The Determination of the Formula for the Risk Equalisation Fund in South Africa

By Professor Heather McLeod, Shaun Matisonn, Dr Izak Fourie, Pieter Grobler, Susan Mynhardt and George Marx

on behalf of the Formula Consultative Task Team

For discussion with stakeholders and the International Review Panel

January 2004

Prepared for the
Risk Equalisation Fund Task Group

Risk Equalisation Fund Task Group

The Risk Equalisation Fund Task Group (REFTG) was established by the Department of Health and is a joint initiative by the Department of Health and the Council for Medical Schemes. The members of the REFTG are:

Brenda Khunoane – Director, Social Health Insurance, Department of Health
Thabo Rakoloti – Social Health Insurance, Department of Health
Dr Elamin Mohamed – Research and Monitoring, Council for Medical Schemes
Alex van den Heever – Advisor to the Council for Medical Schemes

The REFTG established two Consultative Task Teams on 10 July 2003:

Formula Consultative Task Team – chaired by Professor Heather McLeod
Subsidy Framework Consultative Task Team – chaired by Anton Roux

Web site: http://homeoffice.medicalschemes.com/REF/
The Risk Equalisation Fund Task Group web-site is also accessible from http://www.medicalschemes.com or http://www.doh.gov.za or Http://www.refsa.co.za

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A total of 64 people volunteered or otherwise assisted with the work of the Formula Consultative Task Team. The teams are recorded in Appendix C and the names of all participants are given in Appendix D.

Note from the Chair of the Task Team

The reader is referred to two key papers on the conceptual framework for the choice of factors for risk equalisation and the approaches used in other countries:

- Van de Ven, W.P.M.M. and Ellis R.P. (1999). Risk Adjustment in Competitive Health Plan Markets.
- Rice, N. and Smith, P.C., (2001) Capitation and Risk Adjustment in Health Care Financing: An International Progress Report.

In this report we do not comment on or present a summary of the literature, but rather concentrate on the consultative process for the development of a formula for risk equalisation in South Africa and the evidence that emerged during that process.

This report has been prepared to facilitate the work of the International Review Panel that has been invited to review the work of the Consultative Task Teams. The report is also important in informing stakeholders of the outcome of the consultative process and in order to continue the consultation process as the details of the Risk Equalisation Fund emerge.

The six months of consultation have been characterised by extraordinary openness, transparency and a willingness to share. My thanks to all the people who volunteered and those who provided submissions and data. My thanks go particularly to the five chairpersons of the teams for their time and effort in making this report feasible. It has been a memorable process to collaborate with you.

Heather McLeod

8 January 2004

Executive Summary

A substantial Executive Summary is to be published as a separate document in order to inform stakeholders and to facilitate consultation.

Glossary

Accounting Guideline AC116: the accounting guideline developed by the South African Institute of Chartered Accountants (SAICA) that deals with the accounting treatment of the post-employment financial obligations of employers. These include the obligation in respect of medical scheme subsidies to pensioners in retirement.

Bargaining Council scheme: (previously called **exempt schemes**) a medical scheme that is not able to comply fully with the **Medical Schemes Act** and is thus granted exemption from certain of its provisions, usually with respect to **Prescribed Minimum Benefits**.

Chronic Disease List (CDL): a list of 25 chronic conditions that must be covered as part of the **Prescribed Minimum Benefits**. The conditions are defined by **diagnosis codes.** Schemes must provide for the diagnosis, medical management and medication for these conditions, to the extent provided for by way of **therapeutic algorithms.** This part of the PMBs came into operation on 1 January 2004.

Cluster: a concept developed by Medscheme in data analysis that is a proxy for socio-economic grouping. Low cluster options are approximately 50% of the cost of High cluster options. Low cluster beneficiaries tend to be younger and predominantly of African/Black ethnicity. This cluster is a useful proxy for the emerging market under **Social Health Insurance.**

Community rate: the standard rate for each option that schemes must charge in accordance with the **Medical Schemes Act.** Schemes may not **risk rate** and may only vary contributions by income or number of dependants. Schemes may charge separate adult and child rates, but no further differentiation by age or state of health is allowed.

Contribution table: the table containing the scheme community rate for each option. Typically published by each medical scheme in October/November for the calendar year ahead. Contributions are usually revised annually (often together with benefits) and only adjusted during a calendar year if the scheme experiences solvency problems.

Council for Medical Schemes: the statutory body appointed by the Minister of Health to govern the medical schemes industry. Consists of up to 15 members that are appointed for terms of up to three years, taking into account the interests of members and of medical schemes, expertise in law, accounting, medicine, actuarial sciences, economics and consumer affairs.

Designated service provider: the health care provider or group of providers selected by a medical scheme as the preferred provider to provide to its members diagnosis, treatment and care in respect of the **Prescribed Minimum Benefit** conditions.

Diagnosis (ICD-10) code: code attached to a claim received by a medical scheme that conveys the diagnosis, disease or event (e.g. bee sting). A recommendation in the industry is to implement ICD-10 coding, the International Statistical Classification of Diseases and Related Health Problems (version 10), maintained by the World Health Organisation.

Diagnosis-Treatment pairs: the descriptions used to define the largest part of the **Prescribed Minimum Benefits**. For example, under the Chapter on Heart and Vasculature, PMB code 26E:

Diagnosis: Arterial embolism/thrombosis: abdominal aorta, thoracic aorta
Treatment: Medical and surgical management.

The lack of **diagnosis codes** and **procedure codes** in this description makes the administration of PMBs a matter for interpretation by each scheme.

Mandatory membership: the legislated requirement to be a member of a medical scheme. At present the system is voluntary but mandatory membership is envisaged in terms of **Social Health Insurance**. It is envisaged that all employees earning above the tax threshold be required to be members of a medical scheme and to include their dependants as beneficiaries on that scheme.

Medical savings account: a benefit design device developed by Discovery Health that is used by a number of medical schemes and encourages members to take responsibility for healthcare expenditure decisions on day-to-day care like provider visits, acute medicine and simple diagnostic testing. Members make decisions as to how much to contribute to their own personal savings account and money left in the account at year end remains allocated for the member's use. Concerns have been expressed by the Department of Health about the impact on equity and solidarity. Since 2000 these accounts have been limited in size and scope by the **Medical Schemes Act.**

Medical Schemes Act: The legislative instrument governing medical schemes. Act No. 131 of 1998. Regulations are made in terms of this Act. Many of the provisions of the Act came into effect on 1 January 2000.

Open enrolment: the requirement for **Open medical schemes** to accept anyone who applies to join at the standard **community rate**.

Open medical scheme: a **Registered medical scheme** that is open to the general public. All members must be accepted at standard rates.

Prescribed Minimum Benefits (PMBs): all benefit options offered by a medical scheme must pay in full, without co-payment or the use of deductibles, the diagnosis, treatment and care costs of the Prescribed Minimum Benefit conditions. Schemes may make use of designated service providers and managed care techniques. The PMBs are defined in Regulations to the **Medical Schemes Act** and have been in operation since 1 January 2000.

Procedure (CPT-4) code: code attached to a claim received by a medical scheme that conveys the procedure performed. The widely used coding in the industry is CPT-4, the Complete Current Procedural Terminology that originated from the American Medical Association and is licensed in South Africa by the South African Medical Association.

Registered medical scheme: a medical scheme that falls fully under the regulatory control of the Medical Schemes Act, No. 131 of 1998.

Registrar of Medical Schemes: the chief executive officer of the **Council for Medical Schemes**. The person is appointed by the Minister of Health and reports to the Council for Medical Schemes. The person manages the staff of the Office of the Council for Medical Schemes (also known as the Registrar's Office).

Restricted Membership medical scheme: a **Registered medical scheme** that only accepts members belonging to the employer, union, industry or other group (as defined in the Medical Schemes Act) that established the scheme.

Risk factor: a demographic, health or other factor identified by the actuary or statistician to a medical scheme that assists in predicting the cost of healthcare for a group of people. Risk factors were previously used to **risk rate** members joining a scheme.

Risk profile: the distribution in a scheme or the industry of a risk factor according to some other variable, often age. For example, the gender profile of a scheme by age band.

Risk rate: the practice of charging by age, gender, health status and other risk factors that is no longer allowed in terms of the **Medical Schemes Act**.

Social Health Insurance (SHI): the policy of the Department of Health that will see **mandatory membership** of medical schemes in an environment with **open enrolment**, **community rating** and **Prescribed Minimum Benefits**. The Risk Equalisation Fund is intended to protect this environment. The number of beneficiaries in medical schemes could increase from 7 million to over 10 million in the first phase of SHI.

Statutory returns: the annual and quarterly returns made by medical schemes to the **Registrar of Medical Schemes**, as required by the **Medical Schemes Act**. The returns are made electronically and the annual return is audited.

Tax subsidy: a term used only loosely in this report in the context of the reform of the tax expenditure subsidy by Government to the private healthcare industry. For greater understanding consult the companion report by the Subsidy Framework Consultative Task Team entitled "The Funding of the Risk Equalisation Fund in South Africa".

Therapeutic algorithms: are treatment pathways for the **Chronic Disease List** conditions published by the Minister of Health in the Government Gazette as Regulations under the **Medical Schemes Act**. Schemes may limit their coverage of the chronic conditions to these algorithms.

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1. Introduction

1.1 Consultative Process

The Department of Health established the Risk Equalisation Fund Task Group (REFTG), to finalise the Department's views on the establishment of a Risk Equalisation Fund (REF). The REFTG comprises officials from the Department of Health and the Office of the Registrar of Medical Schemes (see page ii for details).

A Consultative Forum with stakeholders was held at Gallagher Estate, Midrand, on 10 July 2003. At the meeting Dr Ayanda Ntsaluba, then the Director-General of the Department of Health, and Brenda Khunoane, the Director for Social Health Insurance, announced the establishment of two technical task teams. These are the Formula Consultative Task Team, chaired by Professor Heather McLeod, and the Subsidy Framework Consultative Task Team, chaired by Anton Roux (See Appendix B for complete Terms of Reference and page iii for contact details).

The intention is that at the end of six months the Department will receive a final report from the REFTG, based on the input of the two technical task teams. The Department will then make its final policy decisions and implementation plans based on the REFTG report.

1.2 Terms of Reference

The terms of reference of the Formula Consultative Task Team (FCTT) are to:

- Develop the REF formula, and make recommendations in this respect;
- Consult directly with external stakeholders and affected parties and to co-ordinate their inputs into the process;
- Identify any benefits and risks that may result from any proposed formula;

Their output will be a final Report to the REFTG advising on the formula and the required implementation requirements for a REF.

1.3 Work Plan

At the meeting of 10 July 2003, all interested stakeholders were invited to volunteer to assist with the work of the FCTT. In total, 61 people came forward and attended meetings or otherwise participated in the process. A further three people were approached to provide specific evidence. The 64 names are given in Appendix D.

At a meeting at Gallagher Estate, Midrand, on 28 July 2003, the FCTT established four teams to deal with specific aspects of their brief. At a meeting on 9 September 2003, two further teams were established. The chairpersons of each team and their contact details are on page iii. The detailed work plans agreed for each team are in Appendix C. Stakeholders were asked to join the team where they could most usefully contribute (see Appendix C for team composition). The six teams established were:

- Team 1: Definition of Risk and Principles for Choice of Formula
- Team 2: Definition of Package and Funds to Be Equalised
- Team 3: Risk Factors to be Used in Formula
- Team 4: Implementation Requirements of Formula
- Team 5: Consequences of Formula
- Team 6: Financial Soundness of Risk Equalisation Fund.

The six teams met frequently and/or communicated electronically to complete their agreed tasks. Four full meetings of the FCTT were held where results from the six teams were presented to interested stakeholders for discussion and for consensus decision. The full meetings of the FCTT were held in Midrand on:

- 28 July 2003
- 9 September 2003
- 14 October 2003
- 1 December 2003.

A full plenary of all stakeholders was held in Midrand on 20 November 2003, in order to inform the industry of the work achieved to date.

The REFTG established a web-site (see page ii for address) with technical assistance from Jaap Kruger of the Council for Medical Schemes. The site was maintained by the chairpersons of the two Consultative Task Teams. All background documents, working documents, presentations and minutes were posted to the web-site. Announcements of meetings were made on the web-site but little use was made of the electronic discussion boards. Many stakeholders chose to stay in touch with the process using material from the web-site rather than attend meetings as the process continued.

1.4 Outline of Report to the REFTG

This report summarises the work of the Formula Consultative Task Team. It presupposes an understanding of the medical scheme environment in South Africa. An introduction to the local environment by McLeod (2003) is available on the REFTG web-site for those less familiar with private sector healthcare in South Africa. Section 2 provides an introduction to healthcare reform and Social Health Insurance (SHI), in order to place the REF in context.

Section 3 deals with the need for risk equalisation, while Sections 4, 5 and 6 contain definitions and guiding principles and define the scope of the REF. Sections 7, 8 and 9 deal with the development of the formula for the REF and this is tested on industry data in Section 10.

Sections 11 and 12 consider the data definitions and processes needed for the functioning of the REF, while Section 13 raises issues on the financial soundness of the REF. Section 14 considers potential consequences of the formula and the final Section outlines the recommendations for the finalisation and implementation of the formula for the Risk Equalisation Fund.

This report should be read in conjunction with the report entitled “The Funding of the Risk Equalisation Fund in South Africa” authored by Anton Roux on behalf of the Subsidy Consultative Task Team.

2. Introduction to Social Health Insurance

This section is provided as background for those who are less familiar with private sector healthcare in South Africa, the reforms of 1998 and the proposed reforms under Social Health Insurance (SHI). This section provides a context for the Risk Equalisation Fund prior to the detailed discussion of the work on the formula.

2.1 Reforms under the Medical Schemes Act of 1998

The regulatory framework for medical schemes has been in existence since 1967. Medical schemes had to provide statutory minimum benefits and were community-rated, i.e. they could only vary contributions by income and the number of dependants. In the 1980s there was substantial industry pressure for a more free-market approach to healthcare, culminating in the recommendations of the Browne Commission in 1986.[1]

An amendment to Regulation in 1989 allowed medical schemes to risk-rate, in other words a member's contributions could be based on the number of dependants, income level, age, geographic area, actual claims experience, extent of cover provided, period of membership and the size of group to which the member belonged. A revision of the Medical Schemes Act in 1993 removed the requirement for statutory guaranteed minimum benefits.

The 1995 National Health Insurance Committee of Inquiry recommended that the overall healthcare system should create a rational system of risk-sharing between as large a group as possible and, in the longer-term, ensure the availability of a minimum level of cover for all within the public and private sectors. The Committee recommended a return to minimum benefits, open enrolment and community-rating as prerequisites for Social Health Insurance.

[1] Department of Health (2002), *Inquiry Into the Various Social Security Aspects of the South African Health System. Policy Options for the Future*., 14 May 2002.

The Medical Schemes Act, No. 131 of 1998 (the Act), re-introduced prescribed minimum benefits as a policy instrument for defining minimum allowable levels of medical scheme cover. Schemes were also required to return to community-rating in that only income and the number of dependants could be used to determine contributions. The Act allows for the differentiation between adult and child rates. Open enrolment was introduced in that a member could choose to join any Open medical scheme and had to be accepted at standard rates.

The Act came into force in February 1999 with most provisions of the Regulations applying from 1 January 2000. Annexure A to the Regulations defined the Prescribed Minimum Benefits (PMBs) in terms of some 270 diagnosis-treatment pairs. These have to be provided in at least one network setting and diagnosis and treatment must be covered in full, without financial limits or co-payments.

The objective of specifying a set of Prescribed Minimum Benefits is given in the 1999 Regulations as:

- 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.
- To encourage improved efficiency in the allocation of Private and Public health care resources.

The Regulations of November 2002 provided substantial clarification of the PMB requirements and defined emergency procedures and the need for designated service providers. Schemes may make use of managed care techniques such as pre-authorisation, the development of formularies and the use of restricted networks of providers in order to ration care. Co-payments may be levied if a member voluntarily uses a provider who is not the designated service provider.

The PMBs have been substantially extended from 1 January 2004 with the introduction in the Regulations of the Chronic Disease List (CDL). This defines 25 chronic conditions where the cost of diagnosis, treatment and medication must be covered in full by the scheme. (Conditions listed in Appendix S).

The PMBs for the CDL conditions are described in terms of treatment algorithms in the Regulations, whereas the other PMBs are described in terms of diagnosis-treatment pairs. The Council for Medical Schemes has embarked on a project to define the diagnosis-treatment pairs more clearly as there are currently no ICD-10 codes or CPT-4 codes in the Regulations and thus schemes must individually interpret these PMBs. This process is expected to take several years. The CDL algorithms use ICD-10 coding to define the 25 covered chronic conditions.

Throughout this report we will be referring to studies that considered aspects of the PMB costing. In order to facilitate understanding, we propose the following summary of PMBs with the components identified by suffixes. The Prescribed Minimum Benefits (PMBs) consist of:

- A list of 271 diagnosis and treatment pairs (PMB-DTP). Introduced from 1 January 2000.
- Emergency medical conditions (PMB-EMC, but usually included in PMB-DTP). Clarified and in force from 1 January 2003.
- Diagnosis, treatment and medication for 25 defined chronic conditions (PMB-CDL). Introduced from 1 January 2004.

The Social Security Committee of Inquiry (the Taylor Committee), reporting in March 2002, recommended the development of an effective policy process on defining and implementing basic essential services across the public and private sectors. The report states that the public and private healthcare sectors need to provide a minimum core set of services. Within medical schemes these are regulated as Prescribed Minimum Benefits (PMBs). Within the public sector these are framed as minimum norms and standards.

Despite the PMB-DTP being in place now for three years, few schemes or administrators have tracked expenditure on this component. This should alter as schemes begin to focus more on PMBs with the introduction of the Chronic Disease List (PMB-CDL).

2.2 Social Health Insurance Reforms

The future vision for the South African healthcare system was outlined in the Report of the Social Security Committee of Inquiry, released in May 2002. A more detailed report on healthcare was also released by the Department of Health. These reports recommended that South Africa move ultimately towards a National Health Insurance system that integrates the public sector and private medical schemes within the context of a universal contributory system. The four phases of reform have an initial goal of a Social Health Insurance system. A summary of Social Health Insurance policy, prepared by the National Department of Health, is provided in Appendix A.

Despite the reforms of open enrolment, community-rating and Prescribed Minimum Benefits in the Medical Schemes Act of 1998, it is still possible for some open schemes to design and market themselves in such a way that they attract younger and healthier people. This leaves other schemes with older and less healthy people and with a higher community rate for the PMB package. This is neither fair nor equitable.

Risk equalisation is the mechanism used in many countries to deal with this problem. South Africa is unusual in having open enrolment and community rating without risk equalisation. This was not a policy oversight, but a question of timing and the environment is now considered to be ready for the introduction of a Risk Equalisation Fund (REF).

In its simplest form, the REF receives contributions from those schemes with a younger age and better health profile and pays amounts to those schemes with an older age and poorer health profile. The REF attempts to equalise all schemes' contribution tables so that schemes do not cherry-pick the younger and healthier lives thereby eroding the balanced age and health profile of other schemes.. The subject of this report is to recommend what risk factors should be taken into account in the REF formula. The Department of Health has targeted for the REF to be in place by 1 January 2005.

A further important policy issue is the subsidy framework for medical schemes. The Taylor Committee, which reported in 2002, estimated that there was a tax expenditure subsidy to medical schemes of R7.8 billion, which represents over R1 000 per beneficiary per annum. This is more than the public sector spends per head on delivering healthcare and it is seen as inequitable that the subsidy to the private sector is greater than that to each person in the public sector. The tax structure also rewards higher income people and those that choose more expensive medical scheme options. This is the subject of the report of the Subsidy Framework Consultative Task Team.

The diagram below has been used in the Taylor Committee process to describe the health system in South Africa with the Risk Equalisation Fund and the tax reforms in place.

