining, “thus forcing risk pooling to occur at an option level resulting in fragmented risk pools” (McLeod and Ramjee, 2007:12). A possible implication is that the resultant risk pools are smaller, reducing the predictability of healthcare cost and limiting the extent over which the scheme can spread their risks and hence lower contribution rates and increase affordability (IMSA, 2010). The Council for Medical Schemes does appear to permit (unofficially at least) some cross subsidisation between options by, for example, allowing some options within schemes to make losses year after year.

Circular 8 of 2006 published by the Council for Medical Schemes suggested reforms to more substantially address the underlying issue of risk-pool fragmentation (Council for Medical Schemes, 2008). In particular, it allowed for the pooling of certain benefits to occur across the scheme as a whole. Circular 8 was thus intended to increase risk cross-subsidisation within medical schemes whilst reducing risk-selection (‘cherry-picking’) activity (Taylor *et al.*, 2007). A potential consequence of these proposed reforms was that younger and healthier members would have faced increased contributions to the extent that they have benefited from fragmented risk pools. In a voluntary environment this may result in these members exiting the medical scheme environment and driving up the current community rate (McLeod and Ramjee, 2007). Circular 8 of 2006 was, however, never implemented.

A Risk Equalisation Fund (REF) is a mechanism intended to counter-act these issues and, in theory, should ensure that everyone pays the same industry community rate for a common package of benefits, and not the rate determined by the age and health profile of the medical scheme they have chosen to join (McLeod, 2005:23). The REF is necessary since it will ensure that members of a given scheme are neither advantaged nor disadvantaged by the risk profile of their scheme (an issue that is compounded by the presence of open enrolment and community rating without mandatory cover (McLeod and Ramjee, 2007)). Hence the REF will enable schemes to compete on the basis of cost effective healthcare delivery and not on the basis of risk selection that prevails at present (McLeod and Grobler, 2010). The REF will ensure that community rating occurs across

the industry which should enable greater competition and allow schemes to compete more fairly (McLeod, 2005). In addition, the REF can be used as a vehicle for income cross subsidies under a mandatory health insurance system, such as the NHI (McLeod and Grobler, 2010).

Figure 1 shows the trend in the number of open schemes and benefit options¹¹ from 2007 to 2013.

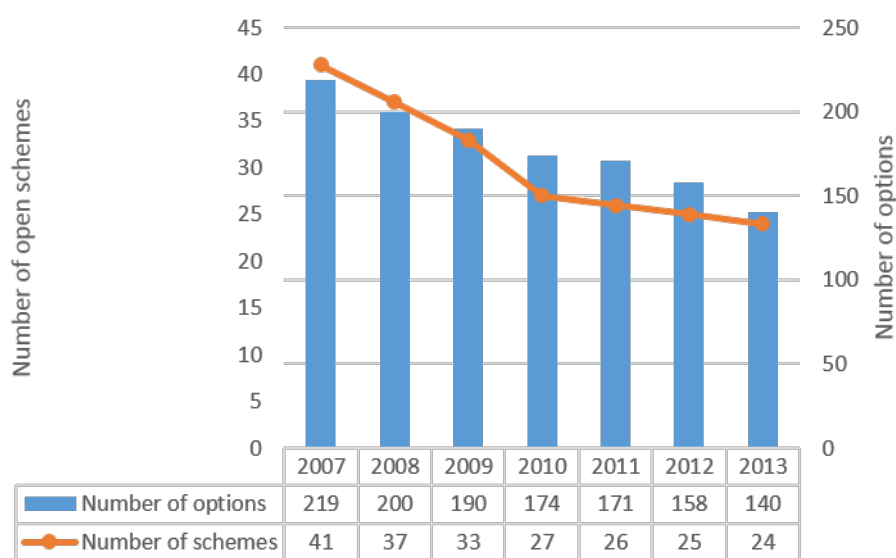


Figure 1: Trend in the number of open schemes and options from 2007 to 2013

Clearly, there has been a downward trend in both the number of open schemes as well as benefit options. The reduction in the number of schemes and options should, in theory, result in larger risk pools and hence a more sustainable medical scheme industry.

Despite the decreasing trend in the number of options, there are still a large number on offer. This high number of options is of concern as each represents a separate distinct package of benefits. Since risk pooling is occurring at an option level, a more useful illustration of the sustainability of the industry is perhaps provided by a trend in the number of beneficiaries per option as well as the average number of options per scheme. The results are displayed in Figure 2.

¹¹Efficiency Discounted Options (see section 5.2.1) were not included in this trend as they were only introduced in 2009

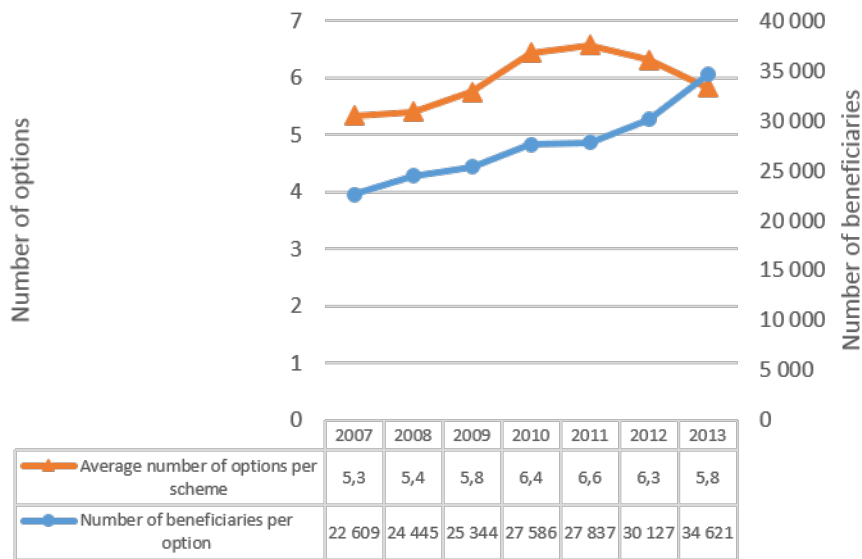


Figure 2: Trend in the number of beneficiaries and the average number of options per open scheme

Whilst there does not appear to be a distinct trend in the average number of options per scheme, Figure 2 above appears to show that the number of beneficiaries per option is increasing- a positive result for the sustainability of risk pools. However, averages do not show the entire picture and are potentially misleading as there are substantial differences in sizes of schemes. One open scheme, Discovery Health Medical Scheme, now dominates the market with 2 564 313 beneficiaries as at 31 December 2013. This scheme is almost 4 times the size of its nearest competitor and alone accounts for 53% of the open scheme market and 29% of all medical scheme beneficiaries. Thus, whilst the figure above appears to demonstrate that the size of risk pools is healthy, this may not be the case.

Whilst the optimum medical scheme risk pool size has not yet been studied in South Africa, the minimum size to accept full healthcare risk is considered to be 20 000 beneficiaries in America (McLeod and Ramjee, 2007). At the end of 2013, 67% of all open schemes had risk pools exceeding 20 000 beneficiaries. In order to capture a full sense of the sustainability of risk pools at present, the size of schemes by their number of beneficiaries was compared to the weighted number of options on offer and the number of

schemes¹². The results are displayed in Figure 3.

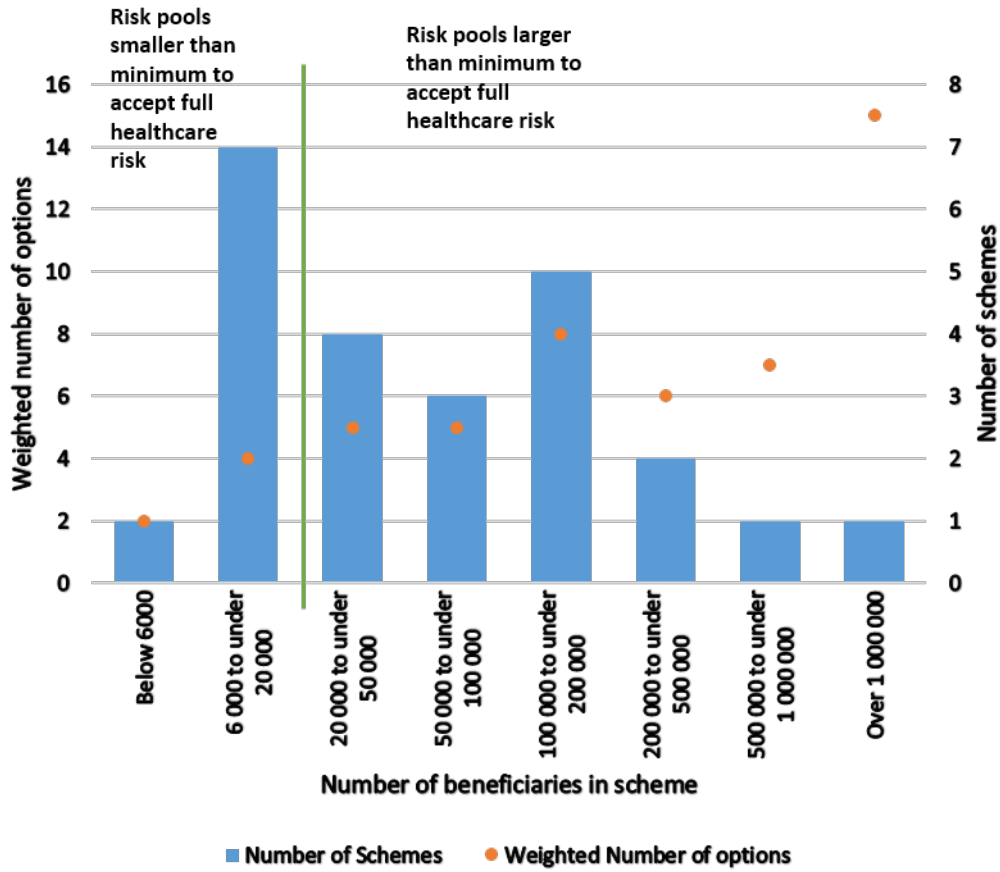


Figure 3: The average number of options on offer by scheme size for open schemes

A 0.71 correlation coefficient was observed between the size of the scheme (by number of beneficiaries) and the number of benefit options offered- Figure 3 appears to corroborate with this finding with larger schemes offering, on average, more benefit options. The ability of schemes to offer a large number of options allows them to appeal to a wide range of target markets and hence, increases their ability to create more homogenous risk pools (i.e. proxy risk rating). However, the ability of larger schemes to offer more benefit options disadvantages smaller schemes and emphasises the need for a Risk-Equalisation

¹²Figure 3 groups schemes according to their total number of beneficiaries in order to capture a sense of the relationship between the size of schemes (by number of beneficiaries) and the average number of options that schemes with that risk pool size offer

Fund (REF) which will enable schemes to compete on a more equal basis.

However, in November 2011, The Council for Medical Schemes published a circular where they announced that it was highly unlikely that a risk equalisation system would be implemented in the near future (Council for Medical Schemes, 2011b). McLeod and Ramjee (2007) explain some of the implications of an environment without the REF. “In a community rated environment without a REF, open schemes with a lower risk profile will be more competitive” (McLeod and Ramjee, 2007:12). There is thus a strong incentive to use benefit design to ‘cherry-pick’¹³ healthy members. ‘Cherry picking’ could result in vulnerable members on schemes with relatively higher risk profiles facing increasingly unaffordable contribution levels relative to other schemes (Council For Medical Schemes, 2012a).

“In the absence of mechanisms such as REF to address these incentives, the regulatory challenge shifts to limiting the extent to which schemes can use benefit design to risk select members and influence their risk pool” (McLeod and Ramjee, 2007:12). These comments are reiterated in the Council for Medical Schemes comments on the NHI Green Paper in 2012 (Council For Medical Schemes, 2012a) as well as in the IMSA NHI policy briefs of 2010 (IMSA, 2010). The Council for Medical Schemes goes on to state that the Department of Health (DOH) should reconsider the introduction of a system of risk adjustment as “such a system would protect older and sicker members of society during the implementation of NHI and the transition process, and would continue to ensure that risk pools are properly balanced after full implementation” (Council For Medical Schemes, 2012a:37).

The absence of a REF is compounded by the presence of medical savings accounts (MSAs). The Medical Schemes Act 131 of 1998, began regulating the functioning’s of MSAs. “Under this system, members arrange for part of their contribution to be held in a personalised, account. The member decides when to use the account to pay for care and any unspent monies can be carried over from one year to the next” (Doherty and McLeod,

¹³cherry picking (also called preferred risk selection or ‘cream-skimming’) is the selection that occurs because health plans prefer low-risk consumers to high-risk consumers (IMSA, 2010)

2002:15). Depending on the individual schemes rules, the balance in the savings account may be used to cover any medical expenses not covered by other elements of the benefit structure, or where those elements have been exhausted. Since MSAs are exclusively for the use of the member who contributed to them, there is no cross-subsidisation between members and should the member exhaust the funds in the savings account, they will be required to fund medical expenses themselves (Actuarial Society of South Africa, 2014). In addition, the funds in a members' savings account may not be used to pay for PMBs.

In theory, MSAs effectively individualise benefits and reduce risk pooling (McLeod and Grobler, 2010). The decline in the number of schemes, coupled with the increase in the number of beneficiaries has resulted in schemes with larger risk pools, a trend that should have made the management of risk and associated healthcare costs more effective (Doherty and McLeod, 2002). However, the use of MSAs in many South African medical schemes to cover primary care, specialist and out of hospital expenditures, means that hospital services risk pools cannot be combined with these potential risk pools. Owing to the fact that in-hospital claims are bigger and less frequent one needs a bigger risk pool in order to get statistical certainty. Conversely, day-to-day benefits require a smaller risk pool since these claims are smaller and less frequent. Consequently, there are a limited number of medical schemes with a large enough risk pool to accurately predict and price for in-hospital claims (Actuarial Society of South Africa, 2014). McLeod and Grobler (2010) comment on this issue, where they states that MSAs are attractive to relatively younger members and those requiring less day-to-day cover but “fragment risk pooling and effectively result in much of primary care expenditure being out of pocket” (McLeod and Grobler, 2010:7). This statement is echoed by the Department of Health (2002): “a further concern arises from the potential substitution of a large portion of the overall medical scheme contribution from risk-contributions into non-risk contributions (savings accounts), resulting in reduced risk-pooling within medical schemes” (Department of Health, 2002:122). In addition, the Department of Health would prefer to reduce the use of savings accounts or abolish them entirely (Department of Health, 2002).

The argument above, frames how regulations are impacting and influencing benefit

design and how inter-twined all aspects of regulation within benefit design are (for example, PMBs impact on the community rate and hence the scheme’s risk profile and benefit design- PMBs are looked at in the next section).

3.2 Prescribed Minimum Benefits

The Medical Schemes Act, 131 of 1998 introduced a mandatory minimum level of care that schemes are required to provide, Prescribed Minimum Benefits (PMBs), and states that the objectives of specifying a set of PMBs are two-fold:

- “to avoid incidents where individuals lose their medical scheme cover in the event of serious illness and the consequent risk of unfunded utilisation of public hospitals”; and
- “to encourage improved efficiency in the allocation of private and public healthcare resources¹⁴”.

(The Department of Health, 1998)

According to the Act, Schemes must pay in full¹⁵ without any co-payments or the use of deductibles (see section 5.1.3 and section 5.1.4), the diagnosis, treatment and care costs of these PMBs. In addition, the funds in a member’s MSA may not be used to

¹⁴Through the explicit definition of benefits, it was hypothesised that the Government and medical administrators could prioritise care more fairly and efficiently (Taylor *et al.*, 2007)

¹⁵In December 2010 the Board of Healthcare Funders (BHF) supported by a number of medical schemes launched a court application that sought clarity on Regulation 8 (1) that states that medical schemes must “pay in full, without co-payment or the use of deductibles, the diagnosis treatment and care costs of the PMB conditions” (The Department of Health, 1998). The BHF was seeking to have the Regulation interpreted to mean that schemes must pay for PMB conditions only up to the scheme tariff, effectively changing the meaning and purpose of the PMB provisions in the Medical Schemes Act. Their argument was that this gave service providers a blank cheque when it came to charging for PMBs. The court ruled that the BHF did not have the ‘locus standi’ to bring the application and so the ruling of the CMS Appeal Board for coverage of PMBs at cost stands (Council for Medical Schemes, 2012b) (Actuarial Society of South Africa, 2014)

pay for these PMBs. The Act does, however, allow the use of managed care techniques (discussed in section 5) to limit the impact of PMBs on affordability (The Department of Health, 1998). Such techniques include:

- formularies or medicine lists;
- treatment protocols¹⁶ which includes clinical entry criteria¹⁷;
- treatment algorithms;
- benefit confirmation for procedures; and
- designated service providers¹⁸.

There have been conflicting views on the impact of PMBs within the medical scheme environment. The Council for Medical Schemes is of the view that PMBs do not push up monthly contribution rates. They go on to say that their research indicates that since the reintroduction of PMBs with the Medical Schemes Act 131 of 1998, the industry has been performing well with the financial soundness of schemes providing justification (Council for Medical Schemes, 2013). These statements are in direct contrast to those made by the LIMS report of 2006¹⁹, where addressing the package of minimum benefits that schemes are required to provide was a key issue. The report found that the scope of benefits offered needed revision, since the set of PMBs offered at the time created a high base cost of cover in addition to driving the price of medical scheme options upward. The

¹⁶“Protocol means a set of guidelines in relation to the optimal sequence of diagnostic testing and treatments for specific conditions and includes but is not limited to, clinical practice guidelines, standard treatment guidelines, disease management guidelines, treatment algorithms and clinical pathways” (The Department of Health, 1998)

¹⁷diagnostic or laboratory tests confirming the diagnosis

¹⁸see section 5.2.1

¹⁹In order to find a solution to the affordability problem, the Ministerial Task Team (MTT) initiated a “Consultative Investigation into Low Income Medical Schemes” (Broomberg *et al.*, 2006). Significant stakeholders in the industry were convened to find a viable and realistic solution to the problem of affordability.

LIMS process stated that there exists a clear trade-off between the “comprehensiveness of cover offered by the PMBs in the current medical scheme market, and the affordability barrier that these PMBs create for low-income households” (Broomberg *et al.*, 2006:22).

Many experts agree that in their current form PMBs are unsustainable owing to “current healthcare reform, regulation, system failures and abuse by service providers” (Theophanides *et al.*, 2012:1). Taylor, Burns, Rust and Grobler (2007) further reiterate the inadequacies of the current PMB package where they state that PMBs are not the appropriate foundation for social health reform. They believe that “PMBs are failing in their key objective of promoting efficiencies in the allocation of private resources, plus they have been identified as being too expensive to promote medical scheme growth” (Taylor *et al.*, 2007:4).

Theophanides *et al.* (2012) state that the provision for payment of the PMBs in full will continue to prove to be a dilemma for many medical schemes and threatens their sustainability. Payment in full is expensive, and is compounded by the absence of a National Health Reference Price List (NHRPL)²⁰, which was set with the intention of acting as a guideline for how much providers should charge for diagnosis, treatment and care costs. According to Doherty and McLeod (2002) it is likely that “the real cause of the high cost of benefits is not the composition of the PMBs but the over-servicing that is prompted by the fee-for-service (see section 5.2.2) reimbursement system” (Doherty and McLeod, 2002:14).

PMBs combine to produce a package of benefits that appear to be unsustainable in the long term and which limits the freedom that schemes have in designing an appropriate and affordable package of benefits. According to Theophanides *et al.* (2012), in the long term, the key components to ensure the sustainability of a minimum benefit package

²⁰The National Health Reference Price List was intended to serve as a baseline against which medical schemes could individually determine benefit levels and health service providers could individually determine fees charged to patients. In July 2010, the Pretoria high court declared the regulations dealing with the NHRPL to be null and void after a judge found the process by which the rates were determined to be unfair, unlawful, unreasonable and irrational (Council for Medical Schemes, 2010)

relies on achieving sufficient risk pooling, and consistent benefit definitions.

In order to facilitate increased risk pooling, the Chronic Disease List (CDL) was introduced into the PMBs from 1 January 2004. The introduction of the CDL was an attempt to improve the cross-subsidy between the healthy and the chronically ill, however, their inclusion resulted in schemes moving away from providing cover in excess of the CDL to avoid attracting older and less healthy members (McLeod and Ramjee, 2007). Taylor *et al.* (2007) comment on the introduction of the CDL into the PMBs. They state that their introduction into the PMBs raised the cost of providing cover, increased premiums and ultimately created hardship for those it was trying to benefit-the consumer (Taylor *et al.*, 2007). They go on to state there is an urgent need for effective mechanisms for cross subsidization to be developed to counter this issue- again moving back to the need to introduce a system of risk equalisation into the South African medical scheme environment (Taylor *et al.*, 2007). It is clear that the impacts of regulation on benefit design are intertwined and one cannot talk about, for example self-sustainability of options, without talking about PMBs or a REF.

There has recently been much talk about a further expansion of the PMBs. The report to the South African Risk Equalisation Fund Task Group by the International Review Panel recommends inclusion of all care that is usually delivered by primary care physicians (Armstrong *et al.*, 2004). The reason cited for the inclusion of primary care was that primary care “plays a pivotal role in the realisation of efficiency gains within a framework of social health insurance, and that the current package is not marketable as a stand-alone product” (Taylor *et al.*, 2007:3). Such expanded PMBs are commonly referred to as the basic benefit package (BBP) by policymakers (Taylor *et al.*, 2007).

The regulator has also proposed ‘common benefits’ for individual medical schemes as an alternative expansion of the PMBs (Taylor *et al.*, 2007). These ‘common benefits’ would include the current PMB package plus all benefits common to all members of that particular scheme- including all hospital care covered by that scheme (Taylor *et al.*, 2007). This contrasts with the recommendation by the International Review panel where expansion would affect all schemes and where, in the event of a risk-equalisation fund,

risk cross-subsidisation could be expanded across the industry. Taylor *et al.* (2007) argue that such a core package is necessary to facilitate equity in healthcare “which refers to equal access, to equal care, for equal need” (Taylor *et al.*, 2007:3). There are, however, numerous valid arguments against the introduction of a single, care-based package. In particular, Taylor *et al.* (2007) highlights South Africa’s heterogeneous healthcare delivery system, fragmented funding thereof, as well as the country’s highly diverse population as being a major obstacle to the implementation of such a system.

The LIMS report (2006) found that the extension of coverage to low-income households is hampered by the high base-cost of the PMBs at present (Broomberg *et al.*, 2006). In order to counter this, the LIMS process (2006) looked at a revised minimum benefit package that could be offered to low-income individuals, the LIMS minimum package (LMPs). Since these benefits are catering to the low income brackets, who can be assumed to be financially unsophisticated, there was a need for simplicity in the benefit design for LIMS schemes (Broomberg *et al.*, 2006). Furthermore, there was a need for these LMPs to cost substantially less than the current PMBs within medical schemes in order to ensure affordability of LIMS schemes (Broomberg *et al.*, 2006).

Despite the perceived inequalities, inefficiencies and general uncertainties surrounding PMBs, it is important that their short term sustainability is managed. Theophanides *et al.* (2012) is of the opinion that the current PMB package and their associated algorithms require more clear definition in order to effectively manage and monitor their utilisation. Furthermore, they recommended that standardised entry and verification criteria, formularies as well as treatment protocols be in place together with these PMBs (Theophanides *et al.*, 2012). “Such protocol driven benefit definitions will ensure certainty concerning member entitlements, the ability of schemes to fairly and reasonably manage their liabilities in respect of members, the elimination of inefficient provider or patient conduct and ensure that PMB regulations do not result in the unfair exclusion of defined vulnerable groups” (Theophanides *et al.*, 2012).

Soderlund (1998) states that “by mandating a level of cover, rather than membership of a particular fund, or indeed, contribution to the tax system, the core package ap-

proach stimulates competition between different insurers” (Soderlund, 1998:9). Thus, the presence of PMBs might actually incentivise and promote competition between schemes through limiting the extent to which risk selection can take place through benefit design.

Clearly, the presence of PMBs has a major impact on benefit design. This impact stems from their ability to impact the characteristics of schemes’ risk-pools, contribution rates and hence what benefits the scheme can offer on each option. It is hoped that this analysis will shed some light on the effect of PMBs within benefit design.

3.3 Treating Customers Fairly

A recent development, whilst not directly affecting medical scheme regulation, is Treating Customers Fairly (TCF). TCF regulation was implemented by the Financial Services Board (FSB)²¹ and is an outcomes based regulatory and supervisory approach “designed to ensure that specific, clearly articulated fairness outcomes for financial services consumers are delivered by regulated financial firms” (Financial Services Board, 2014). However, since medical schemes are supervised by the Council for Medical Schemes and not the FSB, they are not required to demonstrate a commitment to TCF principles²². That being said, the manner in which insurers’ products (and by extension medical schemes’ products) are presented to the public for sale, do indeed fall under the scope of TCF (Rusconi *et al.*, 2014).

Importantly, there has been little commentary on TCF within the medical scheme environment- this section merely attempts to draw the attention of the reader to the importance of treating customers fairly within medical scheme benefit design.

Whilst medical schemes do not directly fall under the scope of TCF regulations, they

²¹The Financial Services Board is an independent institution established by statute to oversee the South African Non-Banking Financial Services Industry in the public interest (Financial Services Board, 2014)

²²Organisations falling under the supervision of the FSB are expected to demonstrate six TCF outcomes in delivering services to customers, ranging from the appropriate and accurate marketing of services to consumers, to products performing in the way firms have led customers to expect (Financial Services Board, 2014)

do fall under the scope of the Consumer Protection Act (CPA)²³ and of course, the Medical Schemes Act. Importantly, in circumstances where the CPA conflicts with the Medical Schemes Act No. 131 of 1998, then the Act offering the greater protection to the consumer will apply, which, without exception, favours the consumer-orientated CPA²⁴ (SAICA, 2014). Thus, in theory, all interactions between medical schemes and their members will fall within the scope of the CPA. The following rules, inter alia, fall under the CPA and impact on medical scheme benefit design:

- “The CPA prescribes that any representation made to the consumer should be in plain language so that it can be understood by any ordinary person with average literacy and understanding” (SAICA, 2014:2);
- “The Act prohibits discriminatory marketing, i.e. excluding persons from any goods or services or targeting particular communities for exclusive supply of goods or services” (SAICA, 2014:3).

The Medical Schemes Act is also surprisingly silent on the topic of ‘fairness to customers’. Although the Registrar of Medical Schemes assesses any new benefit option, it is not assessed in terms of its fairness and responsibility to the members (SAICA, 2014). This, in theory, allows schemes to design benefit options that are financially disadvantageous to members. Furthermore, “there is no prescription in terms of language in the Act and the Act puts the responsibility of the understanding of the rules on the member, irrespective of the industry complexities” (SAICA, 2014:7).

Rusconi *et al.* (2014) therefore highlighted the design of benefit options as a major issue in the medical scheme environment and stated that “there exists improper and inefficient regulation at present which has led to medical schemes trying to capitalise

²³“The Consumer Protection Act is a set of legislation designed to protect the South African consumer in general by establishing a legal framework that will achieve and maintain a fair, accessible, efficient, sustainable and responsible consumer market” (SAICA, 2014:1)

²⁴It is important to note, that owing to the fact that the CPA is in conflict with the Medical Schemes Act in some instances, the Council for Medical Schemes has applied for exemption of the medical schemes industry from the CPA (Nkonki, 2012).

on these opportunities with the consumer bearing the brunt of these initiatives”. The presence of conflicts of interest between the multiple stakeholders has been cited as a major hurdle in trying to design and implement effective TCF regulations within the medical scheme environment (Rusconi *et al.*, 2014). Rusconi *et al.* (2014) also states that members’ needs and perspectives have not been considered with sufficient attention in that “the quality of services provided by the administrator are inadequate or the fees paid for these services inappropriately high”.

Importantly, the Medical Schemes Act pre-dates TCF regulation and so it makes sense that there is very little language within the Act that explicitly pertains to treating customers fairly. Furthermore, one might argue that one of the core focuses of the Act is the protection of the end consumer. These points are both valid, but the various challenges and issues presented by Rusconi *et al.* (2014) as well as the inadequate regulations surrounding ‘fairness to customers’ in medical schemes, highlight the need to consider the consumers perspective when analysing the current structure of benefit designs available in the market.

4 Benefit Design in the Face of Limited Resources

Healthcare services and resources have always been rationed and will always need to be rationed as no country can afford to provide its citizens with every healthcare service that might be beneficial or that a citizen wants- “it is inescapable as long as the total resources in the economy have limits” (Hicks, 2011:9). Econex (2010) defines rationing as “allocating healthcare resources in the face of limited availability, by withholding beneficial interventions from some individuals. It is socially inevitable and prevalent” (Econex, 2010:2). Hicks (2011) goes on to state that since rationing is inevitable, the issue shifts focus on to how the choice between competing alternatives is made and by whom these choices will be made.

Econex (2010) states that scarce²⁵ resources in the South African healthcare system together with the unlimited demand for healthcare, introduce the need for rationing demand and/or supply. The medical scheme environment is not exempt²⁶, and rationing thus plays a central role in benefit design.

Resources, in theory, should ideally be allocated so as to direct the scarce supply of healthcare resources and services, firstly to those who need it most, and subsequently to those who have lower levels of need (Econex, 2010). This involves avoiding both errors of inclusion and errors of exclusion²⁷ (Econex, 2010). Taylor *et al.* (2007) state that “as financial limitations become starker, the challenge of prioritisation grows exponentially, with social objectives of health, cost efficiency of different health care interventions, local priorities, and moral considerations of distributive justice becoming critical determinants of decision making” (Taylor *et al.*, 2007:1). The question of rationing thus centres on how this will be done to ensure equity and efficiency amongst all stakeholders (Econex, 2010).

Currently the private sector, largely through medical schemes, rations via a combination of price and some managed care or gatekeeping efforts. Initially, it is rationed by price through the members’ monthly contributions (Econex, 2010). In many instances, healthcare is then further rationed by gatekeeping and pre-authorisation in the sense that a referral is sometimes needed from the doctor or physician, and in some cases authorisation from the particular medical scheme, before claims will be paid (Econex, 2010). Benefit design (through the use of contribution rates, limits and other managed care tools), priority setting, cost containment, clinical guidelines and waiting lists are other

²⁵Maynard (1999) describes scarcity in healthcare as “choices that have to be made about who will be given the right of access to care and who, as a result of denial, will be left in pain and discomfort, and, in the limit, to die.”

²⁶Whilst the medical scheme environment is less constrained than the public sector, members have higher expectations and demand a higher level of service.

²⁷“Errors of inclusion imply service delivery to those who may need it less and errors of exclusion refer to cases where the system fails to meet the healthcare needs of individuals who may need it most” (Econex, 2010:2) (Hicks, 2011)

methods currently employed by medical schemes to ration limited resources (Econex, 2010).

Construction of the PMBs in South Africa is an interesting example in rationing that can be used to illustrate the literary evidence provided above. Soderlund *et al.* (1997) were in the process of defining a core package of hospital benefits to be mandatory for formally employed persons and their families. They cited “the system of providing free or low cost hospital care in South Africa for the majority of the population being under serious strain due to dwindling resources” as the primary reason that necessitated some form of rationing mechanism (Soderlund *et al.*, 1997:5). However, they noted the difficulty in defining a core package of benefits in that “uncertainty regarding healthcare needs and costs of care makes it extremely difficult to define benefits which ensure access to care when needed, but prevent unjustified claims” (Soderlund *et al.*, 1997:6). Furthermore, they state that setting benefit limits imposes on the ethical issue of the Government not providing care for its citizens (Soderlund *et al.*, 1997). They made use of the Oregon State experiment in America as an example of how to define a minimum benefit package.

A desire to extend cover to citizens in Oregon not covered by any form of medical insurance in the 1980s led to a prioritisation exercise whereby the number of covered persons would be increased at the expense of the extent of benefits offered (Soderlund *et al.*, 1997). The commission running the prioritisation exercise, categorised benefits into ‘709 condition treatment pairs’, and ranked them in terms of importance (“using cost effectiveness analysis, information on the urgency of care, and public preference”) (Soderlund *et al.*, 1997:6). The priorities then had to be modified so as to take into account of whether or not full recovery from the condition was likely (Soderlund *et al.*, 1997). After conducting meetings with citizens and after extensive consultation with experts, the final list was approved by the legislature, and was the basis for allocation of resources in Oregon. Importantly, this study openly acknowledged the trade-offs that had to be made between comprehensiveness (the number of conditions covered) and depth of cover (the extent to which each condition is covered), i.e. not all conditions can be covered comprehensively (Soderlund *et al.*, 1997).

The different ways in which healthcare can be rationed are outlined below.

4.1 Explicit vs. Implicit Rationing

While a variety of tools exist for rationing resources, explicit (direct) or implicit (indirect) are the two basic methods of rationing (Hicks, 2011).

“With explicit rationing, the basis, or criteria, that are used in making the resource allocation decisions are clearly, openly, and directly specified” (Hicks, 2011:12). Explicit rationing might involve, *inter alia*, rationing the provider’s time, rationing new technologies, rationing by gatekeepers (GPs or nurses), rationing by limiting referrals, or rationing by limiting the number of procedures (Econex, 2010).