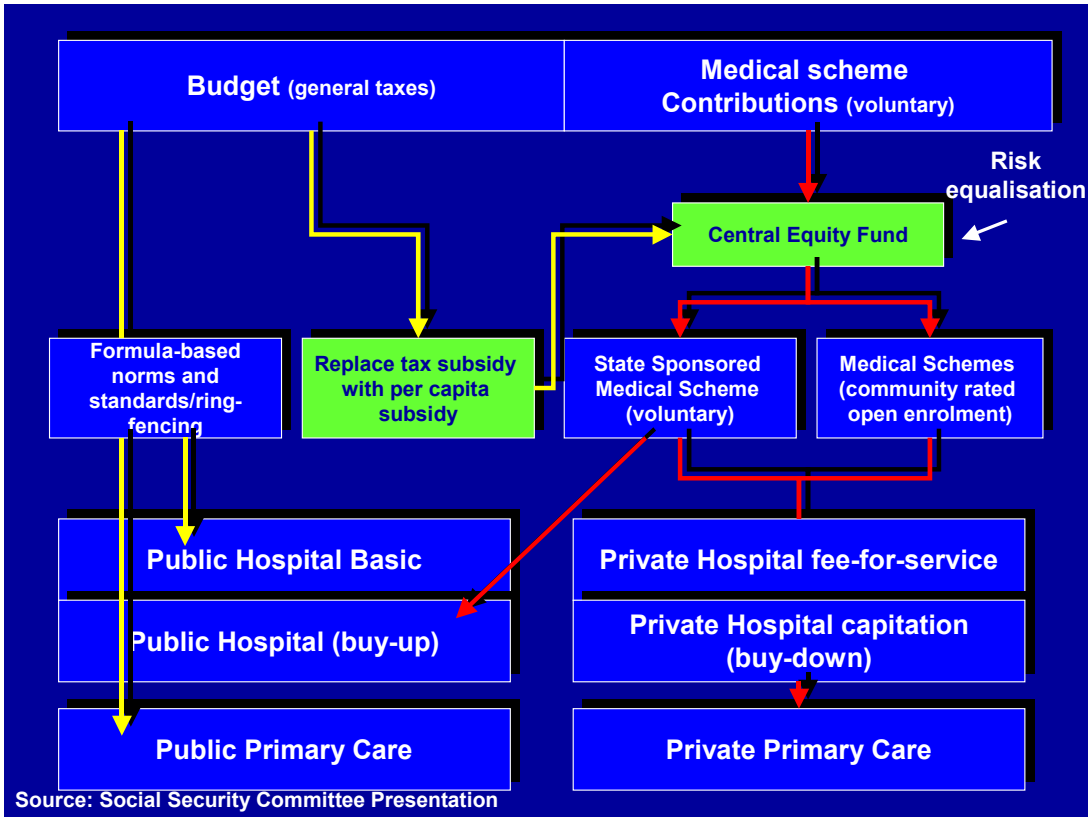

Figure 1: Phases 1 and 2 of Healthcare Reform in South Africa

Once the Risk Equalisation Fund is in operation with the revised subsidy framework, it is planned that medical scheme membership will become mandatory for the middle and higher income groups. The Social Health Insurance (SHI) reforms thus consist of:

- The Risk Equalisation Fund
- Reform of the tax expenditure subsidy framework
- Mandatory membership for middle and higher income groups.

The lower income groups will remain in a voluntary environment for the foreseeable future. Whether mandates for membership of medical schemes can be applied to this group depends critically on the development of products at a much lower cost than available in the industry at present. Ongoing reform of public sector healthcare occurs simultaneously with the SHI reforms and the possibility of using private beds in public hospitals (also known as buy-up or second-tier facilities) to deliver lower cost products needs to be more fully explored by medical schemes.

2.3 Mandatory Membership

Dr Ayanda Ntsaluba, the previous Director General of Health, speaking on 10 July 2003, said:

> "We in the department have spoken for a long time about the need to establish a social health insurance system in South Africa. … Perhaps you have even come to doubt the seriousness of our intentions to go the mandatory route. I am therefore very pleased to inform you that we are more committed to mandatory contributions than we have ever been in the past."

> "First, we have addressed some of the key constraints that prevented us from implementing any sort of mandatory cover in the last decade. Secondly, we have won the commitment of our political principals to move

towards this very significant change in the structure of health care financing in this country."

"We now feel that we are at a stage where we can begin to talk about the implementation of mandates. We are of the view that over time, contribution to health care cover should become mandatory for all those with the ability to pay. The mandates should be phased in over time, beginning with high-income earners and specific categories of employers. The mandates could then be broadened with the establishment of a state-sponsored scheme to meet the needs of lower-income people."

Note that the model proposed for the state-sponsored scheme would use private beds in public hospitals, together with private primary health care services.

The National Department of Health envisaged that the Risk Equalisation Fund and the reform of the tax subsidy would need to happen before the roll out of mandatory membership to the highest income groups. It is also important for Government as employer to accept the mandate for all its workers before other employers are mandated. The State is working towards the establishment of a State restricted membership scheme for its employees. This scheme, the Risk Equalisation Fund and the revised tax subsidy are all targeted for 1 January 2005. It is the view of the Department of Health that mandates should be rolled out as close as possible to the establishment of the Risk Equalisation Fund.

2.4 Healthcare Financing under SHI

The data from the October Household Survey 1999 (OHS99) has been used to develop estimates of the numbers of people who are currently covered in medical schemes and those who will potentially become members of medical schemes under SHI. This enables those who will remain covered by the public sector to be isolated. This section considers the financing arrangements under SHI while the next deals with the impact on the delivery of healthcare.

It is expected by the Department of Health that a further 3 to 4 million people could become members of medical schemes under the initial phase of SHI. The graph below shows this initial phase and the possible fullest extent of the membership of medical schemes under SHI, using the OHS99 figures.

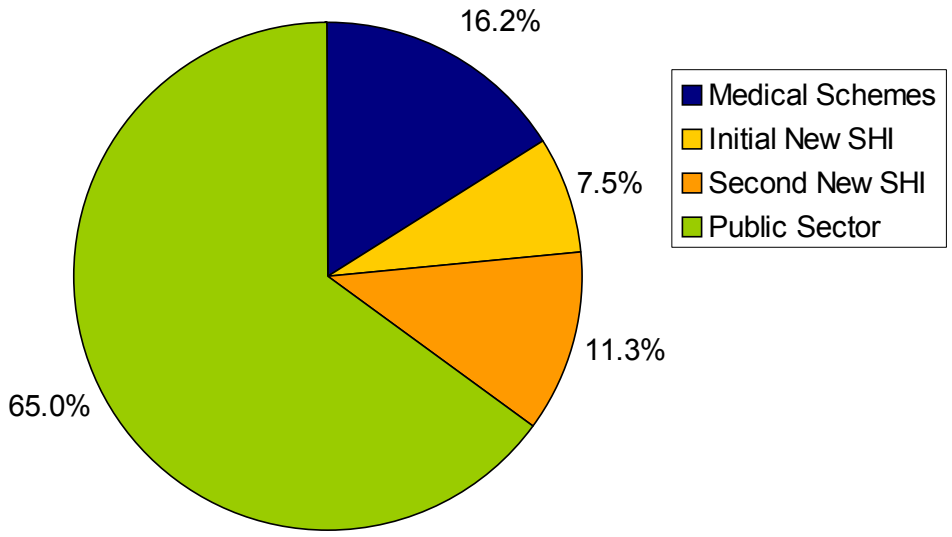

Figure 2: Future Healthcare Financing under SHI

There are currently 7.025 million people who are existing beneficiaries of medical schemes, which represents 16.2% of the population of 43.325 million. This group is described in the graph above as "**Medical Schemes**".

At the fullest extent a further 8.127 million could potentially become beneficiaries of medical schemes. The **Initial** phase could see 3.233 million new beneficiaries, making a total medical scheme membership of 10.259 million people. If appropriate lower-cost products are developed and the tax expenditure subsidy reforms encourage lower-income workers into the system, then a further 4.893 million people could become beneficiaries of medical schemes, making 15.152 million people under SHI. This would be 35.0% of the total population.

The lowest income groups and those without income are expected to remain in the publicly funded system. This amounts to 28.173 million people and they are described as "**Public Sector**" in the graph above.

2.5 Healthcare Delivery under SHI

The same figures can be used to illustrate future healthcare delivery under SHI. At present, the 7.025 million medical scheme beneficiaries largely use private sector hospitals and private primary care. The public sector provides public hospital services and public sector primary care to 36.300 million people. This is illustrated in the first pie below.

At the fullest extent of SHI, there could be 15.152 million beneficiaries covered by the enlarged medical schemes. They will use a mix of public sector (second tier) and private sector hospitals, together with private primary care. In the initial phase this is expected to be the delivery mechanism for 10.259 million beneficiaries.

Under SHI proposals, 28.173 million people will remain in public sector (basic) hospitals and will use largely public sector primary care. Some primary care may be obtained on a self-funded basis as out-of-pocket expenditure on private primary care.

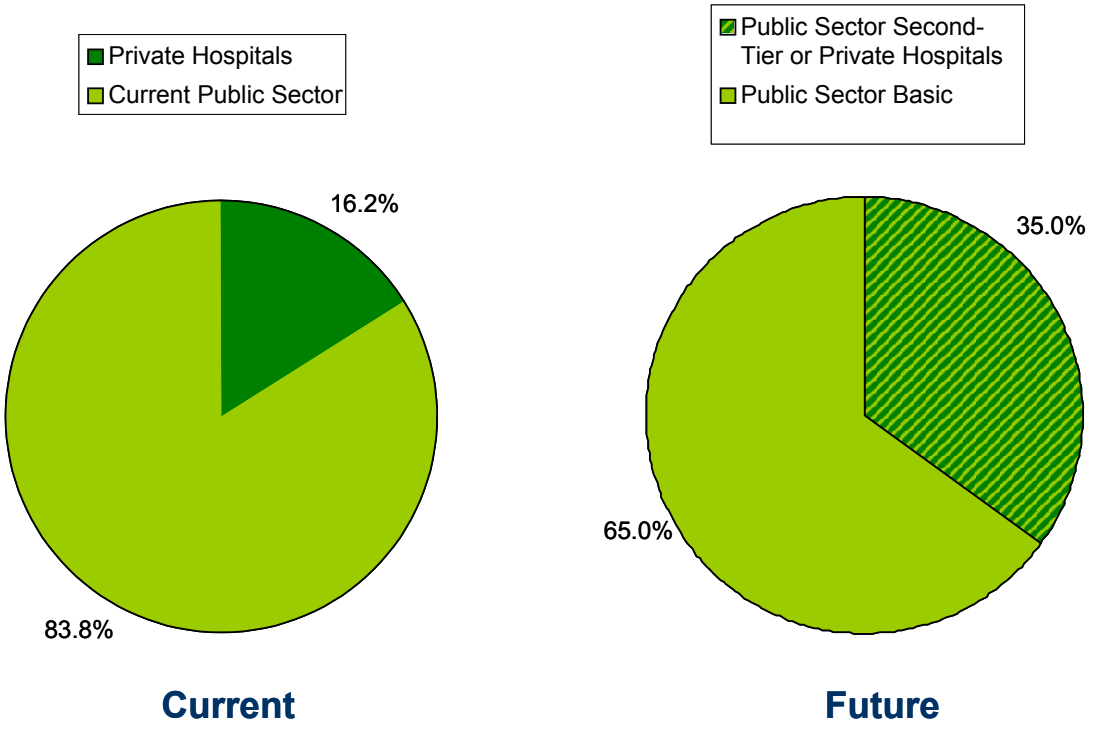

Figure 3: Healthcare Delivery in Hospitals under SHI

There is expected to be increasing use of public-private partnerships, including centres of excellence. Medical schemes are expected to make more use of public sector radiology and pathology, public sector chronic disease management and the provision of chronic medication by the public sector.

2.6 Revenue and Expenditure Model for the REF

The diagram below shows the Risk Equalisation Fund in the context of the revenue flows under discussion by the Subsidy Framework Consultative Task Team (SFCTT).

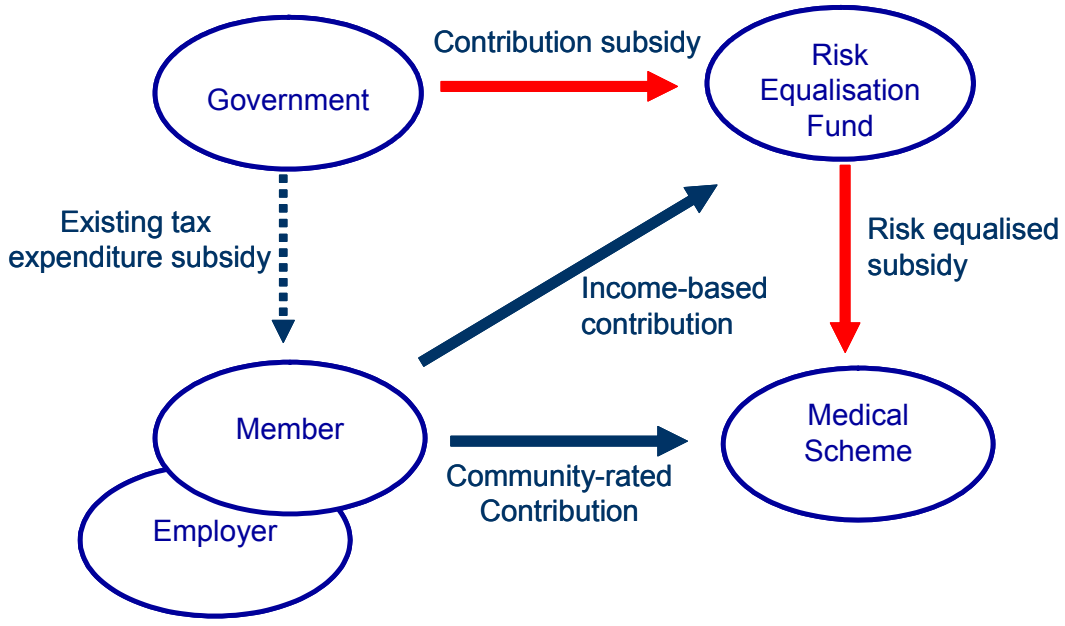

Figure 4: Revenue and Expenditure Model for the Risk Equalisation Fund
Source: Subsidy Framework Consultative Task Team

Government currently provides a tax expenditure subsidy to private sector healthcare in the form of a tax deduction on medical scheme contributions by both employer and individual taxpayers.

Those individual taxpayers with no or very low income currently receive an in-kind subsidy for public sector healthcare. In using public hospitals, a means test is applied and those without income do not pay for services. For the highest income groups, the higher the income the greater the tax deduction. In addition, the larger the contribution to a medical scheme the greater is the tax deduction. This reduces the sensitivity of higher income groups to medical scheme price increases and thus does not act as a brake on increases in excess of general inflation.

The group that suffers most under the current tax framework is the middle and lower income groups. On visiting a public hospital, the means test requires that they pay for services; hence their in-kind subsidy is reduced. Yet their incomes are too low to be able to afford medical scheme membership in large numbers and thus the tax deduction does not apply to them.

The intention is to equalise the subsidy available to all, regardless of income, in the form of a contribution subsidy. This could mean a reduction or elimination of the tax expenditure subsidy for individual taxpayers, to be replaced by a per capita contribution subsidy to all medical scheme members and their dependants.

The Subsidy Framework Consultative Task Team has also been asked to investigate the possibility of making medical scheme contributions (or a portion thereof), strictly income related. In other words, people would pay a fixed percentage of their income to the REF which would then distribute this to medical schemes. This would have even greater benefits for low-income workers.

The work of the two Consultative Task teams is related in that the size of the revenue stream to the REF is determined by the outcome of the recommendations of the SFCTT. The work of the Formula Consultative Task Team and the subject of this report is to consider the expenditure side of the REF, in other words the risk

equalised payments to be made from the REF to medical schemes. The expenditure from the REF will need to be considered under different revenue scenarios.

3. The Need for Risk Equalisation

Initial work on the need for risk equalisation was reported by the Centre for Actuarial Research using data from Statutory Returns to the Registrar for the calendar year 2000. This work was re-done by Heather McLeod for the Risk Equalisation Fund Task Group, using the most recent Statutory Returns which are for calendar year 2002.

3.1 Age and Gender Data in Statutory Returns 2002

The age profiles submitted to the Registrar as part of the 2002 Statutory Returns were obtained. Anomalies in the data were identified and treated (see Appendix E for details of schemes). Four Registered schemes were unable to supply either age or gender and one small restricted scheme had 20% of its ages unknown. A further 13 Registered schemes had some ages unknown, but the worst was less than 0.9% of their data. Overall, the age profile data for 2002 for Registered medical schemes was much better than the set used from 2000. All data where age was missing (including the 4 schemes where age was completely unknown) accounted for only 1.14% of all registered beneficiaries.

The only remaining problem amongst Registered schemes is that 12 schemes used 10 year age bands rather than the 5 year age bands requested. Many are at a single administrator and this problem has been resolved for returns in 2003.

The data in respect of the Bargaining Council schemes was very poor with 11 of 14 schemes being unable to supply age (and often gender).

Age bands in the 2002 Statutory Returns were collected only to the band 75+. This needs to be extended to 85+ for the REF. The definition of age **MUST** be standardised as “Age last birthday on 1 January” for both annual and quarterly collection. Currently quarterly data is collected as “age last birthday” with no definition of the date.

3.2 Age Profiles of Medical Schemes

The graph below shows the age profiles for all schemes reporting to the Registrar in 2002.

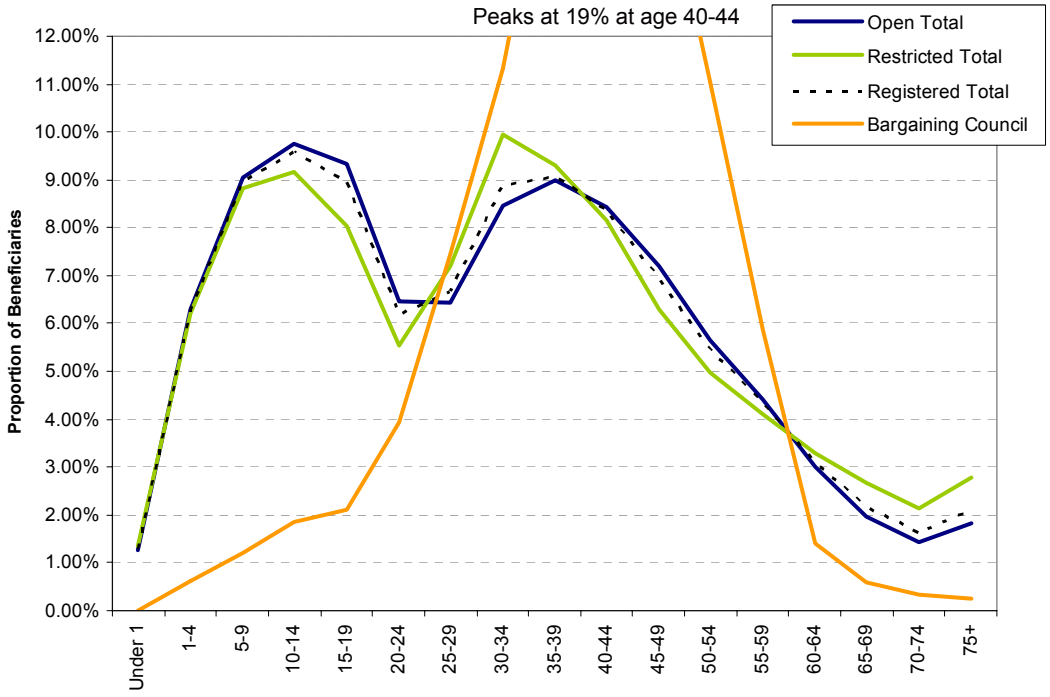

Figure 5: Age Profiles of Schemes by Registration Category (2002 data)

The age profile of Open schemes collectively is shown to have more children, fewer early working age beneficiaries and fewer elderly beneficiaries. Open scheme beneficiaries made up 67.9% of all beneficiaries., while Restricted membership schemes accounted for 28.5% of beneficiaries.

In 2002, only 3 of the 14 Bargaining Council schemes could provide age profiles and thus the line in the graph above for these schemes should be considered preliminary. It is however likely that there are fewer child dependants and fewer elderly beneficiaries on these schemes. Bargaining Council schemes accounted for only 3.6% of beneficiaries, but in 2001 the Council for Medical Schemes estimated

there may be 34 funds set up under the Labour Relations Act that could potentially be classified under the Medical Schemes Act as Bargaining Council schemes.

It appears in the graph above that there is a relative similarity in shape between the age profiles of Open and Restricted schemes. However, when individual schemes are considered this is shown not to be the case, as illustrated by the ranges below.

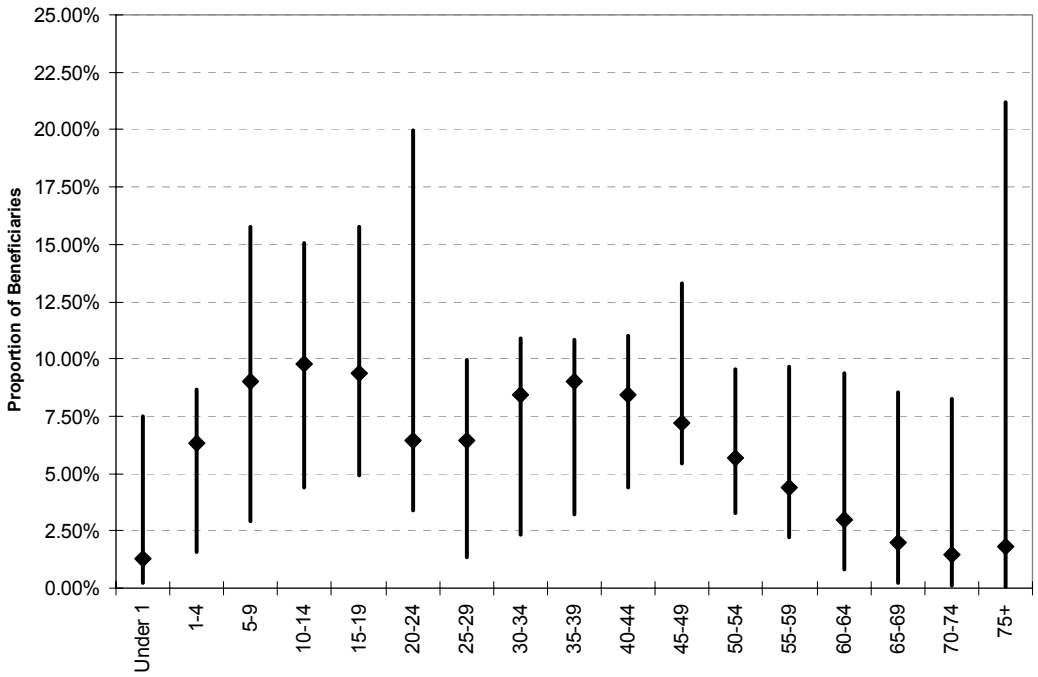

Figure 6: Range of Age Profiles of Open Schemes (2002 data)
Figure 7: Range of Age Profiles of Restricted Schemes (2002 data)

The graph below shows the age profile shapes for the four largest Open schemes. The shapes for the four youngest and four oldest schemes, for Open and Restricted schemes separately, are given in Appendix F.

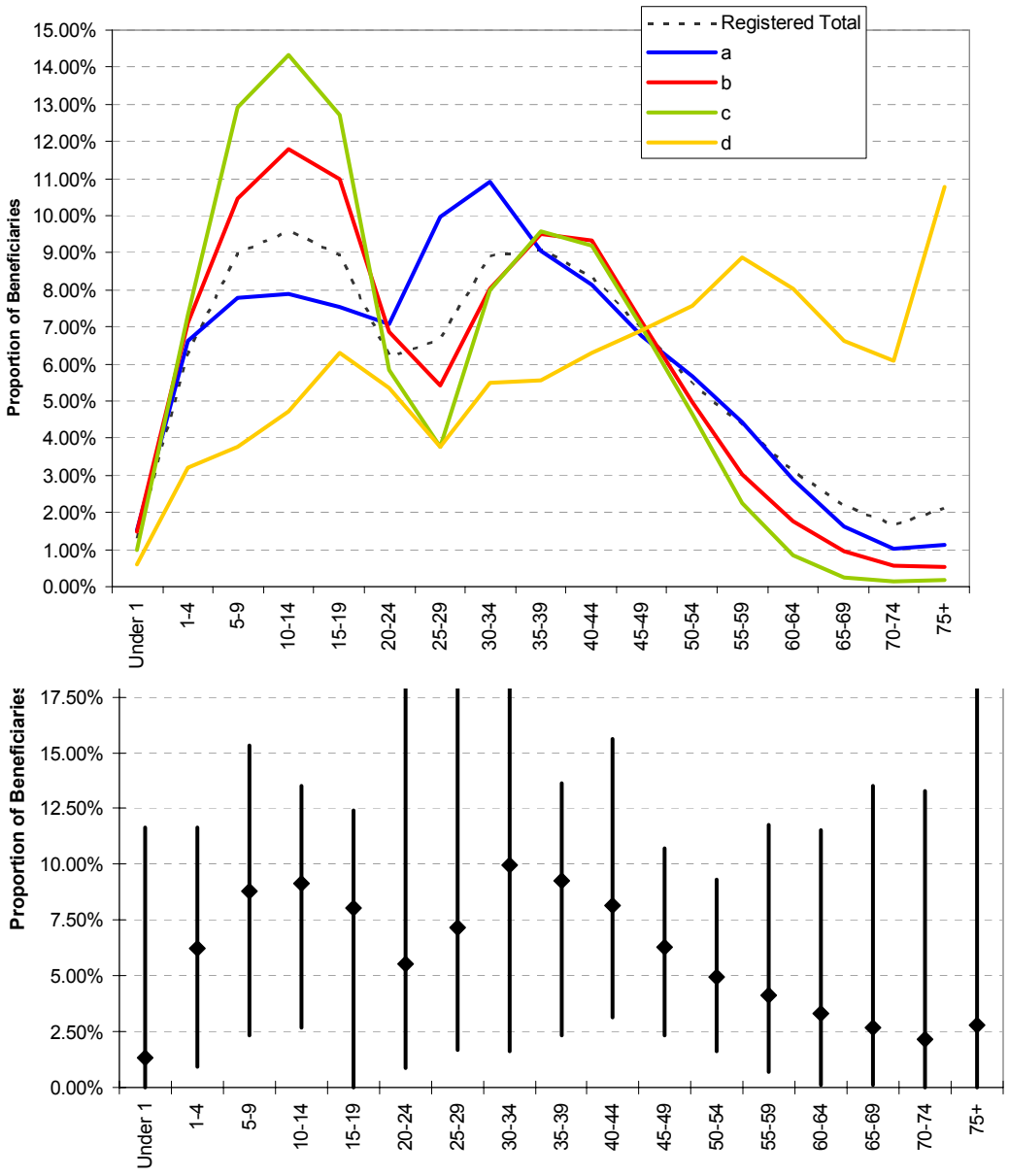

Figure 8: Age Profiles of Largest Open Schemes (2002 data)

It is clear in the graph above that the size of scheme is not a stabilising influence on the age profile. It is much more likely that the age profile is the result of the target marketing efforts of schemes and the incentivised actions of brokers.

3.3 The Price of PMBs by Age

The work on the pricing of the Prescribed Minimum Benefit (PMB) package by Fish et al (2002) and McLeod, Rothberg et al (2003), showed that the PMBs have a strong shape by age. Members should be facing a common community-rated price for the PMB package and not a price determined by each scheme according to its own age (and health) profile.

The shapes of the two major components, the PMB-DTP package and the PMB-CDL package, are shown in Section 7.1. The graph below shows the PMB package price by age, extended to age 85 (original PMB-DTP study to age 75+). The price is shown per beneficiary per month in 2001 Rands.

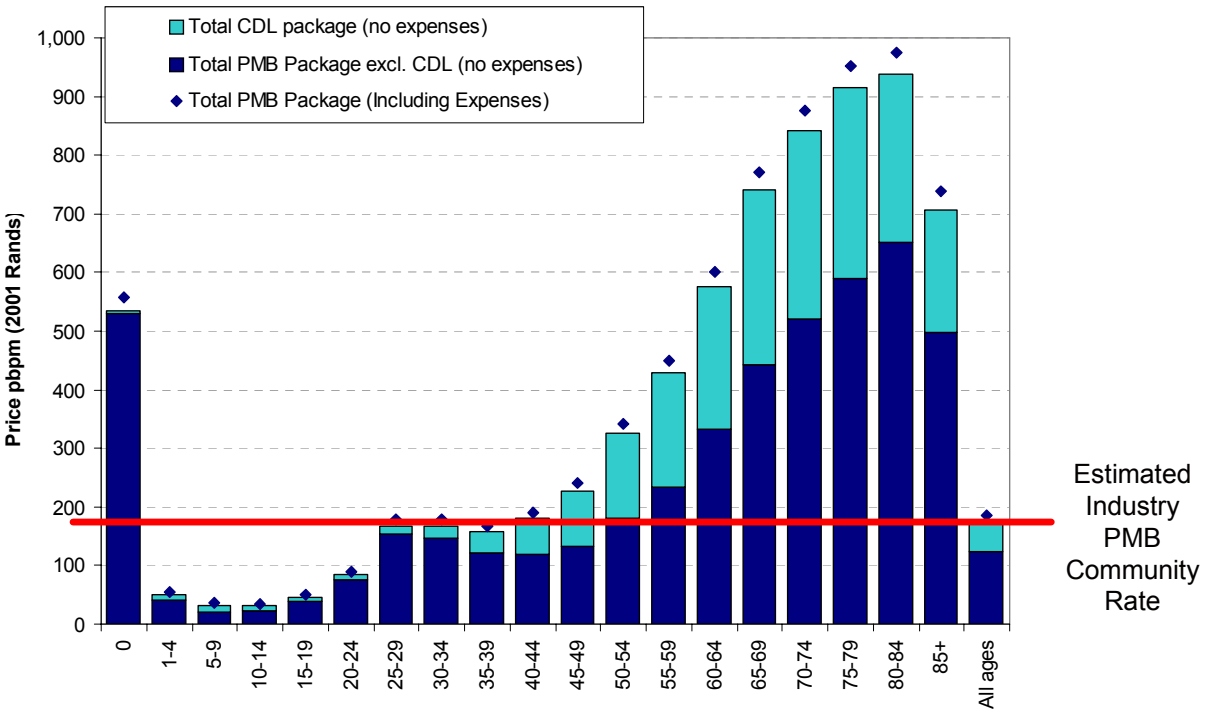

Figure 9: Price by Age for the Complete PMB Package (2001 Data Revised)

The "All Ages" price in the graph above is the estimate of the industry community rate for the PMB package in 2001, using the Weighted Industry approach of the PMB studies. The estimated industry community rate for PMBs is R177.05 pbpm without expenses and R186.58 pbpm with non-healthcare expenses included. These are private sector, fee-for-service prices for the PMB package (see Appendix G).

Note that children under the age of 1 year and all beneficiaries over the age of 40 years are more expensive to a scheme than the industry community rate.

Open schemes thus have a strong incentive to attract a younger age profile and thereby reduce their community rate to the market. Given the highly competitive market in South Africa and the actions of brokers in switching members aggressively each year, the schemes that can attract a younger and healthier profile have a substantial competitive advantage. This practice is known as "cream-skimming" or "cherry-picking".

3.4 The Impact of Age Profile on Scheme Community Rate for PMBs

The price of PMBs in 2001 (excluding expenses) was used together with the age profiles discussed in Section 3.2 in order to determine the effect of the age profile on the price of PMBs in each scheme. This is contrasted with the scheme total community rate per beneficiary, as determined from the contributions reported to the Registrar. The results are shown in the graph below.

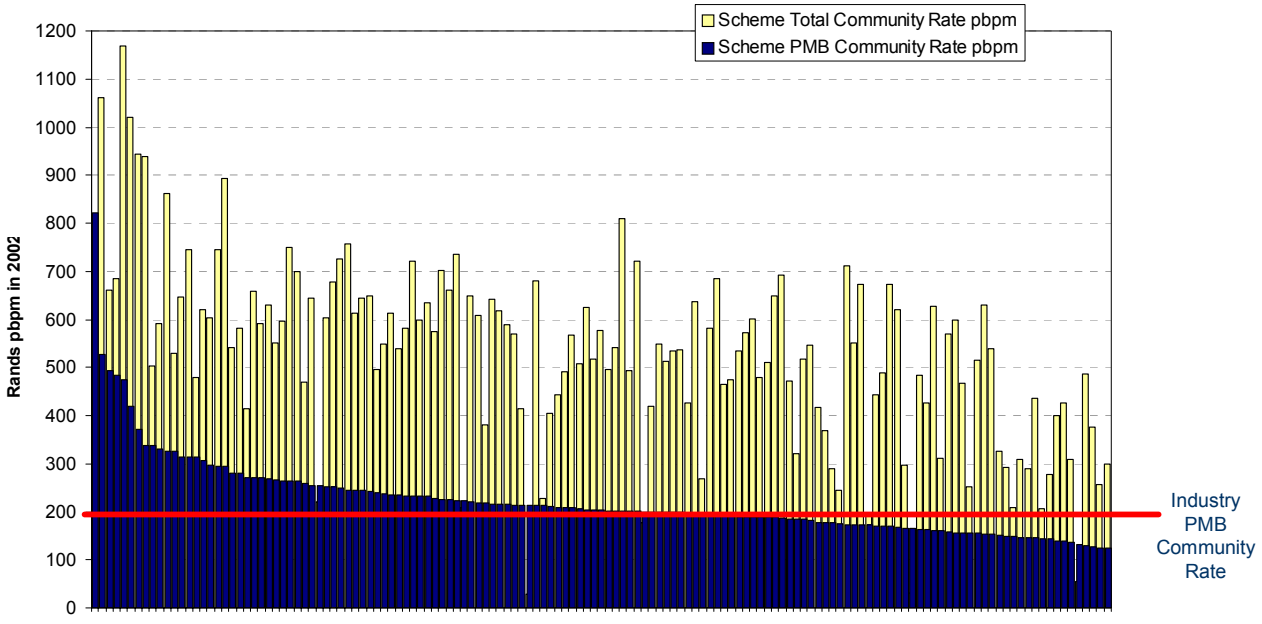

Figure 10: Community Rate of Each Registered Scheme (2002 age profile and contributions, 2001 PMB price by age)

Using the actual age profile of the industry in 2001 with the PMB price by age, it was calculated that the industry community rate for PMBs was R199.69 pbpm.

In the graph above, the highest community rates for PMBs range was R821.50 pbpm in a very small restricted scheme, with the most expensive Open scheme at R482.94 in the fourth highest position. The lowest community rate for PMBs in an Open scheme was calculated to be R124.65 pbpm.

Thus PMBs in one Open scheme were 38% cheaper than the industry community rate while in another they were 142% more expensive than the industry rate, based on the difference in age profile alone. The cost difference between the two schemes is thus 180%, based only on the difference in age profile. (The earlier study using 2000 data showed a range of 147%.)

The graph below shows the range of PMB community rates, relative to the industry community rate for PMBs, for all Registered schemes in more detail.

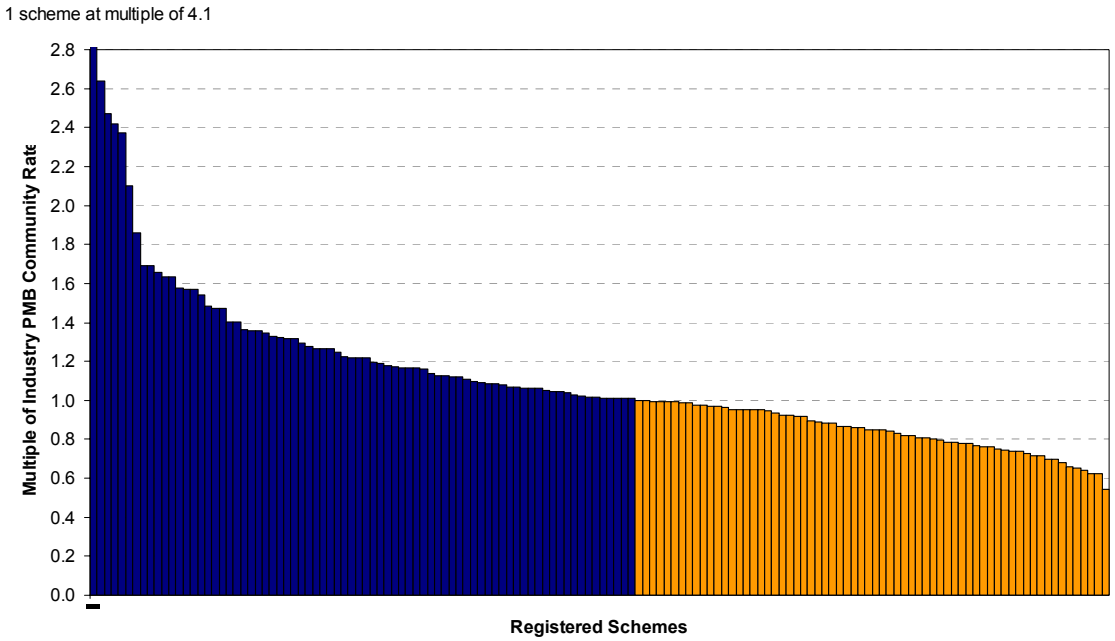

Figure 11: Community Rate of PMBs Relative to Industry Community Rate (2002 age profile, 2001 PMB price by age)

In the graph above, there are 66 schemes where people pay less than the Industry PMB community rate and 76 schemes where people pay more than the Industry PMB community rate.

In Ireland, their 1994 legislation provided for the Minister of Health to choose to implement risk equalisation if the market became distorted by up to 2% of the claims costs and for required implementation when the distortion exceeded 10%. The market in South Africa shows a range of 180% for PMB costs based on age differences alone. The need for a risk equalisation mechanism in South Africa is thus overwhelming.

4. Definition of Risk and Residual Risk

This section was developed by Team 1, chaired by Shaun Matisonn. The final version was adopted by the Formula Consultative Task Team at a meeting held on 14 October 2003.

4.1 Understanding of Policy Requirements

The team felt that it was initially necessary to clarify the intention of the Risk Equalisation Fund. The Department of Health discussion document was used as the main source for understanding policy in this regard. [2]

> The primary objective of the Risk Equalisation Fund in South Africa is to protect the environment of open enrolment and community rating. The purpose is to prevent competition between medical schemes from occurring on the basis of risk selection. In doing so it will encourage competition between medical schemes on the basis of cost and quality of healthcare delivery.

Thus the Task Team developed the understanding that the REF will attempt to equalise the predictable financial consequences that are introduced to the medical schemes environment in view of the requirements of community rating, open enrolment and Prescribed Minimum Benefits (PMBs).

With this understanding a number of guiding principles were agreed, as discussed in Section 5. The definition of risk and residual risk was not a simple matter, but once the guiding principles had been drafted, it was possible to develop a concise definition of both items.

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[2] Department of Health (2002), Inquiry Into the Various Social Security Aspects of the South African Health System. Policy Options for the Future., 14 May 2002.

4.2 Definition of Risk

In the context of the Risk Equalisation Fund, **risk** is defined as:

> The expected and predictable significant deviation from the theoretical national community-rated price for groups of beneficiaries with a measurable set of risk factors.

The national community-rated price is the reasonably efficient achievable price for the common set of benefits.