Econex (2010) state that because the criteria to be used are more direct and open, the results of explicit rationing are more transparent and accountable and hence “it is easier to know what and who will be covered and what and who will not be covered” (Hicks, 2011:13). In turn, this increased transparency results in less conflict for providers, and puts less strain on provider-patient relationships since “both parties are fully aware of the criteria, and the criteria are established externally to the individual interaction of patient and provider” (Hicks, 2011:13). In addition, it is argued that the use of explicit criteria can place simultaneous control on costs and quality through inclusion of more effective services and exclusion of less effective services (Hicks, 2011).

However, Hicks (2011) draws on a potential disadvantage of explicit rationing in that it may result in a loss of control for providers as decision making doesn’t lie in the hands of the healthcare provider. Furthermore, despite the criteria being directly and openly specified, providers may not be able to keep track of all the different rules in place.

In circumstances where explicit rationing mechanisms have not been sufficient to contain demand within the constraints of the available supply, Econex (2010) state that this might necessitate the introduction of implicit rationing mechanisms. “Under implicit rationing, the criteria to be used to ration resources are implied, indirect, or not clearly expressed” (Hicks, 2011:13). Hicks (2011) states that many times, the criteria focus on inclusion of individuals or services, but do not directly stipulate who will be

excluded. Rationing by inconvenience, rationing by policy, or rationing by contract²⁸ are all examples of implicit rationing (Econex, 2010).

Hicks (2011) states that there are a number of advantages associated with implicit rationing. Implicit rationing implies that the results of the rationing exercise are less visible to all parties involved (the public, the providers as well as the member) (Hicks, 2011). Consequently, implicit rationing can create the illusion that services are not being withheld or denied- “the implicit rationing system is not directly denying an individual access to services, but rather, the individual simply does not meet the eligibility criteria for participating in the program” (Hicks, 2011:14). Furthermore, implicit rationing is usually much easier to develop and apply, because fewer criteria or rules are required (Hicks, 2011).

There are, however, a number of disadvantages associated with implicit rationing. Econex (2010) is of the opinion that implicit rationing mechanisms are wasteful and often unfair since in the absence of any explicit rationing strategy, healthcare workers such as doctors may be in the position to play a role in the rationing of healthcare (i.e. bedside rationing). They go on to state that this implicit rationing strategy ultimately places doctors in a position where they face “the daunting prospect of being at once the advocate for the individual patient and the arbiter of distributive justice for the practice population” (Econex, 2010:3).

In the South African medical scheme environment, rationing occurs via a mixture of explicit and implicit rationing mechanisms.

4.2 Price Rationing

In many markets, the prices associated with the goods and services exchanged in the market are the typical tool for determining who gets those goods and services; i.e. price is the rationing tool. In essence, rationing via price means that goods and services are allocated to the individuals who have the ability and willingness to pay the price (Hicks,

²⁸“Stating within the contract what services are covered at each level, with the patient deciding which level and amount he or she wishes to pay” (Econex, 2010:2)

2011). In the South African context, medical schemes employ contribution rates as the primary price rationing tool.

It is argued that “allocation of healthcare by price amounts to bidding based on income, and is expected to result in an overprovision of healthcare to the affluent and under-provision of healthcare to the poor” and hence ignores the issues of equity, need and justice ((Econex, 2010:1) ; (Hicks, 2011:22)). Consequently, members of society may be concerned that individuals with only limited resources will not receive at least a basic level of healthcare (Econex (2010) ; Hicks (2011)). In addition, “using price as the rationing tool does not rank priority of treatment, need, or possible outcomes” (Hicks, 2011:15). Econex (2010) make an important point in that rationing healthcare via price, owing to its association with the principle of the right to life, might have harsh consequences if one denies access to care (Econex, 2010). Thus, whilst the price system may be an acceptable mechanism for rationing many goods and services in the economy, the social and personal value associated with good health means that rationing via price is usually not an acceptable rationing method for many healthcare services.

At present, price remains one of the most important constraints on demand for private healthcare in South Africa (Econex, 2010). These prospects are concerning as they threaten the central vision of the NHI, namely of providing equitable access to high-quality-care. However, it is important to note that the presence of PMBs in the South African medical scheme environment ensures that all members, regardless of their income, have access to a minimum level of essential cover- potentially reducing the impact of rationing via price. In addition, access to public sector healthcare facilities for all members and consumers means that there exists a safety-net in the event that cover is unaffordable. However, if PMBs raise the minimum cost of cover, they may in fact increase price rationing between the covered and uncovered.

The limited ability to underwrite²⁹ through risk rating in medical schemes (owing to open-enrolment and community rating), means that non-price rationing tools, such as

²⁹It is important to note that schemes do have a limited ability to underwrite members through the use of waiting periods and late joiner penalties.

age or health status are rendered useless and will not be discussed further.

4.3 Demand Side vs. Supply Side Rationing

Demand-side management encompasses the principle that it is important to match the demand for healthcare resources and services with their available supply. Supply-side management, on the other hand, attempts to align reimbursement mechanisms with providers that best manage their risk and performance (Econex, 2010).

“Any rationing mechanism which prevents patients from freely expressing demand for healthcare”, such as co-payments and benefit limits, are described as demand-side rationing (Econex, 2010:3). This is done by impacting on the price consumers pay out-of-pocket for healthcare services, either for all services or for a selective set of services. In theory, increasing consumers out of pocket expenditure per service should decrease their subsequent demand thereof, and so consume fewer services than they would have (Hicks, 2011). The South African medical scheme industry currently employs this technique to reduce demand by, for example, requiring enrollees to make a specific co-payment at the time of service or to pay a specified amount prior to coverage (a deductible). This theory holds in that, “the higher the co-payment or deductible, the more healthcare services are rationed, as fewer consumers have the willingness and ability to pay for the medical services” (Hicks, 2011:20).

Owing to the fact that demand-side rationing uses more direct methods for impacting individuals access to healthcare services, Hicks (2011) is of the opinion that it is easier to achieve the desired level of equity in the allocation of healthcare services- despite the fact that methods, such as co-payments and deductibles are, by definition, inequitable from an income perspective.

“Supply side rationing involves a number of different strategies for impacting the choices made by the providers of healthcare services and often involves the regulation of providers in an effort to influence or control the provision of healthcare services” (Hicks, 2011:23). Examples of supply-side rationing include, the regulation of the pharmaceutical market and alternative reimbursement mechanisms for providers. Alternative

reimbursement mechanisms, which aim to control provider utilisation through a refined remuneration approach, is a common technique currently employed in medical schemes in South Africa to ration care. This approach is explored in detail in section 5.2.2.

If the goal is to achieve greater efficiency in the production and distribution of health-care services, then supply side methods of rationing are usually more effective as they focus on changing how services are produced in the market in an effort to increase efficiency (Hicks, 2011). In circumstances where the scheme feels that providers are abusing services, interventions can be designed to lower payment to providers, or directly control the quantity supplied in the market (Hicks, 2011).

In a national health system, such as the proposed NHI in South Africa, rationing will usually be done on the supply side. The private medical scheme industry in South Africa currently employs a number of both demand- and supply-side mechanisms to control utilisation and expenditure and hence reduce costs.

5 Rationing mechanisms

There are a variety of rationing mechanisms employed by schemes that impact on benefit design, the majority of which fall under the ambit of managed care.

The third party payer function that exists in South Africa's medical scheme industry has resulted in the misalignment of incentives between the provider³⁰ and the payer³¹ (Ramjee *et al.*, 2011). This is compounded by the fee-for-service (see section 5.2.2) arrangement that dominates reimbursement for healthcare delivery and creates incentives for providers to over-supply and over-utilise services (Doherty and McLeod (2002) ; McLeod and Ramjee (2007)). Consequently, managed care techniques were introduced to align the financial incentives of the various stakeholders in an effort to remove the problems that exist at present (Jurisich and da Silva, 1998). Additionally, managed care aims to control the costs of healthcare whilst maintaining or improving the quality of

³⁰medical practitioner, hospital or any other party involved in the delivery of healthcare services

³¹the funder, i.e. the managed care company or medical scheme in South Africa

care (Jurisich and da Silva, 1998).

A Managed Care Organisation (MCO) sells its managed care skills to a medical scheme³², and as such, administrators are increasingly offering managed care as an additional service to medical schemes. Importantly, however, the Council for Medical Schemes currently insists on the accreditation of two distinct entities, the administrator and the MCO (The Department of Health, 1998). Whereas medical schemes are not-for-profit entities owned by and managed for the benefit of its members, administrators and MCOs are for-profit entities owned by shareholders (Jurisich and da Silva, 1998). Consequently, there may be considerable tension between the conflicting needs of the medical scheme and the desires of the administrators and MCOs (Rusconi *et al.*, 2014).

The Medical Schemes Act 131 of 1998, created an environment of open enrolment, community rating and prescribed minimum benefits. In this environment schemes needed to compete on the basis of cost-effective healthcare delivery and resulted in the increasing use of MCOs to meet this need (McLeod and Ramjee, 2007). Furthermore, this ‘tighter’ regulatory environment meant that administrators found it increasingly difficult to maintain their profits through selecting low-risk members at the expense of high-risk members, and hence, they turned to extracting higher profits from general administration and managed care (Doherty and McLeod, 2002). In addition, one might argue that the very limited set of risk-management tools available to schemes, particularly with regards to PMBs which prohibited the use of other risk-management tools such as co-payments and limits, contributed to the rise of managed care in South Africa. Since many MCOs are owned by administrators, this provided the opportunity for profits to be enhanced through this arrangement.

Despite the introduction of managed care into the medical scheme environment in 1996, Doherty and McLeod (2002) state that it has had no or limited effect on cost escalation. They argue that the way in which managed care has been implemented in South Africa has hampered its full success (Doherty and McLeod, 2002). “In the USA, managed care is taken to mean, at the very least, the use of selective networks of con-

³²it may actually be the financier of medical costs as well

tracted providers, some means of incentivising members to use the networks, and some degree of risk sharing with those networks” (Doherty and McLeod, 2002:22). In 2002, they found that few schemes had taken on the essential elements of provider networks and risk-sharing arrangements. They state that this may have been as a result of difficulties in engaging with provider groups (in particular the ‘oligopoly’ that the 3 largest hospital groups have on private healthcare in South Africa) (Doherty and McLeod (2002)). This was a sentiment echoed by Amelung (2013) and van den Heever (2012). Doherty and McLeod (2002) emphasise their argument where they state that “most schemes concentrate on managed care services and tools which affect utilisation but are unable to deal with the essential problem, namely the incentives to over-supply created by the fee-for-service reimbursement system” (Doherty and McLeod, 2002:22). They concluded that this might not reflect the failure of managed care in South Africa, but rather that the full implementation of managed care principles had hardly begun.

As a consequence of this perceived failure, the 2002 regulations provide a more expansive definition of managed care that emphasised the need to manage (rather than avoid) risk, as well as to actively manage (rather than avoid) the costs of healthcare. The 2002 regulations in terms of the Medical Schemes Act define managed care as follows:

“Managed healthcare means clinical and financial risk assessment and management of healthcare with a view to facilitating appropriateness and cost effectiveness of relevant health services within the constraints of what is affordable, through the use of rules based and clinical management based programmes³³” (The Department of Health, 1998).

Little research has been done on the effectiveness of managed care to contain costs in South Africa since Doherty and McLeod (2002), however, upon examination of scheme benefit options, it was evident that schemes have begun to fully embrace the principles of

³³Rules based and clinical management based programmes are “a set of formal techniques designed to monitor the use of, and evaluate the clinical necessity, appropriateness, efficacy, and efficiency of healthcare services, procedures or settings on the basis of which appropriate managed healthcare interventions are made” (The Department of Health, 1998)

managed care in order to contain costs more effectively. The section below outlines the key tools available to schemes to manage costs through rationing mechanisms, the majority of which focus on utilisation management (either demand- or supply-side management, or both).

5.1 Demand-side mechanisms

The need to control the utilisation of services and resources by beneficiaries and providers stems from the need that healthcare resources are limited. Consequently, mechanisms employed to control utilisation are examples of exercises in rationing- demand and supply-side rationing.

The theories behind these approaches are simple in concept, in that demand is controlled by influencing consumers' ability and willingness to pay for services- the higher the price the less they are able to demand (Hicks, 2011). Similarly supply is rationed by implementing strategies to impact the choices made by providers.

5.1.1 Pre-authorisation

“Pre-authorisation is a method of monitoring and controlling utilisation by evaluating the need for medical service prior to it being performed” (Hetico *et al.*, 2006:237). It generally involves the healthcare provider submitting a treatment plan to the medical scheme or MCO before treatment is initiated. The medical scheme will then review the treatment plan, monitoring one or more of the following: the beneficiary's eligibility, covered services, amounts payable and any waiting periods in place (Hetico *et al.*, 2006).

Hospital pre-authorisation is very common in the South African medical scheme environment (Doherty and McLeod, 2002). If authorisation is not granted, the claims for the hospital stay are either not reimbursed or the scheme will only reimburse a certain percentage with the member having to cover the residual- the exact terms will depend on the particular scheme. Doherty and McLeod (2002) state that the “aim of this mechanism is to reduce supplier-induced demand, as well as deter beneficiaries from unnecessary

utilisation” (Doherty and McLeod, 2002:18).

The process of obtaining pre-authorisation might involve submitting the following information to the medical scheme within 48 hours before the procedure:

- Medical scheme membership number;
- When the member or beneficiary will be admitted to hospital and the estimated length of stay;
- The providers name, practice number and phone number;
- The diagnosis of the member or beneficiary (in terms of the appropriate ICD 10 diagnosis code);
- The procedure name and code (if available submitted in terms of the CPT4 or NHRPL procedure code);
- The name of the hospital or day clinic;
- The date of the procedure.

Furthermore, many schemes will require the member to visit their doctor for an examination before pre-authorisation will be allowed, i.e. gatekeeping.

An investigation by Ranchod *et al.* (2001) found, that of the 41 low cost options identified, 40 of them insisted in pre-authorisation for major medical events. Little literature exists on the current use of pre-authorisation in the South African medical scheme environment. However, the advancements in technology coupled with the ease and speed of communication between the scheme, client and provider have made pre-authorisation for procedures and treatments a common occurrence.

5.1.2 Benefit Limits

Hetico *et al.* (2006) define benefit limits as “any provision, other than an exclusion, that restricts coverage in the evidence of insurability, regardless of medical necessity” (Hetico *et al.*, 2006:50). These limits may either be monetary or non-monetary.

“Monetary limits are annual limits on the amount that can be claimed from a scheme with respect to different categories of care” (Doherty and McLeod, 2002:15). The intention is to deter beneficiaries from utilising services unnecessarily but may, however, result in patients who legitimately need care being unable to obtain services when needed (Doherty and McLeod, 2002). To this end, they are not effective in accurately targeting those who need limits to prevent unnecessary utilisation, since it is members who are in need of cover who are most likely to exhaust their benefits (Soderlund (1999) ; Ranchod *et al.* (2001)).

Soderlund (1999) additionally states that the use of monetary limits to control utilisation may have no effect on the efficiencies with which the healthcare is delivered. They may also contribute to moral hazard since discretionary types of care will generally have no limits- creating the incentive to over-utilise these types of care (Soderlund, 1999). Furthermore, the member is virtually without cover above a certain amount and may lead to unintended financial strain on the member (Amelung, 2013).

Non-monetary limits, such as a limit on the number of specialist consultations per beneficiary per year are also fairly common place in the current medical scheme environment. A possible disadvantage of these limits, is that they may be viewed as norms rather than extreme levels of utilisation by the members or beneficiaries of the option (Amelung, 2013). Setting a limit of 10 GP consultations per annum, for example, may give members the impression that this is the entitlement they are expected to use, as well as restricting the cover for care for those who are chronically ill (Amelung, 2013).

That being said, there is evidence to suggest that benefit limits have proven to be an effective way to contain costs since they are easy to specify and result in a reduction of risk to the scheme (Soderlund, 1999). Furthermore, benefit limits are effective in controlling utilisation of low cost-high frequency healthcare events, for example, dental and optical (Jurisich and da Silva, 1998). Ranchod *et al.* (2001), however, state that the involvement of the providers (supply-side) in the decisions to ration care is a preferred route.

As stated above PMBs must be provided in full across all schemes, and as such benefit limits (monetary and non-monetary) may not be imposed on PMB provision. Monetary

limits are allowed on all other conditions not included in the PMB package.

5.1.3 Co-payments and Levies

Unlike monetary limits, which relate to annual expenditure or a healthcare event, levies and co-payments are applied to individual claims. “Levies are fixed amounts per claim, whereas co-payments³⁴ are defined proportions of claims that are payable by members on each claim” (Doherty and McLeod, 2002:15). These amounts are required to be paid by the member at the time of service before cover will commence (Jurisich and da Silva, 1998). Both of these mechanisms are intended to deter unnecessary utilisation of non-PMB services but, like monetary limits, they can become a financial burden and reduce access to appropriate care, especially in a situation where high prices prevail (Doherty and McLeod, 2002).

According to Jurisich and da Silva (1998), these mechanisms aim to serve three functions. Firstly, requiring a member to pay, regardless of the amount charged for treatment, should act as a disincentive for seeking treatment, and it could therefore prevent additional claims (Jurisich and da Silva, 1998). Secondly, the co-payment serves as a cost-sharing function and so aims to address the issues associated with the third-party-payer function that exists in South Africa’s medical scheme environment. Thirdly, through its cost sharing mechanism combined with its ability to impede treatment seeking behaviour, “the co-payment can also have the effect of channelling utilisation” (Jurisich and da Silva, 1998:14). However, the proportionate nature of co-payments makes it more difficult for the member to budget since the cost of the service may not always be known beforehand (Jurisich and da Silva, 1998).

The level of the co-payment should be directly related to the cost of the service since the member is responsible for some of the cost of the service (Jurisich and da Silva, 1998). Furthermore, the co-payment should not be so high that it prevents the member from seeking care when he requires it (Hetico *et al.*, 2006)

Use of a co-payment is common place in medical scheme benefit design, particularly

³⁴the term ‘co-payment’ and ‘co-insurance’ are often used interchangeably in benefit design

in cases where the member seeks treatment outside of the PPN, obtains treatment before the treatment or procedure has been authorised and for out of hospital benefits. In addition, no regulation exists at present which dictates how much schemes may charge as a co-payment, which leads to large variations in the amounts charged between schemes and benefit options.

5.1.4 Deductibles

Deductibles can be interpreted in three different ways:

- The amount paid by the member for diagnosis, treatment or care costs prior to the medical scheme covering the balance;
- A cost-sharing mechanism where the member pays a specified amount for covered services before the scheme will assume liability for all or part of the remaining covered services;
- The cumulative amount a member has to pay for services before the scheme will cover the costs of care (often called a threshold).

(Hetico *et al.*, 2006)

Therefore, a deductible makes the member responsible for all healthcare costs up to a defined threshold. All medical schemes aggregate claim costs over an annual period, which means that benefits are targeted at those whose healthcare costs exceed this threshold (Jurisich and da Silva, 1998). Once the member reaches the threshold, the benefits may still be subject to other cost-sharing methods mentioned above. This mechanism is again commonly used in circumstances where the member voluntarily decides to obtain services outside of the PPN or where the member obtains treatment prior to approved authorisation.

McLeod and Ramjee (2007) found that increases in hospital expenditure have led to an increasing use of deductibles by schemes as a means of discouraging elective hospital admissions and some expensive diagnostic procedures. They go on to state that “they are

inherently regressive in nature and adversely affect affordability for low income members” (McLeod and Ramjee, 2007:13).

5.1.5 Medical Savings Accounts

Medical scheme contributions on options that contain a savings account are split into risk contributions and savings contributions (the sum of which gives the gross contribution—the amount quoted to prospective members). Prior to 2006 many options allowed members to choose their level of savings contribution. However, this effectively gave members the discretion to tailor their benefits according to their health needs and to pay a premium that matched this need (McLeod and Ramjee, 2007). This was seen to be a means of risk-rating or ‘cherry-picking’ because cover for these members becomes cheaper as they no longer have to cross-subsidise non-hospital care for members who are more ill; consequently this practice was disallowed (Doherty and McLeod (2002) ; McLeod and Ramjee (2007)). In addition, allowing members to choose their level of MSA impacted negatively on the equity of schemes and contributed to unaffordable cover for high-risk beneficiaries (Doherty and McLeod, 2002). In terms of current legislation, up to 25% of a members total contribution may be allocated to a MSA.

Most savings accounts allow the member to receive a credit in advance at the start of the year (equivalent to 12 times the monthly savings contribution). The member will then pay back the amount through level monthly contributions. Prior to 2012, options did not typically offer interest on positive savings account balances and did not charge interest on the ‘loan’ established at the start of the year (Doherty and McLeod (2002) ; Actuarial Society of South Africa (2014)). As of 2012, all interest earned on positive savings account balances are to be paid to the member or accrued to the savings account balances (Council for Medical Schemes, 2011a). No portion of the investment income earned on the savings balances may be retained or used by the scheme (Council for Medical Schemes, 2011a).

The intention of MSAs was to create the incentive for members to control their own day-to-day expenditure by allowing any unused funds to be carried forward to the next

year and removing cross-subsidisation, forcing patients to rely on their own resources (Goudge *et al.*, 2001). In essence, savings accounts were designed to encourage beneficiaries to ration their own utilisation (Doherty and McLeod, 2002). According to van den Heever (2012), schemes typically require non-hospital costs to be funded from savings accounts, with the assumption being that historically these services were over-used by patients (or that, at least, beneficiaries can afford to pay for this type of care out of their own pockets, once the savings account is exhausted). Furthermore, cost increases on hospitals and specialists resulted in excessive contribution increases and resulted in schemes shifting even more non-hospital costs into MSAs to counter these increases (van den Heever, 2012).

Despite the intention of savings accounts to increase affordability, Doherty and McLeod (2002) found that only 20% of the 41 low-cost options available between 1999 and 2001 had savings accounts. Doherty and McLeod (2002) state that this is because “savings accounts fail as a cost control measure as they do not tackle the incentives to over-supply that are created by the fee-for-service reimbursement of providers” (Doherty and McLeod, 2002:16). Other reasons cited included the removal of the cross-subsidy function of large risk pools that helps to fund PMBs as well as the fact that “savings account options are being marketed to higher income consumers who have a higher propensity to utilise services and are better able to reimburse providers out of pocket when the account is used up” (Doherty and McLeod, 2002:16).

Perhaps the biggest argument against MSAs is the fact that the majority of schemes market a medical savings account as a ‘benefit’. In theory, an MSA is a designated form of a personal savings account- simply speaking, the consumer can get the same benefit by putting their money in the bank and funding their own medical expenses. As such, it is difficult to see a MSA as a ‘benefit’, but should rather be seen by consumers as the portion of the benefit entitlement that consumers fund themselves. In addition, other techniques described above may additionally be in place for ‘benefits’ received out of the MSA- for example, co-payments may be in place for prescription medicine purchased outside of the PPN. Despite these findings and the clear negative associations with MSAs, they

continue to be utilised by medical schemes, particularly as a means to attract younger and healthier beneficiaries.

5.1.6 Preventative Care and Incentives Programmes

Jurisich and da Silva (1998) stated that medical schemes tend to neither cover tests which screen for diseases nor wellness programmes to encourage healthy lifestyles. However, medical schemes in South Africa have realised the benefits of encouraging their members to be healthy and the benefits of offering preventive care and screening tests- the limited ability to underwrite, legislated through the rules of open enrolment and community rating in the Medical Schemes Act 131 of 1998, meant that schemes were encouraged to promote a healthy lifestyle in their members so as to increase the implicit cross-subsidisation mechanism within benefit options. Furthermore, by encouraging members to undergo screenings, earlier detection of conditions and subsequent earlier treatment are made possible, which should save on future costs for some conditions. Jurisich and da Silva (1998) also recognise that this is a long term strategy which will only result in significant savings in the future. This is compounded by the fact that preventive coverage means increased utilisation in areas such as doctors' visits and the associated costs (Jurisich and da Silva, 1998).

Incentives programmes, such as those that reward fitness levels and voluntary screening for certain diseases with discounted movie tickets, discounted airline tickets, and discounts on lifestyle electronic equipment and gym or sports club membership have also been introduced by a number of the larger schemes in the market. These loyalty programmes are not technically part of medical schemes as members typically have to pay additional amounts to join these programmes. Furthermore, these programs are not regulated under the Medical Schemes Act and are hence distinguishable by law. Yet these programmes are becoming more widespread and have become a major incentive for young and healthy members to switch to certain schemes (Doherty and McLeod, 2002). Incentives programmes are also used as a subtle form of risk rating by encouraging younger and healthier members to join and so enhancing the implicit cross-subsidisation mechanism

within benefit options.

5.1.7 Case Management and Disease Management

“Case management is the active monitoring of patients once in hospital with the aim of ensuring that the patient receives clinically appropriate care in the appropriate setting” (Doherty and McLeod, 2002:18). Furthermore, it attempts to manage claim costs by setting best practice clinical protocols for the treatment of patients once they have been admitted to hospital (Actuarial Society of South Africa, 2014). These protocols aim to ensure that the member is receiving quality, cost effective treatment. Case management aims to overcome the mis-utilisation of facilities and resources whilst maintaining continuity of service and accessibility (Hetico *et al.*, 2006).

In practice this might involve monitoring high-risk beneficiaries where the cost to the scheme upon treatment is higher. Once the member has commenced treatment, case management might involve checking that the treatment plan is in line with relevant clinical protocols and cost benchmarks and whether ongoing treatment is being provided in the most appropriate setting (Actuarial Society of South Africa, 2014). This may involve moving patients to wards with a lower intensity of care once their condition permits (Doherty and McLeod, 2002). It also attempts to match the appropriate intensity of services with the patient’s needs over time (Hetico *et al.*, 2006).

A disease management program (DMP), on the other hand, “involves active management by the scheme administrators of the prevention, diagnosis and treatment of specific conditions such as asthma or diabetes” (Doherty and McLeod, 2002:19). In addition, it involves identifying members at risk, intervening where necessary, measuring the outcomes, all whilst providing continuous quality improvement (van der Merwe, 2005). According to van der Merwe (2005), there are three essential elements of a DMP:

- “A knowledge base that quantifies the economic structure of the disease problem and describes care guidelines;
- a delivery system that coordinates all care; and

- a quality improvement system to audit performance against evolving standards”.

(van der Merwe, 2005:27)

Ultimately, the aim of any DMP should be to optimize the way in which members are managed in order to lower costs and improve health outcomes (van der Merwe, 2005). Furthermore, many schemes aim to utilise the DMP in order to educate members about their condition and so reduce the potential risks that the members may pose to the scheme. Medical schemes require members to adhere to the requirements of the DMP in order to stay on the programme. This might involve attending arranged consultations periodically (or whenever specified) - failure to do so may result in disqualification from the programme.

Typically, DMPs allow better collection of data on the beneficiary’s medical condition, and the dissemination of best practice information to providers caring for the patient (Doherty and McLeod, 2002). The claim is that this type of service provides a higher quality of care at a more reasonable price than alternative, presumably more fragmented, care (Hetico *et al.*, 2006). Furthermore, participation in a DMP may enable a member to have access to enhanced benefits (McLeod and Ramjee, 2007).

The introduction of the CDL into the PMB package saw a subsequent increase in the roll out of DMPs, particularly in HIV/AIDS management (McLeod and Ramjee, 2007). Consequently, DMPs have improved in recent years as scheme knowledge of their disease profile has been enhanced considerably (“due to the introduction of the CDL, the requirement to submit the data during the shadow period for REF and the implementation of compulsory ICD-10 coding for providers” (McLeod and Ramjee, 2007:20)). McLeod and Ramjee (2007) states that the lack of ICD-10 coding prior to this, hampered the ability to perform disease-based analyses.

Disease Management and Case Management programmes have become popular approaches in medical schemes because of their association with cost reducing strategies and their potential for broad application (van der Merwe, 2005). No data exists on the extent of their use within schemes, however, it is clear that their existence plays a role within rationing mechanisms and hence benefit design.

5.2 Supply-side mechanisms

5.2.1 Preferred Provider Networks

Medical scheme members may be restricted to obtain their healthcare services from a network of providers. In South Africa these networks are referred to as Preferred Provider Networks (PPNs) or Designated Service Providers (DSPs) where PMBs are concerned³⁵ (importantly, PPNs encompass DSPs). A PPN is where the scheme contracts with different providers to obtain services for its members (Jurisich and da Silva, 1998). Members are entitled to visit any provider within the network. If the member joins a benefit option that makes use of a PPN, a visit to a provider outside of the PPN may result in the member having to cover the cost of the service themselves or the scheme may only pay as much as it would have cost to make use of the PPN-the member will have to pay the difference (Council for Medical Schemes, 2014e). If the scheme expects the member or beneficiary to use a PPN, it must inform them, and the rules of the scheme must also state which service providers are the ‘preferred’ ones, and what the scheme will or won’t pay if they use a provider other than the ‘preferred’ one (Council for Medical Schemes, 2014e).

PPNs were established with the aim of reducing the cost of healthcare, through negotiating volume discounts from the providers or by securing agreements with providers to practice cost effective medicine according to a defined set of clinical protocols (Jurisich and da Silva (1998) ; Actuarial Society of South Africa (2014)). According to Amelung (2013), the following goals are associated with PPNs:

- Cost control;
- Assurance of quality in respect to influencing the provision of services; and
- Planning certainty.

These goals can be achieved as the MCO will be able to control the ratio of members to providers in the network. Consequently, lower fees can be negotiated in return for

³⁵The term Designated Service Provider was introduced in the PMB legislation

increased patient volumes (Jurisich and da Silva, 1998). This sentiment was echoed by Doherty and McLeod (2002) where they state that “when providers group together in networks, this offers even greater potential for collective cost control as well as enhanced geographic access to care” (Doherty and McLeod, 2002:20). However, a recent trend of paying higher fees to providers within PPNs has been seen- for example, contracted GPs on Bestmed Medical Scheme’s network are reimbursed R380.0 for a consultation, whereas uncontracted GPs are only reimbursed R295.7 (ASAIPA, 2014). A possible explanation for this trend might be that the increased engagement with and profiling of the providers might necessitate higher fees.

In theory, public hospitals should be attractive preferred providers for schemes, since the cost of care and the rate of cost escalation is comparatively low in this sector (Doherty and McLeod, 2002). However, perceived quality differences between public and private hospitals has resulted in very few schemes contracting with the public sector. This is despite the fact that many state hospitals have set up separate wards, designed to serve members whose treatment and hospital stay is paid for by their medical scheme and to whom the hospital can afford to provide better service (Council for Medical Schemes, 2014e).

The PPN agreements between the scheme and MCO generally cover, inter alia, data requirements, practice guidelines and reimbursement mechanisms for providers (Jurisich and da Silva, 1998). In theory, this gives the MCO greater power to combat fraud in the system and to manage care more efficiently (Jurisich and da Silva, 1998). In addition, the existence of a PPN encourages members to develop relationships with contracted providers, which “contributes to providing quality healthcare since the member will be treated by a doctor familiar with their history and members will perceive a higher valued service” (Jurisich and da Silva, 1998:17).

Importantly, PPNs are often used in combination with negotiated rates between providers and schemes (Doherty and McLeod, 2002). Doherty and McLeod (2002) state that “in theory, such negotiations should place downward pressure on the fees providers are able to charge” (Doherty and McLeod, 2002:20). However, South Africa’s private hospital

sector is dominated by three main groups, which has prevented the effective contracting of schemes with providers (van den Heever, 2012). In addition, there have been attempts between provider groupings to collude and control prices and with the consequence being that negotiation does not have the desired effect on cost escalation (Doherty and McLeod, 2002).

Doherty and McLeod (2002) found that the use of hospital networks was quite low at 22% of schemes while the percentage for other types of provider was even lower (for example, 13% for general practitioners and 7% for specialists). These results were echoed by Ranchod *et al.* (2001) where they found that eight of the forty-one options they examined made use of a network of hospitals in the private sector. Co-payments were in place if the member used a hospital out of network (Ranchod *et al.*, 2001). However, these figures are likely to be considerably higher in 2014 owing to the increased usage of managed care techniques as well as the introduction of Efficiency Discounted Options (EDOs).

EDOs are benefit options with network arrangements for healthcare provision. They were introduced in 2008 and allow monthly medical scheme contributions to be differentiated on the basis of the healthcare providers that are utilised to provide benefits (Council for Medical Schemes, 2014c). This practice is in conflict with the statutory principle that contributions may be differentiated only on the basis of income or family size, or both. A scheme's benefit option must therefore obtain exemption from section 29(1)(n) of the Medical Schemes Act before it can operate as an EDO (Council for Medical Schemes, 2014c). Only open schemes have elected to offer EDOs to date and at present, 40 benefit options are classified as EDOs- an increase of 3 from 2013 (Council for Medical Schemes, 2014c).