The concept of "reasonably efficient achievable price" is explored more fully in the Guiding Principles in Section 5.1 and estimated in Section 9.6.

4.3 Definition of Residual Risk

In the context of the Risk Equalisation Fund, **residual risk** is defined as:

> The difference between actual cost of delivery of the common set of benefits in a particular scheme and the risk equalised cost received by the scheme.

Residual risk occurs as a result of risk factors not incorporated in the Risk Equalisation Fund, benefits and claims in excess of core package and performance of the scheme that varies from the reasonably efficient achievable price.

Hence the REF does not alleviate:

- any risks associated with benefits in excess of the REF benefit package;
- any demographic profile risks other than reflected in the risk factors taken into account in the REF Contribution Table (see Section 9.1.) This is principally the risk reflected by risk factors taken into account in the conceivably most sophisticated individual medical scheme's risk rated internal contribution table that are not in the REF Contribution Table;

- risks associated with (relative) cost and other efficiencies of health care delivery to the individual scheme's members;
- risks of actual claims experience differing from expected costs of claims according to the scheme's risk table, e.g. due to cost inflation, over-utilisation, over-servicing, fraud, poorer health outcomes, unexpected epidemics, small risk pools, pricing error, etc. and
- other risks such as admin expenses overrun, poor investment performance and losses on reinsurance.

It is important for stakeholders to understand the limits of what the Risk Equalisation Fund is designed to achieve. The REF deals primarily with age risk and health risk. Trustees of medical schemes and the Registrar's Office should not reduce their vigilance with regard to the solvency requirements for medical schemes as these deal with risks that are not equalised by the REF.

5. Guiding Principles

This section was developed by Team 1, chaired by Shaun Matisonn. The final version was adopted by the Formula Consultative Task Team at a meeting held on 14 October 2003.

5.1 Principles for the Risk Equalisation Fund Formula

Principles for the Risk Equalisation Fund Formula	
Characteristic	**Explanation**
Equalisation of risk profiles	The REF formula should eliminate incentives for medical schemes to select preferred risks by ensuring that each medical scheme bears a risk profile equivalent to the risk profile of all medical scheme beneficiaries.
Non-equalisation of actual costs	The REF formula should seek to equalise payments based on the most reasonably achievable efficient cost for an agreed set of benefits. Schemes will then compete on the basis of the actual cost of delivery of those benefits.
Impartial	The REF formula should be perceived to be impartial between medical schemes and should not result in any medical scheme having to share profits that it has made as a result of its own efficiencies and cost controls.
Cost Containment	The REF formula should contain positive incentives for medical schemes to maximize efficiency and to control the costs of healthcare delivery.

Proportion of risk to be equalised	The benchmark for risk to be equalised will be the Prescribed Minimum Benefit package, delivered in a cost-effective manner which may include the use of specific network settings.
Non-equalisation of benefit levels	The REF formula should not compensate medical schemes for more expensive benefit options which are driven by trustee or member choices.
Non-equalisation of variability in experience	The REF formula does not seek to equalise the variability in actual experience of medical schemes. This will be a function of the size of the medical scheme and the active management of beneficiaries and claims.
Practicality	The REF formula should be understandable and practical to operate.
Dynamic	The REF formula needs to be dynamic to deal with such changing influences on health care costs such as inflation, medical technology, managed care developments and changing regulation.
On-going validity	The REF formula needs to be tested rigorously at least every three years but should be reviewed each year for at least the first three years of operation.
Encourage competition and new entrants	The REF formula should encourage competition between medical schemes and not prohibit the introduction of new medical schemes.
Maintain cross subsidies	The REF formula should not discourage young and healthy beneficiaries from joining or remaining in medical schemes before the introduction of mandatory membership.
Equity	The REF should be consistent and support the National Department of Health's equity goals

5.2 Principles for the Choice of Factors in the Formula

Principles for the Choice of Risk Factors in the Formula	
Characteristic	**Explanation**
Validity	The risk factors should predict the need for medical care and define a system of adjustment in which the cells are relatively homogenous.
Reliability	The risk factors should be measured without measurement errors.
Availability	The risk factors should preferably be data items that are already collected by medical schemes or that are readily available in the industry.
Feasibility	Obtaining the risk factors for all beneficiaries should be administratively feasible without undue expenditure of time or money.
Measurable and Auditable	The risk factors need to measurable, objective, repeatable and auditable.
Invulnerability to Manipulation	The risk factors should not be subject to manipulation by medical schemes, managed care organisations, administrators, providers, intermediaries or the beneficiaries.
No Perverse Incentives	The risk factors should not provide incentives for inefficiency or low quality care.
Legislative Consistency	The use of the risk factors needs to be consistent with provisions in the Medical Schemes Act, the National Health Act and the Constitution of South Africa.
Privacy	The risk factors should not conflict with the right to privacy of the beneficiary and healthcare provider.

5.3 Principles for the Operation of the Risk Equalisation Fund

Note that the issue of prospective vs. retrospective payments in the version agreed at the Formula Consultative Task team meeting of 14 October 2003, was subsequently amended by the Team leaders in discussion around the work of Team 4. The prospective vs. retrospective issue is now split into two separate areas of impact, namely calculation and payment, as shown below.

Principles for the Operation of the Risk Equalisation Fund	
Characteristic	**Explanation**
Transparent	The REF should be clear and transparent in its operation to the medical schemes industry.
Predictability	The REF should produce results that are as predictable as possible, in order to allow medical schemes to price their options appropriately.
Prospective vs. Retrospective Calculation	Given the highly competitive nature of open medical schemes in South Africa and the need to publish contribution tables in advance, the REF needs to adopt a predominantly prospective calculation approach.
Prospective vs. Retrospective Payments	The timing of payments needs to take into account the potential impact on scheme cashflow and solvency, as well as the most appropriate timing for the collection of data to be used in calculating the payments.
Frequency of Calculation of Payments	The frequency of payments to and from the REF should be on a quarterly basis, in line with the quarterly statutory returns to the Registrar of Medical Schemes.

Sustainability	The REF should be sustainable in its own right and not require additional funding in the long run and should remove instability in the market.
Efficiency of Operation of the REF	The cost of the operation of the REF and the mechanism for guaranteeing solvency of the REF needs to be implemented at the lowest practical level.

5.4 Trade-offs and Compromises

The principles described are wide ranging and the team has attempted to produce an exhaustive list. With a large list there are many principles which may involve the taking of decisions that support one principle but violate another. The implementation of these principles involves making final choices and in making these choices the principles above provide a useful tool to understand trade-offs that are made.

However to obtain the best use of the principles and to help resolve debates around final decisions where possible trade-offs should be quantified and the consequences of trade-offs identified and debated.

5.5 Principles for Incorporation of BHF High Cost Low Incidence Risk Pool

In the year preceding the work of the Formula Consultative Task Team, the Board of Healthcare Funders (BHF), an industry trade association, undertook to explore the possibility of creating a common risk pool for high-cost low incidence conditions for medical schemes. The initiative foundered in early 2003 when the legal vehicle for operation of the voluntary risk pool became problematic.

Team 1 was asked to consider how to incorporate the concepts raised by the BHF in the Risk Equalisation Fund.

Based on the principles above it follows that to the extent that high cost low incidence conditions can be defined as a practical risk factor and are incorporated in the core package, they should be included in the REF. Any conditions that do not satisfy these criteria will need to be dealt with through alternative mechanisms.

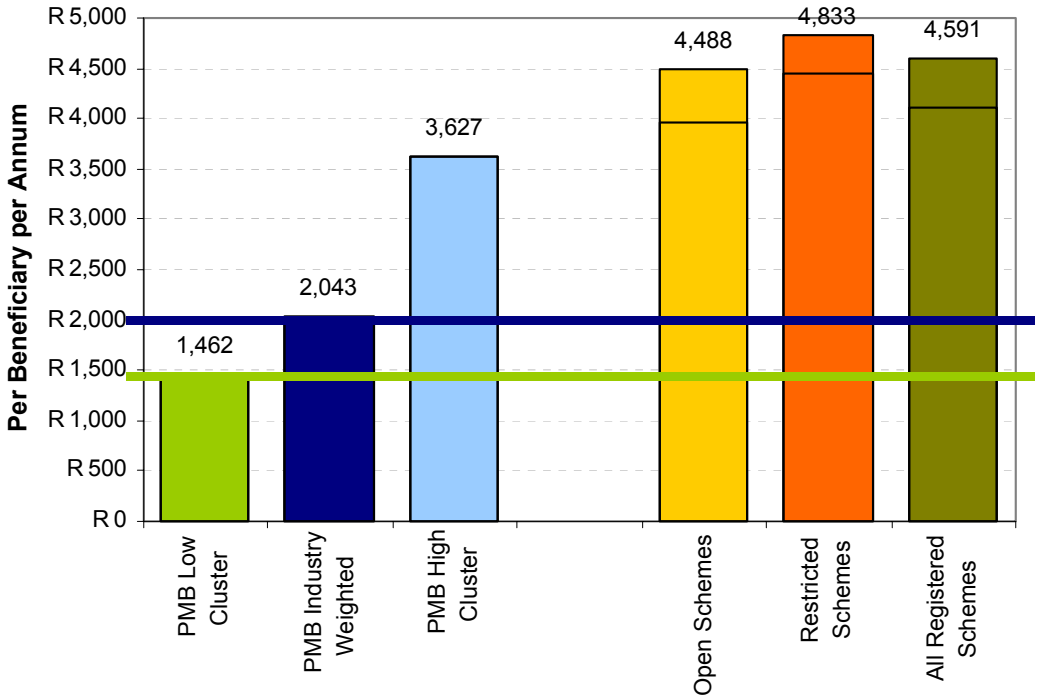
The conditions considered by BHF are listed in Appendix M and discussed and evaluated in Section 7.10.

6. Scope of the Risk Equalisation Fund

The recommendations in this section were developed by Team 2, chaired by Dr Izak Fourie. These were adopted by the Formula Consultative Task Team at a meeting held on 14 October 2003. Additional evidence and arguments have been added in this report.

6.1 Package of Benefits to be Equalised

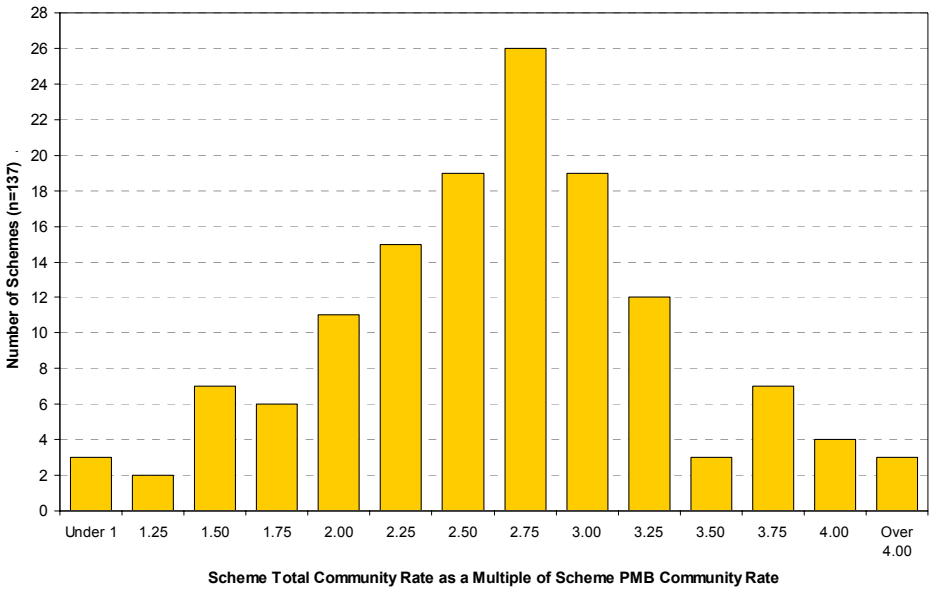
In pricing the PMBs using 2001 data (McLeod, Mubangizi, et al (2003)), it was found that at an industry level, the PMB package was well covered by existing benefit expenditure, as shown below. The term "cluster" refers essentially to socio-economic group in this graph.



. Figure 12: PMB Package of Benefits Relative to Industry Total Benefit Expenditure (2001 data)

It was estimated in that study that PMBs only make up 44.5% of the industry total benefit expenditure per beneficiary per annum.

In Figure 10 in Section 3.4, it was shown graphically that the scheme total community rate was typically substantially more than the required PMB community rate, given the age profile of the scheme. A histogram of the differences is shown below.



. Figure 13: Contributions in Excess of Scheme PMB Community Rate (2002 contribution data, 2001 PMB price)

Note that the contributions in excess of the scheme PMB community rate are partly for benefits in excess of PMBs, but also for administration, marketing and reserving for solvency requirements.

In the graph above, only three schemes have contributions less than their PMB community rate. A further five schemes had unusually low total community rates, either through pre-funding arrangements or that the scheme had not been in operation for a full year. However, it was found that 87% of schemes had contributions more than double that needed for the PMB community rate, with 35% having contributions more than three times the PMB rate.

Until there is regular reporting on PMB expenditure by schemes to the Registrar, the exact differentials will not be known, but the broad picture from this study is the same as for the PMB studies on 2001 data: that PMBs account for less than half the benefit expenditure by schemes.

In many social health systems, particularly in Europe, the extent of the common package of benefits is much greater. In South Africa, PMBs account for less than half the benefit expenditure. However the PMB package is the only common package in the local industry. It would result in impractical complexity to attempt equalisation of different definitions and levels of benefit packages.

The only possible practical conclusion is to use the Prescribed Minimum Benefit package as the common package to be equalised for the Risk Equalisation Fund.

6.2 Difficulties in Definition of the Existing PMB Package

Team 2 raised a number of concerns about the definition of the existing PMB package and how these may impact on the REF formula calculation. It is necessary to separate the CDL conditions from the diagnosis-treatment pairs in this discussion.

6.2.1 PMBs for Diagnosis Treatment Pairs (PMB-DTP)

The views of Team 2 on the diagnosis-treatment pairs are summarised as follows:

- Because of the inherent variability of the PMB-DTP conditions themselves and the associated treatment modalities it would not be practicable to develop specific diagnostic, treatment and/or care protocols for the vast majority of these conditions for purposes of the proposed REF formula;
- The lack (paucity) of clinical coding (ICD-10) and considerable differences in the coding practices of various administrators (as experienced by the Health Monitor Computer Model) made the **direct** use of historic medical scheme data for REF purposes sub-optimal;
- There was in principle support for the **initial** use of “age” as the proxy for the PMB-DTP condition risk;

- Concern was however expressed about the ongoing validity of age (and historic claims data) in the formula calculation in view of the anticipated progressive impact of the evolving HIV/AIDS epidemic on the costs for younger age groups of the PMB-DTP; and
- There was unanimous support for the compulsory and early implementation of the agreed clinical coding system (ICD-10) to overcome the shortcomings referred to above.

6.2.2 PMBs for Chronic Disease List Conditions (PMB-CDL)

The views of Team 2 on the CDL conditions were as follows:

- The common package costed in the formula should include the "diagnosis, medical management and medication" of the CDL conditions;
- This should be based on the prescribed algorithms and extended to include basic diagnostic and medical management protocols and a formulary (or drug reference price list) at standard industry tariff. (Note that the Regulations provide for algorithms, whereas Team 2 argues for protocols to be developed to enable costing);
- The above (protocols, formulary, etc.) should be drawn up and regularly reviewed by (the clinical committee of) an industry representative body such as BHF, if not by the Council for Medical Schemes or the REF. Team 2 did however feel itself competent to develop the initial set if so required;
- It should be noted that some of the CDL conditions may require more than one set of protocols;
- The REF formula for CDL conditions would then simply be based on the number of registered beneficiaries (to be tightly defined) per condition times the sum of the costed protocols for the specific condition; and
- Team 2 felt strongly that the above provided a more equitable methodology for CDL conditions than basing the REF formula on historic medical scheme claims data.

Note that this is essentially a "bottom-up" or "menu-driven" approach to the pricing of the PMB package but is only viable for the PMB-CDL component.

6.2.3 Deliveries / Confinements

Team 2 supported the specific inclusion of deliveries in the REF formula as suggested early in the process by Team 3 (see Section 8.1). This could be based on a standard protocol(s) and costed in a bottom-up approach as described above for the PMB-CDL. Note that the proportions for normal deliveries and caesarean sections should be altered to reflect desired practice rather than current industry practice in South Africa.

6.3 The Possible Extension of the Common Package

Team 2 was asked to comment on three possible extensions of the common package from the existing PMB-DTP and PMB-CDL conditions. The issue is that if the PMBs are extended before the implementation of the REF, then testing of the REF formula now should already include those possible extensions. It might also be possible to agree on an extended common package for the REF that went beyond the definition of the PMBs.

6.3.1 Anti-retroviral Therapy for HIV/AIDS

The PMBs for HIV/AIDS in force from 1 January 2000 included only the treatment and management of opportunistic infections and localised malignancies. Proposed amendments to the PMBs were published in April 2002. These proposals were open for comment for three months and the Minister particularly requested comment on the formulation of the PMBs and on the issue of the inclusion of anti-retroviral therapy in the PMB definition.

The 2002 Regulations, which come into force on 1 January 2003, extended the PMBs to include a further package of benefits in respect of HIV/AIDS-related conditions. Cover must be provided for voluntary counselling and testing; treatment for tuberculosis, sexually transmitted infections and opportunistic infections; as well as pain management in palliative care.

Significantly, the PMBs were extended to include the prevention of mother-to-child transmission of HIV and post-exposure prophylaxis following sexual assault.

During the consultation period, a number of organisations had lobbied vigorously for the inclusion of antiretroviral therapy in the definition of PMBs. However note that anti-retroviral therapy for HIV/AIDS, other than for the prevention of mother-to-child transmission of HIV and post-exposure prophylaxis following sexual assault, remains excluded from PMBs.

In September 2003 the Cabinet announced that a plan by the Department of Health had been adopted to roll out anti-retroviral treatment in public sector health facilities. The Taylor Committee report (Department of Welfare, 2002) recommends that although minimum services are defined differently in the public and private sectors, there must be convergence of the approaches adopted in the two environments and consistency with one another.

In order to be consistent with health policy in the public sector, Prescribed Minimum Benefits for medical schemes thus need to be amended to include anti-retroviral treatment. The Council for Medical Schemes agreed to recommend this change to the Minister of Health in November 2003.

There was general consensus in Team 2 that in view of the Department of Health's recent policy announcement, anti-retroviral therapy should be included in the common package for the REF. It was strongly recommended by Team 2 that this is done on the same basis as for the CDL conditions, in other words with an algorithm defined in Regulation.

The meeting of the Formula Consultative Task Team on 14 October 2003 unanimously supported the view that the provision of anti-retroviral therapy for people with HIV/AIDS should be included in the PMB package. Team 3 was tasked with including HIV/AIDS as a specific risk factor in the formula.

6.3.2 Care for the Disabled

A press release by the Minister of Health on 1 July 2003 announced that "people with disability can from today access health care service in our public health facilities free of charge".

"The category of people that will benefit includes:

- People with permanent, moderate or severe disability. This includes amongst others people who move with difficulty and cannot continuously walk between 10 to 200 metres on their own; those who cannot take care of themselves like being able to dress or eat on their own; and those with communication problems, vision and hearing difficulties.
- People that have been diagnosed with chronic irreversible psychiatric disability. These patients will qualify irrespective of the fluctuation in their mental status.
- Frail older people and long term institutionalised state subsidised patients."

"A standardised assessment tool has been developed and will be used in all provinces to classify beneficiaries. Individuals with temporary disabilities or a chronic illness that does not cause substantial loss of functional ability and disabled people who are employed and/or covered by relevant health insurance, Road Accident Fund and Workman's Compensation will NOT be entitled to this free service."

"Qualifying people with disability will get all in and outpatient hospital services free of charge. Specialist medical interventions for prevention, cure, correction or rehabilitation of a disability will be provided subject to motivation from (the) treating specialist and approval by a committee appointed by the head of health. All assistive devices for prevention of complications, cure or rehabilitation of a disability will be provided. This includes orthotics and prosthetics, wheelchairs and walking aids, hearing aids, spectacles and intra ocular lenses. The Department will also be responsible for maintenance and replacement of these devices."

Team 2 was asked to consider whether the existing PMB package would need to be extended to cover the treatment of the disabled, in line with this public sector development.

Concern was expressed in Team 2 about the discrepancies in the definitions of "disablement" or "disabled" between, for instance, the Road Accident Fund, Compensation for Occupational Injuries and Diseases Act, private group life and disability insurance schemes, etc. Team 2 recommended "impairment" as a more appropriate term than "disability" within the ambit of the medical scheme environment so that there is clarity in the PMBs.

Team 2 noted that a substantial portion of the treatment of the more common impairments would already be included in existing PMBs with a concomitant risk of "double counting". An alternative approach would be to define a list of the more common (and medically expensive) impairments (paraplegia, amputees, etc.) and include these in the REF formula on the same basis as the CDL conditions (i.e. via defined and costed basic protocols).

Team 2 deliberated and agreed to recommend that the "care for the disabled" not be included as a separate component of the common REF package for the following reasons:

- There are significant definitional problems that may (will almost certainly) lead to over utilisation and abuse by providers and/or beneficiaries and "gaming" by medical schemes;
- A significant proportion of the medical treatment and care of the more common major impairments is already provided for under the existing PMBs; and
- Concern about the risk of extending medical scheme benefits into non-traditional medical scheme areas such as frail care, learning disorders, remedial care and vocational rehabilitation, with potentially huge financial implications for the industry as a whole.

If more clarity and certainty can be reached on the above issues, it may in future be practicable to include the “care of the disabled” in the common REF package but Team 2 felt strongly that it would be premature to do so at present.

Appendix I contains graphs extracted from the October Household Survey 1999 showing that the majority of people described in that survey as “disabled” will remain in the public sector as their incomes are too low for inclusion in the potential SHI group. The impact of this issue on medical schemes has thus already largely been experienced and any change in PMBs to account for “disability” or “impairment” is likely to have very small financial effects.

6.3.3 Inclusion of Primary Care Package

A notable omission from the PMB package is a focus on primary healthcare. Primary care is a major focus of the Department of Health and free care is available for mothers and children under the age of six years old in the public sector. The medical scheme PMBs initially excluded primary healthcare because it was envisaged that this would be provided by the public sector.

Although Team 2 unanimously supported the primary health care approach of the Department of Health and agreed that medical schemes should be encouraged/obliged to cover such care, the proposed REF was considered an inappropriate mechanism whereby to achieve this and such an inclusion may even have the opposite effect.

6.4 REF Involvement in Healthcare Delivery Issues

Team 2 was asked to consider the possibility of the REF becoming involved in healthcare delivery issues, as proposed in one version of the BHF high cost low incidence risk pool (see also Sections 5.5 and 7.10).

The view had been expressed initially that the REF could become a purchaser of healthcare for certain conditions. The pooled buying power of the industry on rare conditions could reduce costs to members. The advantage of centralized disease management for certain conditions was also cited.

On the question of the REF being involved in purchasing healthcare or healthcare delivery, Team 2 strongly recommended that this not be the case. The REF is to deal with input risks, not the means of delivery or provision of healthcare services, in their opinion. It was noted this was also the opinion of the various BHF forums where the so-called high cost low incidence risk pool was discussed.

There was general support at the full meting of the Formula Consultative Task Team on 9 September 2003 for the view that this would be undesirable and in conflict with the "Guiding Principles" developed by Team 1 (see Section 5). No further action was therefore taken by Team 2.

6.5 The Treatment of Restricted Membership Schemes

A number of people made informal recommendations to the effect that Restricted Membership schemes should be treated differently for risk equalisation. At the extreme, it was sometimes argued that these schemes should be excluded from the REF or should be able to voluntarily opt out of the REF framework.

As a class, the Restricted schemes have a generally older age profile than the Open schemes. The actions of brokers since 1993 to take younger and healthier lives to the Open scheme environment have fuelled this difference. Thus to now exclude Restricted schemes as a class from the REF would be to entrench the inequalities into the future.

There are other considerations where a scheme has been fully pre-funded for the predictable ageing of a defined group. Team 5 was asked to consider the issue in more detail and make recommendations in this regard (see Section 14.12) .

6.6 Inclusion of Bargaining Council Schemes

McLeod, Mubangizi, et al (2003) describe Bargaining Council Schemes as those schemes that are not able to comply fully with the Medical Schemes Act and are thus granted exemptions from certain of its provisions, particularly with respect to PMBs. These were previously known as Exempt schemes and historically these included schemes covering the police service, correctional services and the defence force, as well as schemes that were created before the first Medical Schemes Act of 1967. Over time many exempt schemes have acquired Registered scheme status. Those that remain tend to offer very limited benefits, often only primary health care delivered by salaried or panel doctors.

The graph below illustrates the much lower benefit expenditure of Bargaining Council schemes than either Registered or Exempt schemes.

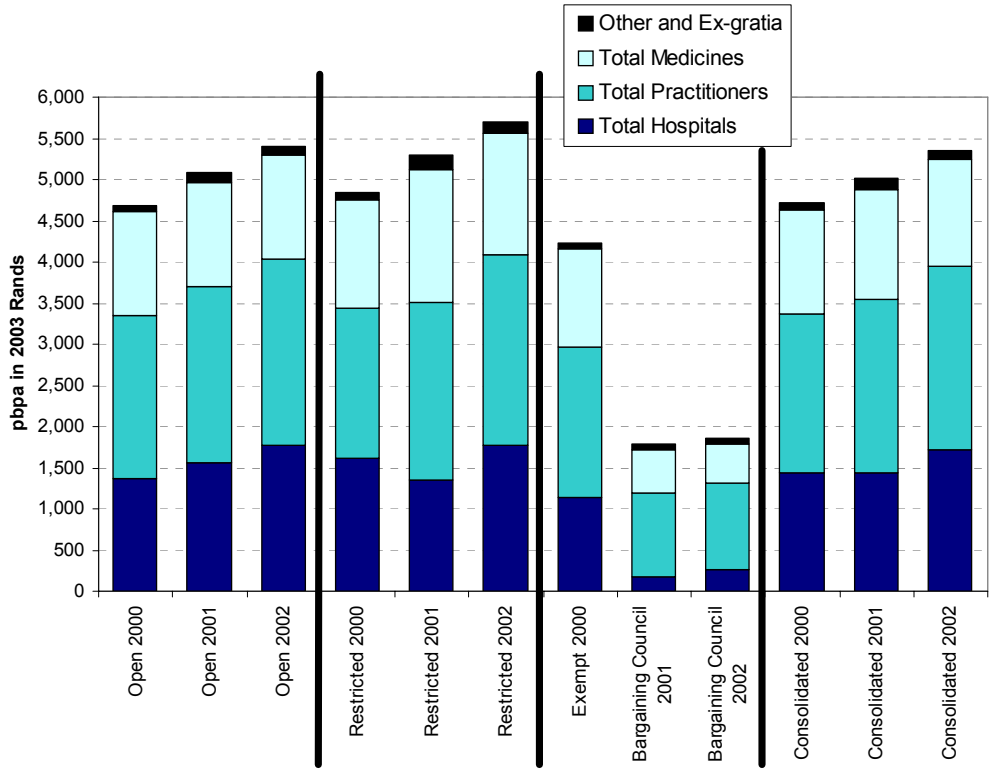


Figure 14: Total Benefit Expenditure by Schemes (2000 to 2002)

Source : Registrar's Annual Reports 2001 and 2002.

Note in the graph above that expenditure on hospitals is very low. Few Bargaining Council schemes provide hospital benefits, but rather encourage their members to make use of public sector facilities. There is an initiative in the Western Cape Department of Health to find ways to incorporate some payment from these schemes in future years for their usage of the public sector. However any transition is likely to take several years.

Appendix J contains information on the affordability issues for Bargaining Council schemes and looks in more detail at the benefits and contributions of specific schemes. As the schemes differ substantially it is recommended that each be treated on a case-by-case basis.

Data collection in the Bargaining Council schemes tends to be much less extensive than for Registered schemes. Many are administered as part of the bargaining council structure and may also include sick leave and maternity leave. Only 3 of the 14 schemes that reported to the Registrar of Medical Schemes in 2002 were able to provide data on the age profile of their beneficiaries (see Section 3.2).

Team 2 was asked to formulate a recommendation on whether and how Bargaining Council schemes should be included in the Risk Equalisation Fund. Team 2 felt that the Bargaining Council schemes could only be included in the REF once they complied with the provisions of the Medical Schemes Act, in particular the PMBs.

The more important issue for Bargaining Council schemes is the potential effect of a change in the tax expenditure subsidy and the possible incentives this gives to lower-income workers. The outcome of the work of the Subsidy Framework Consultative task team is critical for whether these schemes will be able to afford PMBs in the future. Once that is viable, their inclusion in the REF needs to be considered.

7. Evidence for Possible Risk Factors in SA

This section reflects all the evidence brought to the Formula Consultative Task Team during the consultative process on potential factors for inclusion in the REF formula.

7.1 Age

The work on the costing of PMBs by Fish et al (2002) and McLeod, Rothberg et al (2003) showed clearly that age was an important factor in the price of the PMB package. The shapes of the raw curves by age for each of the components of PMBs are shown below. The “All Ages” price is the estimate of the industry community-rated price for the package.

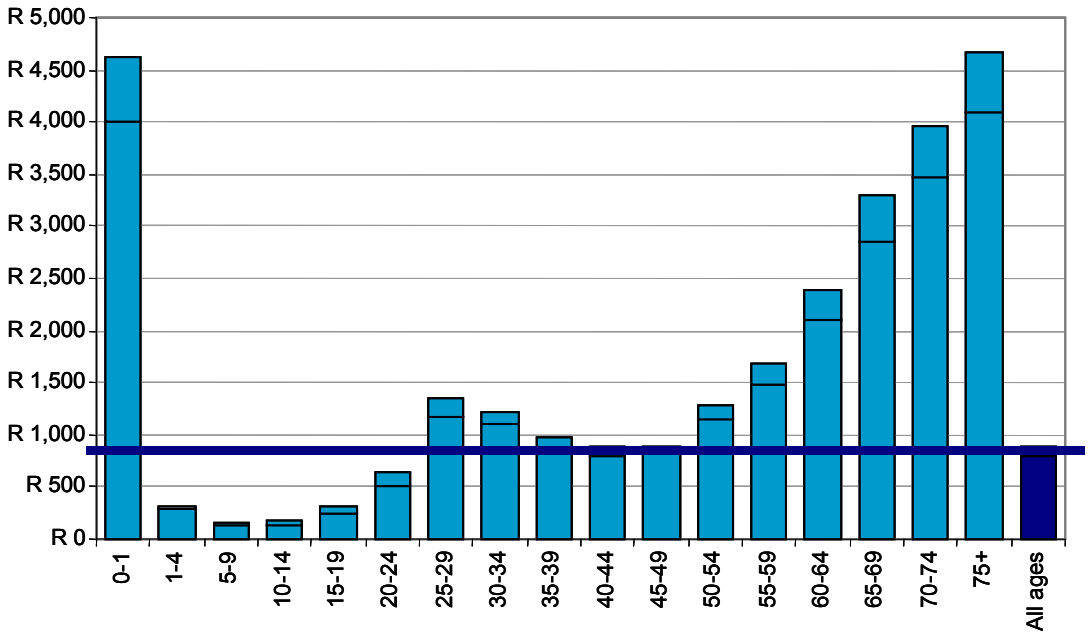


Figure 15: Raw Price of the PMB-DTP Package by Age (2001 Data)

The authors expressed some concern over the level of the price for neo-nates (i.e. the under 1 year group) and on the shape of the curve in the 25 to 40 age bands. These issues are dealt with in Section 7.4.

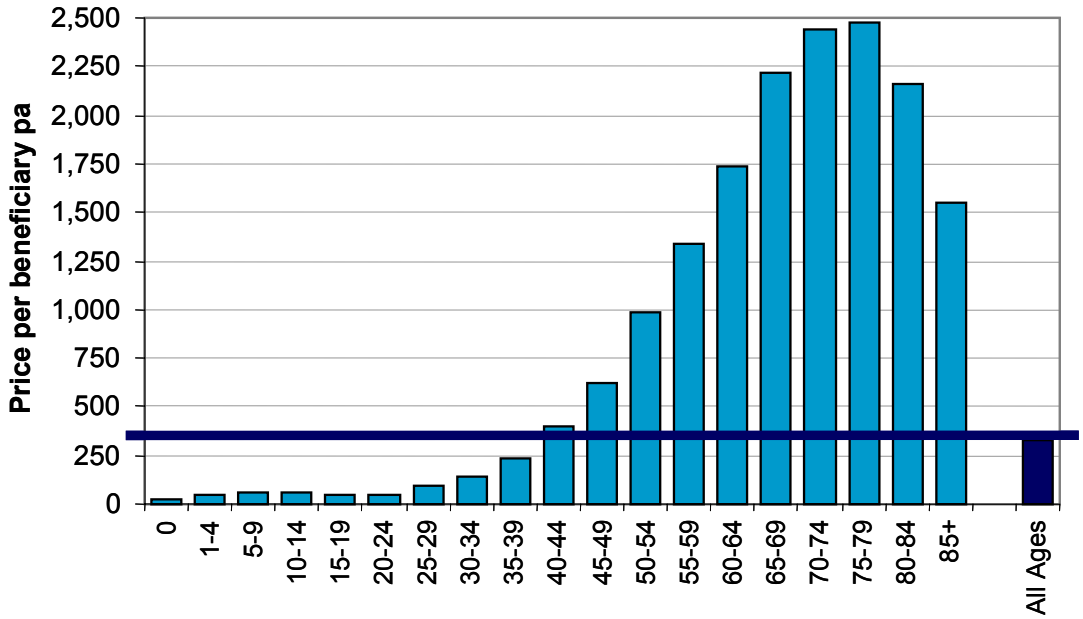


Figure 16: Raw Price of the PMB-CDL Package by Age (2001 Data)

Note that "raw" prices are taken directly from the data, before margins and adjustments as discussed in the reports on the costing of PMBs. The PMB-DTP graph is extended to age 85+ and the two shapes are combined, with margins and adjustments excluding non-healthcare costs, in the graph in Section 3.3.

7.2 Last-Year-of-Life

Moodley & McLeod (2001) examined international studies carried out on healthcare costs in the last-year-of-life and applied the methodology to eight South African medical schemes for the period 1997 to 2000.

Average costs in the last-year-of-life were found to be 3.2 times average costs in the second-last-year-of-life. The four highest expenditure service categories in the last-year-of-life were hospital procedures and visits, hospital accounts, hospital accommodation and trauma-related services. The ratio of decedent costs to survivor costs was higher than 10 times in each year of the study period but the authors concluded that much further work needed to be done on understanding the patterns in these ratios.

In 2002 Barnes & McLeod extended this work using the same data. The graphs below illustrate their key findings with respect to pooled benefits.

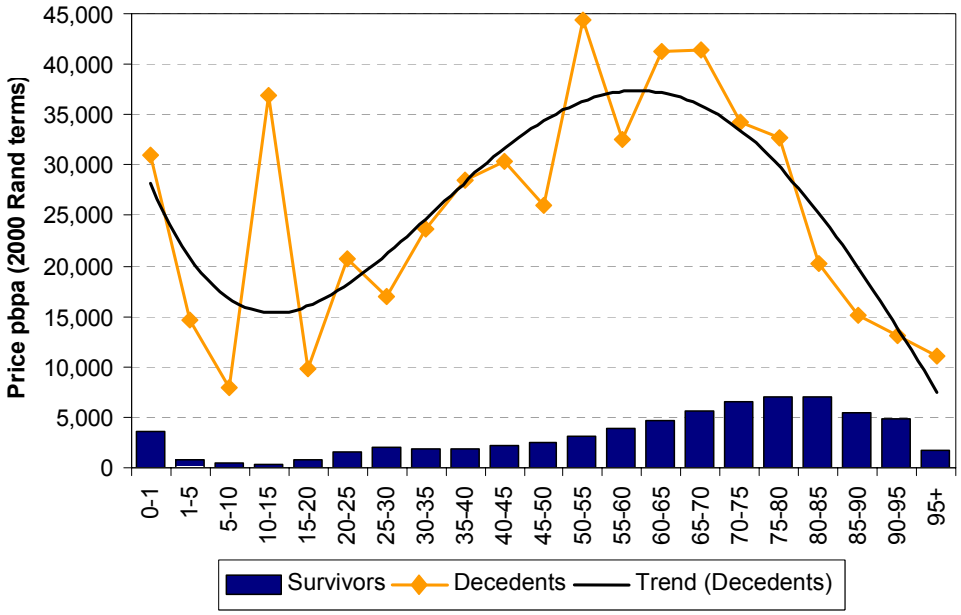


Figure 17: Raw Price Pooled Benefits for Survivors and Decedents

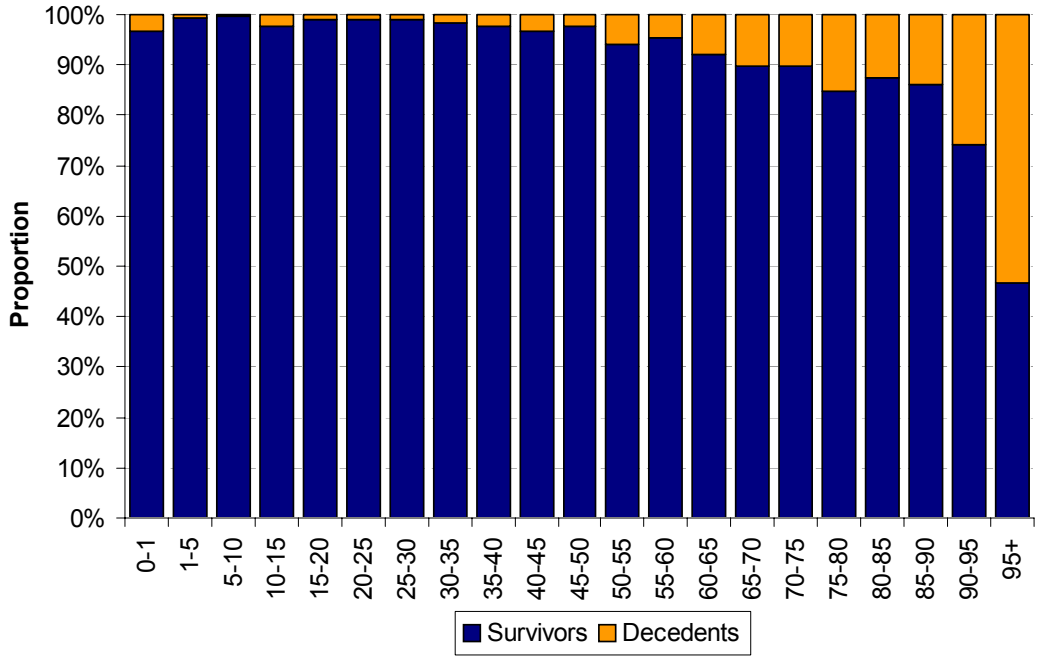


Figure 18: Survivor and Decedent Cost as a Proportion of Pooled Cost

This research reveals an interesting paradox : on the one hand the price of decedents relative to survivors is significantly higher in each age band. On the other hand, the proportion of decedent costs to survivor costs is surprisingly low even at very old ages. This would suggest that it is not meaningful to use deaths in risk equalisation.

Osburn & McLeod (2003) commented that the State of Data Collection report from the Registrar's office found that 79.6% of medical schemes failed to report the total number of deaths during the year 2000, let alone the distribution of deaths over the age groupings.