Importantly, EDOs were established with the intention that the discounted contributions reflected the efficiencies of the PPN rather than the demographics and claims propensities of the beneficiaries that were expected to participate in the discounted structure. However, benefit options with network arrangements offer advantages to both members and medical schemes. "Members receive discounts because the scheme is able

to obtain efficiency from a selected provider network. Members' contributions are fair and non-discriminatory and they retain a measure of choice within the efficiency of the network" (Council for Medical Schemes, 2014c:42). Medical schemes also achieve cost savings because network arrangements allow schemes to negotiate better reimbursement and healthcare delivery terms (Council for Medical Schemes, 2014c).

Importantly, with regards to PMBs, the regulations provide for instances in which it is not possible for the member to make use of a DSP for the diagnosis, treatment or care of a PMB condition. The three cases in which the member will be regarded as having obtained the service involuntarily are:

- "If the service was not available from the DSP or could not be provided without an unreasonable delay;
- If you needed immediate treatment under circumstances that prevented you from using the DSP; and
- If there was no DSP within reasonable proximity of your place of work or residence".

(The Department of Health, 1998)

In such circumstances, the scheme will not be able to impose co-payments, deductibles or other risk-management tools on the diagnosis, treatment and care costs of a PMB condition. However, if the member or beneficiary does voluntarily obtain services outside of the DSP then the risk-management tools mentioned in section 3.2 can be employed to mitigate the costs to the scheme.

5.2.2 Alternative Reimbursement Mechanisms

Traditionally, providers of healthcare have been reimbursed on a fee-for-service (FFS) basis. FFS is a reimbursement system where providers are reimbursed for each unit of service provided, with the amount charged for a unit of service determined by the providers and shown in their fee schedule (Jurisich and da Silva, 1998). Essentially, a fee is paid to the provider each time the provider performs a specific service. Under this

system the provider bears little risk and it creates perverse incentives as there is the potential for the service provider to earn greater profits by unnecessarily over-servicing the patient (Doherty and McLeod, 2002).

The problems with the FFS system are compounded by the structure of the South African medical scheme environment. In essence, medical schemes act as a third party payer, whereby the scheme settles claims invoiced by the provider on behalf of the member or beneficiary. This shields patients from a full awareness of the costs and creates the incentive for providers to overcharge as well over-utilise services by invoicing largely on the basis of their own judgement (Doherty and McLeod (2002) ; Amelung (2013)). In addition, the inherent information asymmetries that exist between the provider and patient compounds this problem as the patient is not able to fully judge what services are necessary- resulting in provider-induced demand (Mathes *et al.*, 2014). This fee-for-service problem extends to administrators themselves as their fees are sometimes expressed as a proportion of contributions; as contributions rise, so do the administrators' earnings (Doherty and McLeod, 2002).

Industry experts displayed broad consensus on FFS reimbursement systems. Schroeder and Frist (2013) found that FFS reimbursement contains incentives for increasing the volume and cost of services (whether appropriate or not), encourages duplication, discourages care co-ordination, and promotes inefficiency in the delivery of medical services. Ranchod *et al.* (2001) agreed, and expressed the need for the South African medical scheme environment to abandon the traditional FFS arrangement in order to remain viable.

Several solutions have been proposed to overcome the disadvantages with the FFS system, with the need to move towards risk-sharing arrangements with providers as opposed to traditional risk-transfer arrangements in order to discourage over-utilisation whilst increasing the quality of service, being the most widely accepted (Ranchod *et al.* (2001) ; Schroeder and Frist (2013)). The ideal long-term solution, according to Schroeder and Frist (2013), is a system that incorporates appropriate and high-quality care, an emphasis on disease prevention, the management of chronic conditions rather than treatment of

illness, as well as an emphasis on the diagnosis rather than treatment of conditions. In response to these inefficiencies, alternative provider reimbursement arrangements are becoming increasingly common and more widely used by medical schemes as a tool to align the incentives of the provider and the scheme. This was done by transferring varying degrees of risk from the medical scheme to the provider and/or the member. It is important to note that different mechanisms will be appropriate for different providers, however, the goal is to structure the payment to providers in such a way that reduces costs whilst still maintaining a high-quality level of care (Jurisich and da Silva, 1998). The most common alternative reimbursement mechanisms are outlined below.

Capitation Under a capitation system, payment does not occur as the result of a service being rendered but rather, it is the prepayment for services usually on a per-member, per-month basis (Jurisich and da Silva, 1998). A provider is therefore paid the same amount of money every month for a member regardless of whether that member receives services or not, and regardless of the cost of those services (Jurisich and da Silva, 1998). In essence, the service provider partly assumes the ‘insurance function’ and so capitation results in a transfer of risk from the medical scheme to the provider (Amelung, 2013). This transfer of insurance risk to the provider, incentivises providers to focus on utilisation management, since the lower the utilisation of services by the provider, the higher their monthly ‘profit’³⁶ will be (Jurisich and da Silva, 1998).

Per Diem (per day rates) This is a method intended for reimbursing hospitals. A pre-determined amount is paid to the hospital for each day of care that they deliver to a member, regardless of the reasons for the care and independently of the actual costs accrued per day (Jurisich and da Silva (1998) ; Amelung (2013)). Under a per diem system, the risk that more services are needed in the encounter than anticipated is transferred to the hospital, while at the same time the risk of price variability per service is removed (Jurisich and da Silva, 1998). The per diem

³⁶reimbursement rate less the cost of services rendered

structure reduces the hospitals incentive to over-service the patient and encourages the hospital to improve its profitability by managing its costs efficiently (Jurisich and da Silva, 1998).

Case Based Under a case based system, the service provider receives a flat rate payment for every treated case (Amelung, 2013). Payment is linked to the type or severity of the case as well as the number of cases (World Bank, 2014). This payment system creates incentives to focus on profitable patients, to shorten lengths of hospital admission, to provide less care, and to admit more patients (Mathes *et al.*, 2014).

Fixed Fees Under a fixed fee payment system, a fixed fee is set which covers the cost of a particular procedure or diagnosis, i.e. “a fixed amount is paid to cover all of the services during a particular hospital stay regardless of the actual services provided” (Amelung, 2013:128). This payment method transfers a portion of the financial risk to the provider and incentivises hospitals to reduce the length of stay and the amount of care given to each patient (World Bank, 2014). The scheme will now be concerned with the readmission rate which could be an attempt to charge again for the same procedure (Amelung, 2013). This method provides incentives for the hospital to select patients with less severe illnesses and to admit as many patients as possible whose cost is less than the fee received for each patient (Amelung, 2013).

Global Budget A global budget is similar to a fixed fee, but “includes all professional services delivered in relation to a particular procedure or diagnosis” (Actuarial Society of South Africa, 2014:196). This compensation system, therefore, aims to achieve both higher quality services while at the same time reducing healthcare expenses (Amelung, 2013). Many argue that global budgets incite hospitals to increase their number of admissions and encourages case selection, which may have an influence on access to care (Mathes *et al.*, 2014).

Salary “The doctor receive a fixed salary for the services which they provide on

behalf of a healthcare organisation (hospital, medical scheme, MCO)” (Amelung, 2013:122). When physicians are hired and paid with a fixed salary, no incentives emerge for the unnecessary expansion of the volume of service (Amelung, 2013). “Therefore, this compensation form ideally enables attentive and treatment-based care” (Amelung, 2013:122). Furthermore, administration of this system is simple and well known and may result in the reduction of costs. Despite the perceived advantages of this system, it lacks incentives to increase the quality of services offered and may result in increased waiting times (Amelung, 2013).

Whilst these alternative reimbursement arrangements are not directly visible in benefit design (i.e. members cannot see how providers are reimbursed and choose a benefit option accordingly) it is important to recognise their existence and their potential impact on the member.

5.2.3 Treatment Protocols and Formularies

Treatment protocols are “a set of guidelines in relation to the optimal sequence of diagnostic testing and treatment for specific conditions” (The Department of Health, 1998). Treatment protocols can therefore be seen as an addition to guidelines in which treatment methods can be stipulated. It is not a set of rules that dictate how a treatment must be carried out but rather how it should not be carried out (Amelung, 2013).

Most medical schemes provide services in the form of a basket of care that lists all the services included in the protocol, for example, the number of annual consultations allowed at a specialist. It is important to be aware that the protocols are based on the services necessary to manage members with stable conditions (Council for Medical Schemes, 2014e). The Council for Medical Schemes dictates that “all managed care protocols be developed on the basis of evidence-based medicine, taking into account considerations of cost-effectiveness and affordability” (Council for Medical Schemes, 2014e:58). This means that even if there is scientific evidence for the validity of a specific treatment, it may not be cost effective, affordable or appropriate to prescribe in the South African environment

(Council for Medical Schemes, 2014e). In addition, if a member voluntarily chooses to use a different treatment protocol the scheme may charge a co-payment.

A formulary is a list of prescription drugs determined to be clinically appropriate and cost effective, that are approved for use and covered by a medical scheme (Heticio *et al.*, 2006). As with managed care protocols, formularies must be developed on the basis of evidence-based medicine, taking into account considerations of both cost effectiveness and affordability (Council for Medical Schemes, 2014e). Reimbursement by schemes is then restricted to items on the formulary; although members can obtain other products if they are prepared to pay the difference (Doherty and McLeod, 2002). If the member suffers from specific side effects from drugs on the formulary they will be able to put their case to their medical scheme and ask the scheme to pay for their medicine (Council for Medical Schemes, 2014e). When a formulary drug is clinically appropriate and effective; and the member knowingly declines the treatment and chooses to use another drug instead, the scheme may impose a co-payment.

According to Doherty and McLeod (2002) the use of formularies in South African medical schemes has resulted in pharmaceutical companies aggressively re-pricing products in order to have them included on the price list- bringing down retail prices for all schemes. These formularies are in contrast to reference pricing, which requires that drugs be categorised into therapeutic classes, with a reference drug selected in each class (McLeod and Ramjee, 2007). The amount to be reimbursed is then set based on this reference drug, with the consumer having to pay the difference in price if a more expensive drug is used (McLeod and Ramjee, 2007). McLeod and Ramjee (2007) then state that “one of the aims of reference pricing is to have manufacturers compete to be the reference product and thereby drive prices down” (McLeod and Ramjee, 2007:19).

Despite their ability to bring down prices and reduce costs, the use and application of formularies is strongly resisted by providers and pharmaceutical companies (Doherty and McLeod, 2002). However, the majority of schemes in South Africa have used formularies for chronic medicine since the mid-1990s and in addition, many schemes include a chronic medicine management programme in conjunction with their formulary (Doherty

and McLeod, 2002). Beneficiaries seeking chronic medicine benefits are required to register on this chronic medicine management programme which allows close review of each prescription for each member (Doherty and McLeod, 2002).

The increase in the use of formularies in medical schemes has been accompanied by an increase in the use of generic drugs³⁷, which tend to be far cheaper than brand name drugs (McLeod and Ramjee, 2007). McLeod and Ramjee (2007) state that “generic items claimed increased from 27.7% in 2002 to 43.7% in 2005”. A number of possible reasons are provided for the increase in generic utilisation, including: the introduction of more generic alternatives to the South African market, the role of reference pricing and formularies in promoting the use of generics and greater awareness of generic products amongst consumers (McLeod and Ramjee, 2007). In addition pharmacists are now required to substitute generic products (where cheaper), unless the prescribing practitioner has specified otherwise (McLeod and Ramjee, 2007).

6 Elements of Benefits Design

As stated in the Introduction, little research has been conducted into benefit design in the last decade which impeded the extent to which a thorough literature review could be carried out. Consequently, the sections below will simply attempt to draw the attention of the reader to common elements of benefit design and will not attempt to provide a thorough overview of the benefits on offer- this will be extrapolated from the results.

In the previous sections, an examination of the primary tools available and utilised by medical schemes to manage the risks associated with benefit design were described. The sections below describe some of the major categories under which the benefits within each option can be broadly classified. It is important to note that the tools described

³⁷ “A generic drug is a pharmaceutical product, usually intended to be interchangeable with an innovator product, that is manufactured without a licence from the innovator company and marketed after the expiry date of the patent or other exclusive rights. A generic medicine contains the same quantity of active substances as the reference medicine” (World Health Organization, 2014a)

previously are employed under each of these main categories in a large number of ways in order to design options that will attract and meet the needs of as many consumers as possible.

6.1 Hospital-Related Benefits

These benefits generally cover medical expenses incurred in-hospital (Actuarial Society of South Africa, 2014). Each benefit option will have its own set of in-hospital benefits, however, there are recurring themes which are prevalent within all options:

- *Any limitations on choice of hospital* Whether members are entitled to receive their hospital benefit entitlement from any hospital, or are required to visit a preferred hospital network dictated to them by the scheme rules. If the option is part of a PPN, beneficiaries will be required to visit a hospital within the network. Penalties, potentially in the form of co-payments, deductibles or disqualification from coverage may be in place for voluntary use of a facility outside of the network. In addition, members will be required to obtain pre-authorisation before being admitted to hospital. Failure to obtain pre-authorisation may result in disqualification from coverage or additional co-payments.
- *Limits* “These are limits set in respect of the maximum total major medical benefits that a scheme will pay out in one benefit year in respect of a beneficiary or member family” (Actuarial Society of South Africa, 2014:307). Some benefits will offer unlimited hospital benefits whilst others will be limited- generally in the form of monetary limits, although limits in the form of a maximum number of visits (to specialists, for example) per year or per beneficiary may also be in place (Ranchod *et al.*, 2001). In addition, *sub-limits* may also be in place for specific categories of expenditure or by procedure/treatment type (Actuarial Society of South Africa, 2014). Once the member has exceeded these limits they will be required to fund in-hospital benefits themselves (except in the case of a PMB condition, which must be covered in full). The form these limits take, differ between options and schemes.

- *Reimbursement Rate* The reimbursement rate for hospitalisation will vary for the specialists' accounts between options and will generally be expressed as a percentage of the specific scheme's rate (Ranchod *et al.*, 2001). With the NHRPL (see section 3) being declared as unlawful in 2010, all schemes typically employ their own tariff independently of other schemes.
- *Co-payments for hospital admission* may be in place for hospital admissions or specific in-hospital procedures. These will vary between each option and scheme. Importantly, no co-payments or deductibles may be imposed on any condition classified as a PMB provided the member receives treatment within the DSP.
- Some options will cover the cost of medicines dispensed in hospital for consumption outside the hospital. This benefit might be paid from savings, limited to a maximum monetary amount, limited to a maximum number of days' supply or a combination of the above.

Ranchod *et al.* (2001) found that monetary limits were imposed on hospital benefits in 31 of the 41 low-cost-options analysed. However, only two options were found to combine monetary limits with a limit on the number of days that can be spent in hospital (Ranchod *et al.*, 2001). They also found comparison between the different options' limits on hospital benefits to be extremely difficult owing to the different definitions of 'limits' (limits may be for all benefits, for all major medical benefits or specifically for hospital benefits) (Ranchod *et al.*, 2001).

6.2 Chronic Medicine Benefits

Chronic benefit design has changed significantly over the last decade with the introduction of the Chronic Disease List (CDL) into the PMBs in 2004. The CDL is a list of 25 chronic conditions for which the scheme is required to cover their diagnosis, treatment and medication according to therapeutic algorithms (Council for Medical Schemes, 2014b). These algorithms should be regarded as benchmarks or minimum standards for treatment,

which means that the treatment the medical scheme provides should be in line with these standards. In addition, if a member has one of the CDL conditions, their medical scheme has to cover medicines, doctor consultations and tests related to their condition. However, if tests for a CDL condition come back negative, the scheme will not be required to pay for these tests.

As with the PMBs, the scheme may make use of protocols, formularies and DSPs to manage the risks associated with this benefit (Council for Medical Schemes, 2014b). In addition, many schemes require pre-authorisation as well as registration on a chronic medicine management programme or disease management programme before they will begin to cover chronic conditions. Ranchod and McLeod (2001) state that benefit registration has the benefit of giving the scheme better access to drug utilisation data, enables disease management programmes and interventionist action on the part of the scheme.

Since all schemes have to provide full coverage for the 25 chronic conditions specified in the CDL, schemes have limited the extent to which they offer additional coverage for chronic conditions over and above those already included in the CDL (Fish *et al.*, 2006). McLeod and Ramjee (2007) state that this is an attempt by schemes to risk select prospective members; i.e. by not covering chronic conditions above the minimum level, schemes can effectively use benefit design to ‘cherry-pick’ the young and healthy (McLeod and Ramjee, 2007).

There exist large variations in the chronic medicine benefits offered, however, common variations by option include:

- *Chronic conditions and medicines lists* Schemes will sometimes list the specific conditions that are covered, together with the associated medicines that the scheme will pay for (i.e. treatment protocols and formularies). However, the complex nature of these lists means they are seldomly publicised;
- *Co-payments and/or deductibles* Certain medicines will be covered at cost while others may be subject to co-payments or deductibles;
- *Limits* Options will often specify a benefit limit covering non-PMB chronic medi-

cines. These benefits are sometimes incorporated as a sub-limit within the overall annual limit and may be implemented on a per beneficiary or per family basis;

- *PPNs* may also be in place which require the member or beneficiary to obtain their chronic benefit from the network of providers as specified in the scheme's rules.

In addition, schemes will often employ a combination of these tools, for example: co-payments may be in place in addition to overall annual limits.

One might expect Oncology benefits to be included within Chronic Benefits. However, schemes typically have an additional category catering specifically to cancer and cancer related benefits. Typically, these benefits specify limits applicable for oncology cases (for both treatment and medication), the choice of oncology provider as well as whether or not the scheme will pay for high cost, speciality oncology medicines (and what limits may be applicable).

6.3 Day-to-Day Benefits

Day-to-day benefits (DtD) are intended to provide cover in respect of medical expenses incurred out-of-hospital (for example, in a day-clinic, in doctors' rooms or in an optical or dental clinic). DtD refers to those medical expenses incurred by members that are not related to major illness or major surgery (Actuarial Society of South Africa, 2014). In addition, these expenses tend to be incurred more frequently and are of a less catastrophic nature than major medical expenses (Ranchod *et al.*, 2001).

Options have different limits, sub-limits, co-payments and other managed care techniques in place, affecting how much cover is available for DtD expenditures. In addition, the treatments and procedures that will be covered will vary considerably between each option and scheme.

Some options offer additional benefits, called Above-Threshold-Benefits (ATBs). The ATB is a benefit that comes into play once the member has reached a defined level of spending, called the threshold, dictated by the individual scheme and benefit option. The DtD claims that you submit to a scheme are added up at the scheme's rate. Once the

claims add up to a certain amount, known as the Annual Threshold, your claims start paying from the ATB. This threshold benefit may apply to both options utilising a MSA as well as those that do not. The idea behind ATBs is that you have a financial cushion if your annual DtD medical expenses exceed a certain amount. The ATB is not unlimited, with many options placing limits or sub-limits on certain benefit categories. Ranchod *et al.* (2001) identified threshold benefits as being a feature of higher cost plans where the member can afford to spend more on DtD benefits in order to reach the threshold.

Options that utilise a MSA to provide for DtD benefits have to consider an additional spend, called the self-payment gap. If the member runs out of money in their MSA and before their claims add up to the Annual Threshold, they will have to pay for their DtD medical expenses themselves- this is called the self-payment gap. The self-payment gap can be calculated by subtracting the annual amount available in the savings account from the threshold at which the ATB applies. Options that do not have a MSA require the member to pay for all day-to-day medical expenditures themselves, i.e. out-of-pocket (OOP), until the sum of these amounts has reached the threshold level. Once the threshold is reached the ATB kicks in and the member will be covered by the scheme, subject to terms and conditions.

This ATB is often accompanied by a complex set of rules, some of which will now be highlighted. Each scheme will have different rules about which claims and what percentage of the claim will count towards the threshold. In addition, the rules that determine how claims add up to the threshold may differ from the rules that apply to which claims can be paid from the savings account. Consequently, the balance in the MSA may be depleted faster than the rate at which the claims count towards the threshold. This means that the MSA may be depleted before the threshold is reached, resulting in more out-of-pocket payments by the member being required. Schemes may, however, allow the payment of claims from the MSA at the full price, but these claims will only count towards the threshold at the scheme's rate. Furthermore, schemes also allow certain claims to be paid from the MSA but exclude them when it comes to accumulating claims towards the threshold, for example vitamins and homeopathic medicine.

6.4 Contribution Rate Structures

According to the Medical Schemes Act, 131 of 1998, contribution rates are only allowed to vary by income and family size. This has led to contribution rates being structured in two ways:

- Rates varying by number of beneficiaries only- i.e. there will be a rate for a single member, a rate for a member with one dependant, a rate for a member with two dependants (and so on) (Actuarial Society of South Africa, 2014). There is often a maximum to the number of dependants which are taken into account. Not many schemes use this structure anymore, with the majority using the second structure.
- Rates varying by the number of adult beneficiaries and rates varying by the number of child beneficiaries (Actuarial Society of South Africa, 2014). Separate rates are typically set for the member, for each additional adult beneficiary and for each additional child beneficiary. This investigation looked at contribution rates structured in this way.

In addition, a number of options employ income bands in setting contribution rates. This means that the rate charged on the particular option will vary according to the income level of the principal member. Kaplan (2013) found that only 34 out of 169 benefit options employed income bands in setting contribution rates. Furthermore, Kaplan (2013) showed that options that used income bands showed significantly improved affordability compared to other options owing to the increase in income cross-subsidisation within the option. McLeod and Ramjee (2007) comment on the use of income bands, where they state that “the reduction in the use of income bands in setting contribution rates disadvantages the low income members of medical schemes by reducing the extent of income cross-subsidies” (McLeod and Ramjee, 2007:7).

6.5 Plan Types

All medical scheme benefit options can be classified into the following plan types³⁸:

- *Traditional*: A traditional benefit option is one that is considered to offer both compulsory insured major medical benefits and insured day-to-day benefits (Ranchod *et al.*, 2001). Any unused balance at the end of the year is not carried forward.
- *New Generation*: This is an option that combines an insured major medical benefit with a medical savings account. The risk pooled benefit will provide cover for major medical events, such as hospitalisation and chronic medicine benefits. The savings component will generally provide cover for day-to-day expenses, such as GP consultations, dentist visits and over-the-counter medication.
- *Hospital Plan*: Here, benefits are paid out of risk-pooled funds and provide cover for major medical events. There is limited cover for out-of-hospital and day-to-day expenses. The term ‘hospital plan’ is an outdated concept since all options, even if described as a ‘hospital plan’ must provide cover for PMB conditions.
- *Hybrid*: Hybrid plans are a mixture between Traditional and New Generation Plans, with major medical benefits paid out of risk-pooled funds and the majority of day-to-day benefits paid out of a savings account. However, certain out-of-hospital and day-to-day benefits are covered from risk benefits.
- *Networked*: Networked plans describe options where the member is required to obtain, either or both, of their major medical benefits and out-of-hospital benefits through a network of providers (or PPNs). The network of providers differs between schemes and options and the intention is to enable a reduction in contribution rates through the improved efficiency of using an established network with established provider relationships.

³⁸For the purposes of comparison, a ‘plan type’ might be thought of as a collection of options displaying the same day-to-day benefit characteristics

Clearly, the plan type provides an indication as to how the day-to-day benefits are covered. For example: Traditional plans represent all options where DtD cover is provided by available funds in the insured risk benefit, whilst New Generation plans represent all options where DtD benefits are covered by available funds in the medical savings account.

There has been a clear shift in medical scheme benefit design over the last few years, “driven partly by the strong increases in hospital expenditure and the shifting of out-of-hospital expenses to MSAs, and is underpinned by the PMBs emphasis on major medical benefits” (McLeod and Ramjee, 2007:13). According to the Council for Medical Schemes Annual Report (2014), the largest component of healthcare benefits paid across all schemes can be attributed to hospital expenditure³⁹ (which consumed 35.3% of all amounts paid to healthcare providers in 2013 (Council for Medical Schemes, 2014c). Payments to medical specialists, for medicines dispensed by pharmacists and providers, and to general practitioners consumed 24.5%, 16% and 7% respectively of total healthcare benefits paid in 2013 (Council for Medical Schemes, 2014c).

This is again emphasized when looking at the historical trend in benefit expenditure. Major medical expenditure accounted for 42.5% of pooled funds in 1974, 71.4% in 2005 and 72.2% in 2013 (Council for Medical Schemes, 2014c) (McLeod and Ramjee, 2007). Clearly, medical scheme benefit design has shifted away from covering both major medical and out-of-hospital benefits to primarily covering major medical benefits (hospitals and specialists) (McLeod and Ramjee, 2007).

In 2001, Ranchod *et al.* (2001) investigated common benefit design features of options classified as ‘low cost’. At the time they found that of all low cost options 39% were Traditional plans, 20% were New Generation plans and 41% fell under the broad category of Managed Care plans⁴⁰ (Ranchod *et al.*, 2001). Whilst, Managed Care plans as defined by Ranchod *et al.* (2001) do not currently exist, for comparative purposes we can compare them to Networked plans as defined in this investigation. Of the ten cheapest options,

³⁹includes: ward fees, theatre fees, consumables, medicines and per diem arrangements

⁴⁰“Managed Care plans refer to options that offer a capitated primary care benefit, making use of a network of primary care clinics” (Ranchod *et al.*, 2001)

70% were found to be Managed care plans, 20% New Generation and 10% Traditional plans. One might expect New Generation plans to be the cheapest owing to the large transfer of risk (day-to-day expenditure risk) from the scheme to the member, however, this was not reflected in their findings. One possible explanation was provided, in that “new generation options are being marketed to higher income groups who have a higher propensity to consume health” (Ranchod *et al.*, 2001:42).

In addition, Ranchod *et al.* (2001) found that the focus of the lowest cost benefit design was on private sector day to day benefits. Access to private sector hospital benefits was also included since contracting with the public sector for hospital services was not well established owing to the perceived quality differences that exist between these two sectors. These findings were echoed by the LIMS report (2006) (Broomberg *et al.*, 2006).

The LIMS process (2006) conducted a nationwide household survey in order to identify the key characteristics of benefit design that low-income households favour. They found that low-income households place greater value on coverage for out-of-hospital benefits than for in-hospital benefits- “the relative value placed on comprehensive out of hospital care was approximately 50% higher than that placed on private hospital cover” (Broomberg *et al.*, 2006:63). Based on these findings, the LIMS process (2006) suggested that any new product offered to the lower-income market should have superior out-of-hospital, cost effective benefits, with services to be provided mainly in the private healthcare sector. Furthermore, State facilities should only be incorporated as service providers where they are on a par with the private sector. In addition, a product for this low-income market must have no co-payments, levies or savings plans. It must be simple, and facilities must be easily accessible (Broomberg *et al.*, 2006). No research exists on the benefit preferences of higher income households.

7 Methodology

7.1 Analysing Affordability of Medical Scheme Contributions

Kaplan (2013) performed an investigation into the affordability of medical scheme contributions. Whilst the primary aim of this dissertation is not to identify the number of affordable options available to a set of benchmark families, the model used by Kaplan (2013) will be a useful tool in analysing the benefits available to particular segments of the population. The methodology used to identify the number of affordable options in this dissertation, was identical to that of Kaplan (2013), with the relevant figures adjusted for inflation.

7.1.1 Eligible Medical Schemes

The investigation is based on open schemes as not all families have access to restricted membership schemes. A list of all 24 open-membership schemes comprising of 172 benefit options was obtained from the Council for Medical Schemes (Council for Medical Schemes, 2014c).

Contribution rates and a detailed description of the benefits offered for each option were obtained from the individual scheme's website.

7.1.2 Construction of Benchmark Families

This investigation tested affordability on 18 benchmark families which varied by both income (three income levels were tested) and composition (six family structures were tested to identify how affordability changes as family size changes). Furthermore two levels of employer subsidy were tested as well as the updated medical scheme contribution tax credit. The sections below outline the assumptions used and how they were applied to test affordability.

7.1.2.1 Income Bounds and Test Levels

In this dissertation, income was taken as the individual income of the principal member. This was done for comparative ease as this is the basis upon which medical scheme contributions are calculated.

The LIMS report (2006) suggested a personal gross monthly income threshold of R6 500 and a lower monthly income threshold of R2 000 (both in 2005 Rands). Anywhere above or below, and the individual would no longer be eligible for cover under LIMS. The LIMS process (2006) chose these income levels, since at the time of the investigation 87 per cent of all households in this band were without cover (Broomberg *et al.*, 2006). Furthermore, they chose an income level that did not “trap too many people between LIMS and current schemes, thus avoiding the situation in which large numbers of people who could not afford current schemes being excluded because they earned above the LIMS threshold” (Broomberg *et al.*, 2006:112).

The income bounds used in this investigation were the bounds suggested by the LIMS process in 2006 which were then inflated to 2014 Rands using Consumer Price Index (CPI) data published by Stats SA (Stats SA, 2014). Figure 4 shows the evolution of the income band and tax threshold⁴¹ from 1 October 2009 to 1 October 2014. The target population is thus all households whose highest income earners earn between R3 498.55 and R11 370.28 per month. This approach was based on the methodology used by Makofane (2009).

⁴¹The tax threshold stipulated by SARS each year, source:(Tomasek, 2013)

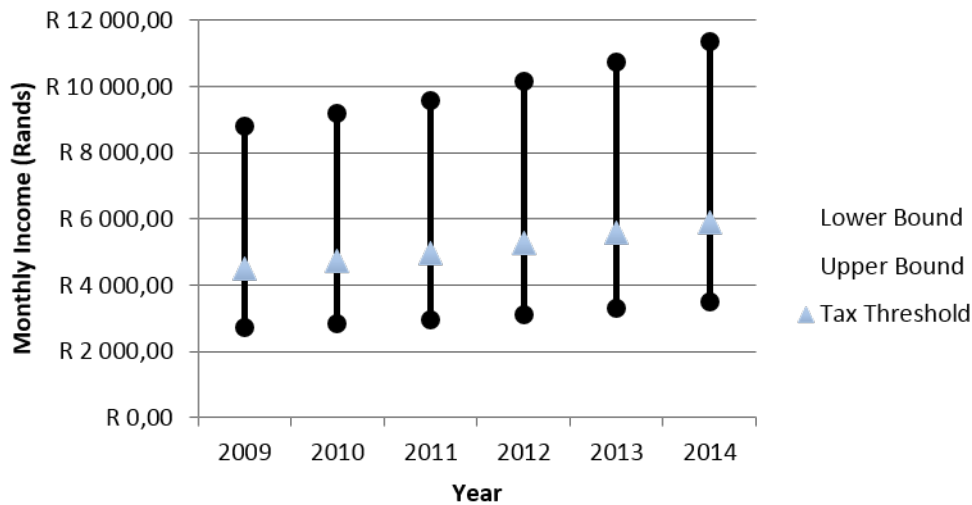


Figure 4: Evolution of the LIMS income band and tax threshold

It was decided to test affordability of medical scheme contributions using three different, monthly income levels. The income levels used were those suggested by Kaplan (2013), adjusted for inflation: R4 760 (2013: R4 500), R7 090 (2013: R6 700) and R10 580 (2013: R10 000) (pre-tax). Kaplan (2013) chose these income levels to gauge the effect of the tax regime on the affordability of contributions. This was done by choosing income levels above and below the tax threshold (R5 891.67)⁴².

The reason for choosing only one income level below the tax threshold while choosing two above was owing to the nature of the inflated LIMS income bounds. The 2014 income bounds determined were R3 498.55 and R11 370.28. Clearly there were a greater number of potential scenarios above the tax threshold than below owing to the skewness of the bounds in relation to the tax threshold. Furthermore, choosing three income levels increases the sensitivity of the model and will provide a more accurate picture of the medical scheme environment.

7.1.2.2 Family Structure

⁴²SARS prescribes an annual income tax threshold of R70 700 or R5 891.67 per month, anywhere below and the individual is exempt from paying personal income tax (SARS, 2013a)

The affordability investigation required a set of benchmark families to be constructed. The methodology used for construction of these families came from studies done by Fish and Ramjee (2007) and Makofane (2009).

Fish and Ramjee (2007) constructed 4 benchmark families (1 structure and 4 income levels) in order to assess the proportion of medical scheme options affordable to each. Fish and Ramjee (2007) chose the structure of their family based on the work done in 2001 by Ranchod, McLeod and Adams, where they found that the most common family structure that contributed towards a medical scheme was that of a single adult or principal member followed by a family consisting of a principal member, one adult dependant and two child dependants (19.22% of households had this structure) (Ranchod *et al.*, 2001). An investigation conducted in 2009 by Makofane constructed 10 benchmark families (5 structures and 2 income levels) (Makofane, 2009). Makofane used the South African Advertising Research Foundation (SAARF) in order to help choose family structures based on the commonality or prevalence of the structures in society. It was decided to use a similar methodology to that of Makofane as it allowed for more variation and flexibility of the family structures.

Eighty20, a specialist actuarial consulting firm with an online data solutions tool, was used to obtain data to determine the household characteristics. AMPS2012B Household (All Media and Products Survey conducted by the South African Advertising and Research Foundation) was used as the primary survey to extract data. AMPS is a continuously evolving survey of questionnaires and interviews of South African adults over the duration of the calendar year (all individuals 15 years and older) (South African Advertising Research Foundation, 2013). The survey uses “personal in-home interviews with thousands of people representative of the total South African adult population. In addition, there is a host of questions about... personal and household details” (South African Advertising Research Foundation, 2013). This sample population is then scaled up in line with population estimates to represent a realistic model of the South African population.

AMPS was used as it is a continuously evolving survey with up to date data that is

easy to extract and manipulate. Furthermore, it was decided to use the most common household structures across the entire population and not just across households who are covered by a medical scheme, which is what AMPS provided. This was done since this investigation was taken from the perspective of a *prospective* medical scheme member.

If XAYC is a household structure comprising of X adults and Y children then, AMPS data suggested that amongst all households and not just households with medical scheme cover, the most common family structures were 1A0C (18.84%), 1A1C (11.67%), 1A2C(10.31%), 1A3C(8.41%), 2A0C (7.79%), 2A2C (7.61%) and 2A1C (6.43%). For comparative ease it was decided to use the following family structures in this investigation: 1A0C, 1A1C, 1A2C, 2A0C, 2A1C, 2A2C. Households with more than 2 adults were not considered as the Income and Expenditure Survey 2010/2011(used to determine households propensity to spend on health) assumes that amongst households there are at most 2 income earners per family. 1A2C was used instead of 1A3C as this makes comparison with the 2A2C structure possible.

7.1.3 Propensity to Spend on Health

The Income and Expenditure Survey 2010/2011⁴³ (IES) was used to determine the households propensity to spend on medical schemes and to gauge how much of their income was spent on out-of-pocket payments (OOP) for healthcare. The IES was used as it measures, amongst other things, annual household consumption on health and the propensity of a household to spend on health. Furthermore, the IES was used by both Fish and Ramjee (2007) and Makofane (2009) to determine the proportion of income that families were willing to spend on healthcare.

According to the income distribution specified in the survey, the target population for this investigation (see section 7.1.2.1) lay roughly between the second and sixth deciles. This was found by comparing the income bands used in this project (deflated to March 2011 Rands to give R2 878.03 as the lower bound and R9 353.59 as the upper bound)

⁴³The income and expenditure survey collects income and expenditure information from households and identifies goods and services purchased by a household (Stats SA, 2012)

to the income deciles specified in the IES (see Table 1). The upper bound was then multiplied by 2 (to give R18 707.19), as the income bounds pertain to individual income while the IES distribution pertains to household income⁴⁴. The lower bound, however, was not multiplied by 2 as the lowest earning household will have only one income earner.

Table 1: Percentage distribution of annual household consumption expenditure by income decile

	Income Deciles										TOTAL
	Lower	2	3	4	5	6	7	8	9	Upper	
	2 271,50	4 543	7 215	9 886	15 444,50	21 002	39 051	57 099	57 100		
Out of pocket expenditure	1,6	1,5	1,3	1,4	1,4	1,5	1,5	1,6	1,5	1,4	1,4
Insurance connected with health	2	1,1	0,8	1,3	1,2	1,7	3,3	5,1	7,8	7,7	5,7
Percentage of income spent on health	3,6	2,6	2,1	2,7	2,6	3,2	4,8	6,7	9,3	9,1	7,1

Medical scheme contributions and medical insurance fell under miscellaneous expenditure in the IES (limiting the extent to which an accurate assessment of how much households were willing to spend on medical schemes alone, could be made) (Stats SA, 2012). Within the appropriate income bands this spending ranged from 2.1% of income to 3.6% of income with the average over all deciles equal to 7.1%. For this project it was decided to test three different propensities to spend on health, 2.6%, 7.1% and 10.0% of post-tax income. These propensities to spend on health were similar to those used by Makofane (2009) where he tested using 2.1%, 4.7%, 5% and 10% of the principal member's income.

The reason for testing three levels was to establish the interaction between propensity to spend on cover and income level with affordability, and how this changes as income and propensity increase. 10% was used as the upper threshold for households to spend on medical schemes and will be used as the cut off point for affordability (an approach echoed by Fish and Ramjee (2007) and Makofane (2009)). 2.6% was the average proportion

⁴⁴Household income is assumed to be the income of all those economically active and since we have at most 2 adults in each household, household income is assumed to be the income of the 2 income earners

spent within the income bracket and 7.1% was used since the IES estimates it to be the average amount spent on medical schemes over all households. Testing more than one level will also increase the sensitivity of the model, providing a more accurate picture of affordability.

“The IES classifies health expenditure as out-of-pocket expenditure by households” (Stats SA, 2012) and households in the income range determined above spent on average 1.4% of their income on out-of-pocket health care expenditure. For this investigation OOP payments were thus taken as 1.4% of the principal member’s income (a figure necessary for the modelling of tax).

7.1.4 Impact of Subsidies

7.1.4.1 Employer Subsidy

There has been little research done on the prevalence of an employer subsidy in the workplace. The majority of research into its use comes from studies done in 2005 (Old Mutual Healthcare Survey) and 2006 (LIMS process).

An Old Mutual Survey in 2005 found that “65% of employers offered a 50% subsidy and 15% offered a ‘sliding scale’ that decreased with income” (Old Mutual Actuaries and Consultants, 2005:20). The LIMS process also suggested using an employer subsidy of 50% after they investigated 40 companies, 36 of which indicated that they subsidise their employee’s medical scheme contributions. Of these 36, 58% said they offer an employee subsidy of 50%, 22% offered a two thirds subsidy and the rest of the companies offered a range of different subsidies (Broomberg *et al.*, 2006). Fish and Ramjee (2007) arrived at this same assumption. It was thus decided to use 50 per cent as one of the levels for an employer subsidy.

Many companies have moved towards a cost-to-company approach for financing medical schemes (Ranchod *et al.*, 2001). What this means is that employers are including an amount equal to the cost of medical scheme contributions into the actual salary package (SA Medical Aid, 2013). This has implications for affordability if we consider that medical scheme contribution increases have been increasing at a rate that far exceeds that of

average wage increases (McIntyre, 2010). Ranchod, McLeod and Adams investigated the change in employers' subsidies for workers back in 2001. While this was some time ago, their findings are still relevant today. In the 1990's it was commonplace for employers to offer a 50% subsidy or higher. Their findings showed that this was not the case anymore, with employers constantly seeking to minimise expenditure and hence contributions on behalf of their employees (Ranchod *et al.*, 2001). It was thus decided to also use a 0 per cent employer subsidy, to gauge the effect of no employer subsidy on affordability.

7.1.4.2 Tax Basis

As of 1 March 2012, the tax system pertaining to medical scheme contributions changed. A medical scheme fees tax credit in the form of a tax rebate was introduced that replaced the deduction from taxable income⁴⁵ allowed in respect of medical scheme contributions paid by a person.

The before-mentioned tax system was discontinued as it was found to be inequitable, in that it afforded a greater benefit to higher income taxpayers for necessary services like health, through the "effect of the progressive marginal rate structure" (National Treasury, 2011). The purpose of this reform was thus to achieve greater equality and fairness in the treatment of medical scheme contributions across income groups, with the ultimate aim of improving affordability of medical scheme contributions for lower income groups (SARS, 2013b).

The tax credit for the 2014/2015 tax year was R257 per month for the principal member and the first dependant and R172 for each additional dependant after that (SARS, 2014). Individuals qualified for a further deduction in taxable income in the form of a tax rebate of 25% of the amount by which all contributions as exceeded four times the annual tax credit plus all qualifying out-of-pocket (OOP) expenditures were greater than 7.5% of taxable income (SARS, 2014). Out-of-pocket expenditures were

⁴⁵The principle difference between a tax deduction and tax credit is that medical tax credits reduce a taxpayer's tax liability, whereas deductions reduce a taxpayer's taxable income (National Treasury, 2011)

also considered in this tax reform and individuals were able to claim for qualifying OOP expenditures. Furthermore, employers' subsidies were "included as fringe benefits in the hands of the employee" (National Treasury, 2011).

While the impact of this tax reform is not to be tested, all bases and assumptions are to be applied on a model that uses the new 2014/2015 tax credit. Furthermore, the methodology used in this investigation considered the net of tax position, after applying the assumptions mentioned above.

7.2 Modelling

Six family structures were tested on three different income levels, giving 18 benchmark families. For each of these constructed families a list of contribution rates was drawn for all 172 benefit options available in the current open scheme market.

The test for affordability was done on 6 different bases. Basis A assumed a propensity to spend on medical schemes of 2.6%, Basis B a propensity to spend on medical schemes of 7.1% and Basis C a propensity to spend on medical schemes of 10% (the cut off point for affordability). These three bases all assumed an employer subsidy of 50%.

Basis AA assumed a propensity to spend on medical schemes of 2.6%, Basis BB a propensity of 7.1% and Basis CC a propensity of 10% (again the cut off point for affordability). However, these three bases all assumed a 0% employer subsidy. Table 2 provides a summary of the bases.

Table 2: Summary of the bases that were used to test affordability

	<i>Income</i>	<i>Tax Credit</i>	<i>Propensity</i>	<i>Employer Subsidy</i>
Basis A	4760	No	2,60%	50%
	7090	Yes		
	10580	Yes		
Basis B	4760	No	7,10%	
	7090	Yes		
	10580	Yes		
Basis C	4760	No	10%	
	7090	Yes		
	10580	Yes		
Basis AA	4760	No	2,60%	0%
	7090	Yes		
	10580	Yes		
Basis BB	4760	No	7,10%	
	7090	Yes		
	10580	Yes		
Basis CC	4760	No	10%	
	7090	Yes		
	10580	Yes		

The net cost of each option was calculated as the annual contribution less the employer subsidy, less the annual tax credit and less the amount allowed as an additional tax rebate. The hurdle cost for each family was calculated as the annual income (post-tax) multiplied by the propensity to spend on medical schemes (the three propensities specified above). Where the net cost of each option was less than the hurdle cost the option was deemed affordable. A summary of the formula is outlined below.

Net cost of each option = Annual contribution- employer subsidy-annual tax credit- additional tax rebate

Hurdle Cost = Annual post-tax income * Propensity to spend

Option is affordable if Net cost < Hurdle Cost

The investigation counted all affordable packages for each of the constructed families.

7.3 Benefit Option Analysis

7.3.1 Eligible Benefit Options

A total of 118 benefit options (out of a possible 172 available in the market) were analysed for their benefit offerings. These 118 benefit options (See Appendix B for a full list of benefit options analysed) were offered by 11 schemes and made up 92.63% of all beneficiaries in open schemes (Council for Medical Schemes, 2014c). These schemes were chosen for analysis as they contained at least 30 000 beneficiaries and offered at least four registered benefit options- all other schemes not meeting these criteria were disregarded.

In South Africa, the regulator (the Council for Medical Schemes) divides medical schemes into the following categories by size of membership:

- Small- Between 2500 and 6000 beneficiaries
- Medium- Between Small and Large schemes
- Large- Over 30 000 beneficiaries

The criteria of analysing only large schemes was founded on the logic that comparing only large schemes would, perhaps, provide a more accurate comparison of benefit design; since, in the absence of some form of a risk-equalisation mechanism, these schemes would be competing on a more equal footing as they have a sustainable number of beneficiaries and hence a greater chance of “claims volatility tending to claims predictability” (Actuarial Society of South Africa, 2014:292).

In addition, the criteria requiring schemes to offer at least 4 benefit options was chosen so that the impact of different benefit designs within each scheme could be seen; for example, are the different benefit designs within each scheme catering to different segments of the population and hence are schemes using different designs to risk-select or ‘cherry-pick’ members?

7.3.2 Analysing Benefit Design

Whilst affordability was tested on 3 income levels and 6 family structures, the analysis of benefit design was restricted to a family with a single member and 1 child dependant (1A1C), with the principal member earning R10 580 per month. It is important to note, however, that most schemes cover the same benefits regardless of family size and merely create higher limits for each additional dependant included. Thus, although a 1A0C family structure was the most common family structure (with 18.84% of all families having this structure) identified by Kaplan (2013), a 1A1C family structure was used (the second most common family structure, with 11.67% of all families having this structure), in order to gauge the impact of additional dependants on benefit design.

An income level of R10 580 was used to analyse benefit design since it was the income level identified by Kaplan (2013) that was able to afford the most number of benefit options- the lack of affordability over the other income levels meant that the risk of not being able to contextualise affordability and benefit design ran too high.

Scheme brochures were obtained for each benefit option and subsequently analysed. The benefits offered under each option were classified and recorded under five main categories. These categories were then broken down into further sub-categories to capture all benefits on offer and associated conditions⁴⁶ respectively. The categorisations that were made are outlined below:

⁴⁶'conditions' here denotes terms of usage and any limits, risk-management or managed care techniques employed

<i>Benefit Category</i>	<i>Benefit Sub-category</i>
Day-to-day Benefits	Extent and form of day-to-day benefit coverage
Hospital Benefits	Limits applicable to in-hospital benefits
	In-hospital specialist reimbursement rate
	Choice of hospital
	Co-payments for hospital admissions
	Co-payments for specific in-hospital procedures
Medicine Benefits	Coverage for chronic conditions
Cancer Benefits	Oncology limits applicable
	Choice of provider
	Provision of high cost oncology medicine
Additional Benefits	Coverage for in-room procedures
	Post hospital benefit
	Preventative screening tests

Figure 5: The grouping and categorisation of the core aspects of benefit design

In order to assist with benefit comparison across all options and schemes, an Excel workbook was compiled which captured all essential features of the benefits outlined above. This entailed:

1. Entering all information on the benefits offered under each aspect of benefit design outlined above;
2. Within each subcategory (for example, “Choice of hospital”), all possible benefit offerings across all options were identified;
3. In order to assist with comparison, homogenous characteristics identified across the offerings were grouped together into further categorisations (for example, all options

offering “cover at any hospital of choice” were grouped, options offering “cover within a PPN only” were grouped, options offering “cover within state facilities only” were grouped, etc.);

4. The homogenous groupings were then assigned a unique identifier (for example, all options offering “cover at any hospital of choice” were assigned a 1, options offering “cover within a PPN only” were assigned a 2, options offering “cover within state facilities only” were assigned a 3, etc.);
5. Once this process was completed for all possible offerings under all categories and sub-categories identified in Figure 5 above, a count of the unique identifying numbers for each sub-category was done, i.e. all the 1’s, 2’s and 3’s assigned were counted;
6. The results found were analysed in order to get a sense of the offerings under each option and plan type.

The process above was, however, limited in that it was a simplification of a complex and intricate environment that required in depth analysis and review. As such, further analysis through observation of each benefit option was done by looking at the schemes’ brochures. Any outliers or other findings identified were included in the results.

7.4 Contextualising Benefit Design and Affordability

The affordability of all 118 benefit options, analysed for their benefit design, was tested using the identical methodology described in section 7.2. Importantly, for simplicity, it was decided to test affordability on one family structure (1A1C) and one income level (R10 580) only. Two levels of employer subsidy (0% and 50%) were, however, tested. Contextualisation was done by observing the benefits offered by those options found to be affordable as compared to those options found to be unaffordable.

8 Results

The 118 benefit options analysed, were offered by 11 medical schemes, administered by 7 administrators and had 4 490 063 beneficiaries under their administration (representing 92.63% of the open-scheme market). Discovery Health Medical Scheme was the largest scheme, with 57.1% (2 564 313) of all beneficiaries analysed. This was followed by Bonitas Medical Fund with 14.6% (650 600 beneficiaries). These two schemes stood out in terms of market share, with Medihelp coming in third with 5% of the market (220 710). Appendix A contains a full list of all schemes analysed together with their corresponding administrator and market share of beneficiaries analysed. The large size of Discovery Health Medical Scheme is demonstrated when looking at their 5 largest options (from largest to smallest): Classic Saver (494 169 beneficiaries); Classic Comprehensive (421 848 beneficiaries); KeyCare Plus (378 568 beneficiaries); Coastal Saver (377 795 beneficiaries); Classic Priority (237 210 beneficiaries). Each of these options individually, contained more beneficiaries than the sum of beneficiaries in the third largest medical scheme.

In order to overcome the complexity associated with the benefit design environment and to facilitate comparison, options were grouped according to plan type (see section 6.5). 29% of options (34) were Hybrid plans, 22%, (26) were Hospital plans, 19% (23) were New Generation plans, 17% (20) were Traditional plans and 13% (15) were Networked plans. In addition, New Generation plans made up 29% of the beneficiary market share across all options, followed by Hybrid plans with 27%, Traditional plans with (18%), Hospital plans with (13%) and finally Networked plans with (13%) of the market share. Interestingly, despite Hospital plans making up 22% of all options available, they only catered to 13% of the market.

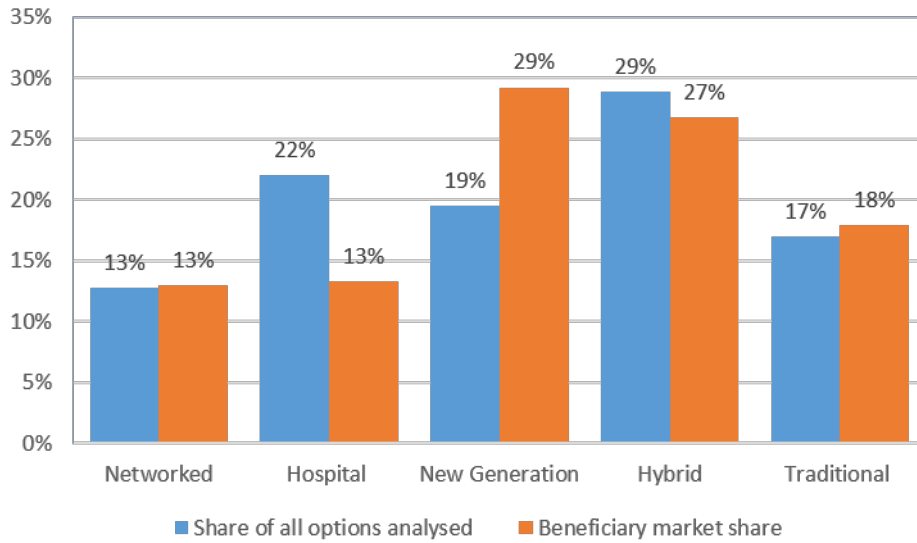


Figure 6: Share of options analysed versus beneficiary market share by plan type

The average beneficiary age varied considerably across the plan types, with Networked plans having the lowest average beneficiary age (34.2) and Traditional plans having the highest average beneficiary age (42.6). This trend was also seen upon examination of the pensioner ratio⁴⁷ across options, with Networked plans having the lowest average pensioner ratio (9.6%) and Traditional plans having the highest average pensioner ratio (18.9%) (see Figure 7).

⁴⁷Proportion of members of medical schemes who are 65 years or older (Health Systems Trust, 2014)

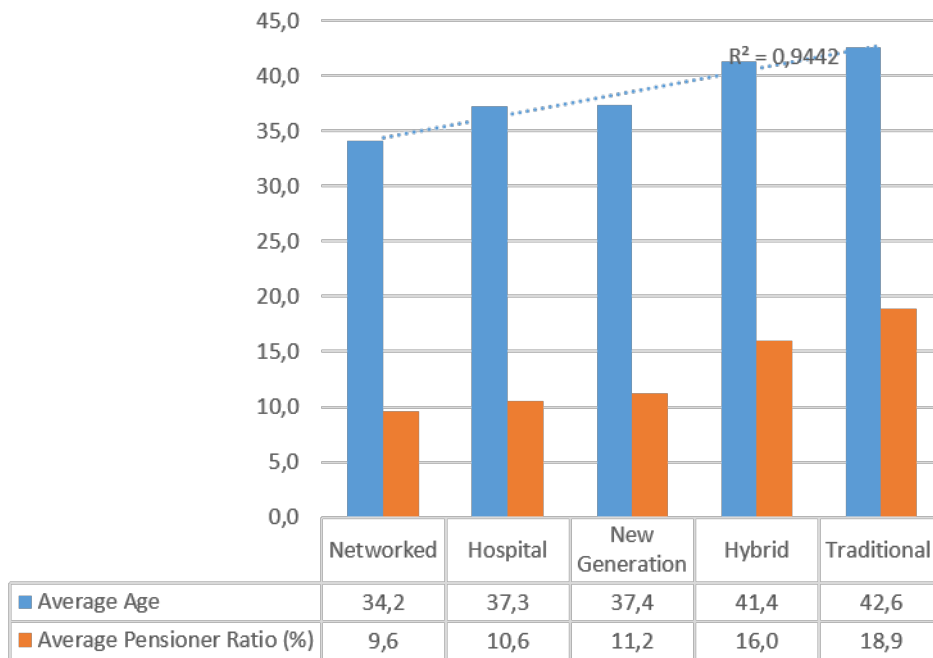


Figure 7: Average beneficiary age and pensioner ratio comparison across the plan types

However, since Figure 7 represented unweighted averages, the results were potentially distorted by a benefit option that had a small number of beneficiaries but a higher average beneficiary age and pensioner ratio. Thus in order to get a more accurate picture of the distribution of ages and pensioner ratios across the plan types, the averages were weighted by the number of beneficiaries within each option. The results are displayed in Figure 8.

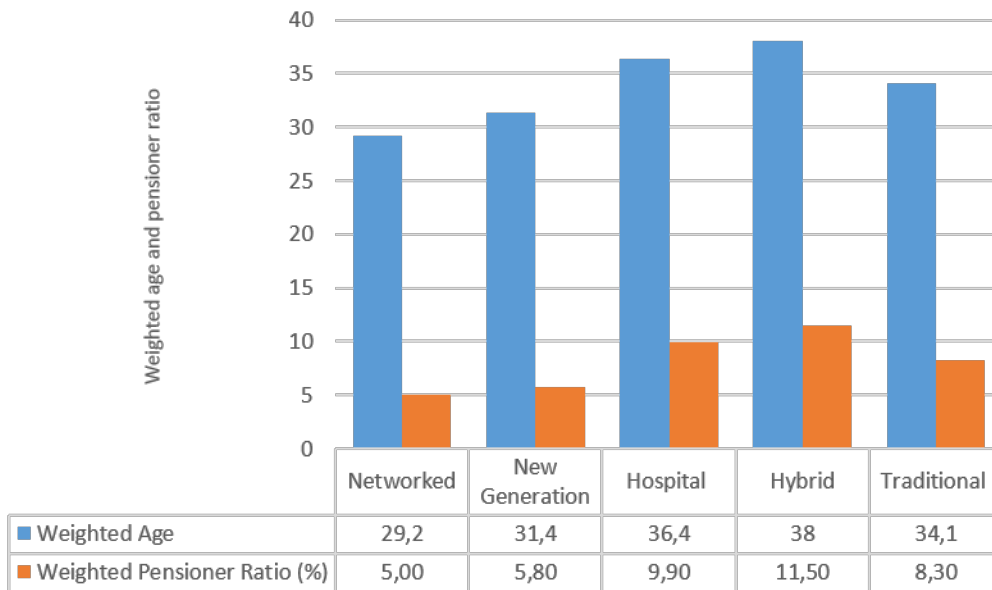


Figure 8: Weighted average beneficiary age and pensioner ratio across the plan types

The weighted analysis shows a vastly different picture to that of Figure 7. The previous results showed that Traditional plans had the highest average beneficiary age and pensioner ratio, however, now both Hospital and Hybrid plans have higher average beneficiary ages and pensioner ratios. Furthermore, the average beneficiary age of New Generation plans dropped by 6 years, with Networked and New Generation plans now displaying the lowest average beneficiary age and pensioner ratio. The large disparity between the weighted and unweighted analysis demonstrated that there were benefit options, within each plan type, with a smaller number of beneficiaries but significantly higher age and pensioner profiles that were bringing up the averages. Whilst a full statistical analysis of the demographic differences between each plan type was not within the scope of this paper, these findings appear to illustrate that there were observable differences in the demographic characteristics across the options and plan types.

Figure 9 provides an overview of the contribution rates across all plan types. Hospital plans appeared to have, on average, the lowest monthly contribution rates, whilst Hybrid and Traditional plans appeared to have the highest average monthly contribution rates. Networked plans were found to have lower average monthly contribution rates than New

Generation plans. The presence of EDOs (see section 5.2.1) might provide a possible explanation for this result. However, it was found that of the 30 EDOs present (within the 118 options), only 10% of them were classified as Networked plans. The reason for this, was that these options provided day-to-day cover within a Network of providers, whereas the 90% of EDOs not classified as Networked plans, either did not provide DtD cover or were not restricted to providers for their DtD cover. As such, it is important to emphasize now, that the plan types were named for the way in which they cover DtD benefits and not in-hospital benefits.

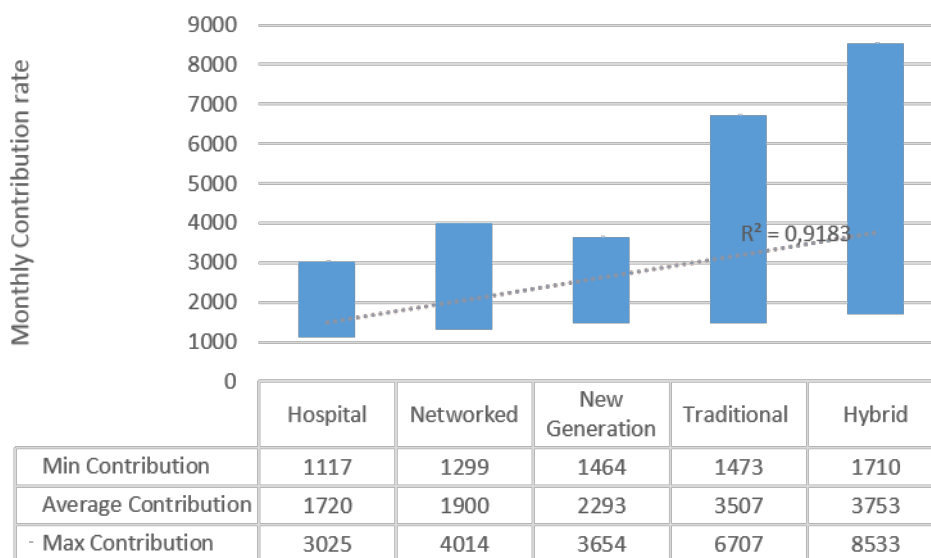


Figure 9: Variation in monthly contribution rates across plan types

There was a 10% increase in the average contribution rate between Hospital and Networked plans. A 21% increase in contribution rates was observed between Networked and New Generation plans, 53% between Traditional and New Generation, with only a 7% increase between Hybrid and Traditional plans. Furthermore, there was an 118.2% increase in contribution rates between the cheapest plan type (Hospital) and the most expensive plan type (Hybrid).

In addition, there existed a broad range of contribution rates within each plan type-evidenced by the fact that the lowest Hybrid option’s contribution rate was R1 710

and the highest Hybrid option's contribution rate was R8 533 (a difference of R6 823). The range of contributions was much lower in Hospital, Networked and New Generation plans, evidenced by the fact that the contribution range within New Generation plans was R2 715 (R3 654 -R1 464). It is hoped that an analysis of the benefit designs of each option, might provide a possible explanation to for these differences.

However, once again, the contribution analysis might be distorted as it did not take account of the number of beneficiaries within each option. Consequently a weighted analysis (by the number of beneficiaries within each option) of the differences between contribution rates across the plan types was carried out. The results are displayed in Figure 10.

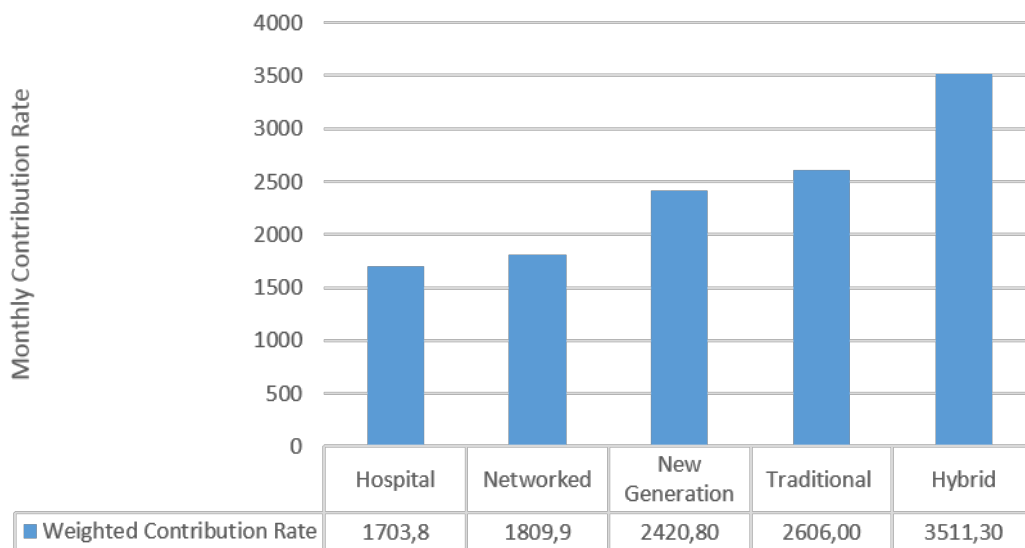


Figure 10: Weighted average monthly contribution rates across the plan types

The average contribution rates for Hospital and Networked plan types did not change significantly. The weighted contribution rate for New Generation plan types increased by R127.8 to R2 420.8. The most dramatic difference could be seen when looking at Traditional plan types- the weighted contribution rate was R901 lower than the average observed in Figure 9 (from R3 507 to R2 606).

Furthermore, combining the age analysis with the contribution analysis shows that Networked plans appear to be catering to the young and healthy who have a greater

need for DtD cover, whilst Hospital plans appear to be catering to the elderly who have a greater need for in-hospital cover. Traditional plans appear to be offering a broad range of products that cater to both the young and healthy, as well as the old and sick. In addition, despite New Generation plans having the second lowest weighted average beneficiary age, they have higher contribution rates than both Networked and Hospital plans which might be explained by the presence of MSAs that are raising the gross contribution rates. Hybrid plans had both the highest weighted age and contribution profile, indicating that these options should have the most extensive benefits for both in and out-of-hospital cover where the benefits are catering to the older segments of the population.

A 0.67 correlation coefficient was observed between the average beneficiary age and contribution rates of the benefit options, demonstrating that options with higher average beneficiary ages have higher average contribution rates- corroborating the findings above. The results of these analyses appear to suggest that there are observable differences between contribution rates as well as beneficiary characteristics between plan types. This points to the suggestion that the benefits offered are likely to differ significantly as well.

8.1 Day-to-Day Benefits

Day-to-Day (DtD) benefits provide cover for those expenses incurred out-of-hospital, for example, physician and specialist consultations, dentistry, optometry and pathology. Each benefit option will provide different DtD cover according to its own set of protocols and guidelines.

In order to facilitate comparison, each benefit option was classified into one of the following categories:

- Options that offered no DtD benefit (Hospital plans);
- Options that made use of a medical savings account (MSA) to pay for DtD claims (New Generation plans);

- Options that placed an annual monetary limit on DtD claims, provided these benefits were provided in a PPN (Networked plans);
- Options that made use of both a MSA and a DtD risk benefit to cover these claims (Hybrid plans);
- Options that made pure use of a DtD risk benefit to cover these claims (Traditional plans).

Owing to the presence of PMBs, no medical scheme can provide no coverage for DtD claims. Schemes must pay the cost of certain consultations and diagnostic tests associated with the 25 conditions on the Chronic Disease List. Schemes will, however, require both pre-authorisation and the correct clinical protocols to be followed before coverage can commence. The majority of schemes do not make a mention of this fact in their scheme brochures and merely state, for example, that “this plan does not offer this benefit” (Discovery Health Medical Scheme, 2014b).

Across all options, 21% (25 options) offered no DtD coverage, 34% (40 options) offered a benefit that was paid from available funds in the MSA, 13% (15 options) offered a limited monetary benefit, 15% (18 options) made use of both an insured DtD benefit and a MSA and 17% (20 options) had a dedicated DtD risk benefit that was used to cover claims.

All Networked plans made use of a limited monetary amount to pay for DtD claims, on condition that these services were obtained from a PPN. This limited monetary amount was only applicable for certain benefits, such as GP consultations, optical, dental, radiology and day-to-day medicines included on the scheme’s medicine list. Furthermore, visits to a provider outside of the network resulted in additional co-payments or a reduction in how much the scheme was willing to cover (for example, only covering GP visits at 50% of the scheme’s health rate). As an illustration, the Networked plan with the highest beneficiary market share, Discovery Health’s KeyCare Plus option, required its members to visit a GP on the KeyCare GP Network (1 out-of-network GP visit was allowed per beneficiary per annum). Blood, urine and other fluid tissue tests were also covered in the KeyCare Network. The scheme covered medicine, if the medicine was on

the Discovery Health medicine list and was prescribed by a GP in the KeyCare network. Dentistry consultations, fillings and tooth removals were also covered at a dentist in their network. Each beneficiary was additionally allowed 1 eye-test per year and could choose glasses provided they were on a list specified (Discovery Health Medical Scheme, 2014e).

All Hospital plans, barring 1 option (Fedhealth Ultima 200 Savings Only), excluded coverage for DtD claims all together. In addition, this 1 option made use of a very small savings account, with only a R264 annual benefit for a 1A1C family. This small savings account was the only benefit available for DtD expenses and once this amount was depleted the individual had to cover their DtD claims themselves. Whilst an option with a savings account would generally not be included as a Hospital plan, its small size and limited DtD benefit did not justify its inclusion into another plan type.