There is no doubt that the average costs for decedents are significantly higher than the average costs for survivors. However, data is very poor in this area and is not easy to gather in medical schemes. Restricted membership schemes may have reasonable data on deaths from the employer human resources database, but Open schemes will struggle to obtain any data.

An attempt was made by Medscheme to estimate the correct number of deaths from other data held on membership movements. When these estimates were compared to standard mortality tables, the differences were however unacceptably large. The conclusion drawn from this is that the absence of a person from the family unit could not be confidently ascribed to death as divorce plays a major role in society. Children also leave the family unit at different ages and for different reasons, including death.

Even if reliable data on deaths could be obtained, it would not be easy to explain to the public why schemes were "rewarded" for deaths by the risk equalisation formula.

On balance it seems that using age bands will capture much of this effect. This finding was agreed by the Formula Consultative Task Team and no further work on mortality was undertaken.

7.3 Gender

Appendix K gives the results of a study of the effect of gender on the cost of all hospital admissions and PMBs, using the 2001 data used in the costing of PMBs by Fish, McLeod et al (2002). The effect of gender on the raw price of PMBs is summarised in the graph below.

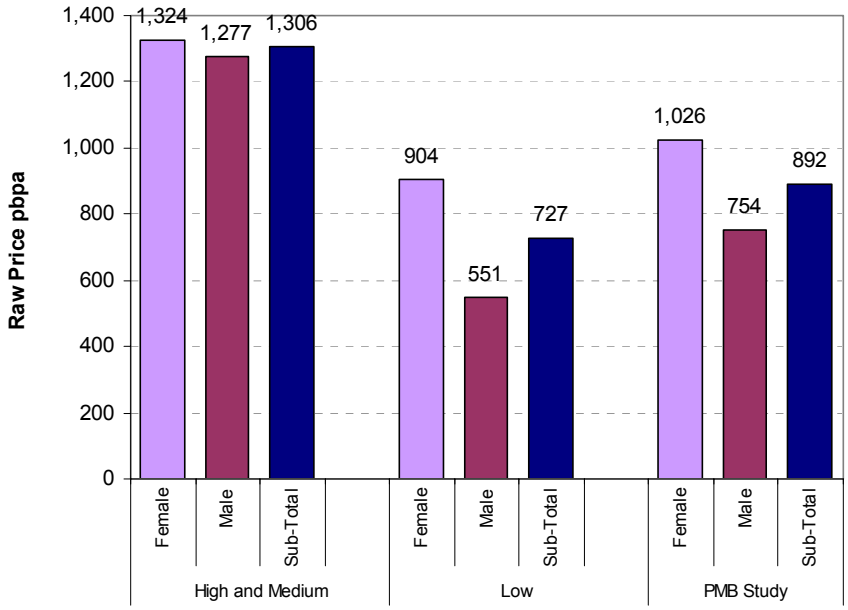


Figure 19: Effect of Gender on the Raw Price of PMBs (2001 data)

The graph shows that overall, the price for PMBs for females is 36% higher than for males. Females are 64% more expensive than males in the Low cluster[3], while the difference is less than 4% in the other clusters combined. The higher cost for females overall is thus largely driven by the difference between male and female costs in the Low cluster. On further investigation, the major driver of this cluster difference is confirmed to be births.

[3] The concept of "cluster" is a proxy for socio-economic grouping. Low cluster options are approximately 50% of the cost of High cluster options. Low cluster beneficiaries tend to be younger and predominantly of African/Black ethnicity. This cluster is a useful proxy for the emerging market under Social Health Insurance.

In the High and Medium clusters, males are much more expensive at older ages and this almost completely balances the higher cost of females in the child-bearing years. In the Low cluster, older males are less expensive and the price difference in the child-bearing years is greater. The graphs in Appendix K by age and cluster illustrate these features. The graph below summarizes the gender effect by age for all clusters combined, using data for all admissions.

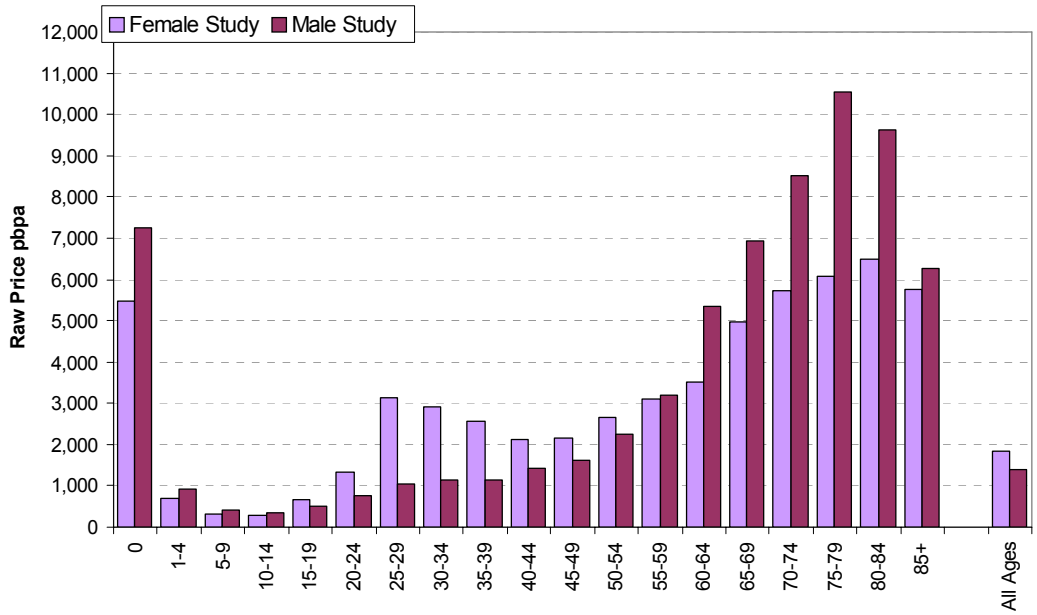


Figure 20: Effect of Gender on the All Admissions Price by Age (2001 data)

The cost of healthcare by gender and age is roughly similar to that seen in studies in Europe and the USA. Of interest is that the combined male and female graphs in these countries tend to be flatter in the child-bearing years than is seen in the South African PMB data (see Figure 15 in Section 7.1). It is suggested that the fertility rates in South Africa may well be higher, particularly in the Low cluster. A further issue is the high caesarean rate for births in South Africa (see Section 7.4).

Team 3 was instructed by the Formula Consultative Task Team to consider either gender or births as a factor in the Risk Equalisation Fund formula.

7.4 Births and First-Year-of-Life

There are very high costs for PMBs in the first year-of-life as shown in Figure 15 in Section 7.1, as well as in the table below. The higher cost of neo-nates compared to older children will be incorporated if the age bands used for the REF begin with category 0-1, rather than 0-5 years.

Although there is a general feeling in the industry that the hospitalisation of neo-nates may be excessive, given the predominance of fee-for-service remuneration of providers and the economic imbalance between schemes and providers, detailed analysis of the reasons for admissions for neo-nates by Prof Alan Rothberg has not yet provided evidence of areas where intervention is essential.

The data on pregnancies, births and live births in the Registrar's Annual Report is very poor and unreliable as not all schemes are submitting data. The table below is taken from the same data used by Fish et al (2002) in the costing of PMBs.

Table 1: Average Cost per PMB Admission for Pregnancy and Female Reproductive Chapters (2001 data)

Average Cost per admission (2001)			
	High and Medium Clusters	**Low Cluster**	**Total PMB Study**
All Deliveries	9,848	9,077	9,276
Baby problems	24,082	26,561	25,824
Maternal problems relating to pregnancy	3,991	3,961	3,967
Maternal issues relating to delivery	4,442	4,315	4,338
All Conditions in Female Reproductive System chapter and Pregnancy and Childbirth chapter	**9,888**	**8,948**	**9,181**
Caesarian deliveries	11,635	11,072	11,227
Spontaneous and assisted deliveries	7,744	7,069	7,233
Caesarian rate	54.0%	49.9%	50.9%

Other studies by Prof Rothberg on Medscheme data suggest a Caesarean rate for the Low cluster of 50.2% and 51.7% for 2002 and 2003 respectively. The High and Medium clusters also each showed rates higher than 55.0% during 2003.

The College of Paediatricians[4] provided the following (edited for this report):

> While national statistics for caesarean delivery are not particularly noteworthy, South Africa's private sector caesarean section rates continue to rank among the highest in the world at 50-60%. Efforts to lower the rate have been futile, with both patients and providers playing a role in the decision to deliver operatively. Scottish researchers ….in a review of some 120 000 singleton births of which approximately 14% were delivered by caesarean section, …….. our private sector caesarean section rates are 4x higher than the Scottish figure ... Lancet 2003;362:1779-84; Lancet 2003;362:1774-5; JAMA 2002;287:2684-90; BMJ 2000;321:137-41

In the Annual summary of USA vital statistics 2002[5], the following was given:

> 26.1% of births were delivered by cesarean section, up 7% since 2001 and 26% since 1996. The primary cesarean rate has risen 23% since 1996, whereas the rate of vaginal birth after a previous cesarean delivery has fallen 55%.

The FCTT recommends that an adjustment be made to the raw PMB costs for deliveries in order to reflect the excessively high rate of deliveries by caesarean section and the resulting higher costs to schemes. The confounding issue in South Africa is the high rate of HIV infection as the clinical protocol for HIV+ births is to deliver by caesarean section. The adjustment to use requires further work.

7.5 Ethnicity

Appendix L gives the results of a study of the effect of ethnicity on the cost of all hospital admissions and PMBs, using the 2001 data used in the costing of PMBs by Fish et al (2002). The effect of ethnicity on the raw price of PMBs is summarised in the graph below.

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[4] College of Paediatricians of South Africa, website www.collegemedsa.ac.za/Paeds

[5] Arias E, MacDorman MF, Strobino DM, Guyer B., Annual summary of USA vital statistics 2002 Division of Vital Statistics, National Center for Health Statistics, Centers for Disease Control and Prevention, Hyattsville, Maryland 20782, USA. earias@cdc.gov

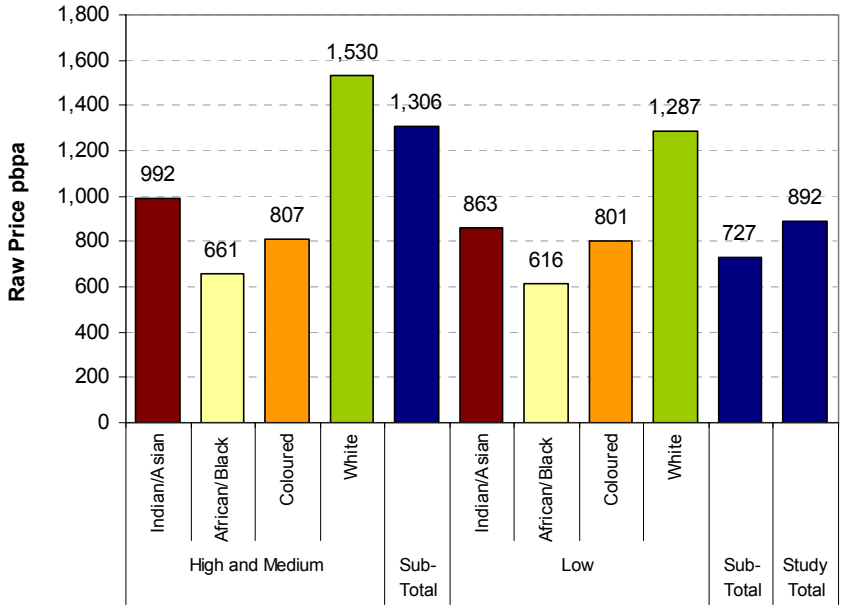

Figure 21: Effect of Ethnicity on the Raw Price of PMBs (2001 data)

The remarkable feature of the graph above is that although the raw price of the Low cluster is 44% less than that of the High & Medium cluster, the raw prices for each ethnic group are almost the same in the two clusters. For example, an African/Black beneficiary costs the scheme R 661 pbpa in the High & Medium cluster and R 616 in the Low cluster, a difference of only 8%.

There was a meaningful difference in the ethnicity of the clusters in the PMB studies, with the Low cluster having 77.1% African/Black lives and the High & Medium cluster only 18.3%. As shown above, the cost of a White beneficiary to the scheme is more than double that of an African/ Black beneficiary. Hence a major part of the difference in price between the clusters can be explained by their different ethnicity profiles.

Age also plays a significant role. The figure below shows that the ethnic composition of the industry by age is not constant. At the older ages, medical schemes still contain predominantly White lives. This is the result of combination of higher mortality in Coloured and African/Black groups, together with the vestiges of poorer access to medical schemes for these groups in the apartheid years.

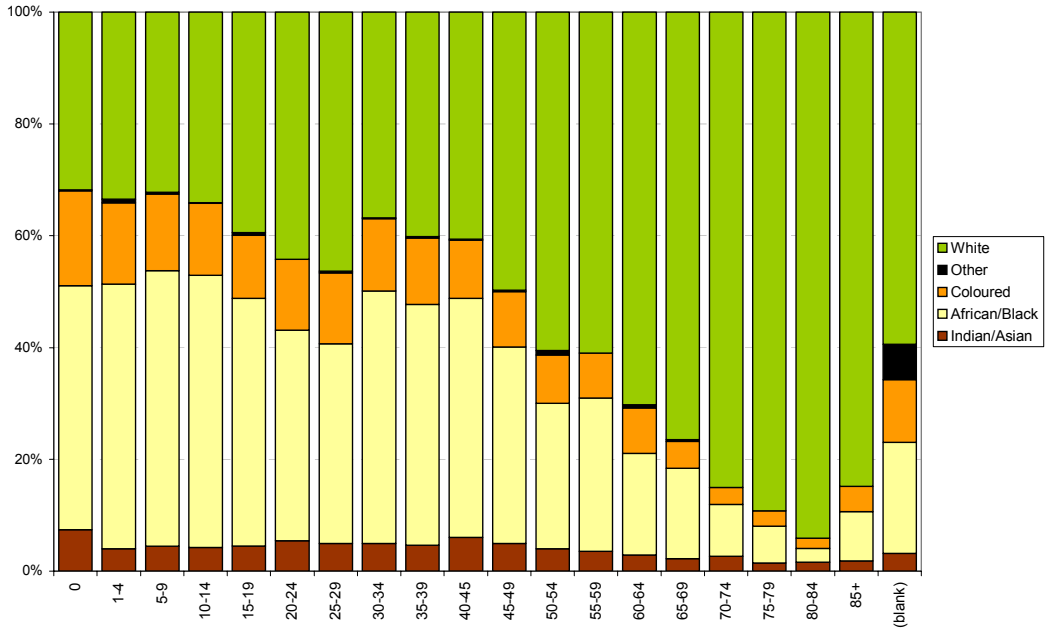

Figure 22: Medical Schemes Ethnicity Proportions by Age (OHS99 data)

The graph below shows the ethnicity of medical schemes compared to the group that could join medical schemes under Social Health Insurance. The data for both graphs comes from the October Household Survey 1999.

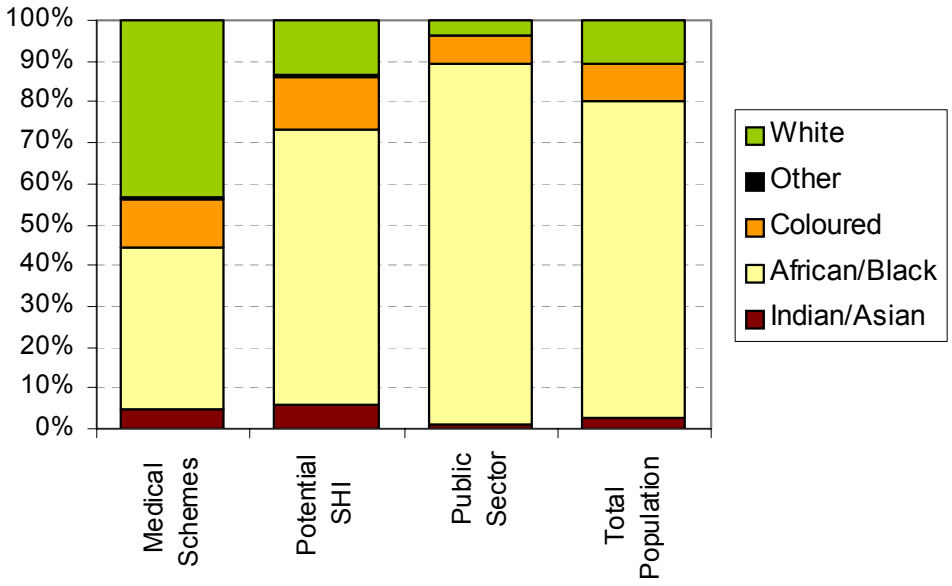

Figure 23: Ethnicity by Target Group (OHS99 data)

The graphs in Appendix L show the price for all admissions by age in each ethnic group. Remarkably, there is almost no difference (except perhaps for Coloured lives) between the curves for the High & Medium cluster and the Low cluster in each ethnic group. This suggests that it is not the cluster that is important in claiming behaviour, but the ethnicity of the lives in the cluster.

The graph below therefore combines the clusters to create a price for each ethnic group. The lines for the Indian and Coloured groups have been truncated as there is insufficient data at the oldest ages.

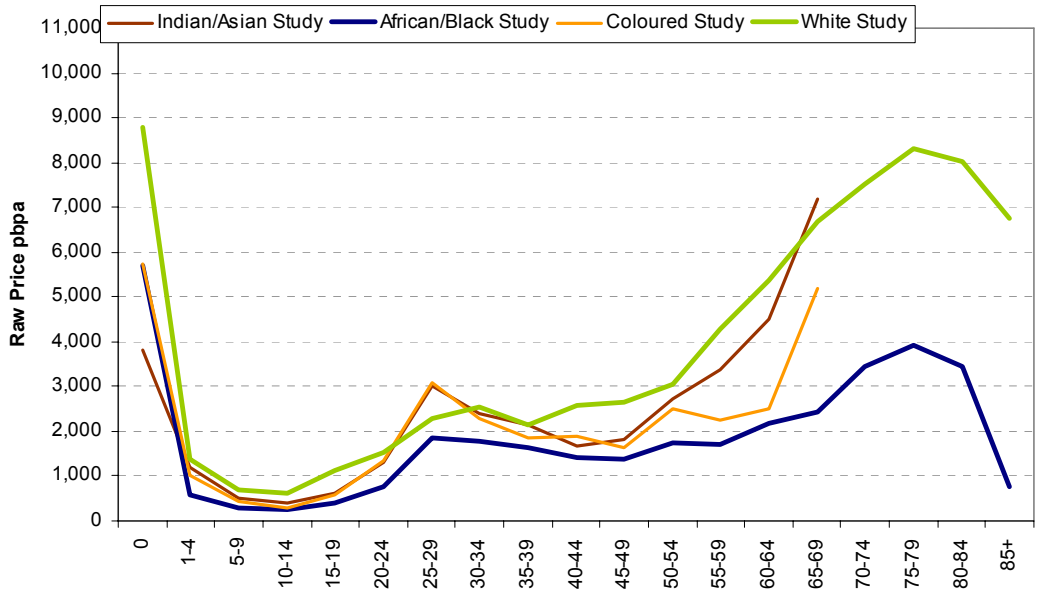

Figure 24: Effect of Ethnicity on the All Admissions Price by Age (2001 data)

The issue for the Formula Consultative Task Team was that the data shows that ethnicity is a factor differentiating the experience of schemes. However if ethnicity were included in the formula, this would "reward" schemes for the practice of higher expenditure on White lives relative to African/Black lives and would entrench the differences into the future. The FCTT was unanimous in deciding not to include ethnicity in the REF formula. Team 3 did however test this factor in their early empirical work (see Section 8.1).