All 20 Traditional plans made exclusive use of available funds in their insured DtD benefit to cover these claims. The amounts covered varied depending on the number of dependants included on the option. Once these funds were depleted, the member or beneficiary was required to pay for these claims themselves. 4 Traditional plans did, however, make use of an Above Threshold Benefit. This meant that once the member had used up available DtD risk benefits they would enter a self-payment-gap period. If the member exceeded the threshold of this self-payment-gap period, they would again receive cover from risk benefits. This ATB was limited, and ranged from R8 900 to R19 900 per beneficiary, per annum. The Bonitas Standard option had the highest beneficiary market share of all Traditional plans (341 435 beneficiaries). It was thus decided to use this option as an example of the benefits offered on a Traditional plan.

Twelve GP consultations per annum were allowed- 1 out-of-network visit per beneficiary or 2 visits per family (to a maximum of R800 coupled with a 20% co-payment) were allowed. Acute medication was covered provided it was included on Bonitas's medicine list. Over-the-counter medication was covered but limited to R205 per beneficiary per annum and a maximum of R70 could be claimed at any one event. Three specialist consultations were covered but limited to R2 400 per beneficiary per annum. All other benefits, such as radiology or pathology were only allowed upon referral from a GP

(Bonitas, 2014).

All 23 New Generation plans made exclusive use of a MSA to cover DtD claims. Whilst medical schemes market the existence of a medical savings account as a benefit to the consumer, in reality, MSAs merely represent consumers using their own money to pay for medical services and medicines that they need. Despite this fact, their popularity was evident, with 57 out of the 118 benefit options making use of a MSA. The large variation in contributions, coupled with the fact that no regulations exist that dictate how much schemes must contribute to a MSA⁴⁸, means that there exists a large variation in the level of MSA offered. Over all options offering MSAs, the maximum per annum savings level for a 1A1C family was R14 628 and the minimum was R264. This large variation adds to the difficulty and complexity that consumers face in choosing an appropriate option.

Discovery Health's Classic Saver option had the highest market share of any option with 494 169 beneficiaries. This option allocated 25% of each member's monthly contribution to the member's savings account. This option had an additional benefit, called the "Insured Network Benefit" (INB). DtD medical expenses (visits to healthcare professionals, radiology and pathology) were covered from the member's MSA, as long as money was available. Once the member's MSA was depleted, Discovery allowed additional, limited, visits to a GP on their network- the member then had to cover all other DtD expenses themselves. Six consultations to a GP were allowed per family per annum. Eight antenatal consultations and two 2D scans were also covered from the MSA. Importantly, the existence of funds in the MSA meant that members were allowed to visit any provider, however, only once funds were depleted in the MSA did the member have access to the INB and was required to visit a network GP- hence this option was not classified as a Networked plan.

All 34 Hybrid plans made use of a combination of a dedicated MSA and risk benefit to cover DtD claims. However, the form of this benefit differed across the options. Ten

⁴⁸The only regulation that exists at present, is that members of schemes are only allowed to contribute a maximum of 25% of gross annual contributions towards a MSA

options covered certain benefits from available funds in the MSA and other benefits from available funds in DtD risk benefits. The remaining 24 options first made use of a MSA to cover DtD benefits. If these benefits were depleted, the member moved into a self-payment-gap period. If the member exceeded the threshold in the self-payment-gap they then moved into their ATB.

Discovery Health's Classic Comprehensive option had the highest market share of all Hybrid plans, with 421 848 beneficiaries. With this option, the member's DtD benefit consists of a MSA with an annual value of R11 088 for the main member plus R2 208 for a child dependant (25% of gross contribution); once the MSA was depleted an INB as described above came into play; and finally once the threshold level was reached (R12 590 for the main member plus R2 380 for a child dependant) an unlimited ATB kicked in. When the member claimed, Discovery added up the following to get to the Annual Threshold:

- For specialists they had a payment arrangement with, they added up the Discovery Health Rate. For specialists they did not have a payment arrangement with, they added up 100% of the Discovery Health Rate;
- For GPs and all other healthcare services, they added up 100% of the Discovery Health Rate;
- They added up 100% of the Discovery Health Rate for medicine on their list. For medicine not on their list, they added up to 75% of the Discovery Health Rate for medicine;
- Over-the-counter medicines, vaccines and immunisations did not add up to the Annual Threshold or get paid from the Above Threshold Benefit.

(Discovery Health Medical Scheme, 2014a)

Over all options, 75% (89 options) did not offer an Above Threshold-Benefit. The 25% (29) of options that did offer this benefit were more expensive options having an average monthly contribution rate of R3 991.83 compared to R2 743.16 over all options.

Table 3 shows the number of options that contained an ATB across the different plan types.

Table 3: The number of options containing an ATB across the different plan types

<i>Plan Type</i>	<i>Number of options containing an ATB</i>
Networked	0
Hospital	1
New Generation	0
Hybrid	24
Traditional	4

One Hospital plan contained an ATB. Since this option contained no day-to-day benefit, the existence of an ATB indicates that some level of DtD benefit coverage (in this case an unlimited ATB) came into existence if the member exceeded a defined threshold level (in this case R11 350 per annum). In addition, of the 29 options that offered ATBs, 15 options offered unlimited ATBs with the remaining 14 options having varied levels of an ATB (ranging from R8 500 to R19 900 per annum). It is important to recognise that even though some benefits stated an unlimited ATB, many benefit options placed sub-limits within certain benefit categories and restricted the member to a PPN (the use of a non-PPN necessitated a co-payment).

8.2 Hospital Benefits

96% of options (113) offered unlimited⁴⁹ hospital cover. Five options (4%) placed an overall annual limit on hospital coverage, all of which were Networked plan types which required the member to obtain services from a hospital on the schemes' network.

Whilst schemes may have stated that they offered unlimited hospital benefits, there were certain procedures that generally had limits in place (despite stating 'unlimited

⁴⁹Unlimited means that no overall annual limit (benefit amount) or period (e.g. a 3-year cycle) applies to the specific service/procedure. This does not refer to the number of days spent in hospital or the number of procedures applicable. (Medihelp Medical Scheme, 2014)

cover’) including, inter alia:

- Cochlear implants, auditory brain implants and processors;
- Hip, knee and shoulder joint prostheses;
- Mental health benefit;
- Alcohol and drug rehabilitation;
- Compassionate care;
- Chronic dialysis.

In order for the member to be eligible for coverage under any of the 113 options offering unlimited hospital benefits, they had to meet a number of qualifying conditions. All options required pre-authorisation for hospital admissions. Members were required to obtain authorisation at least 48 hours before being admitted (some schemes recommended as much as 14 days prior-notice) or within 2 working days after admission or treatment in an emergency. In addition, members were required to visit their GP or specialist before obtaining authorisation so as to see if admission was medically necessary. Failure to obtain pre-authorisation resulted in claims not being paid or a reduction in the amount schemes would normally cover.

All options that made use of a PPN to provide hospitalisation services (see page 98) required the member to obtain services inside the network. Failure to obtain services from a PPN resulted in a number of ‘penalties’: Certain schemes would only reimburse up to a percentage of their individual scheme’s rate (for example, 50% of the scheme’s health rate) upon voluntary use of a non-PPN facility. Furthermore, if the provider charged above the scheme’s rate, the member would be responsible for the difference between what the provider charged and the schemes rate. Other schemes made use of deductibles which they required to be paid before cover could commence. Others disqualified the member from any cover altogether.

As an illustrative example, consider the following options: Discovery's Coastal Core Option (biggest market share of any Hospital plan), Discovery's Classic Comprehensive option (biggest market share of any Hybrid plan), Discovery's KeyCare Plus option (biggest market share of any Networked plan), Discovery's Classic Saver option (biggest market share of any New Generation plan) and Bonitas's Standard Option (biggest market share of any Traditional plan). On Discovery's Coastal Core option, the member had to visit a hospital on the Coastal network of hospitals- "If you don't use a coastal hospital, we pay up to a maximum of 70% of the hospital account and you pay the difference" (Discovery Health Medical Scheme, 2014b). To simplify the analysis, all Discovery Health beneficiaries on any option (excluding KeyCare options) had to follow the following process before hospital admission:

- The beneficiary had to see their doctor- the doctor would then decide if it was necessary for the beneficiary to be admitted (i.e. gatekeeping);
- The beneficiary then had the choice of which hospital they wanted to be admitted to;
- The beneficiary needed to obtain authorisation for hospital admission at least 48 hours before they went in;
- Failure to obtain authorisation before admission meant that Discovery would only pay 70% of the costs they would normally cover.

On Discovery's KeyCare Plans, the beneficiary had to go to a hospital in the KeyCare Hospital Network. "If you don't use a KeyCare Hospital Network for planned admission, you will have to pay the claims yourself" (Discovery Health Medical Scheme, 2014b).

On Bonitas's Standard option the following requirements applied: "for your hospital admission to be covered, you must pre-authorise any planned hospital admissions at least 48 hours in advance. Failure to authorise a procedure will result in no benefits being paid. In an emergency, authorisation must be applied for within two business days after treatment" (Bonitas, 2014).

In addition to limits being placed on hospital benefits, all schemes reimbursed providers (hospitals and healthcare professionals) at their own scheme's rate. An important note here, is that healthcare professionals and hospitals are billed separately and reimbursed at different rates. Until 2010, the National Health Reference Price List (NHRPL) was a list of benchmark tariffs (or rates) published by the National Department of Health and used by medical schemes to set their reimbursement rate. In 2010 the NHRPL was declared unlawful.

This ruling applied to the latest published NHRPL at the time, which was the 2006 NHRPL. All subsequent NHRPL publications were ruled invalid. However some schemes still use the 2006 NHRPL to set their rates (each using different inflators each year). This ruling thus means that medical schemes needed to set their own rate. This rate determines the amount the scheme will pay for a particular benefit category, such as consultations, procedures and examinations. It's important to note that this is an indication of the amount payable, but may not be the rate at which healthcare providers charge. Furthermore, hospital tariffs are not covered by the NHRPL.

Since healthcare professionals are entitled to set their own rate, some of them will charge the scheme's rate whilst others may charge more. In cases where their rate was more than the scheme's rate, the member would be required to pay the difference between the scheme's rate and the amount that the healthcare provider charged. Options that had a MSA, and when the balance in the MSA was positive, then the difference would generally be paid from these funds. Where options contained an ATB, only the scheme's rate would typically accumulate to the threshold level resulting in an increase in the members' self-payment-gap.

As an illustrative example, under Discovery's Coastal Core option, if the member visited one of the hospitals on the scheme's network, they were reimbursed at 100% of the Discovery Health rate for specialist, GP and other healthcare professional services. Under Discovery's Classic Comprehensive option, "We pay for specialist claims up to 200% of the Discovery Health Rate from your Hospital Benefit as long as their accounts are part of an approved hospital admission. If your Medical Savings Account pays out

at cost, we pay the full amount from your available Medical Savings Account and add up to 100% of the Discovery Health Rate to your Annual Threshold” (Discovery Health Medical Scheme, 2014a). Under Bonitas’s Standard option, major medical expenses were covered at 100% of the Bonitas rate (Bonitas, 2014).

The reimbursement rate for healthcare professionals providing treatment for authorised hospital admissions (hereafter referred to as the ‘specialist reimbursement rate’) ranged from 100% of the scheme’s rate to 300% of the scheme’s rate. 65% of all options reimbursed specialists at 100% of their schemes rate, 31% reimbursed at a rate between 150% to 250%, with only 4% having reimbursed at 300% of the scheme’s rate (the remaining option’s reimbursement rate was spread thinly over the entire range). Figure 11 shows a breakdown of the specialist in-hospital reimbursement rate by plan type.

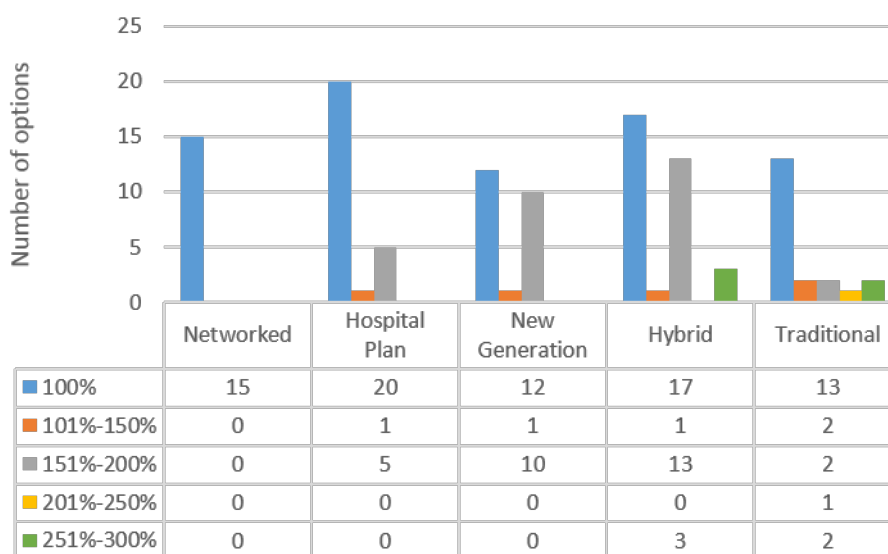


Figure 11: The number of options reimbursing at the different specialist in-hospital reimbursement rates by plan type

Hybrid and Traditional plans (found to have the highest average monthly contribution rates) appeared to reimburse specialists at the highest rate with 9% and 10% of their options reimbursing specialists at 300% of their scheme’s rate. In contrast, Networked plans (found to have the second lowest average monthly contribution rate) all reimbursed

specialists at 100% of their scheme's rate. A specialist reimbursement rate of 100% was the mode across all plan types (i.e. more than 50% of options reimbursed specialists at this rate). A high number of New Generation plans (43%) reimbursed specialists at a rate between 151% and 200%. This could potentially be explained by the fact that New Generation plans are providing less DtD coverage owing to the existence of a MSA, freeing up space to provide more comprehensive in-hospital coverage.

It is important to emphasise that an in-hospital specialist reimbursement rate of 100% for hospitalisation on one scheme might not equate to an in-hospital specialist reimbursement rate of 100% on another scheme. However, the National Health Reference Price List described in section 3 was generally used as a benchmark for a large number of schemes, which made comparison acceptable⁵⁰. In addition, whilst these rates are the one's marketed to consumers, many schemes reimbursed differently for certain procedures (for example, in 2014, Keyhealth medical scheme reimbursed GP consultations at a tariff of R299.50 whilst Liberty medical scheme reimbursed at a tariff of R355.70 for GP consultations (ASAIPA, 2014)).

There were three choices on offer with regards to selection of a hospital. 59% or 70 options allowed members to visit any hospital of their choosing, 39% (46 options) made use of a network of hospitals and 2% (2 options) required members to visit a state hospital. Figure 12 provides a breakdown of choice of hospital by plan type.

⁵⁰It is important to note that since the NHRPL was discontinued in 2010, many schemes have simply applied increases to the NHRPL to bring them in line with current Rand amounts. It is these increased NHRPL figures that are being referred to here

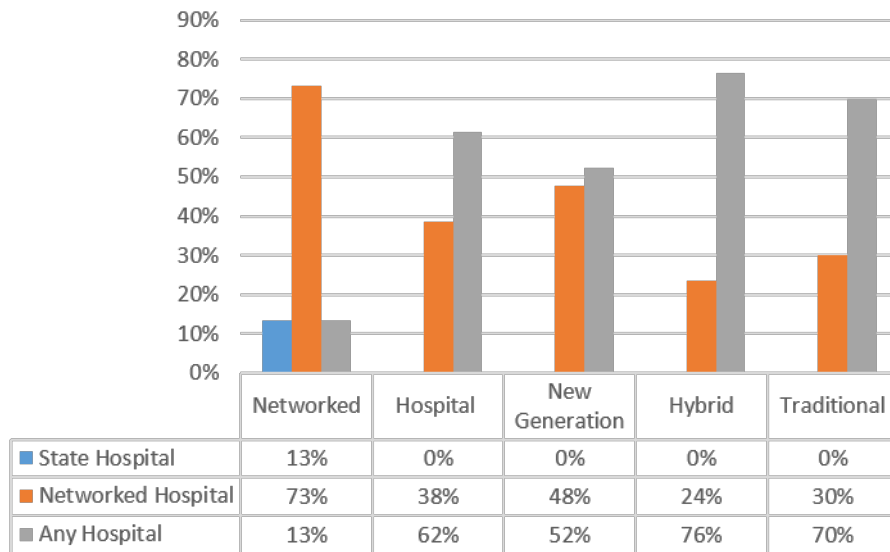


Figure 12: Proportion of options within each plan type that made use of the different hospital networks

Two Networked plans allowed their members to visit any hospital, which at face value might appear contradictory. However, these benefit options were classified as Networked as they made use of a network for their members’ primary care visits (DtD benefits). Two Networked options also made use of State facilities to provide their member’s hospital services. These two options (Discovery’s KeyCare Access option and Momentum’s Ingwe Hospital State option) offer unlimited cover for emergencies, trauma and childbirth in the schemes’ network of private hospitals. Other conditions (for example, cancer conditions included in the PMBs) were covered in a contracted network of state facilities. Despite their use of private hospitals for a number of procedures, their use of some form of State facility justified their separate classification.

Ten Hospital, 11 New Generation, 8 Hybrid and 6 Traditional plans made use of a contracted network of private hospitals. The remaining options under each plan type allowed their members freedom of choice in choosing a hospital.

No upfront payments for hospital admissions were required except in circumstances where the beneficiary voluntarily obtained services outside the scheme’s network. However, upfront payments were necessary for certain procedures- for example the Fedhealth

Ultimax option had a co-payment of R3 170 for extraction of wisdom teeth and a co-payment of R1 900 for an Appendectomy (Fedhealth, 2014).

All options that made use of a network to provide hospital services required members to pay a co-payment or an up-front payment for voluntary use of a hospital outside the network. These co-payment amounts ranged from a fixed amount per event (ranging from R1 000 per event to R8 000 per event), to a percentage of the elective procedure⁵¹ being performed (ranging from 20% to 30% per procedure). In addition, certain options only required a co-payment on the use of a non-PPN hospital for certain procedures; all other procedures not specified were covered without a co-payment. Other options precluded cover all-together if the member obtained services outside of the hospital network; the member was then required to pay the full cost of the procedure or stay themselves.

As an illustration, consider the following examples:

- On Discovery Health’s options, the following applied for hospital admission for a CDL condition: “Where a member voluntarily uses a non-DSP we pay at 80% of the Discovery Health rate or the health plan entitlements, subject to benefits. The co-payment which the member is liable for is equal to 20% of the Discovery health rate and any amount the provider charges above that rate” (Discovery Health Medical Scheme, 2014d).
- Discovery’s Classic Delta Comprehensive option stated the following: “for planned admissions outside of the Delta Hospital Network, an upfront payment of R5 950 must be paid to the hospital” (Discovery Health Medical Scheme, 2014b).
- Liberty’s Hospital Select option stated the following: “Any planned admission to a hospital outside the Liberty Network (or Designated Service Provider (DSP) in the case of a PMB condition) is subject to a co-payment of R8 000” (Liberty Medical Scheme, 2014).

⁵¹An elective procedure refers to any procedure that is non-essential and not life threatening, and which is opted for by a patient, for example, a hip replacement.

- On Momentum’s Ingwe options “If you choose Ingwe Network hospitals as your preferred provider for Major Medical Benefits and do not use this provider, you will have a co-payment of 30% on the hospital account” (Momentum Health, 2014).
- Discovery’s KeyCare Core option stated the following: “If you do not use hospitals in your plan’s networks, you will have to pay all costs” (Discovery Health Medical Scheme, 2014b).

Co-payments for specific in-hospital procedures, either in a hospital or day-clinic, existed in 79% of options (93), with the remaining 21% (25) of options not requiring a co-payment for any specific procedures. The following procedures often required a co-payment:

- Endoscopic investigations (gastroscopy, colonoscopy, sigmoidoscopy, hysterectomy and proctoscopy);
- MRI and CT scans;
- Joint replacements and prostheses; and
- Laparoscopic procedures.

Every benefit option had its own set of rules with regard to these co-payments, which made analysis and comparison a highly complex task and a full comparison of these co-payments did not fall within the scope of this paper. However, for comparative purposes a broad classification of ‘Yes’ and ‘No’ for the existence of a co-payment for specific procedures was applied so that comparison across plan types could be made. Table 4 illustrates the findings.

Table 4: The existence of a co-payment for specific in-hospital procedures

	Yes	No
Networked	5	10
Hospital	26	0
New Generation	22	1
Hybrid	26	8
Traditional	14	6

33% of Networked plans, 100% of Hospital plans, 96% of New Generation plans, 76% of Hybrid plans and 70% of Traditional plans, required co-payments for specific in-hospital procedures. It thus appeared as though Networked plans offered the most comprehensive benefit for this aspect of benefit design- despite the fact that one might expect the more comprehensive and hence more expensive options (Hybrid and Traditional plans) to have a lower proportion of options containing co-payments. One might argue that this result is indicative of the target market for Networked plans (typically lower income ‘blue collar’ workers). These individuals cannot afford the normal level of co-payments used. Another possible explanation is that the use of co-payments is a highly effective tool that schemes employ to prevent anti-selection. As an illustration, Networked plans are the cheapest (on average) and have the lowest age profile of all plan types. As such, one might expect the younger and healthier individuals to join these plans. These younger individuals have less need for in-hospital cover and as such the scheme does not need to employ as many co-payments for specific procedures. In contrast, the more comprehensive plans need to employ more co-payments to prevent anti-selection by the elderly and more ill.

While the aspects above represent the primary hospital benefits offered, certain procedures, medicines or new technologies are covered but need separate approval while you are in hospital. This paper did not explore these additional benefits.

In addition, the findings above represent a simplified view of reality in order to facilitate comparison. As such, it is important to remember that each scheme as well as benefit option applied their own rules, limits, clinical guidelines and policies, which had to be followed in order for claims to be paid- the scope of this paper does not enable a full

analysis of these intricacies.

8.3 Medicine Benefits

In this dissertation, medicine benefits refers to the chronic diseases and prescribed medication that the scheme is willing to pay for. Before continuing, it is important to draw a distinction between ‘Chronic’ and ‘Acute’ medication. Acute medication refers to the type of medicines your doctor will prescribe if the medicine is intended to treat a short-term illness (for example, if you developed a throat infection that required a course of short-term antibiotics for treatment). Chronic medication is taken to treat a long-term condition on an ongoing basis, for example, Asthma, Hypertension and HIV/AIDS.

The following aspects of chronic benefits included in benefit design were examined:

- The number of chronic conditions covered by the benefit option;
- Whether or not the benefit option paid for high cost specialist medicine;
- The different formularies utilised by medical schemes/options.

It is important to remember that all schemes are required by legislation to cover the diagnosis, treatment and care costs of 25 chronic conditions as specified in the PMBs’ Chronic Disease List (CDL). The diseases included in the CDL were chosen as “they are the most common, they are life-threatening, and are those for which cost-effective treatment would sustain and improve the quality of the member’s life” (Council for Medical Schemes, 2014b:1). Importantly, a medical scheme does not have to pay for diagnostic tests that establish that the beneficiary is not suffering from a PMB condition. In addition, schemes need to approve authorisation for the beneficiary’s treatment before they will cover their chronic condition. This means that beneficiaries have to meet a minimum level of clinical requirements in order to access the benefit and, if accepted, conditions may be subject to disease management interventions and periodic review. Furthermore, schemes require the application form to be filled in by the relevant healthcare professional in order for the application form to be accepted.

In order to facilitate comparison, the number of chronic conditions covered above the CDL on each option were counted and grouped into 6 categories:

- 0: i.e. the scheme only provides cover for PMB conditions as specified in the CDL;
- 1: between 1 and 10 additional conditions are covered;
- 2: between 11 and 20 additional conditions are covered;
- 3: between 21 and 30 additional conditions are covered;
- 4: between 31 and 40 additional conditions are covered;
- 5: more than 41 additional conditions are covered.

Table 5 displays the distribution of the number of chronic conditions covered across all options.

Table 5: Distribution of the number of chronic conditions covered above those included within the CDL

Number of chronic conditions covered	Proportion of all options
0	56,8%
[1:10]	10,2%
[11:20]	5,9%
[21:30]	6,8%
[31:40]	15,3%
>41	5,1%

Clearly, the majority of options (56.8% or 67) only provided cover for CDL conditions. Interestingly, quite a high percentage of options (15% or 18 options), provided cover for between 31 and 40 additional conditions. Upon examination it was found that these 18 options had significantly higher average beneficiary ages with the average beneficiary age across these options being 42.5 (38.9 across all options) and an average pensioner ratio of 17.9% (13.5% across all schemes). It thus appears as though these 15% of options are catering to those older beneficiaries who are more likely to be chronically ill and claim

for chronic benefits. This analysis was then done for all categories in order to see if any distinguishing features emerged. The results are displayed in figure 13.

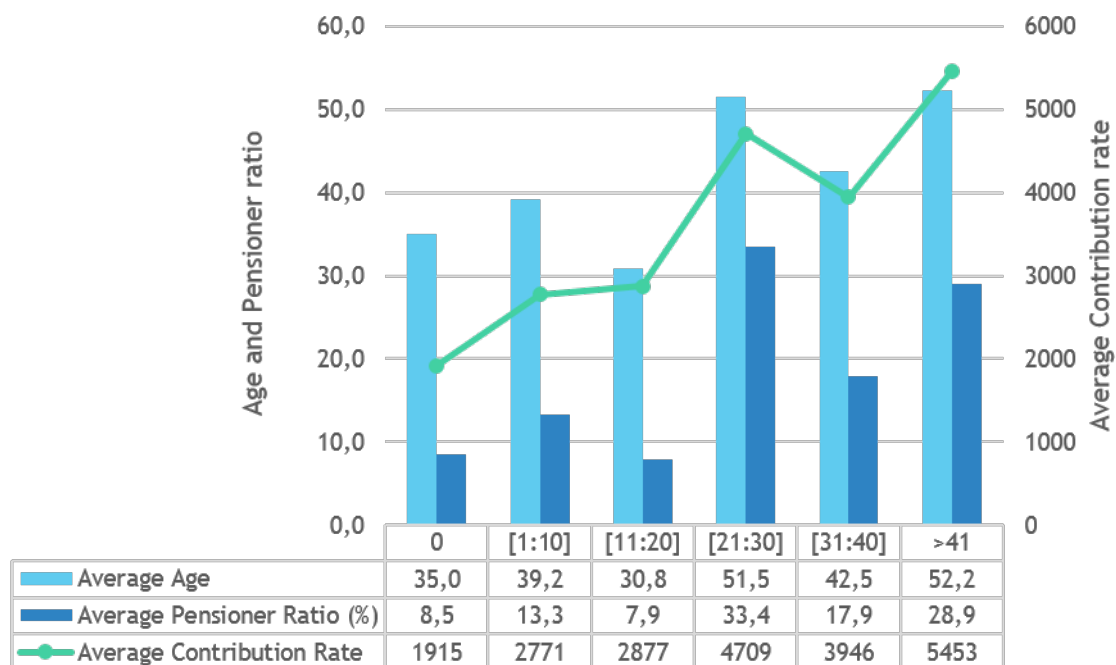


Figure 13: Average beneficiary age, pensioner ratio and monthly contribution rates for options grouped by number of chronic conditions covered

As expected, options offering cover for more than 41 additional conditions had the highest average beneficiary ages and contribution rates. However, options offering between 21 and 30 additional conditions had the highest average pensioner ratio- a somewhat contradictory result. Upon analysis it was found that these options were either Traditional or Hybrid plans, barring 1 option which was a Networked plan (Bestmed’s Pulse 2 option with an average beneficiary age and pensioner ratio of 69.8 and 75.2%. This option had the highest contribution rate of any Networked plan, R4 014)). In addition, a 0.78 correlation coefficient was observed between the number of conditions covered on an option and its corresponding contribution rate. The only clear distinction was that options offering more than 21 additional conditions had higher average beneficiary ages, pensioner ratios and contribution rates compared to options offering cover for less than 21 additional conditions. In order to further understand these results, the analysis was broken down by

plan type. A full analysis of the distribution of additional conditions covered across the plan types is displayed in figure 14.

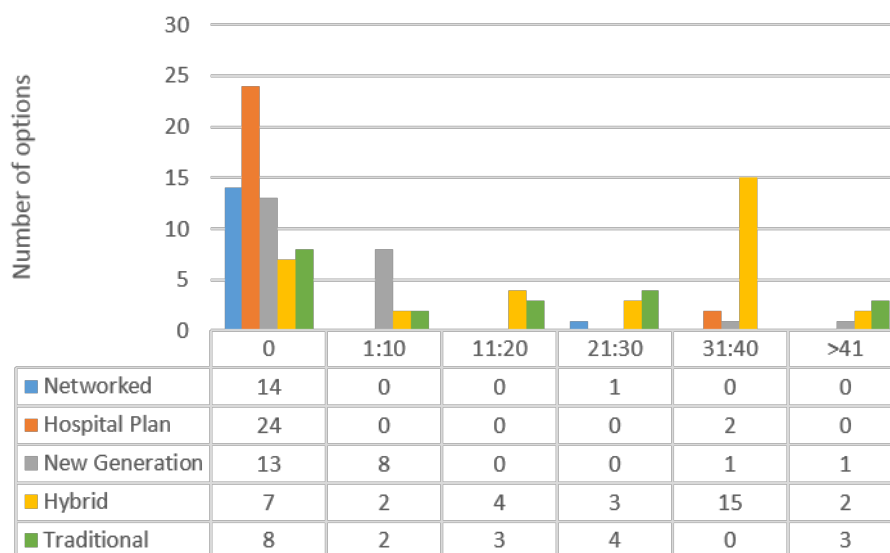


Figure 14: Distribution of the number of additional chronic conditions covered across plan types

Traditional and Hybrid plan types (the plan types with the highest contribution rates) represented the majority of options offering cover for more than 41 additional conditions (5 out of 6 options). Thus, these results appear to show either, the selection effect that exists in medical schemes or the intentional risk-selection techniques that schemes employ to ‘cherry pick’ members through designing options that cater to the needs of different segments of the population.

Furthermore, whilst the list of CDL conditions covered is identical across all schemes, the list of additional conditions covered varies considerably. Consider the following example of the conditions that Bonitas’s Standard option covers versus the conditions covered on Discovery’s Classic Comprehensive option (Figure 15).

<i>Bonitas Standard Option</i>	CDL Conditions Covered	<i>Discovery Classic Comprehensive Option</i>
Non-CDL Conditions Covered		Non-CDL Conditions Covered
Allergic rhinitis	Addison's disease	Ankylosing spondylitis
Ankylosing spondylitis	Asthma	Delusional Disorder
Attention Deficit Disorder	Bipolar disorder	Dermatopolymyositis
Barrett's oesophagus	Bronchiectasis	Generalised Anxiety Disorder
Behcet's disease	Cardiac failure	Behcets Disease
Depression	Cardiomyopathy	Cystic Fibrosis
Dermatitis	Chronic obstructive pulmonary Disease	Huntington's Disease
Eczeama	Chronic renal disease	Delusional Disorder
Gastro-Oesophageal Reflux Disorder	Coronary artery disease	Obsessive Compulsive Disorder
Gout	Crohn's disease	Growth Hormone Defficiency
Narcolepsy	Diabetes insipidus	Major Depression
Obsessive compulsive disorder	Diabetes Type 1	Osteoporosis
Panic disorder	Diabetes Type 2	Paget's Disease
Post-traumatic stress syndrome	Dysrhythmias	Panic Disorder
Rheumatoid arthritis	Epilepsy	Motor-Nuerone Disease
Tourette's syndrome	Glaucoma	Muscular Dystrophy
Zollinger-Ellison syndrome	Haemophilia	Polyarteritis Nodosa
	Hyperlipidaemia	Myasthenia Gravis
	Hypertension	Post Traumatic Stress Disorder
	Hypothyroidism	Systemic Sclerosis
	Multiple sclerosis	Wegener's granulomatosis
	Parkinson's disease	Psoriatic Arthritis
	Schizophrenia	Pulmonary Intestinal fibrosis
	Systemic lupus erythematosus	Sjogren's Syndrome
	Ulcerative colitis	Systemic Sclerosis

Figure 15: The chronic conditions covered on two different options

A high cost specialty medicine benefit is intended to provide coverage for those expensive medicines required to treat certain chronic conditions (for example, a member who requires a drug called Pegasys in order to treat Hepatitis C). Many schemes refer to these medicines as 'biologicals'. It was found that 34%, or 40 out of 118 options, provided cover for specialty medicines. Of these 40 options, 17 were Hybrid plans, 9 were Hospital

plans, 8 were New Generation plans, with Traditional and Networked plans covering the remaining 4 and 2 options respectively. Figure 16 compares the market share of plans that provide a specialty medicine benefit to their respective share of all options analysed.

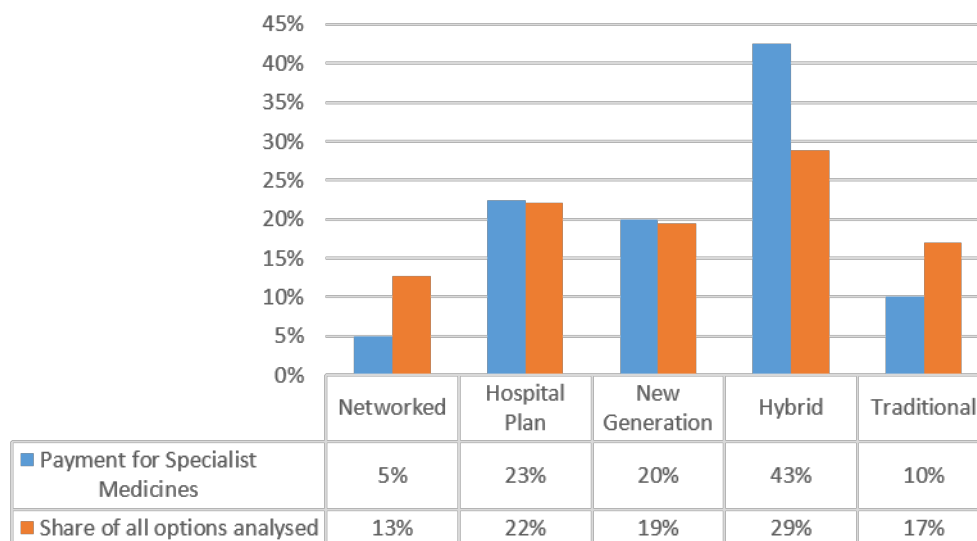


Figure 16: Distribution of options that pay for specialty medicines by plan type

Interestingly, whilst Hybrid plans only cater to 29% of options analysed, they represented 43% of all options providing this benefit. Since Hybrid plans had a higher average beneficiary age (41.35) and a higher average contribution rate compared to other plan types, this result was not unexpected, since older beneficiaries are more likely to require this benefit. Whilst Hospital and New Generation plans only cater to 22% and 19% of options respectively, they make up 23% and 20% of all options providing this benefit.

All schemes offering this benefit placed an annual limit on the amount they would cover. As an example, the Fedhealth Ultimax option (Hybrid plan) provided an annual limit of R280 370 per family for specialty medicines, whereas Discovery’s Executive option (Hybrid plan) offered an annual benefit of R200 000 per beneficiary.

Whilst every medical scheme will specify its own formulary in its brochure, it is common practice for the MCO to develop this formulary. Owing to the fact that some MCOs cater to more than one scheme, it is commonplace for many schemes to utilise the same formulary. However, the overriding principle governing these formularies is that the

medicine list employed by each scheme must comply with guidelines issued by the Council for Medical Schemes in that “the medicine on the list must be safe, clinically appropriate and cost effective for the treatment of a specific condition” (Council for Medical Schemes, 2014d).

All schemes stated in their rules that they would only cover the beneficiary, if their doctor prescribed a drug on their formulary (Council for Medical Schemes, 2014d). With regards to any additional cover provided for conditions not included in the scheme’s formulary, some schemes stated that they would only cover approved medicines for conditions up to a monthly amount. Typically, more expensive benefit options covered medicines that were not on the medicine list, or a combination of medicine on and off the medicine list that were in the same medicine class ⁵², subject to approval and up to a monthly amount.

Often the medicines on the list were generics and if the beneficiary wanted to use a brand name medicine which was not on the list, the beneficiary’s scheme refused to pay for that medicine, or it would cover only part of the bill and the beneficiary would have had to pay the difference between the price of the medication they used and the one on the formulary. For example, Discovery’s Executive option stated the following “We pay approved medicine not on the medicine list up to a monthly Chronic Drug Amount, which has been allocated for that medicine class. You will be responsible to pay any shortfall yourself” (Discovery Health Medical Scheme, 2014c).

While these rules apply in general, all schemes had their own formulary or list of medicines they were willing to cover and conditions in place that dictated whether or not claims would be reimbursed. The large variation in formularies as well as amounts covered restricted a quantitative comparison across schemes and did not fall within the scope of this paper. In addition, no scheme provided cover for experimental, unproven or unregistered treatments or practices. Furthermore, it is important to remember that the medicine list employed by each scheme will change every year owing to new drugs

⁵²The medicine class is a grouping of medicine with a similar effect for the management of the condition (World Health Organization, 2014b)

or improvements on old drugs, and hence it will only apply for the year for which it is designed.

In addition to covering the cost of medicines, a large number of schemes employed disease management programmes for the ongoing monitoring of members and beneficiaries so as to ensure that they were receiving the correct and most cost-effective treatments (these programs were generally managed by external managed care companies if an in-house program was not present). These disease management programs also provided cover for a specific number of consultations and tests, for example blood tests, scans and x-rays listed in the treatment guidelines, for both the diagnosis and ongoing management of a condition. This varied between plan types and was generally excluded on low-cost, less-comprehensive options where members were required to pay for these medicines and treatments themselves (excluding conditions included in the PMBs which would be covered by the scheme in full). A full analysis of these disease management programmes was not within the scope of this paper and presents an opportunity for further research.

8.4 Oncology Benefits

All schemes analysed included a separate category for oncology benefits in addition to the existing chronic conditions covered. Three aspects of the oncology benefit were analysed from each benefit option:

- The limits that applied to oncology benefits;
- Whether or not the member had a choice over which provider to visit;
- Whether high cost, specialist oncology medicines were covered.

The limits applicable to oncology benefits varied considerably between the options. 20% of options (24) only covered oncology benefits that were included as part of the PMB package. 40% of options (47) placed a monetary limit whereafter the members had to pay for the benefit themselves. Of these 47 options, 37 placed a limit that ranged from R91 000 to R300 000 per beneficiary per annum, whilst 10 options placed a limit between

R300 000 and R475 000 per annum (Bonitas's BonComprehensive option). 32% of options (38) placed an annual monetary limit whereafter a co-payment applied if the member exceeded this limit- this monetary limit ranged from R200 000 to R400 000 whereafter a co-payment applied (which ranged from 10% to 20%). Only 8% of options (9 options) said they would provide unlimited cover for oncology benefits (these options additionally required oncology services to be obtained from a provider in their network). All options required the member to obtain pre-authorisation on the schemes' Oncology Management Programme before claims would be covered. Each scheme additionally required their members to follow their set of treatment protocols.

Figure 17, provides an indication of how oncology benefits were covered across the plan types.

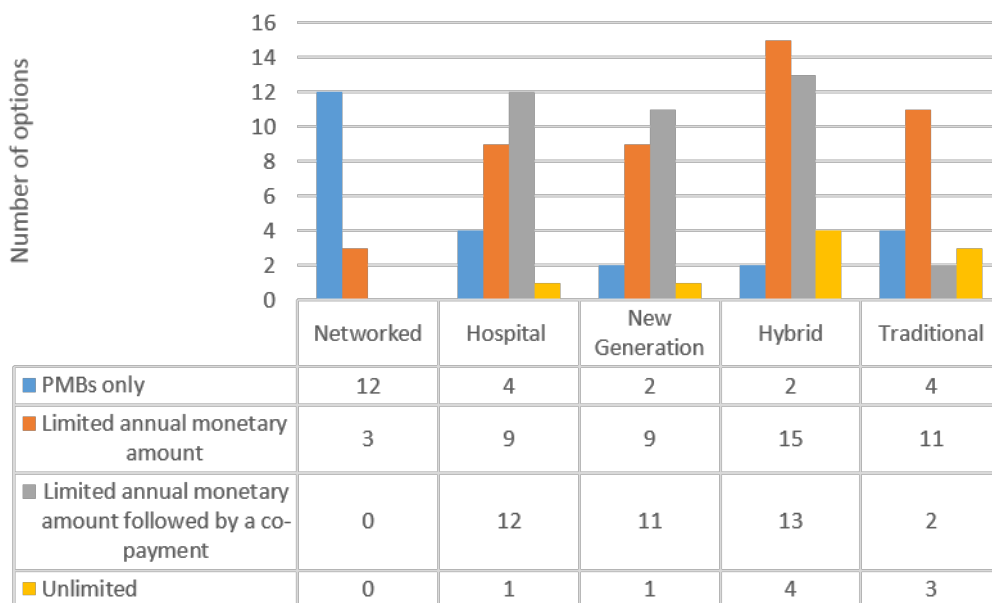


Figure 17: Distribution of how options cover oncology benefits by plan type

Seven out of the 9 options that offered unlimited coverage for oncology benefits were Hybrid and Traditional plans- their higher average monthly contribution rates coupled with their higher average beneficiary ages, as identified early, could have justified this increased benefit. However, quite a high percentage (20%) of Traditional plans only provided coverage for oncology benefits included in the PMBs- providing somewhat con-

tradiictory results. 80% of all Networked plans only provided coverage for PMBs, whilst the other 20% provided coverage for a limited monetary amount that ranged from R68 900 per beneficiary per annum to R179 500 (on condition that the member used a PPN on the scheme's network).

As an illustrative example of the complexities involved in comparing oncology benefits, consider the following five options: Medihelp's Dimension Prime 1 option (a Hospital option with 14 821 beneficiaries), Discovery's Classic Comprehensive option (a Hybrid option with 421 848 beneficiaries), Bonitas' Boncap option (a Networked option with 54 834 beneficiaries), Momentum's Incentive-Choice of Provider option (a New Generation option with 25 558 beneficiaries), and Medshield's MediPlus option (a Traditional option with 77 482 beneficiaries).

Medihelp's and Bonitas's options only provided cover for PMBs. Discovery's Classic Comprehensive option covered the first R400 000 of approved treatment, whereafter it would only pay 80% of the Discovery Health Rate for treatment and the member was then required to pay the balance. In addition, if the provider charged more than the Discovery Health Rate, the member would have had to pay the difference between the amount charged and what Discovery was willing to cover. Momentum's option also covered the first R400 000 of treatment, whereafter a 20% co-payment came into play. Medshield's option had an annual limit of R230 000 per family. In addition, 2 options used the ICON network and protocols to provide treatment, whilst the other 3 options used their own scheme's network and protocols. Any deviation in these protocols resulted in additional co-payments being charged (dependant on the particular circumstances of each case). Furthermore, each option required pre-authorisation and approval on an Oncology Management Programme- each scheme's programme and the benefits and conditions of membership differed (an examination of these programmes was not within the scope of this paper).

The Independent Clinical Oncology Network (ICON) protocols were applied by many benefit options. ICON is a network of specialists in oncology with whom, according to ICON (2014), 80% of South African oncologists are registered. In essence, ICON

is a managed care organisation that specialises in providing “innovative, cost-effective oncology services and solutions” (ICON, 2014). Whilst ICON was not examined in detail, it is important to recognize their prevalence amongst schemes with 38% (45) of benefit options and 9 out of the 10 administrators examined being served by the ICON network. Interestingly, most schemes did not use the ICON network for all options with many not utilising this network on their more comprehensive /expensive options. For example, only the Discovery KeyCare options utilised this network- all of Discovery’s other options were part of Discovery’s network.

Only 5% or 6 options were required to obtain their oncology services from a State facility. However, 60% or 71 options did make use of a network to provide their benefits. The remaining 35% (41) of options allowed their members to obtain services from any provider. Figure 18 breaks this analysis down by plan type.

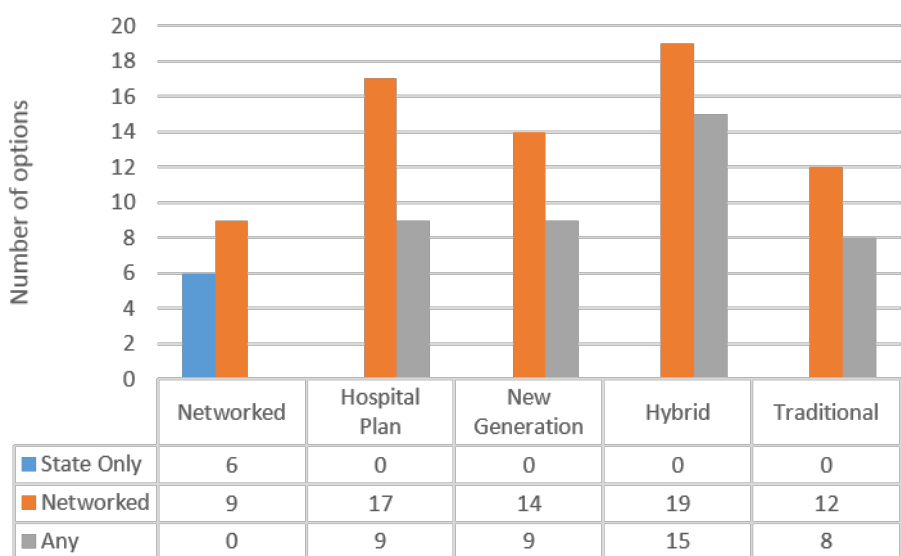


Figure 18: Do members have a choice of their oncology provider?

All Networked plans made use of a network to provide this benefit. Six out of the 15 Networked plans made use of a network of State facilities- no other plan type utilised the State to provide this benefit.

The specialised medicine benefit gave members access to specific high cost medicines. All benefit options required their members to apply and obtain authorisation from the scheme before any cover for specialised medicine would commence. Depending on the medicine being covered and the particular situation surrounding the application, certain medicines may have been accompanied by a co-payment which would vary according to the specific scheme's rules. Furthermore, if members utilised a pharmacy outside of the schemes' network, members would be required to pay the difference between what the scheme was willing to pay (the scheme's tariff rate) and what the pharmacy or provider was charging. This rule pertained to co-payments as well; if the member utilised a provider within the network a certain co-payment would apply- use of a provider outside of the network resulted in a higher co-payment. In addition, schemes would not pay for medicine and treatment that was not approved or registered by the Medicines Control Council of South Africa (MCC). This included treatment that had not been sufficiently tested as well as herbal or traditional treatments.

78% or 92 options did not provide cover for these high cost specialised medicines. The 22% or 26 options that did provide cover appeared to be the higher cost options, with an average monthly contribution rate across the 26 options of R4 012.96 which is significantly higher than the average contribution over all options (R2 743.16). Furthermore, these options appear to be catering to the older segments of the population who are more prone to be chronically ill as the 26 options had an average beneficiary age of 47.8 (38.9 across all options). In addition, of the 22% that provided coverage, 9% only provided a limited monetary amount per beneficiary per annum (ranging from R103 000 to R322 500 per beneficiary per annum) and 13% provided a benefit as a sub-limit of the overall oncology benefit (a large variation owing to the multiple values for the overall oncology benefit).

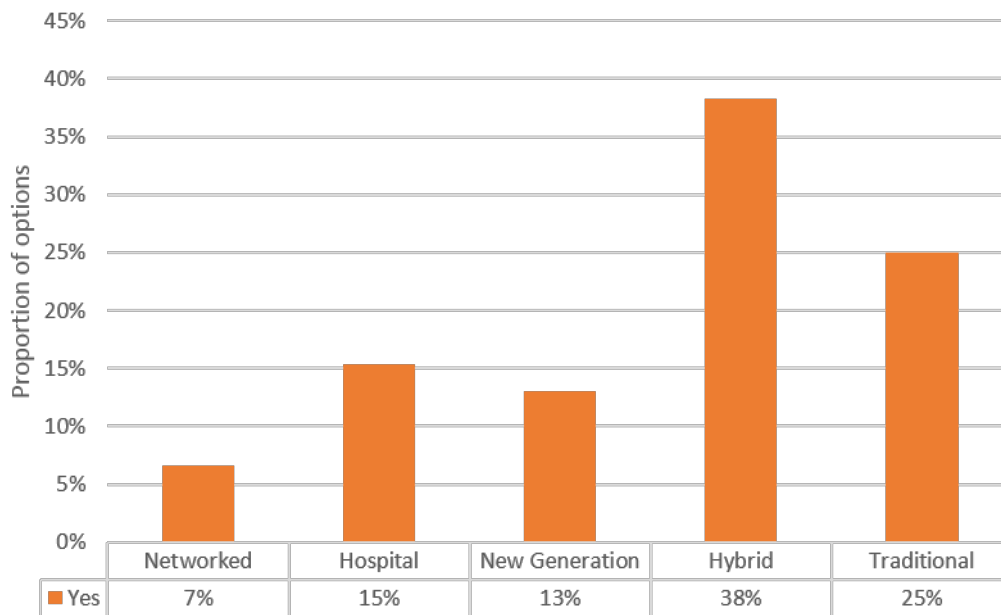


Figure 19: Proportion of options within each plan type which pay for specialist oncology medicine

Figure 19 above, illustrates these results. The most expensive plan types, Hybrid and Traditional plans, provided the highest proportion of coverage with 38% of Hybrid and 25% of traditional plans covering this benefit. Evidence that this was, perhaps, a benefit associated with more comprehensive plans could be seen by the fact that only 1 Networked plan covered this benefit (Bestmed Pulse 2 option with an annual limit of R100 000 per beneficiary per annum). Of the 3 New Generation options that provided cover for this benefit, one required a co-payment of 10% before cover commenced (Liberty Saver Plus), one had an annual limit of R300 000 (Medshield Premium Plus) and one had an annual limit of R200 000 (Medshield Standard Cover). Of the 5 Traditional plans that provided this benefit, one offered unlimited cover on condition that it was obtained at a PPN and after registration on the Oncology Management Programme (Liberty Traditional Ultimate). Medshield’s 80% option had an annual limit of R250 000. Topmed’s Rainbow Comprehensive option had an annual limit of R200 000 with additional co-payments of 20% that applied. The remaining 2 options (Medshield’ Bonus and Plus options) offered this benefit as a sub-limit of the oncology benefit, which was R450 000 and R230 000

respectively.

8.5 Additional Benefits

Additional benefits included all in and out-of-hospital benefits that could not be classified into the other benefit categories above, including inter alia:

- Cover for in-room procedures;
- Any post-hospital benefit available; and
- Any screening and prevention benefits on offer.

An in-room procedure refers to a healthcare service or procedure performed by a healthcare professional in their consultation rooms, attached theatre, in a day ward or at a day clinic. There are more than 60 procedures that can safely be performed in-room including, inter alia:

- Circumcision;
- Drainage of superficial abscess;
- Superficial foreign body removal;
- Gastroscopy;
- Breast biopsy;
- Excision of a nailbed; and
- Scopes.

Owing to the reduced costs of covering in-room procedures, their popularity has increased dramatically. As an example, endoscopies were not performed in the doctors' rooms in the past, however, endoscopic procedures such as colonoscopies, vasectomies, diagnostic laparoscopies and gastroscopies, are now performed in the doctors' rooms with

the doctor's own equipment. Furthermore, co-payments that were charged for having the procedure performed in-hospital were not charged if they were performed in any of the environments mentioned above. For example, on Liberty's Hospital Plus option, endoscopic investigations had a co-payment of R1 600 if performed in-hospital and no co-payment if performed in the doctor's rooms (Liberty Medical Scheme, 2014).

As with hospital admission, beneficiaries were required to obtain pre-authorisation for procedures now often performed in the doctor's rooms. This entailed obtaining the following information from the provider: date of procedure, reason why procedure was being done/ICD 10 code, CPT4 and/or NHRPL codes, the doctor's practice number and other supporting clinical information. This information would then be assessed and the beneficiary either accepted for coverage or denied. For example, Medshield medical scheme required pre-authorisation before admission to the hospital, for in-hospital procedures and for specific procedures that may be conducted in the doctor's rooms. As with in-hospital benefits, failure to obtain pre-authorisation may have resulted in disqualification from coverage or the payment of a deductible or co-payment.

This benefit displayed broad coverage with only 2% or 2 options offering no benefit. The options that did offer this benefit, covered it from a variety of sources. Either the benefit was paid from available funds in the MSA (2% or 2 options), or the benefit was paid from available DtD risk benefits (14% or 16 options), or the benefit was covered from available funds in the major-medical risk benefit (82% or 97 options). 1 Hospital and 1 Networked plan offered no benefit at all. This Hospital option had the lowest monthly contribution rate of all options (R1 117) and the Networked plan had the lowest pensioner ratio over all options- clearly these options were less expensive options that catered to the young and healthy.

Interestingly, all New Generation plans paid for this benefit out of available funds in major medical risk benefits- a surprising result owing to the existence of a MSA. However, many schemes used this benefit to deter beneficiaries from hospital admission, since hospital admission meant reimbursing both the hospital and associated medical staff required to perform the procedure. The high prevalence of this benefit could thus

be explained by the fact that it is cheaper for the scheme to pay for these procedures in-room. As an illustration, Discovery's Coastal Saver option stated the following: "Where scopes are done in hospital, a co-payment or deductible applies to the hospital account. For scopes that are done in the doctor's rooms, the co-payment or deductible does not apply. We pay for the scope without using the member's day-to-day benefits" (Discovery Health Medical Scheme, 2014b).

Importantly, whilst coverage may have been in place, each benefit option would specify the exact in-room procedures it was willing to cover, which would differ between options.

A post-hospital benefit refers to cover for follow-up treatment that is required after discharge from hospital, including inter alia, supportive and rehabilitative services. The intention of this benefit is to improve the physical, psychological, emotional, and social wellbeing of beneficiaries after an in-hospital event. Typical benefits included, inter alia:

- Medicine;
- Radiology;
- Pathology;
- Medical devices, including wheel-chairs;
- Psychologists;
- Physical Therapists;
- Speech Therapists.

This benefit displayed broad coverage across the options, with 79% or 93 options offering some form of benefit. The remaining 25 options did not offer any form of post-hospital benefit. Interestingly, of the options not offering any form of benefit, 3 were Networked plans and 22 were Hospital plans- despite that fact that one might expect Hospital plans to offer more comprehensive cover for this benefit owing to the fact that its intention is to prevent re-admission into hospital and hence deter unnecessary hospitalisation. All other

plan types provided some form of cover for this benefit. Limits, sub-limits of overall day-to-day benefits as well as co-payments all applied across a broad spectrum of the benefit options. The lack of standardised conditions limited an accurate comparison across the options and made a quantitative comparison redundant.

As an illustrative example, consider Fedhealth's Ultimax option (a Hybrid plan with the highest monthly contribution rate of R8 533). This option offered a post-hospitalisation treatment benefit for up to 30 days after discharge from hospital- "It includes complications that might arise from hospitalisation, physiotherapy, occupational therapy, speech therapy, x-rays, ultrasounds and pathology tests" (Fedhealth, 2014). The benefit covered treatment at 100% of the Fedhealth rate and post-hospital treatment up to 30 days from the date of discharge from hospital. This benefit was paid from risk benefits so as "not to deplete your day-to-day benefit" (Fedhealth, 2014). In addition, the benefit was conditional on obtaining pre-authorisation prior to the treatment date and only treatment as a result of a hospital event would be covered, i.e. related to the original diagnosis. Failure to obtain authorisation meant that the benefit was paid from the beneficiary's MSA Fedhealth (2014). In contrast, Medihelp's Dimension Elite option (a Traditional plan with a monthly contribution rate of R3 654) offered this benefit for up to 30 days after discharge from a private hospital. This benefit covered occupational therapy, physiotherapy and speech therapy at 100% of the scheme tariff. However, this benefit was limited to R1 500 for the main member and R2 000 per family per year.

The screening and prevention benefit typically included:

- Baby immunisations;
- Flu vaccines;
- Mammograms;
- Eye examinations; and
- A range of early detection tests e.g.: dental examinations, pap-smears, prostate, cholesterol, blood sugar and HIV tests.

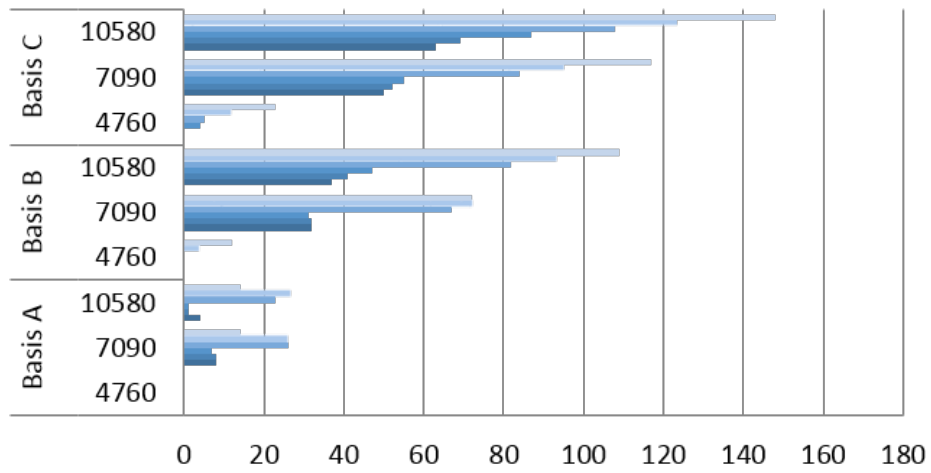
A screening and preventive benefit was common across all schemes, with 100% of New Generation, Hybrid and Traditional plans offering some form of preventive screening benefit. Only 3 Networked and 1 Hospital plan required their member's to pay for this benefit themselves.

8.6 Affordability Investigation

Whilst the benefit option analysis looked at a subset of the open-scheme market, the affordability analysis involved an examination of 172 open-scheme options.

The minimum monthly contribution over all 172 options and income levels was R415 for a single member earning R4 760 per month (11.5% of monthly income). The maximum monthly contribution over all options and income levels was R16 077 for a family comprising of a main member, 1 adult dependant and 2 child dependants and earning R10 580 per month (151.9% of monthly income). The average monthly contribution varied greatly from R2 002.03 for a single member earning R4 760 per month (42.1% of monthly income- far above the 10% cut off point for affordability) to R5 009.00 for a family with a main member, 1 adult dependant and 2 child dependants earning R10 580 per month (47.3% of monthly income). The average deviation away from the mean also varied greatly. Interestingly the variation was smaller for the higher income bands, evident in that the average deviation was R881 for a single member family earning R10 580 per month but R913.98 for a single member family earning R4 760 per month. This pattern was seen for all family structures and across all income levels and bases.

Figure 20 and Figure 21 represent the number of affordable options under the different bases respectively.



	Basis A			Basis B			Basis C		
	4760	7090	10580	4760	7090	10580	4760	7090	10580
1A0C	0	14	14	12	72	109	23	117	148
1A1C	0	26	27	4	72	93	12	95	123
1A2C	0	26	23	0	67	82	5	84	108
2A0C	0	7	1	0	31	47	4	55	87
2A1C	0	8	1	0	32	41	0	52	69
2A2C	0	8	4	0	32	37	0	50	63

Number of options

Figure 20: Number of options found to be affordable under the different bases and income levels using a 50% employer subsidy

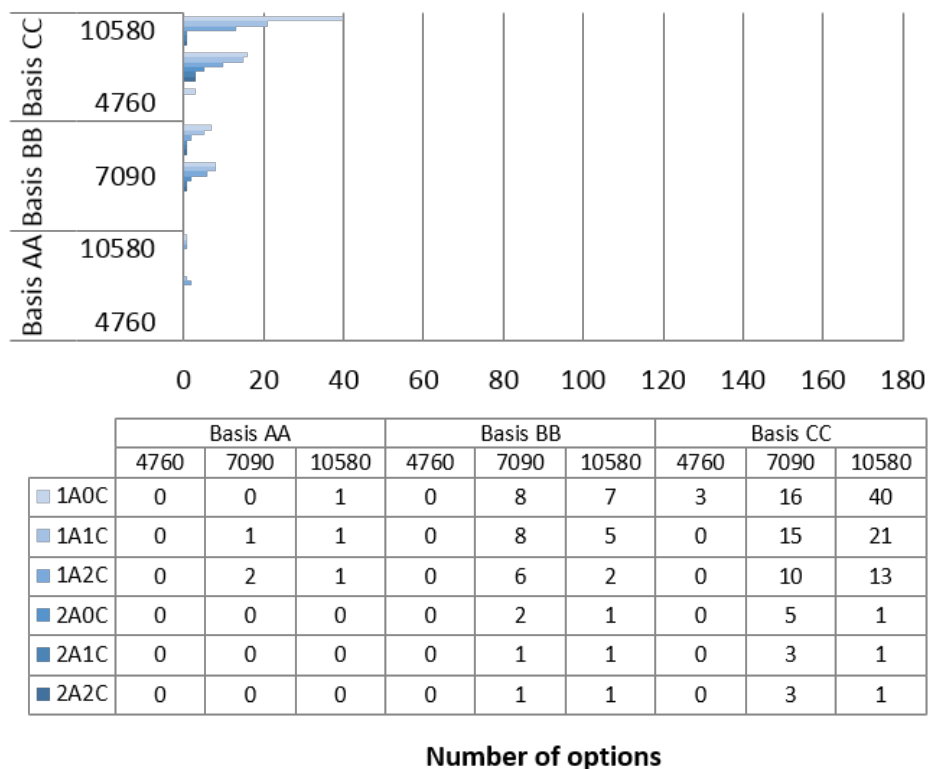


Figure 21: Number of options found to be affordable under the different bases and income levels using a 0% employer subsidy

These results show that there is a substantial difference in the number of affordable options for income levels above and below the tax threshold respectively. The number of affordable options at an income level of R4 760 with a 50 per cent employer subsidy was low, even for households willing to spend 10% of their income on medical scheme contributions (over all family structures the number of affordable options ranged from 0% to 13.37% under Basis C). For this same income level no options were affordable to a family with two adults and at least one child under any of the bases, with 23 options being the largest number of affordable options, but only for a single member household at the highest propensity to spend. With a 0 per cent employer subsidy there were only 3 affordable options to a household earning R4 760 per month and even then, this was only for a household with a single member and with the highest propensity to spend on

contributions (10%).

Above the tax threshold the results improved dramatically. At an income level of R7 090 the proportion of affordable options over all family structures and bases ranged from 4.07% to 68.02%. This increased number of affordable options as compared to households below the tax-threshold appears to demonstrate the effect of the tax credit and further tax rebate in improving affordability. The impact of family size on affordability was seen when splitting this range by the number of adults in the household. Over all households with 2 adults and any number of children the proportion of affordable options ranged from 4.07% to 31.98%, however, for households with a main member and no adult dependants the proportion of affordable options ranged from 8.14% to 68.02%. These results appear to demonstrate that family size has an impact on affordability (a fairly intuitive result). When looking at the same ranges and structures of households but when a 0% employer subsidy was in place, the results differed significantly. Over all household structures and bases the proportion of affordable options ranged from 0% to 9.3% (a household with a single member with the highest propensity to spend on health). As an illustration of the impact of an employer subsidy, a single member household (with a 10% propensity to spend on health) earning R7 090 per month could afford 68.02% of options under a 50% employer subsidy but only 9.3% of options under a 0% employer subsidy.

With an income level of R10 580 affordability of options, as one might expect, improved once again. Over all households and bases the proportion of affordable options ranged from 0.58% to 86.05% (a household with a single member with the largest propensity to spend on health). Again the impact of family size can be seen when we split the range by number of adults in the household. Households who had 2 adults, over all bases, and any number of children could afford between 0.58% and 50.58% of options and households with 1 adult and any number of children could afford between 8.14% and 86.05% of options. The impact of an employer subsidy was again evident in that the range of affordable options over all households and bases was only 0% to 23.26% when a 0% employer subsidy was in place.

There were 39 (23%) options that used income bands in setting contribution rates in

2014- a slight increase on the 34 (20%) in 2013. At an income level of R4 760 and under all bases, all options deemed affordable were options that used income bands (except for a 1A0C family structure under Basis C, of which 83% of those deemed affordable used income bands). Under Basis A, B and C and using an income level of R7 090 on average 55% of all options deemed affordable used income bands. With no employer subsidy, under Basis AA, BB, CC, on average 94% of all options that were found to be affordable used income bands. At the highest income level tested, R10 580, the results differed dramatically with, on average, only 36% of all options that were found to be affordable using income bands (see Appendix C for a summary of the income band analysis).

The impact of the tax credit could be seen when looking at the results under Basis A in particular. Interestingly, more options were affordable to larger households compared to the number affordable to households with no dependants, i.e. there were more options affordable to 1A1C and 1A2C families than there were affordable to a 1A0C family, for example. However, this result did not hold under the other bases, potentially showing that the tax-credit has a larger impact on affordability at lower propensities to spend on health- a full statistical analysis would need to be done to fully test the impact of the tax credit, family size and employer subsidy on affordability, however, this was not within the scope of this paper. Despite the absence of a statistically meaningful result, it does appear to indicate that the tax credit is having a positive impact on improving affordability, particularly for households not willing to spend a large proportion of their income on contributions. Figure 22 illustrates this hypothesis.