7.6 Geographic Region

Some stakeholders reported there is empirical evidence that members living in rural areas have lower costs of healthcare than their urban counterparts. The underlying reasons for this would include a mixture of accessibility of healthcare (particularly high-tech care), the supply of healthcare services, lifestyle factors and geographic epidemiological differences.

It is considered inappropriate by the FCTT to equalise contributions when there is unequal access to healthcare or unequal supply of healthcare. It would be appropriate to equalise epidemiological differences but these are considered to be adequately addressed through the proposed age and chronic condition equalisation. Hence further differentiation on the grounds of geographic region is considered to be unnecessary.

7.7 Family Size and Member Status

Some stakeholders reported there is empirical evidence of significant differentiation in the cost of healthcare according to members' status as part of families and in terms of marital status. For example, divorced female principal members have a higher claims cost than female adult dependants for costs excluding maternities. It was considered unnecessary to differentiate the REF formula to this level for reasons of practicability, reliability of data and manipulability.

7.8 Income

There is no doubt in the minds of stakeholders that income level has a major effect on the relative cost of healthcare. As a very general statement, the larger the income the more healthcare is consumed. The lower income groups are likely to utilise fewer healthcare services and therefore the cost would be less per person.

Factors behind this include the availability of healthcare facilities close to employment or home, the ability to take time off work to consult a doctor, the ability to afford co-payments, the competing demands on income from other family members and the competing demands on income from shelter, food, transport and education. Provider behaviour is also understood to differ by income level in terms of the tests performed, the diagnosis made and the treatment offered. The member's expectation of treatment is also influenced by income level.

While income is intuitively appealing as a differentiating factor, there are severe difficulties in obtaining information on income in the current environment. Restricted membership schemes generally have good income information from the employer database. However Open schemes have little way to verify stated income, even if this is requested or captured. Many open schemes have chosen not to differentiate contribution tables by income because of this problem.

The conventional wisdom in the industry has been that income is the major reason for differences between the cost of options, so that lower-cost options have been able to sustain their price because of lower healthcare utilisation by these groups. This has been shown to be unlikely in the ethnicity study reported in Section 7.5, where the costs by ethnic group have been shown to be the same regardless of option chosen.

At Formula Consultative Task Team meetings there was general agreement that income would be a useful factor to attempt, but there was general inability to provide hard evidence or to suggest a practical way to gather this data for research. If in future there is an income-based contribution to Social Health Insurance, then the feasibility of gathering data on this issue could be reviewed.

An important consideration was that it would be blatantly unfair to have the contributions for lower income groups increased to pay for the higher cost of healthcare of the higher income groups, all other factors ignored. Income was thus discarded as a factor in the REF formula on the grounds of fairness and availability.

7.9 Chronic Diseases

> "*Clearly, a healthy 30 year old* [male] *represents a better business prospect for an insurer than a 30 year old* [male] *with a chronic medical condition.*" (White Paper, Ireland, reported in Osburn & McLeod (2003))

Early in the consultative process it was strongly felt that using age and gender (or deliveries) would be insufficient for risk equalisation and thus some measure of chronic disease burden would be necessary.

Osburn & McLeod (2003) reported that various studies have shown that major improvements can be achieved by extending the set of risk adjustors with measures of prior utilisation or measures of chronic health status. Indirect measures of health status may perhaps be measured more reliably than direct indicators of health status such as the presence or absence of certain chronic conditions. They considered various health proxies, including prior costs, chronic health indicators, inpatient diagnostic information and self-reported health status.

In South Africa there are several over-riding considerations: the lack of or poor status of coding of health events and the need for a predominantly prospective approach that will incentivise efficiency. The use of prior costs, actual expenditure on prescription medicine or previous hospitalisations, as well as in-patient diagnostic information are thus ruled out for consideration. Self-reported health status was not considered a reliable instrument and it was feared this could be subject to manipulation. In the longer term a preference has been expressed for the use of Diagnosis Related Groupings (DRGs). However the coding required for analysis by DRGs is not fully implemented at present.

With the introduction in 2004 of the Chronic Disease List conditions as part of Prescribed Minimum Benefits (see Appendix P for list), attention is focused on these chronic diseases. It was resolved to explore the possibility of using the numbers of beneficiaries with the 25 CDL conditions.

The graphs below are taken from the study of the cost of the CDL package by McLeod, Rothberg et al (2003). The graph below shows the proportions of beneficiaries with multiple CDL conditions. It was found that some beneficiaries had as many as eight simultaneous CDL conditions.

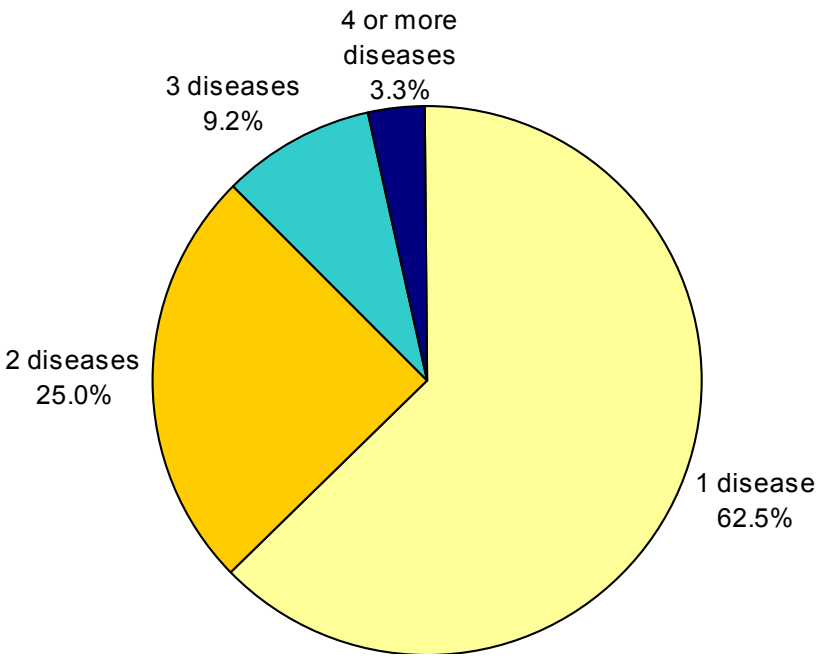

Figure 25: Beneficiaries Registered for CDL Conditions (2001 CDL Study)

The CDL study considered three groups in the costing:

- Single diseases, making up 62.5% of beneficiaries;
- The Top 9 Multiple Disease combinations (for example Diabetes with Hypertension), with 19.2% of beneficiaries; and
- The Other Multiple Disease combinations, of which there were 1,998. These accounted for 18.3% of beneficiaries.

The average cost of chronic medicine was found to increase over these three categories and the prevalence of multiple conditions increases sharply with age. The graph below combines both these effects to show the raw price of the CDL package by age.

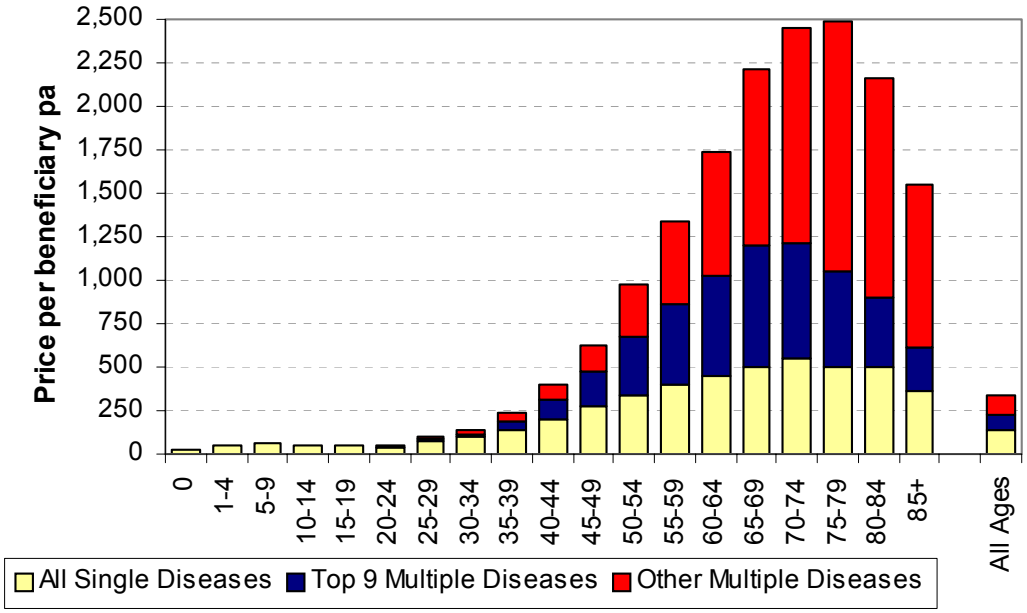

Figure 26: Raw Price of CDL by Age (2001 CDL Study)

The graph below shows the proportion of cost in each age band attributable to the three categories.

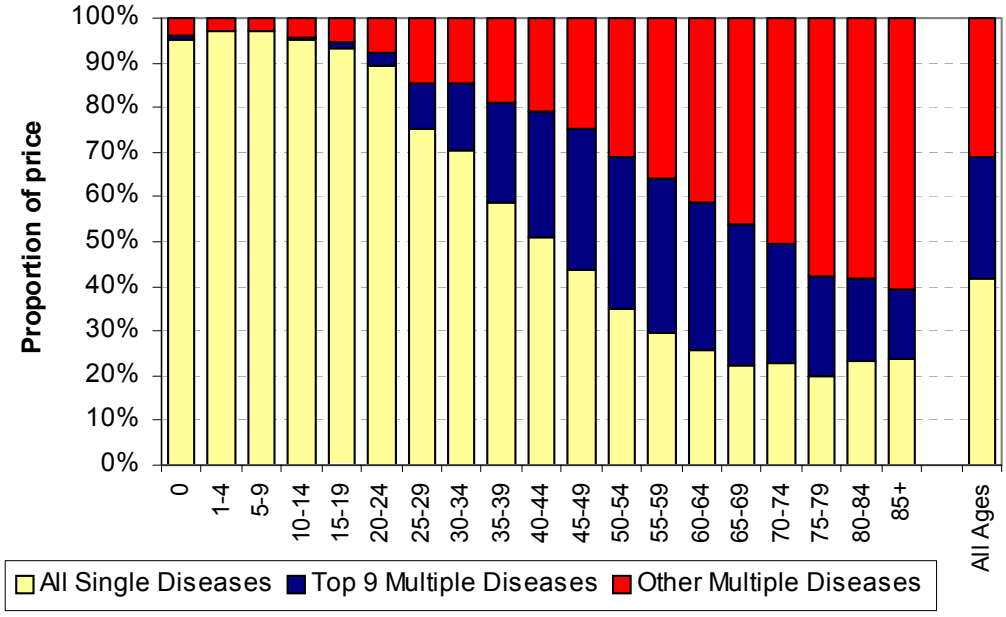

Figure 27: Proportion of Raw Price of CDL by Age (2001 CDL Study)

The Formula Consultative Task Team resolved to consider using the numbers of beneficiaries with each of the CDL diseases, together with a measure of severity for those with multiple CDL diseases. Task Team 3 was asked to carry out more rigorous empirical work on these issues.

Concern was expressed about the ability to reliably measure these factors and the ability to audit this data. Team 2 was tasked with developing appropriate clinical definitions and Team 4 was asked to consider the question of auditing of the data.

7.10 High Cost, Low Incidence Events

The Board of Healthcare Funders had envisaged a voluntary industry risk pool for high cost, low incidence events. The BHF developed a list of events that might form part of this risk equalisation mechanism and these are provided in Appendix M. Further submissions and evidence supporting the choice of these events were not received.

An analysis by Team 3 showed that the events on this list not yet covered by the CDL diseases were mainly cancer/oncology treatment, organ transplants and Gaucher's Disease. The Formula Consultative Task Team was of the opinion that the risks posed by cancer/oncology treatment and organ transplants within a scheme are better indemnified by mechanisms such as reinsurance. The discussion also suggested that this was only a problem for smaller funds and that size was the most important means of dealing with this risk.

The FCTT resolved not to add any of these BHF conditions until further work had been done to ensure a consistent approach. It was argued that all of the 271 Diagnosis Treatment Pairs should be scrutinised by Team 2 for diseases of a chronic nature. These chronic conditions, including Gaucher's Disease, could then be considered for inclusion in the REF in line with the principles in Section 5.5.

7.11 HIV/AIDS

Whereas the BHF proposals dealt with high cost, low incidence events, the treatment of HIV/AIDS has become a low cost, high incidence event. The issue for risk equalisation is that incidence is thought to vary significantly between schemes.

Johnson & Dorrington (2002) contains a useful appendix entitled “Estimation of HIV Prevalence Levels in the South African Medical Scheme Population”. They argue that to estimate the HIV prevalence in the medical scheme population, it is necessary to consider the profile of the population in terms of the factors that are known to determine the risk of HIV infection. Among the most significant of these factors are age, gender, skill level and ethnicity.

Johnson & Dorrington estimated that in 2002, 6.1% of all medical scheme beneficiaries were HIV positive. The prevalence of HIV infection in the medical scheme population is expected to rise to a peak of roughly 7.5% in 2008. The socio-economic profile of the medical scheme population remains high even when allowance is made for greater inclusion of lower income groups and the prevalence is never more than 1% above the base scenario of a constant industry demographic profile.

It was assumed, in making these projections, that there are no interventions to reduce the incidence of HIV infection or to treat people with AIDS. This is an unrealistic assumption, particularly in the medical scheme population, where substantial amounts have already been spent on treatment and prevention programmes. There is however a lack of empirical evidence to verify these estimates.

Models exist to be able to investigate the possible progression of the epidemic within a group of people and to be able to forecast the expenditure on treatment. To date these have been applied to the public sector and work on medical schemes is not in the public domain, although it may have been carried out by consultants and advisors to schemes.

The Formula Consultative Task Team was not sure of how the HIV/AIDS factor should be taken into account, but the extent of the epidemic, the expected differences between schemes, the likely inclusion of anti-retroviral treatment as a PMB and the fact that costs will escalate for some years as the epidemic progresses, all make for a recommendation to find a way to include this factor in the REF formula.

8. Choice of Factors for Formula

The factors agreed to in this section were debated by the members of Team 3, chaired by Pieter Grobler. The results were presented at meetings of the full Formula Consultative Task Team.

8.1 Initial Technical Report on a Formula

Grobler, Theron and Cooper prepared the document "*Technical Report: Risk Equalisation in South African Medical Schemes"* and submitted it to the Formula Consultative Task Team at the first meeting on 28 July 2003. The report was a proactive initiative by their employer, Medscheme, to assist the Department of Health with risk equalisation. Their aim was to investigate the feasibility and practicalities involved in risk equalisation in the South African context.

Although their report commented on a range of practical issues, it is their initial technical work on the formula that is of primary interest in this section. The methodology of the initial study was used for the complete REF Study as described in Section 8.2.

Their study used data from 2001 and 2002 for 17 schemes administered by Medscheme to build and compare various risk models and to determine the risk factor weights. The potential risk factors considered were grouped into three broad categories:

- Demographic factors (age, gender and ethnicity);
- Diagnosis-based risk factors (CDL diseases, other chronic diseases, cancer, births/deliveries) ; and
- Mortality.

Separate models were proposed for the PMB-DTPs and the PMB-CDL conditions. The risk factors for the proposed PMB-DTP model were age, an indicator for births/deliveries as well as diseases from the Chronic Disease List. The risk factors for the PMB-CDL model included age and CDL diseases.

The use of mortality as a risk factor proved not to be viable. The study showed that using an indicator for births/deliveries gave a better result than using gender. Ethnicity was found not to add significantly to the predictive power of the models and the authors expressed concern over the use of this factor.

The findings by Grobler, Theron & Cooper were discussed by the FCTT. Their substantial technical input on developing and testing a formula on a large database meant that the FCTT need only build on this initial work. It was agreed to expand the initial study to incorporate more industry data (see Section 8.3).

8.2 Methodology for the REF Study

The methodology for the REF Study was initially developed and reported in the Technical Report by Grobler, Theron & Cooper (2003). Their report (see Appendix N for details) sets out the justification for the approach adopted and provides references to papers on the subject. Actuaries and statisticians are directed to consult the original Technical Report. The methodology is summarised for a general audience below.

In order to decide which factors should be included in the formula, two distinct steps were involved:

- Test the individual factors against the Principles for the Choice of Risk Factors in the Formula (see Section 5.2 and Section 7);
- Test the proposed factors to determine their relative predictive power based on the available data sets.

The most common measure of predictive power of risk adjustment models is the R^2 measure. This measures the proportion of variance in health expenditure that is explained by a set of risk factors.

When assessing the predictive power of a model, it should be noted if this model also performs well outside of the sample originally studied. In order to assess this,

the dataset was randomly divided into two sample datasets. A first model was fitted using the first data sample and applying the stepwise selection method. Only risk factors whose regression coefficient estimates were significant at level 0.01 in the model were retained. The less significant risk factors ($p>0.01$) were dropped from the model. A second model was fitted on the second sample of data. Only those risk factors significant from the first regression model were used as risk factors in this second model. Again, the stepwise selection method was applied so that the final model contains only statistically significant risk factors. The probability of a risk factor being in the final model by chance was minimised when using this 2-step approach. The R^2 measure obtained for this second model was used for assessing the predictive power.

The preferred route chosen was to have separate models for the PMB-DTPs and the PMB-CDL conditions as that would lead to a better fit of the model due to more homogeneous data sets. The models obtained were additive and the parameters of the risk factors could be added together to obtain a combined formula for the complete PMB package. A Generalised Linear Model was used to estimate the parameter values for each of the risk factors.

Appendix Q sets out the methodology of the REF Study in the detail required to replicate the work. The document summarises the steps that should be followed to test the significance of certain risk factors for the risk equalisation formula as well as to test the impact of a formula on a specific scheme.

8.3 Data for the REF Study

The Formula Consultative Task Team decided against attempting to combine data sets from different administrators as the complexity of doing so and the confidentiality issues were too great. There was general consensus that each administrator would work on their own data sets (with the permission of the schemes) on an independent basis. The results would be produced in a common format and then combined by Pieter Grobler for discussion by Team 3.

The data sets offered are set out in Appendix P but not all were able to carry out the instructions completely as set out in Appendix Q in order to replicate the initial study. Thus the majority of the work in this report is based on the datasets supplied by Medscheme and Discovery Health. Data from Mx Health, Old Mutual and MediClinic was used to confirm some aspects of the work.

The Medscheme and Discovery Health datasets were for treatment dates in 2002. The data included CPT-4 and ICD-10 coding for the PMB–DTPs. The data used to determine if a beneficiary has a specific disease was based on pre-authorisation data obtained from the Medscheme and Discovery Health pharmacy benefit management programs. The detail of the data extracted for the REF Study is given in Appendix Q.

Medscheme and Discovery Health worked independently on their own data and the results were combined. The combined data (the REF Study) gave the following exposure:

- PMB–DTP: 26 schemes with 32.018 million member months of exposure, representing about 40% of the medical scheme population;
- PMB–CDL: 27 schemes with 33.460 million member months of exposure, representing more than 41% of the medical scheme population.

The graph below compares the age profile of the REF Study to the age profile of schemes not in the REF Study, using data from the Registrar's Returns for 2002. This work was carried out by Heather McLeod and the individual scheme age profiles have been kept confidential. Using the Registrar's data, the REF Study schemes were found to represent 40.5% and 43.3% of scheme beneficiaries for PMB-DTP and PMB-CDL respectively. This is slightly different to the figures for exposure quoted above as exposure takes into account the number of months for which a beneficiary is present in the scheme. The Registrar's data shows the age profile only at a point in time.