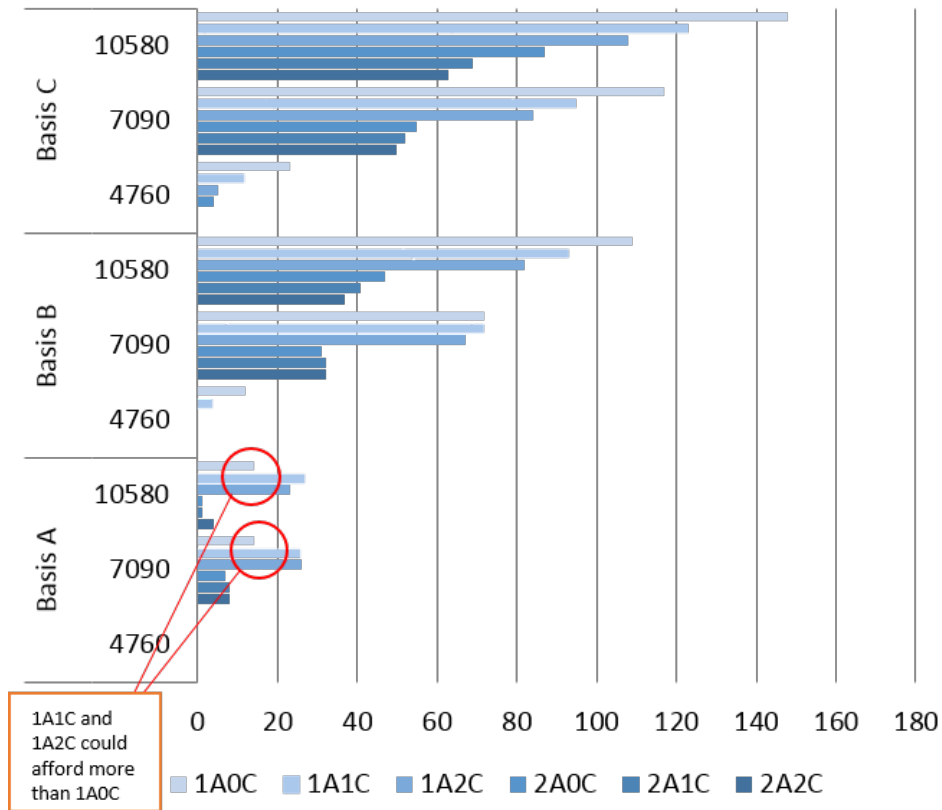


Figure 22: The impact of the tax-credit on affordability

8.6.1 Affordability and Benefit Design

The 118 benefit options analysed for benefit design were contextualised in terms of their respective affordability. Figure 23 displays the number of options found to be affordable under the different bases respectively.

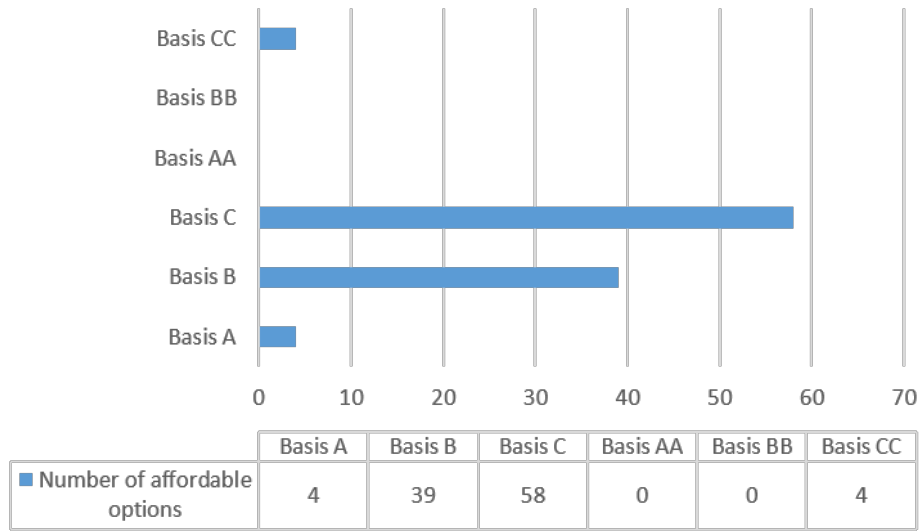


Figure 23: Number of options found to be affordable under the different bases

As was found in section 8.6, the number of affordable options increased with the member’s propensity to spend on health, i.e. more options were affordable for prospective members willing to spend 10% of their income on medical scheme cover compared to those willing to spend 2.6% or 7.1%. The impact of the employer subsidy was again evident in that more options were affordable under a 50% employer subsidy than under a 0% employer subsidy, i.e. Basis A, B and C had more affordable options than Basis AA, BB and CC.

Thirteen out of the 118 options analysed used income bands in setting contribution rates- 12 of which were Networked plans with only 1 option being a Hybrid plan. Surprisingly, unlike the findings in section 8.6, the options that used income bands did not appear to demonstrate increased affordability with only 2 of the 15 affordable options under Basis A , 12 of the 63 affordable options under Basis B and 12 of the 84 affordable options under Basis C utilising income bands.

Affordability was then looked at under the different plan types respectively. The results are displayed in Figure 24.

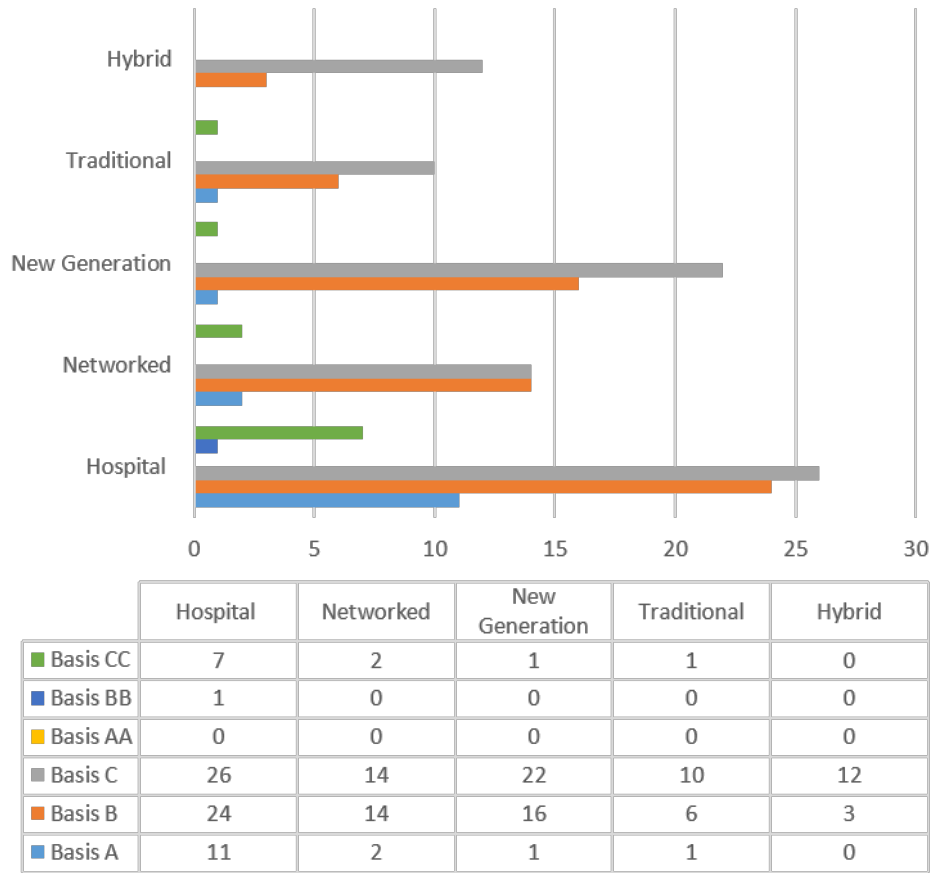


Figure 24: Number of affordable options under the different bases and plan types

These findings tended to corroborate with the contribution analysis, in that the plan types with the lowest average monthly contribution rates (Hospital and Networked plans) appeared to be the most affordable. However, in order to achieve a more accurate picture of affordability over the plan types, it was decided to assess the proportionate number of affordable options for each plan type. Figure 25 displays the results.

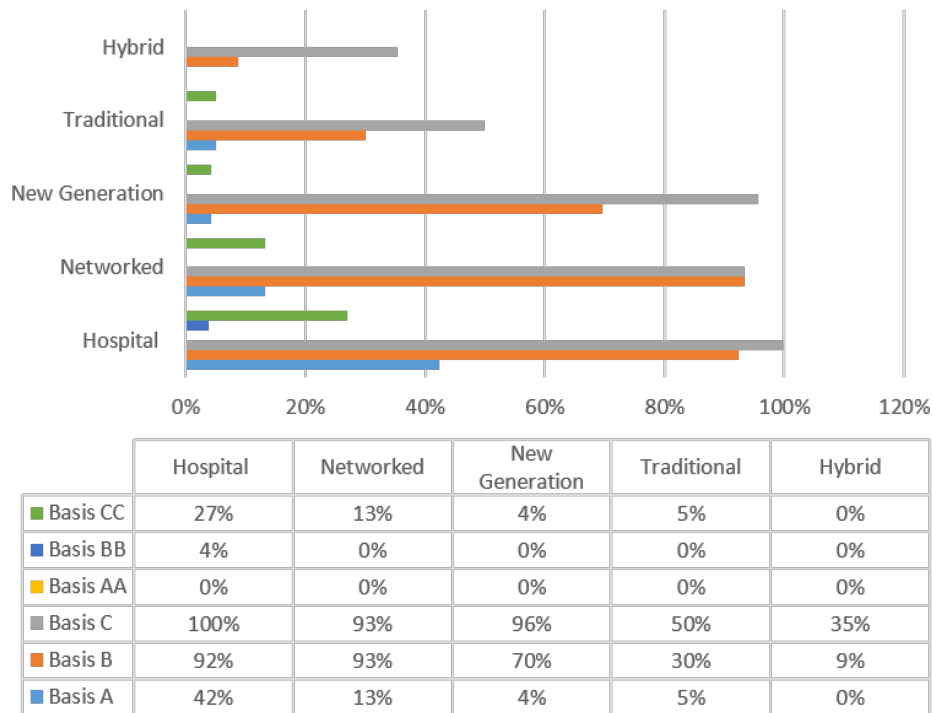


Figure 25: Proportionate number of affordable options under the different bases and plan types

Prospective members with a 10% propensity to spend on health (Basis C) achieved the highest number of affordable options- 100% of Hospital plans, 93% of Networked plans and 96% of New Generation plans were affordable under Basis C. However, only 50% of Traditional plans and 35% of Hybrid plans were affordable. Whilst Hybrid and Traditional plan types did have the highest average monthly contribution rates, the results once again appeared to show that these options were catering to higher income individuals who could afford to spend more on their healthcare.

It was interesting to see that Hospital plans were best able to cater to those willing to spend the least on healthcare (Basis A with 2.6% propensity to spend on health) with 42% of all Hospital plans as opposed to 13% of Networked plans being affordable under Basis A. In contrast, Networked plans and Hospital plans appeared to achieve a similar proportionate number of affordable options under Basis B with 93% of Networked and

92% of Hospital plans being affordable. Remarkably, whilst New Generation plans were far less affordable than Hospital or Networked plans under Basis A and B respectively, they achieved a high level of affordability under Basis C (96% of all New Generation plans were found to be affordable). Importantly, although it may have been better to test the affordability of New Generation plans using their pure risk contributions, it was decided to test their affordability on their gross contributions since this was the basis upon which benefit design was analysed across the plan types.

Networked plans, in addition to making use of PPNs to increase efficiency, also made effective use of income bands in setting contribution rates, with 80% or 12 out of 15 options utilising this mechanism. In addition, of the Networked plans found to be affordable, 100% of them under Basis A used income bands, 86% under Basis B and C respectively and 100% under Basis CC used income bands in setting contribution rates. This result appears to demonstrate that the use of income bands does facilitate and improve affordability of membership to the consumer.

The 1 Networked option that was not affordable under Basis B and C (Bestmed's Pulse 2 option) did not use income bands. In addition, this option was the only one offering cover for additional conditions in excess of the CDL (providing cover for 50 chronic conditions). Furthermore, it was one of only two Networked options to offer cover for high cost specialist medicines. This option had an average beneficiary age of 69.8 and an average pensioner ratio of 75.2%- significantly higher than the average beneficiary age and pensioner ratios over all Networked plans (34.2 and 9.6% respectively). This option thus appears to be catering to the elderly. Furthermore, this option had the highest average monthly contribution rate of R4 014 compared to the average over all Networked plans of R1 900. These were the only 'stand-out' differences observed between this option and the other Networked plans, and appears to demonstrate the high cost of providing cover in excess of the PMBs.

In order to test this hypothesis the analysis was carried out for Hospital plans. Since all Hospital plans were affordable under Basis C, Basis B was used. 24 out of 26 Hospital plans were affordable under Basis B. The 2 options that were not affordable were the

only options offering cover in excess of the PMBs (Discovery's Classic Comprehensive Zero MSA option offering cover for 32 additional conditions, and Fedhealth's Ultima 200 Savings Only option offering cover for 40 additional conditions). However, whilst the Fedhealth option had a higher than average beneficiary age and pensioner ratio (52 and 30.2% respectively), the Discovery Health option did not (with an average beneficiary age and pensioner ratio of 36 and 7.8%)- a somewhat contradictory result. Furthermore, both these options had the highest contribution rates as compared to other Hospital plans (the average contribution rate over the 24 affordable options was R1 652.86) with the Discovery option having a monthly contribution rate of R3 025 and the Fedhealth option having a rate of R2 726. In addition, this Discovery Health option was the only Hospital plan to offer an Above Threshold Benefit. No other observable differences could be seen between these options and the remaining Hospital plans found to be affordable. Thus one might state that covering additional conditions in excess of the PMBs appears to dramatically increase the cost to both the consumer and the scheme. In order to test whether or not an ATB has an effect on affordability, it was decided to look at Hybrid plans and their affordability.

Once again, Basis C was looked at for comparative purposes as this basis displayed the highest number of affordable Hybrid plans. Of the 22 Hybrid plans found to be unaffordable, 20 offered cover for additional conditions in excess of the PMBs (ranging from 11 to 41 additional conditions) and 17 had an ATB. Of the 2 remaining options found to be unaffordable and offering no additional cover in excess of the PMBs, 1 option had an ATB. In addition, these 22 unaffordable options had significantly higher contribution rates, average beneficiary ages and pensioner ratios (R4 311, 43.39 and 19.03% on average) compared to the average over the affordable options (R2 729, 37.07 and 9.7% on average). No other observable benefit differences could be found between those options found to be affordable and those found to be unaffordable. It thus appears as though the presence of both additional coverage for chronic diseases and an ATB has a negative effect on the schemes contribution rates, average beneficiary ages and hence their affordability. In order to accurately verify these results, however, one would have to run a full statistical

analysis perhaps in the form of a generalised linear model- this presents an opportunity for further research.

New Generation plans were then examined. Under Basis C, 22 out of 23 options were found to be affordable. The 1 unaffordable option (Medshield's Premium Plus option) offered cover for 55 additional chronic conditions and had the highest contribution rate of all New Generation options (R3 654 per month). In addition, the average beneficiary age of this option was 49, with a pensioner ratio of 32.3%. These were significantly higher than the average beneficiary age and pensioner ratio over the affordable New Generation options (36.7 and 10%). However, it is important to note that 9 other New Generation options that offered coverage for additional conditions were found to be affordable (although six of these only covered an additional 7 conditions, 1 covered an additional six conditions and 1 option offered an additional 38 conditions). Interestingly, 7 options that were found to be affordable whilst still offering cover for additional conditions were EDOs- which could provide a possible explanation for them being comparatively more affordable.

The analysis of Traditional plans provided similar results. Under Basis C, 10 out of 20 options were found to be affordable. Nine out of the 10 options that were found to be unaffordable offered coverage for additional conditions in excess of the CDL (ranging from covering an additional 7 to 125 chronic conditions). In addition, all three options that offered an ATB were found to be unaffordable. As has been noted above, substantial differences were observed between the contribution rates, average beneficiary ages and pensioner ratios of those options found to be unaffordable (R4 784.50, 52.05 and 31.04% respectively) versus those found to be affordable (R2 229.20, 34.27 and 8.19% respectively).

It is thus evident that the majority of options found to be unaffordable had higher than average contribution rates, average beneficiary ages as well as pensioner ratios. In addition, although we cannot state for certain, the presence of cover for additional conditions in excess of the CDL and an Above Threshold Benefit might have been contributing factors.

The converse of the analysis of the unaffordable options will, of course, apply to those options that are affordable- i.e. they will have lower average beneficiary ages, pensioner ratios, contribution rates, and the absence of coverage for additional conditions and an ATB. However, options that were found to be affordable at the lowest propensity to spend on health (2.6% under Basis A) and without an employer subsidy (Basis CC) were analysed for factors contributing to their 'affordable' status.

The 2 Networked options found to be affordable under Basis A and CC (Discovery's KeyCare Core option and Momentum's Ingwe Hospital State- Ingwe Primary Care Network option) both made use of a network of hospitals to provide major medical benefits- they were, however, not alone in this. In addition, Momentum's option also made use of state facilities to provide hospital benefits and is also a registered EDO- both factors which could be contributing to it having the lowest contribution rate of all Networked plans (R1 299) and a significantly lower pensioner ratio of 0.4% (compared to the average of 10.5%). There were no other distinguishing factors between these 2 affordable options and the remaining 13 options found to be unaffordable.

Eleven Hospital plans were found to be affordable under Basis A. None of these options offered coverage for additional chronic conditions in excess of the CDL. In addition, all these options reimbursed specialists at 100% of their scheme's rate for in-hospital events. Five of the 11 options allowed their beneficiaries to obtain their hospital services from any private hospital whilst the remaining 6 restricted their members to a network of facilities. Interestingly, only 3 of the 11 affordable options were registered as EDOs.

Only 3 Hybrid plans were affordable under Basis B. All 3 options offered no additional chronic cover and only reimbursed specialists at 100% of the scheme's tariff rate for in-hospital events. Surprisingly, 2 of these 3 options allowed their beneficiaries to visit any private hospital of their choice, with only 1 option using a network to provide hospital services. Furthermore, 1 option (Medihelp's Dimension Prime 2 Network option) is a registered EDO.

There were no other observable and distinguishable differences that provided explanations as to why these options were affordable and what aspects of benefit design they

included or excluded. The only constant factors observed across all affordable options was that they all reimbursed at 100% of their scheme's rate, none of them provided coverage for additional conditions or contained an ATB and they all had lower than average contribution rates, average beneficiary ages and pensioner ratios. However, there was no 'golden-egg' observed that would provide a clear and definitive answer as to why and how these options were able to charge a lower contribution rate. The only other explanation not considered, is that these options employed more managed care techniques, limits, sub-limits and other mechanisms to control beneficiary and provider utilisation. Since the complexity of these rules and large variation impeded analysis, the recurring theme of 'implicit benefit design' emerges as a possible explanation for these options being more affordable.

9 Discussion and Conclusions

This dissertation set out to analyse the structure and nature of benefit design in the South African medical scheme environment. The findings of the analysis frame a medical scheme environment that is facing challenges on multiple fronts, from regulatory changes to risk pool fragmentation, resulting in the extensive use of benefit design to counteract these challenges. This section first attempts to bring together the numerous results identified above so as to provide a coherent, concise and accurate picture of benefit design in the current medical scheme environment. This is followed by a discussion on the limitations that the analysis faced as well as further research necessary to address these limitations.

Owing to the existence of PMBs, every benefit option provided coverage for both in- and out-of-hospital events. However, there were large, observable differences between the benefits offered for non-PMB conditions with some options only providing comprehensive cover for in-hospital events whilst others provided comprehensive cover for both in- and out-of-hospital events. Hybrid plans, which had the highest average monthly contribution rates, appeared to offer the most comprehensive cover for both in- and out-of-hospital events, with 70.5% of Hybrid plans offering an Above-Threshold-Benefit for DtD bene-

fits. Conversely, Hospital plans, which were found to have the lowest average monthly contribution rates, focused their benefit offerings on in-hospital events with the majority of options falling under this plan type offering no DtD benefits.

It was clear that there existed observable and verifiable differences in the beneficiary characteristics across the different benefit options and plan types, including their average beneficiary age and corresponding pensioner ratios. In addition, there appeared to be a correlation between these characteristics and benefit richness. As an illustration, the average beneficiary age and pensioner ratio of options only covering CDL conditions was 35 and 8.5% respectively, compared to the average beneficiary age and pensioner ratio of 52.2 and 28.9% for options covering more than 41 additional chronic conditions. These findings corroborate with those of McLeod and Ramjee (2007) where they found that the introduction of the CDL resulted in schemes moving away from providing cover in excess of the CDL to avoid attracting older and less healthy members. Options containing an ATB provide a further example, illustrated by the fact that they had an average beneficiary age of 41.9, whilst options not offering this benefit had an average beneficiary age of 37.8. Coupled with these findings, was the large variation in the average beneficiary age of options within schemes. The average beneficiary age of Discovery's KeyCare Plus option was 27.2, compared to the average beneficiary age of their Essential Comprehensive option of 40.9; and the average beneficiary age of Bestmed's Pulse 2 option was 69.8 compared to the average beneficiary age of their Beat 2 option of 27.8 (an age difference of 42 years).

Contribution rates were also shown to differ significantly between options with the lowest monthly contribution rate being R1 117 and the highest being R8 533. In addition, there existed a broad spectrum of rates within each plan type (for example, Hybrid plan types had contribution rates which ranged from R1 710 to R8 533). The differences between contribution rates appeared to be partly explained by the differences between benefit offerings on these options and partly by the differences in the demographics of the options' beneficiaries. Table 6, provides an example of these differences.

Table 6: An example of the differences in the benefit design and demographic characteristics of two Hybrid plans

	<i>Fedhealth Ultimax</i>	<i>Medihelp Dimension Prime 2 Network</i>
Contribution Rate	R8 533	R1 710
Average Age	61.3	31.8
Pensioner Ratio (%)	49.5	11.2
Number of Chronic Conditions Covered	66	PMBs only
Specialist Reimbursement Rate for Hospitalisation	300%	100%
ATB?	Yes	No
Hospital of Choice?	Yes	No

There was a 0.67 correlation coefficient observed between the average beneficiary age of benefit options and their corresponding contribution rates. Whilst this appears to provide further substance to support the theory that older and less healthy individuals join more comprehensive and hence more expensive options, without having access to more data it would be incorrect to conclude causality- for example, it could just as easily be that the options are more expensive because older individuals have joined them. However, broadly speaking, options with higher average beneficiary ages, had higher contribution rates and the benefits on options with higher average beneficiary ages appeared to cater to older members- as the example in Table 6 above illustrated. These findings appear to support the hypothesis that schemes are ‘cherry-picking’ members by designing options with different benefits that cater to particular segments of the population.

However, whilst the arguments above appear to support this hypothesis, this may not be the case. ‘Cherry-picking’ as a concept, solely focuses on trying to attract the young and healthy to a scheme and does not provide a full explanation for the differences observed. A more plausible explanation is the need for schemes to separate members into more homogenous risk pools, as opposed to ‘cherry-picking’, so that different benefit options have different risk profiles- which will facilitate the cross-subsidisation process across the scheme (particularly with community rating occurring within options and in

the absence of a REF and mandatory membership). Furthermore, it is difficult to identify whether or not it is ‘cherry-picking’ or anti-selection that is taking place- again, drawing back to the argument that one cannot conclude causality. For example, if members are selecting options that best meet their needs (as opposed to the scheme specifically designing options to attract members with particular risk profiles), then one would conclude that anti-selection by members as opposed to ‘cherry-picking’ by schemes is taking place. In addition, one might argue that the market is actually functioning well if the appropriate target markets are being reached.

It was also clear that contribution rates differed between plan types. Hospital and Networked plan types were found to have the lowest contribution rates, Traditional and Hybrid plans were found to have the highest, whilst New Generation plan contributions fell in the middle. The correlation coefficient identified above was justified in that Hospital and Networked plans had the lowest average beneficiary ages and pensioner ratios, whilst Traditional and Hybrid plans had the highest average beneficiary ages. Interestingly, New Generation plans had significantly higher contribution rates than Networked or Hospital plans, this was despite the presence of medical savings accounts which are intended to transfer DtD insurance risk onto the beneficiary and encourage them to ration their own utilisation.

Whilst examining scheme brochures it was evident that schemes market a MSA as a ‘benefit’. However, in reality a MSA is merely a dedicated savings account where money is put aside in order to cover medical expenses. In essence members are paying for DtD benefits out-of-pocket and one would thus expect a reduction in contribution rates - however, this did not appear to be the case. As an illustration, take Discovery’s Essential Saver option (a New Generation plan) with a total monthly contribution of R2 198 (the pure risk contribution was R1 869) and an average beneficiary age of 28.7, and Bestmed’s Beat 1 option (a Hospital plan) with a monthly contribution of R1 357 and an average beneficiary age of 33.2. These 2 options offer the same ‘core’ major medical benefits (both offer no additional coverage for chronic diseases above those included in the PMBs, for example) and yet the one option, despite the fact that the risk of DtD

claims has been transferred to the beneficiary, is more expensive - more extreme examples than these 2 particular options did exist. Regardless of the existence of loyalty programs and additional supplementary benefits, the price differential between these two options should not be so large, as major medical benefits and DtD benefits make up the majority of claims expenditures for schemes (Council for Medical Schemes, 2014c).

Doherty and McLeod (2002) offered one possible explanation for MSAs being more expensive than expected, where they stated that “savings accounts fail as a cost control measure as they do not tackle the incentives to over-supply that are created by the fee-for-service reimbursement of providers” (Doherty and McLeod, 2002:16). Another possible explanation was provided by Ranchod *et al.* (2001), in that “new generation options are being marketed to higher income groups who have a higher propensity to consume health” (Ranchod *et al.*, 2001:42). However, delving deeper into potential reasons for the differences observed fell outside the scope of this paper but presents an opportunity for further research.

Thirteen out of the 118 options used in the analysis of benefits made use of income bands⁵³ in setting contribution rates. However, these 13 options made up 13% of market share with 571 594 beneficiaries. It was found that the use of income bands helped improve the affordability of contributions for consumers, for example, 86% of Networked options identified as affordable under Basis C utilised income bands, whilst 100% of those identified under Basis A used income bands (although that represents only 2 options). The low prevalence of income rated contributions disadvantages the low income members of medical schemes by reducing the extent of income cross-subsidies. Furthermore, since pensioners tend to have lower incomes they are included in the group that would benefit from their use. This might provide a possible explanation for their low usage as options with income bands will be more attractive to pensioners which impacts negatively on a schemes risk profile. The competitive pressure and incentive to risk select are thus contributing factors to the decline in the use of income bands (McLeod and Ramjee, 2007).

⁵³differentiating contributions for a benefit option based on the principal member’s income

EDOs which are exempted from section 29 (1) (n) of the Medical Schemes Act (which states that contributions can only be differentiated on the basis of income or family size) did not show significant increases in affordability, despite members' being entitled to pay a discounted monthly contribution if they choose to restrict freedom of choice to a PPN (a network identified by the scheme on the basis of cost-efficiency). As an illustration, 9 Hybrid options were registered EDOs, but only 3 of them were found to be affordable under Basis C (12 options were affordable under Basis C). In addition, EDOs had an average beneficiary age and contribution rate of 35.6 and R2 353.80, compared to an average beneficiary age and contribution rate over all other options of 39.8 and R2 881.90 respectively.

Importantly, however, EDOs were established with the intention that the discounted contributions reflected the efficiencies of the PPN rather than the demographics and claims propensities of the beneficiaries that were expected to participate in the discounted structure. As such, only slight differences in demographic characteristics are not that unexpected. Furthermore, an affordability investigation might not be that useful (as this is not what EDOs are ultimately trying to achieve), a more useful comparison would be to compare 2 options with one of these options being a sub-option of the other (and is registered as an EDO). As an illustration, take Discovery's Classic Comprehensive option and Discovery's Classic Delta Comprehensive option (an EDO option). These 2 options offer similar benefits (both offer the same amount of cover for non-CDL conditions and in-hospital benefits), however, the EDO option achieves a R402 discount owing to the efficiencies created from using a network of providers. Furthermore, both options had similar average beneficiary ages, with the EDO option having an average beneficiary age of 36.6 compared to the average beneficiary age of the non-EDO option of 37.2. In theory then, consumers can attain the same benefits with a R402 discount, the only requirement being that they have to obtain these services from a PPN.

The analysis was then carried out on all EDO options. On average, EDOs were able to

achieve a R523 discount from their respective ‘primary’⁵⁴ options. In addition, the average beneficiary age and pensioner ratios of the EDO options was 33.1 and 7.6%, which were lower than the respective figures for their primary options (37 and 10.2%). Despite their ability to achieve discounts for consumers, EDOs displayed low popularity, as they only contained 374 448 beneficiaries (representing 7.2% of the open-scheme market).

Options covering additional conditions in excess of those covered as part of the CDL appeared to show reduced affordability- evidenced by the fact that all options (barring 1 Hybrid option) offering coverage for additional conditions were found to be unaffordable (under Basis C). This was the only distinctive and observable difference in benefit offerings between those options found to be affordable and those found to be unaffordable. However, with Hybrid and Traditional plans it was difficult to state with certainty that this was a deciding factor that contributed to the option being unaffordable, owing to these plan types generally offering more comprehensive cover. The presence of an ATB in Hybrid and Traditional plans appeared to be an additional benefit that contributed to an option being unaffordable. Importantly, it is not possible to state with certainty that these benefits are driving unaffordability without performing a full statistical analysis (perhaps in the form of a Generalised Linear Model). However, this was not within the scope of this dissertation.

These findings corroborate with those of Fish *et al.* (2006) where they found that owing to the strong relationship between age, chronic illness and the propensity to claim, “the level of chronic benefits offered can be expected to have a strong influence on the risk profile of beneficiaries attracted to an option” (Fish *et al.*, 2006:26). They also found that prior to the implementation of CDL, the level of chronic benefits offered by an option impacted on the age profile of that option which appeared to demonstrate that prior to the implementation of the CDL some schemes used chronic medicine benefit design to effectively risk rate. They then went on to state that “prescribing a package of minimum benefits that all schemes are required to offer, limits to some extent, the

⁵⁴Primary option here, refers to the option that does not restrict services to a PPN and is the option from which the EDO is registered as a separate sub-option

ability of schemes to use benefit design to separate members on the basis of health status” (Fish *et al.*, 2006:28). However, the findings of this analysis do not appear to support this hypothesis, with 56.8% of options in 2014 and 42.5% of options in 2006 only providing cover for the CDL (Fish *et al.*, 2006). Furthermore, the options offering cover for additional conditions over-and-above those included in the CDL had significantly higher average ages and pensioner ratios. Thus, it appears as though schemes are moving away from offering additional cover for chronic conditions as this benefit adversely impacts on the demographic characteristics of its beneficiaries- a result that supports the hypothesis that this benefit is being used as a means of ‘cherry-picking’ members.

Viewed from the perspective of beneficiaries and not options, the impact on beneficiaries with non-CDL conditions is more significant. In 2003 (before the implementation of the CDL) 86.2% of beneficiaries had cover for more than 40 diseases, in 2004 83.4% of beneficiaries were covered for 40 or fewer diseases (Fish *et al.*, 2006) and in 2014 99.8% of beneficiaries were covered for 40 or fewer diseases. The results are more dramatic when viewed from the perspective of the number of beneficiaries in each category. The proportion of beneficiaries with no cover for non-CDL conditions increases from 13.5% in 2003 to 53.0% in 2004 (Fish *et al.*, 2006) to 69.6% in 2014. This change in the behaviour of schemes to manage their costs and risks through the use of benefit design is thus evident. Clearly, the extent of coverage for chronic conditions within benefit options gives schemes the ability to manage their risks and reduce their costs⁵⁵ by ‘cherry-picking’ members.

The examples above demonstrated that options that covered conditions in excess of the CDL and that contained an ATB had higher average beneficiary ages and pensioner ratios. A possible explanation is that it is more likely that an older and less healthy person will join an option with such benefits, and hence a scheme that offers these benefits exposes themselves to anti-selection and the risk that more claims will be paid out than expected. Consequently, contribution rates need to be raised- resulting in the option being unaffordable. As such, this result was not an unexpected one, but it did emphasise

⁵⁵As mentioned earlier, these costs have increased with the introduction of the CDL into the PMBs, as schemes are now required to cover these conditions in full which creates affordability constraints

the value in offering more benefit options for a scheme. For illustrative purposes, consider a hypothetical medical scheme environment where a scheme only offers one benefit option which happens to provide cover for a large number of chronic conditions and has an ATB in place - this option is likely to attract older, less healthy members who are more likely to claim. Consequently, this scheme would be paying out more claims than it would be receiving contributions as there would be less cross-subsidisation from the healthy to the sick. Thus, whilst offering a large number of benefit options creates complexity for the consumer, it does potentially allow schemes to offer more affordable cover to members who are less healthy and more likely to claim. This illustrates the importance that schemes place, on both attracting younger and healthier individuals and offering multiple benefit options.

Whilst the impact of PMBs on benefit design was not analysed quantitatively, they were looked at from a qualitative perspective. Despite PMBs being compulsory to offer, schemes used a number of risk management tools to control the costs of providing for these PMBs, including inter alia: formularies or medicine lists; treatment protocols that included clinical entry criteria⁵⁶; and DSPs. So whilst PMBs may be a standardised benefit offering across all schemes, each scheme employed their own risk-management techniques which hindered comparability across the options. As an illustration, Bonitas Medical Scheme applied a 40% co-payment, whilst Discovery Medical Scheme applied a 20% co-payment if a beneficiary voluntarily obtained diagnosis, treatment and care in respect of a PMB condition outside the DSP network.

In addition there were a number of conditions that needed to be satisfied in order for PMBs to be covered in full. Schemes required their members to obtain pre-authorisation for a PMB condition in order for claims to be covered in full. The schemes then assessed the application against their clinical entry criteria, which guided their funding decision. Based on the information provided, the scheme then chose how the claim would be paid: either in full, or part payment. Furthermore, schemes would only pay for diagnostic tests associated with a PMB condition if the tests showed that it was indeed a PMB condition.

⁵⁶diagnostic or laboratory tests confirming the diagnosis

In addition, payment of PMB claims related to chronic conditions were dependant on members registering on the schemes' chronic disease management programme. Schemes were also strict when it came to submitting claims for a PMB condition- accounts related to PMB conditions needed to contain valid ICD-10 codes, failure to submit valid codes would result in non-payment or the scheme using available funds in the member's DtD benefits (MSA or ATB in the case of New Generation or Hybrid plans) to pay for these claims.

The examples above are used to illustrate that whilst PMBs as a benefit offering are a standardised package, the risk-management tools used by schemes to manage the costs associated with PMBs make direct comparison across the options difficult and further hampers the complexity for the laymen consumer. It is also evident that the existence of PMBs restricts benefit design and limits the extent to which schemes can lower contribution rates⁵⁷. Their presence might provide a possible explanation as to the lack of affordability for low-income consumers identified in the affordability investigation. This was a finding echoed by the LIMS Report (2006) where they stated that there exists a clear trade-off between the "comprehensiveness of cover offered by the PMBs in the current medical scheme market, and the affordability barrier that these PMBs create for low-income households" (Broomberg *et al.*, 2006:22).

The impact of PMBs on benefit design leads to a point that needs consideration, the cost of regulation on benefit design. The literature presented in section 3 demonstrated that the pooling of risks and the ability to attract as diverse and as large a group of risks as possible is fundamental to the long-term sustainability of any medical scheme. However, the structure of the medical scheme environment as it stands, is incomplete. Open-enrolment, community rating and PMBs without mandatory cover and some form of a risk equalisation mechanism, has created the incentive for schemes to design benefit

⁵⁷In 2001, it was determined that the industry community rate for PMBs was R199.69 per beneficiary per month (R419.16 in 2014 Rands). However, this was before the introduction of emergency medical conditions (2003) and the CDL (2004), which would likely raise the community rate for PMBs substantially (McLeod, 2005)

options in a way that enables them to both ‘select’ their risk profile in order to achieve as young and as healthy a risk pool as possible as well as separate beneficiaries into more homogenous sub-pools⁵⁸ - with the results above demonstrating that schemes appear to be doing just this. In the absence of a REF, the community rate for PMBs within each option differs depending on the age and health profile of the option. The consequence of this is that members are paying different prices for the PMB package in different options. The REF and Circular 8 of 2006 (see section 3.1) were both proposed solutions to this as they would have ensured that, either across the scheme or across the industry, members paid the same amount for PMBs.

In addition, the impact of this incomplete regulatory framework is compounded by the presence of MSAs (which reduce the size of risk pools), an ageing medical scheme population, the absence of a risk-based capital approach and the large disparity in the size of different schemes. Thus, the need to attract as large and as diverse a group of members as possible provides credence to the need to have multiple benefit options. Furthermore, the more options there are, the more sub-pools there are, and if each of these is relatively homogenous, the more likely the member is to be paying an amount that closely approximates their risk rate. Whilst this might increase the complexity for the consumer and hamper decision making, by offering options that cater to the healthy and to the sick, the scheme can diversify their risk pool while at the same time create more homogenous risk pools- and hence achieve greater cross subsidisation across the options. The schemes design decisions, might then be seen as rational choices given the incomplete regulatory environment that currently surrounds them.

In addition to these regulatory factors, the current structure of South Africa’s dual healthcare system, with the perceived quality differences that exist between the public and private healthcare delivery sectors brings its own set of challenges into benefit design. Whilst a limited number of benefit options (6) were identified as using state facilities to provide treatment for certain procedures, the remaining options made use of

⁵⁸This argument, again, ties back to the fact that schemes may not necessarily be designing options to ‘cherry-pick’ members

private facilities to provide the majority of services. Since the private healthcare sector is more expensive, this limits the extent to which schemes can lower contribution rates for consumers and ultimately limits the benefits that schemes can offer to beneficiaries.

Whilst the findings of the analysis show the deep complexities involved in analysing benefit design, it is also evident that this complexity might be necessary and serve an important purpose in the current regulatory framework. Since healthcare resources and the resources of the schemes are limited, medical schemes need to ration the benefits on offer to beneficiaries. As such, complexity in benefit design acts as a form of implicit rationing- i.e. if beneficiaries are unaware of the benefits available to them, they will not claim. This implicit rationing function serves as a possible explanation to the ‘implicit benefit design’ features observed throughout the benefit options. In addition, in a hypothetical medical scheme environment where members can easily compare benefit options, it is inevitable that there will be a large anti-selection effect. That is to say, if beneficiaries could easily compare available alternatives they will pick the option that best meets their needs for the least cost. This will, in all likelihood, result in a destabilisation of risk-pools and the unaffordability of coverage to the elderly and the sick owing to the reduced cross-subsidies occurring within benefit options.

After examining all medical scheme brochures, it is difficult to state, based on observation, whether or not members of medical schemes are being treated fairly. The implicit complexity of South Africa’s health system, the regulations surrounding medical schemes and of healthcare in general (complicated medical terms and jargon) make marketing a benefit option to a consumer in a manner they will understand, a complex task. However, despite this implicit complexity, it is clear that medical schemes can do more to better enable their beneficiaries to make better and more informed decisions. Rusconi *et al.* (2014) agreed with this sentiment, where they stated that there are a number of compelling reasons justifying increased transparency in the medical scheme environment. As an illustration, with regards to PMBs, many schemes failed to elaborate where they stated that “hospital benefits would only cover the costs of PMBs”- a laymen consumer might not know what this would entail, what benefits this would entitle him/her to and what

conditions and guidelines they would need to follow in order for their claim to be covered. In addition, schemes often stated that certain categories of benefits offered ‘unlimited’ cover. However, in reality, this would often entail covering only the first, say R500 000 of expenses, and thereafter the beneficiary would have to pay a co-payment for any further cover. These ‘implicit benefit design’ features potentially serve as the most harmful to consumers.

This point leads to an interesting observation- the role of brokers within the benefit design environment. With 172 options on offer, complex terminology used in brochures, different protocols, rules and terms of coverage in place, and the lack of any form of standardisation of benefit design across schemes, the need for brokers is evident. Furthermore, as a consequence of this complexity, consumers may not have the capacity, time or technical expertise to accurately judge which option is best for them and their family. However, a reliance on brokers to sell these options and to act as intermediaries to prospective members creates its own set of challenges. In a system where brokers are relied upon to sell products, the remuneration structures that schemes have in place for brokers becomes a key determinant as to the number of members the scheme is likely to attract and hence the resulting risk profile of the scheme. This finding corroborated with McLeod (2005) where she stated that “the presence of brokers in the open scheme market is intimately connected to the competitive dynamics between open schemes and the short-term nature of the industry” (McLeod, 2005:21).

Whilst remuneration of brokers (commissions allowed per member is capped) is regulated, this does not restrict other incentive structures being put in place to motivate brokers to have preference of one scheme over another. For example, the commission structures for bringing members onto a scheme’s loyalty program and indirectly onto the scheme’s membership can have their own remuneration structure. Furthermore, since brokers are remunerated as a percentage of monthly contributions, there is also the incentive for brokers to encourage growth at the high end of the market (despite the cap in commission payable) with low-income consumers thus losing out the most. This is compounded by the fact that low-income individuals are generally less educated and perhaps

require the most assistance in deciding on which benefit option to join. The LIMS Report (2006) also arrived at this conclusion where they recommended that the current broker business model be altered to enable distribution in the low-income market (Broomberg *et al.*, 2006). Broker activities might also provide a possible explanation as to why beneficiaries might join a more expensive option that offers identical benefits to a cheaper option.

‘Implicit’ has been a word used throughout this paper and it is now clear why. Healthcare, and by extension medical schemes, is a ‘layered’ industry, in that there are numerous outcomes possible from any number of circumstances. Take for example, a patient diagnosed with cancer, there are multiple varieties of cancer, all of which will require their own treatment and different combinations of medication. Thus it is difficult to put every detail into a medical scheme brochure that will cater to every single member’s healthcare needs and deal with all the terms and conditions necessary to provide a complete picture of benefits available. ‘Implicit benefit design’ thus refers to all the nuance and niche benefit offerings, any penalties for non-compliance of scheme rules and any mechanisms employed by a scheme to control member utilisation (such as co-payments and deductibles) which may not be directly visible on the schemes brochure without doing more in-depth analysis.

9.1 Limitations and Further Research

Medical scheme benefit design represents a large and complex environment. Consequently, to have a clearly defined research question the scope of this dissertation needed to be carefully outlined which necessitated a number of limitations.

9.1.1 Benefit Options

The investigation into the affordability of medical scheme contributions looked at all 172 open-scheme options, whilst the analysis of benefit design was done on a subset of 118 options. Although these options represented 92.63% of the beneficiary market share of

all open schemes, inclusion of the remaining options presents a further area for research.

In addition, whilst affordability was tested on 3 income levels and 6 family structures, the analysis of benefit design was restricted to a family with a single member and 1 child dependant (1A1C), with the principal member earning R10 580 per month. It is important to note, however, that most schemes cover the same benefits regardless of family size and merely create higher limits for each additional dependant included- the primary difference would thus be the monthly contribution paid. Thus, this limitation may not change results significantly, but analysing benefit design from multiple family structures and income levels might provide additional information that cannot be captured when restricting the study to one family and income level.

9.1.2 Benefits

This dissertation was limited in that the analysis of benefit design focused on the ‘core’ medical expenditure elements of benefit options, namely: in-hospital benefits, day-to-day benefits, chronic benefits and additional medical benefits available. However, it did not look at any supplementary non-medical benefits on offer, such as the existence of a loyalty programme.

This area of non-medical-benefits requires further exploration in order to fully ascertain the value⁵⁹ members get from joining a particular medical scheme or loyalty program. In addition, the existence of a loyalty program might provide possible explanations to questions that arose out of this dissertation, such as why consumers chose to join an option that was more expensive and yet offered the same ‘core’ medical benefits as an alternative option. The area of value-for-money could then be explored as a fully.

There has been little research conducted into medical scheme benefit design in South Africa in the last decade. The consequence being, that this dissertation needed to deal with the high level results before being able to conduct a more detailed analysis of particular aspects of benefit design. Expanding on this study and delving deeper into certain results identified would be useful in providing a more accurate and comprehensive pic-

⁵⁹price versus benefit

ture of the benefit design environment. In particular, a detailed analysis of the implicit benefit design features used throughout the schemes, such as the co-payments and other risk management mechanisms employed, would provide a more complete explanation as to the price differentials observed between different options.

9.1.3 Findings

This study identified that options offering cover for additional chronic conditions in excess of those covered on the CDL appeared to be less affordable than options not offering this benefit. In order to fully verify such a result and ascertain the drivers that make benefit options unaffordable one would need to run further analysis, potentially in the form of a Generalised Linear Model. In addition, since this analysis was largely done from a qualitative standpoint, it would be useful, and perhaps provide more significant results, to run a full statistical analysis of the results identified and of the differences between benefit options.

Whilst conducting a quantitative analysis of benefits would be useful, there are a number of limitations that prohibit the analysis. In particular, some sense of member preferences would be necessary in order to ascertain what benefits are favoured by different consumers- this would assist in assigning weights to the various benefit categories. If these preferences were not available, detailed claims distribution data would be necessary in order to identify what aspects of benefit design are most frequently consumed- one would then be looking at data for some assumed population, which would then need to be scaled-up in line with the actual population. Such data might be difficult to obtain, particularly at the beneficiary level, and justifies the need for some form of a qualitative analysis to be carried out beforehand so that the parameters for a quantitative study can be clearly defined.

The impact of regulation on benefit design was touched on earlier, and whilst this project explored the qualitative impacts visible on benefit design, it did not explore the quantitative impacts. As an illustration, this project identified PMBs as an obstacle that limited schemes ability to innovate and lower contribution rates. These findings were

not in isolation with many studies identifying PMBs as being too expensive and hence limiting schemes' ability to innovate within the benefit design environment. Quantifying the costs of regulation on benefit design and examining the limitations that regulations pose on benefit design therefore present areas for further research.

The complexity of benefit design coupled with the large number of benefit options on offer, identified the need for brokers and advisers in order to facilitate the selling process. Exploring the impact that brokers have on member movement between options and between schemes represents an area for further research and might provide explanations for a number of findings identified in this analysis.

9.2 Final Comments

This section illustrates that whilst the methodology of this dissertation faces a number of limitations, it also represents a useful framework for the future analysis of medical scheme benefit design. In particular, the analysis of benefits by plan type and the breakdown of benefits into the 'major' or 'core' aspects of benefit design, provides a useful tool with which to convey key results and to explore benefit design further. Thus, despite the difficulty in carrying out a full, extensive comparison of benefit design and the possibility of missing out on differences between options (owing to implicit elements of benefit design), there is value in doing a high-level comparison using the dimensions identified in this dissertation. Development and expansion of this methodology would thus enable greater and more accurate comparison of benefit design and assist in the making of more informed decisions necessary to reform the medical scheme environment. As such this approach represents a significant opportunity for the South African medical scheme environment to achieve greater understanding regarding benefit design and its implications on consumers and schemes.

This dissertation set out to analyse benefit design in open schemes with the intention of providing an overview of the structure and nature of benefits available to consumers, together with how and why these benefits differed between options. It was clear that observable and verifiable differences existed between the benefits offered on the options, the

demographic characteristics of the beneficiaries these options serve, together with their corresponding contribution rates. Whilst this dissertation demonstrated the complexity that the consumers face in analysing benefit options, it is clear that this complexity serves a vital purpose in order to ensure the short-term sustainability of schemes' risk pools- a consequence of the incomplete regulatory environment surrounding the schemes. However, despite the necessity of complexity, increasing the transparency with which schemes market their benefit options might overcome a number of pitfalls, particularly with regards to 'implicit benefit design'. This dissertation has merely scratched the surface of medical scheme benefit design, which requires much attention in order to facilitate expansion of coverage and to assist in the reforming of the environment which is undergoing significant change.

References

- Actuarial Society of South Africa (2014). *Subject F201: South African Health and Care Specialist Applications*, The Actuarial Education Company.
- Amelung, V. (2013). *Healthcare Management: Managed Care Organisations and Instruments*, Springer Publishing Company.
- American Academy of Actuaries (2009). Risk pooling, [Online].
URL: <http://goo.gl/JXHCFMI>
- Armstrong, J., Deeble, J., Dror, D., Rice, N., Thiede, M. and van de Ven, W. (2004). Report to the South African Risk Equalisation Task Group, *Technical report*, The International Review Panel.
- ASAIPA (2014). Medical Aid Tariff Guide 2014, [Online].
URL: <http://goo.gl/p2ZU8l>
- Ataguba, J. and Akazili, J. (2010). Health care financing in South Africa: Moving towards universal coverage, *Continuing Medical Education* **28**.
- Bonitas (2014). Standard option brochure, [Online].
URL: <http://goo.gl/vy7Tl4>
- Broomberg, J. *et al.* (2006). Consultative Investigation into Low Income Medical Schemes, *Final report* **7**.
- Council for Medical Schemes (2008). Consultation on a Revised Benefit Design Structure for Medical Schemes.
URL: <http://goo.gl/6RLLEf>
- Council for Medical Schemes (2010). The Determination of Health Prices in the Private Sector, *Discussion Document* .

Council for Medical Schemes (2011a). Circular 38 of 2011, *Technical report*, Council for Medical Schemes.

URL: <http://goo.gl/iCLs5E>

Council for Medical Schemes (2011b). Circular: Update on Implementation of the Risk Equalisation Fund Shadow process, [Online].

URL: <http://goo.gl/2Dil8y>

Council For Medical Schemes (2012a). Comments on the National Health Insurance Policy Paper of 12 August 2011, *Technical report*, Council For Medical Schemes.

Council for Medical Schemes (2012b). Press release, [Online].

URL: <http://goo.gl/vz6uku>

Council for Medical Schemes (2013). Council For Medical Schemes Annual Report 2012-2013, *Technical report*, The South African Registrar of Medical Schemes.

Council For Medical Schemes (2014a). About us, [Online].

URL: <http://goo.gl/pOvtM3>

Council for Medical Schemes (2014b). Chronic Disease List, [Online].

URL: <http://goo.gl/PovUX9>

Council for Medical Schemes (2014c). Council for Medical Schemes Annual Report 2013-2014, *Technical report*, The South African Registrar of Medical Schemes.

Council for Medical Schemes (2014d). Frequently Asked Questions, [Online].

URL: <http://goo.gl/eCMcmY>

Council for Medical Schemes (2014e). The Minimum Benefit Package, [Online].

URL: <http://goo.gl/6N1Jie>

Council for Medical Schemes (2014f). Vision and Mission, [Online].

URL: <http://goo.gl/A4cmML>

Day, C. and Gray, A. (2014). Health and Related Indicators, *South African Health Review* pp. 1–14.

Department of Health (2002). Inquiry into the various social security aspects of the South African Health System: policy options for the future, *Technical report*, South African Department of Health.

URL: <http://goo.gl/z5NZZ2>

Department of Health (2011). National Health Insurance in South Africa: Policy Paper, *Technical report*, Department of Health.

Department of Health (2013). National Health Insurance: The First 18 Months, [Online].

URL: <http://goo.gl/DAQtL6>

Discovery Health Medical Scheme (2014a). Classic Comprehensive brochure, [Online].

URL: <http://goo.gl/yP7Byg>

Discovery Health Medical Scheme (2014b). Compare Medical Schemes, [Online].

URL: <http://goo.gl/pXioW2>

Discovery Health Medical Scheme (2014c). Cover for medicine and treatment of chronic conditions, [Online].

URL: <http://goo.gl/ozVUs8>

Discovery Health Medical Scheme (2014d). Cover for Prescribed Minimum Benefits, [Online].

URL: <http://goo.gl/ROF7PX>

Discovery Health Medical Scheme (2014e). Keycare series brochure, [Online].

URL: <http://goo.gl/Dk8iok>

Doherty, J. and McLeod, H. (2002). Medical Schemes: Framework for Transformation, *South African Health Review* **2002**: 41–67.

Econex (2010). Rationing as a Response to Supply Side Constraints, *NHI Note 5* .

- Econex (2013). The South African Private Healthcare Sector: Role and Contribution to the Economy, *Technical report*, Stellenbosch.
- Fedhealth (2014). Ultima Option Range, [Online].
URL: <http://goo.gl/cuARDP>
- Financial Services Board (2014). Treating Customers Fairly, [Online].
URL: <http://goo.gl/fhfPey>
- Fish, T. and Ramjee, S. (2007). Unaffordable Medical Scheme Contributions: A Barrier to Access to Private Health Cover in South Africa, *South African Journal of Business Management* **38**(3): 29–37.
- Fish, T., Ramjee, S., Richards, B., Hongoro, C. and Hoffman, H. (2006). Assessment of the Impact of the DSP and CDL Legislation on the Medical Scheme Environment, *Council for Medical Schemes* .
- Goudge, J., Cornell, J., McIntyre, D. and Mbatsha, S. (2001). Private Sector Financing, *South African Health Review* **2001**: 69–83.
- Health Systems Trust (2014). Pensioner Ratio Indicator, [Online].
URL: <http://goo.gl/JVh52v>
- Hetico, H. *et al.* (2006). *Dictionary of Health Insurance and Managed Care*, Springer Publishing Company.
- Hicks, L. (2011). Making Hard Choices: Rationing Healthcare Services, *Journal of Legal Medicine* **31**: 27–50.
- ICON (2014). The Independent Clinical Oncology Network, [Online].
URL: <http://goo.gl/RpcCBq>
- IMSA (2010). NHI Policy Brief 8: Reducing Fragmented Risk Pools, *Technical report*, Innovative Medicines SA.

- Jurisich, S. and da Silva, R. (1998). Managed Health Care and South Africa, *Actuarial Society of South Africa* .
- Kaplan, J. (2013). An Investigation into the Affordability of Medical Scheme Contributions: South Africa's Battle with Affordable Private healthcare. Unpublished.
- Liberty Medical Scheme (2014). Compare Options, [Online].
URL: <http://goo.gl/MWBOKB>
- Makofane, K. (2009). Medical Scheme Options for Low Income Earners in 2009. Unpublished.
- Mathes, T. *et al.* (2014). Payment Methods for Hospitals, *The Cochrane Library* .
- Maynard, A. (1999). Rationing Health Care: an Exploration, *Health Policy* **49**(1): 5–11.
- McIntyre, D. (2010). Private sector involvement in funding and providing health services in South Africa: Implications for equity and access to health care, *Equinet Discussion Paper* **84**.
- McIntyre, D. and Van den Heever, A. (2007). Social or National Health Insurance, *South African Health Review* **2007**: 71–87.
- McLeod, H. (2005). Mutuality and Solidarity in Healthcare in South Africa, *South African Actuarial Journal* .
- McLeod, H. and Grobler, P. (2010). Risk Equalisation and Voluntary Health Insurance: The South Africa Experience, *Health Policy* **98**(1): 27 – 38.
- McLeod, H. and Ramjee, S. (2007). Medical Schemes: Pooling of Resources and Purchasing of Health Care, **2007**(1): 47–71.
- Medihelp Medical Scheme (2014). Explanation of Terms, [Online].
URL: <http://goo.gl/vhFZE2>

Momentum Health (2014). 2014 Benefit Options Brochure, [Online].

URL: <http://goo.gl/N2fucR>

National Treasury (2011). Conversion of Medical Deductions to Medical Tax Credit-Tax Policy Discussion Document for Public Comment, *South African Department of National Treasury* .

Nkonki (2012). Medical Aid Industry Round Table, [Online].

URL: <http://goo.gl/WkhRLA>

Old Mutual Actuaries and Consultants (2005). The Old Mutual Healthcare Survey, *Technical report*, Old Mutual.

URL: <http://goo.gl/C59pXK>

Ramjee, S., Kooverjee, A. and Dreyer, K. (2011). The Construction of a Price Index for South African Medical Scheme Contributions, *Actuarial Society of South Africa* .

Ramjee, S. and McLeod, H. (2010). Private Sector Perspectives on National Health Insurance, *South African Health Review* **2010**: 179–194.

Ramjee, S., Vieyra, T., Abraham, M., Kaplan, J. and Taylor, R. (2014). National Health Insurance and South Africa's Private Sector, *South African Health Review* **2014**(1): 93–105.

Ranchod, S. and McLeod, H. (2001). Chronic Medicine Benefits in Medical Schemes, *Centre for Actuarial Research* .

Ranchod, S., McLeod, H. and Adams, S. (2001). The Need for Low-Cost Options and an Analysis of Benefit Designs Used in 2001, *Cape Town: Centre for Actuarial Research* p. 39.

Rusconi, R., Truyens, P. *et al.* (2014). Treating Customers Fairly: Questions for the Actuarial Profession, *Actuarial Society of South Africa* .

- SA Medical Aid (2013). Company Medical Aid and Employer Subsidy, [Online].
URL: <http://goo.gl/Rfg41T>
- SAICA (2014). Connection of the Consumer Protection Act with the Medical Schemes Act, [Online].
URL: <http://goo.gl/xLrzKb>
- SARS (2013a). Income Tax Tables for Individuals for the Year 2012/2013, [Online].
URL: <http://goo.gl/Lw6nzq>
- SARS (2013b). Medical Scheme Fees Tax Credit, *Technical report*, South African Revenue Services.
- SARS (2014). Tax Pocket Guide 2014, [Online].
URL: <http://goo.gl/xJmUHf>
- Schroeder, S. and Frist, W. (2013). Phasing out fee-for-service payment, *New England Journal of Medicine* **368**: 2029–2032.
- Soderlund, N. (1998). Possible Objectives and Resulting Entitlements of Essential Health-care Packages, *Health Policy* .
- Soderlund, N. (1999). An Essential Hospital Package for South Africa: Selection Criteria, Costs and Affordability, *South African Medical Journal* **89**: 757–765.
- Soderlund, N., Peparah, E. and Solani, K. (1997). *An Essential Package of Hospital Services: A Review of International Experience with Reference to South Africa*, Centre for Health Policy, Department of Community Health, University of the Witwaterstrand.
- South African Advertising Research Foundation (2013). AMPS2012B, [Online].
URL: <http://goo.gl/kCtoSg>
- Stats SA (2012). Income and Expenditure Survey 2010/2011, [Online].
URL: <http://goo.gl/mvQodj>

Stats SA (2014). Consumer Price Index, [Online].

URL: <http://goo.gl/MyYoOb>

Taylor, B., Taylor, A., Burns, D., Rust, J. D. and Grobler, P. (2007). Prescribed Minimum Benefits: Quagmire or Foundation for Social Health Reform?, *South African Medical Journal* **97**(6): 446–450.

The Department of Health (1998). The Medical Schemes Act 131 of 1998, *Technical report*, Republic of South Africa.

Theophanides, A., Wayburne, L. and Padayachy, S. (2012). Prescribed Minimum Benefits: Looking Back to Look Forward, *Actuarial Society of South Africa* .

Tomasek, F. (2013). South African Income Tax Rates: 2008 to 2014, [Online].

URL: <http://goo.gl/bjWZg>

van den Heever, A. (2012). Review of Competition in the South African Health System, *The Competition Commission* .

van der Merwe, P. J. (2005). Clinical Governance Module, *Technical report*, Council for Medical Schemes.

Wilkie, D. (1997). Mutuality and Solidarity: Assessing Risks and Sharing Losses, *Philosophical Transactions of the Royal Society of Biological Sciences* pp. 1039–1044.

World Bank (2014). Health Systems Payment Methods, [Online].

URL: <http://goo.gl/m5joIV>

World Health Organization (2014a). Generic drugs, [Online].

URL: <http://goo.gl/m8hsQs>

World Health Organization (2014b). Glossary, [Online].

URL: <http://goo.gl/QLMzOc>

Appendices

A List of Medical Schemes

<i>Scheme</i>	<i>Administrator</i>	<i>Number of Beneficiaries</i>	<i>Market Share</i>
Discovery Health Medical Scheme	Discovery Health (Pty) Ltd	2 564 313	57,7%
Bonitas Medical Fund	Medscheme Holdings (Pty) Ltd	650 600	14,6%
Medihelp	Self-administered	220 710	5,0%
Momentum Health	Momentum Medical Scheme Administrators (Pty) Ltd	212 378	4,8%
Bestmed Medical Scheme	Self-administered	185 750	4,2%
Medshield Medical Scheme	Self-administered	171 650	3,9%
Fedhealth Medical Scheme	Medscheme Holdings (Pty) Ltd	147 538	3,3%
Liberty Medical Scheme	V Med Administrators (Pty) Ltd	118 281	2,7%
Keyhealth	Professional Medical Scheme Administrators (Pty) Ltd	76 738	1,7%
Resolution Health Medical Scheme	Agility Global Health Solutions Africa (Pty) Ltd	69 084	1,6%
Topmed Medical Scheme	Private Health Administrators (Pty) Ltd	30 786	0,7%

B List of Benefit Options

<i>Medical Scheme</i>	<i>Option</i>
Bestmed Medical Scheme	Beat 1
	Beat 2
	Beat 3
	Beat 4
	Pace 1
	Pace 2
	Pace 3
	Pace 4
	Pulse 1
	Pulse 2
Bonitas	Boncap
	BonClassic
	BonComprehensive
	BonEssential
	Bonsave
	Primary
	Standard
Discovery Health Medical Scheme	Classic Comprehensive
	Classic Comprehensive Zero MSA
	Classic Core
	Classic Delta Comprehensive
	Classic Delta Core
	Classic Delta Saver
	Classic Priority
	Classic Saver
	Coastal Core
	Coastal Saver
	Essential Comprehensive
	Essential Core
	Essential Delta Comprehensive
	Essential Delta Core
	Essential Delta Saver
	Essential Priority
	Essential Saver
	Executive
	KeyCare Access
	KeyCare Core
KeyCare Plus	
Fedhealth	Blue Door
	Maxima Basis
	Maxima Core
	Maxima EntrySaver
	Maxima Entryzone
	Maxima Exec
	Maxima Plus
	Maxima Saver
	Maxima Standard
	Maxima Standard Net
	Ultima 200 Savings only
Ultimax	
Keyhealth	Equilibrium
	Essence
	Gold
	Platinum
	Silver
Liberty	Traditional Standard
	Hospital Standard
	Hospital Select
	Saver Standard
	Saver Select
	Complete Plus
	Hospital Plus
	Saver Plus
	Traditional Ultimate
	Complete Standard
Complete Select	

<i>Medical Scheme</i>	<i>Option</i>	
Medihelp	Dimension Elite	
	Dimension Prime 1	
	Dimension Prime 1 Network	
	Dimension Prime 2	
	Dimension Prime 2 Network	
	Dimension Prime 3	
	Dimension Prime 3 Network	
	Medihelp Plus	
	Necesse	
Medshield	80% Plan	
	Core Plus	
	MediBonus	
	MediPlus	
	MediValue	
	Premium Plus	
	Standard Cover	
Momentum	Access Option	
	Custom - Any Hospital, Assoc Out of Hospital	
	Custom - Any Hospital, Out of Hospital - State	
	Custom - Assoc Hospital, Out of Hospital - State	
	Custom - Assoc Hospitals, Any out of Hospital Provider	
	Custom - Assoc. Hospital, Assoc Out of Hospital	
	Custom - Choice of Provider - In and Out of Hospital	
	Extender - Any Hospital. Assoc Out of Hospital	
	Extender - Any Hospital. Out of Hospital - State	
	Extender - Assoc. Hospital. Any - Out of Hospital	
	Extender - Assoc. Hospital. Assoc. Out of Hospital	
	Extender - Assoc. Hospital. Out of Hospital - State	
	Extender - Choice of Providers - In and Out of Hospital	
	Incentive - Any Hospital. Assoc. Out of Hospital	
	Incentive - Any Hospital. Out of Hospital - State	
	Incentive - Assoc. Hospital, Any Out of Hospital	
	Incentive - Assoc. Hospital. Assoc. Out of Hospital	
	Incentive - Assoc. Hospital. Out of Hospital - State	
	Incentive - Choice of Provider - In and Out of Hospital	
	Ingwe Any Hospital - Ingwe Active Primary Care Network	
	Ingwe Hospital Network - Ingwe Primary Care Network	
	Ingwe Hospital State - Ingwe Primary Care Network	
	Summit	
	Resolution Health Medical Scheme	Classic
		Foundation
		Hospital
		Millennium
Progressive Flex		
Supreme		
Med Elite		
Medxxi		
Selfmed 80%		
Selfsure		
Topmed	Topmed Active Saver	
	Topmed Hospital Plan	
	Topmed Network	
	Topmed Paladin Comprehensive	
	Topmed Professional Option	
	Topmed Rainbow Comprehensive	
	Topmed Savings Option	

C Proportion of affordable options using income bands

Table 7: Proportion of affordable options using income bands under a 50% employer subsidy

	<i>Family Structure</i>	<i>R 4 760,00</i>	<i>R 7 090,00</i>	<i>R 10 580,00</i>
Basis A	2A2C	-	100%	50%
	2A1C	-	100%	100%
	2A0C	-	100%	100%
	1A2C	-	58%	26%
	1A1C	-	62%	30%
	1A0C	-	86%	29%
Basis B	2A2C	-	63%	27%
	2A1C	-	56%	27%
	2A0C	-	58%	26%
	1A2C	-	36%	29%
	1A1C	100%	36%	26%
	1A0C	100%	36%	23%
Basis C	2A2C	-	42%	29%
	2A1C	-	42%	29%
	2A0C	100%	38%	26%
	1A2C	100%	33%	26%
	1A1C	100%	26%	24%
	1A0C	83%	22%	22%
	Average	97%	55%	36%

Table 8: Proportion of affordable options using income bands under a 0% employer subsidy

	<i>Family Structure</i>	<i>R 4 760,00</i>	<i>R 7 090,00</i>	<i>R 10 580,00</i>
Basis AA	2A2C	-	-	-
	2A1C	-	-	-
	2A0C	-	-	-
	1A2C	-	100%	100%
	1A1C	-	100%	100%
	1A0C	-	-	100%
Basis BB	2A2C	-	100%	100%
	2A1C	-	100%	100%
	2A0C	-	100%	100%
	1A2C	-	100%	50%
	1A1C	-	100%	40%
	1A0C	-	100%	29%
Basis CC	2A2C	-	100%	100%
	2A1C	-	100%	100%
	2A0C	-	100%	100%
	1A2C	-	90%	31%
	1A1C	-	67%	29%
	1A0C	100%	63%	30%
	Average	100%	94%	74%