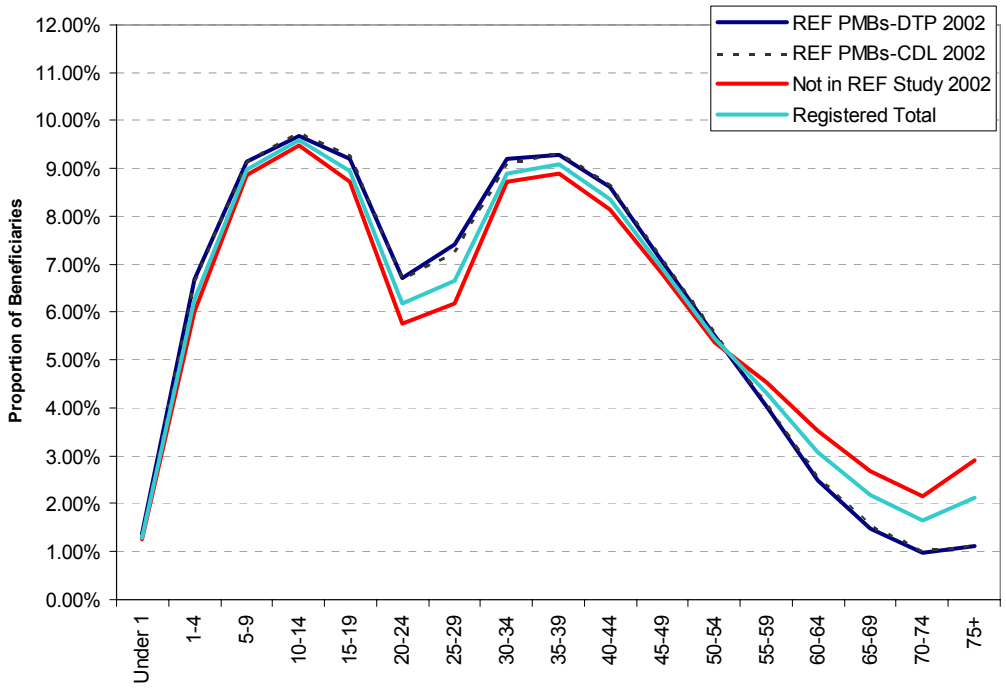

Figure 28: Age Profiles of Schemes in REF Study (2002 Registrar's data)

While the individual age profiles of the schemes in the REF Study are very different, the graph above shows that the REF Study has a remarkably similar shape to the age profile for schemes not in the REF Study and to the overall industry. The major difference is in the tail of the elderly. This is illustrated in the graph below.

The graph below shows that the REF Study represents over 50% of the industry data in all age bands below 55 years. The proportion in each age band then begins to decline, reaching under 30% in the 75+ age band. If this is of concern to the industry, a possibility in revising the formula is to target data from one or two of the large schemes known to have a much older age profile. However Team 3 is of the opinion that there is still sufficient credible data in the older ages not to need to include other schemes.

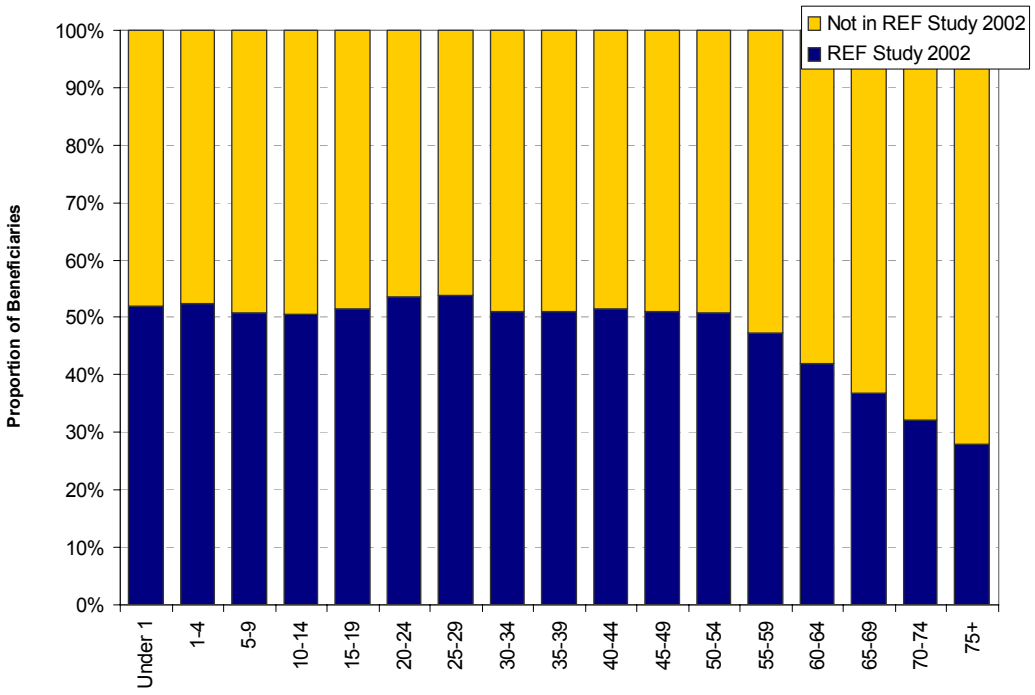

Figure 29: Proportion of Age Profile of Schemes (2002 Registrar's data)

The ethnicity of the schemes in the REF study was available directly on about half the exposure and estimated for the balance. The estimate of ethnicity of all schemes combined was 42.0% African/Black beneficiaries. The consideration of ethnicity in comparison to the industry is dealt with in Section 9.2.

8.4 Definition of PMBs in the REF Study

The data included CPT4 and ICD-10 coding for the PMB–DTPs. This was used to determine if an admission should be treated as a PMB–DTP or not. As there is no standard accepted definition of the PMB–DTP, the following definitions (cross-walks) were considered:

- The ICD-10 cross-walk developed by the Centre for Actuarial Research as used defined in The Costing of Existing Prescribed Minimum Benefits in South African Medical Schemes in 2001;

- The PMB–DTP cross-walk as used by Mx Health. This contains both CPT-4 and ICD-10 codes. If any of these codes were coded for an admission, the admission was considered to be a PMB–DTP;
- The Mx Health cross-walk, using only the ICD-10 codes to determine if an admission should be treated as a PMB–DTP or not.

The graph below shows the PMBs by age emerging from the three different cross-walks applied to the Medscheme data.

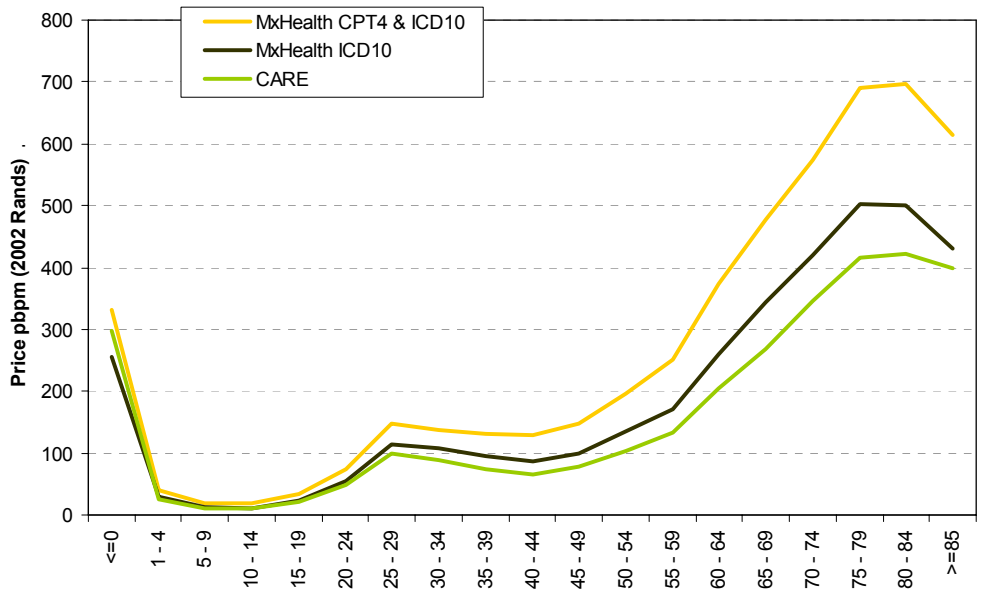

Figure 30: Comparison of PMB Cross-walk Definitions on Medscheme Data

At the meeting of the FCTT on 1 December 2004 it was decided to use the shape and level of the curve as obtained using the Mx Health cross-walk, but using only the ICD-10 codes to determine if an admission should be treated as a PMB–DTP.

A factor in the decision was that the CARE cross-walk resulted in a portion of non-classifiable events. There was also disagreement between clinicians as to some of the events classified retrospectively as out of the PMBs. In the PMB costing, a portion of these were added back to the raw price in obtaining the final estimate. Thus the Mx Health cross-walk using only ICD-10 codes is a reasonable approximation of the adjusted CARE figures.

In the opinion of Team 3, the Mx Health cross-walk using both ICD-10 and CPT-4 codes tends to overstate the number of PMB admissions. A solution would be to use CPT-4 codes only as confirmation of an event identified initially as a possible PMB by the ICD-10 code.

This issue of the identification of PMBs consistently across the industry is critical for further work on the formula and is discussed more fully in Section 11.1

8.5 Comparison of Results

Once the possible factors that complied with the Principles for the Choice of Risk Factors in the Formula were determined, various models were run and the predictive power of the various models determined. The Technical Report by Grobler, Theron and Cooper (2003) describes three measures of predictive power used. The most common measure of predictive power of risk adjustment models is the R^2 measure.

Some of the results of the REF Study, indicating the various R^2 values obtained, are shown in the tables below.

Table 2: R^2 of Different PMB–DTP Models

Model	Medscheme	Discovery
Age, Delivery, Diseases	0.036	0.026
Age, Delivery, CDL Count	0.032	0.024
Age, Delivery	0.026	0.022
Age, Age & Gender	0.012	0.005
Age, Diseases	0.021	0.008
Age, CDL Count	0.016	0.007
Age, CDL Count, Age & Gender	0.017	0.007
Age, Diseases, Age & Gender	0.022	0.008

Table 3: R^2 of Different PMB–CDL Models

Model	Medscheme	Discovery
Age, Diseases	0.683	0.627
Age, CDL Count	0.641	0.505
Age, Diseases, Age & Gender	0.683	0.627
Age, CDL Count, Age & Gender	0.642	0.505
Age, Age & Gender	0.176	0.068

The R^2 values obtained may seem very low initially. The Technical Report discusses this in the context of the international literature and puts these values into perspective. One researcher (Wouters) found values ranging from an R^2 of 0.40 for drugs to an R^2 of 0.005 for surgery and another (Newhouse) reported maximum R^2 values for inpatient care of 0.08. The full references are in the Technical Report.

It must be emphasised that although the R^2 values are still very low (particularly for the PMB-DTP models) this would only be problematic if the model were to be used for predicting expenditure on individual level. However, the purpose of the model in this context is to be able to predict expenditure on a risk group level.

The results obtained were found to be consistent between the different administrators.

The tables above show that age, deliveries and CDL diseases have the greatest explanatory power for the PMB-DTP model. Age and CDL diseases have the greatest explanatory power for the PMB-CDL model.

8.6 Final Choice of Factors

After testing the various factors against the Principles for the Choice of Risk Factors in the Formula and comparing their effect on the predictive power of the formula, it was decided that the following factors should be included in the formula:

- Age;
- A Pregnancy/Maternity indicator;
- The 25 PMB–CDL conditions as well as HIV/Aids;
- An adjustment for the number of CDL conditions that a member has. Allowance was made for 2, 3, and 4+ diseases.

As a member can have more than one CDL disease, occurring in various combinations, the list of diseases and combinations of diseases can become very long if every combination is allowed for. Section 7.9 described the work on the pricing of the CDL package where over 2,000 combinations of the 25 CDL diseases were found.

In order to simplify matters the decision was thus taken that where a member has more than one CDL disease, only one of these diseases will be allowed for in calculating the amount due to the scheme. The rational administrator would obviously take the disease that will have the highest amount. To cater for the members with more than one disease, a modifier is added to allow for the increased severity.

8.7 Raw Price of PMBs in the REF Study

The table and graph below give the raw price of PMBs determined in the REF Study using 2002 data. Note that this raw price needs to be adjusted by a number of factors (discussed in Section 9) before it can be used as the basis for REF payments.

Table 4: Raw Price of PMBs pbpm in the REF Study (2002 data)

Age bands	PMBs-DTP	PMBs-CDL	Total REF 2002	PMBs-DTP Mx	Total REF 2002 Mx
Under 1	348.33	0.75	349.08	286.06	286.82
1-4	33.04	3.04	36.08	35.13	38.17
5-9	14.23	4.87	19.10	15.09	19.96
10-14	13.53	5.08	18.61	14.56	19.64
15-19	24.59	5.08	29.67	27.89	32.97
20-24	58.71	6.40	65.10	67.99	74.38
25-29	105.78	8.08	113.86	119.34	127.42
30-34	98.29	11.13	109.42	115.55	126.68
35-39	79.56	18.58	98.14	102.27	120.85
40-44	71.30	30.02	101.33	98.43	128.46
45-49	84.55	47.48	132.03	116.70	164.18
50-54	110.86	71.32	182.18	152.42	223.74
55-59	144.43	96.63	241.06	197.49	294.12
60-64	222.29	125.80	348.09	301.42	427.22
65-69	293.22	159.74	452.96	394.71	554.45
70-74	365.55	175.48	541.03	468.79	644.27
75-79	415.25	176.31	591.56	534.20	710.51
80-84	417.40	161.23	578.64	508.37	669.60
85+	372.66	128.97	501.63	424.68	553.65
All Ages	**81.92**	**26.79**	**108.71**	**100.07**	**126.85**

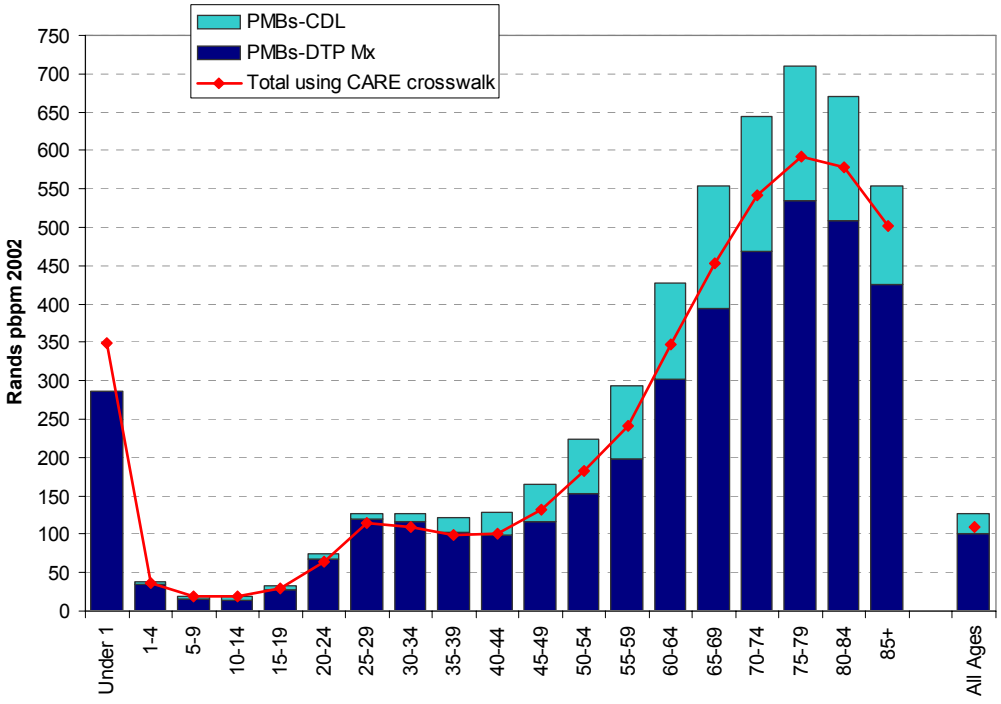

Figure 31: Raw Price of PMBs pbpm in the REF Study (2002 data)

9. Development of the REF Contribution Table

Section 9.1 was developed early in the consultative process as an idea emanating from George Marx in Team 1. The idea to publish the REF formula as a contribution table received wide acclaim and it was adopted in principle at the FCTT meeting on 9 September 2003.

The various adjustments to the raw price of PMBs began to be discussed as the results of the work of Team 3 were shared with the FCTT. By the meeting on 1 December 2003, the list of adjustments flagged had been almost fully developed. In principle the need for each of these adjustments has thus been accepted by the FCTT.

However the timing of the consultative process has meant that this report has had to be prepared while much of the industry is on holiday. Pieter Grobler and Heather McLeod have discussed each adjustment and have made often difficult choices in order to arrive at a first draft version of the REF Contribution Table. These adjustment factors have not yet been discussed more widely and they must form part of the on-going consultation process with stakeholders in early 2004.

9.1 Rationale for Publication as a Contribution Table

In view of the requirements of transparency, predictability and non-manipulability it is suggested that the REF formula not be expressed as a formula but rather in terms of a contribution table, to be known as the REF Contribution Table. This is shown conceptually overleaf.

This approach has the major advantage of simplifying the application of the formula from the methodology in Appendix O, the use of which is described in part 4 of Appendix Q. Instead schemes will apply the REF Contribution Table in a way which is familiar from their current use of contribution tables in their own schemes.

Table 5: Conceptual REF Contribution Table

Age Bands	No CDL disease	Asthma	Diabetes	Hyper-tension							Severity	Birth/ Delivery
Under 1												
1 to 4												
5 to 9												
10 to 14												
80 to 84												
85+												
Total												

The REF Contribution Table is a table of contributions per beneficiary, according to the REF risk factors of age, chronic condition, number of simultaneous chronic conditions and whether or not the beneficiary was a maternity case in the last year. The amount is determined from historic data and other inputs on costs per disease. The amount is set in order to cover:

- a defined benefit package (the PMBs);
- for the entire medical scheme industry population that is expected for the next year; and
- With an agreed dispensation of cost and other (managed care) efficiencies.

The REF Community Rate is calculated by applying the REF Contribution Table to the expected universe of beneficiaries.

Each scheme applies the REF Contribution Table to its own universe of beneficiaries to determine the scheme's REF Community Rate. The REF performs a calculation on the total beneficiaries in the industry to determine the Industry REF Community Rate.

The difference between the Industry REF Community Rate and the scheme's REF Community Rate is then the amount paid to or received from the REF in terms of risk equalisation.

- If the Industry REF Community Rate is higher than that of the scheme, the scheme pays the difference to the Risk Equalisation Fund.
- If the Industry REF Community Rate is lower than that of the scheme, the scheme receives the difference from the Risk Equalisation Fund.

Note that the explanation of payment flow has been determined in the absence of any flow to the REF in the form of a contribution subsidy or income-based contribution (see Section 2.6). To the extent that the REF may distribute these amounts, and depending on the size of that flow, schemes could find that they do not have to pay to the REF but that all schemes receive money from the REF.

In practice, each scheme will collect data in a defined format which mirrors the REF Contribution Table. This data collection format will be known as the REF Grid. The scheme multiples the cell from the REF Grid by the amount in the REF Contribution Table. This is summed across all cells in the table and divided by total beneficiaries to obtain the scheme REF Community Rate.

9.2 Adjustment for Demographic Profile

The first adjustment to the raw price of PMBs in the REF study deals with the question of whether the study price is a reasonable predictor of the industry price. The REF study used data from 2002 from only a part of the industry. This is assessed by considering the demographic profile of the REF Study compared to that of the industry.

The second step is to consider the demographic profile of the target population and to consider whether the raw price can still be applied to that population. See Section 2.4 for an initial understanding of the target population in years to come.

In Section 8.3 it was shown that the age profile of the REF Study was remarkably similar to that of schemes not in the REF Study and to the overall industry. The possible concerns about less data in the elderly tail were dealt with.

The graph below shows the age profile of the industry and future target populations using the October Household Survey 1999.

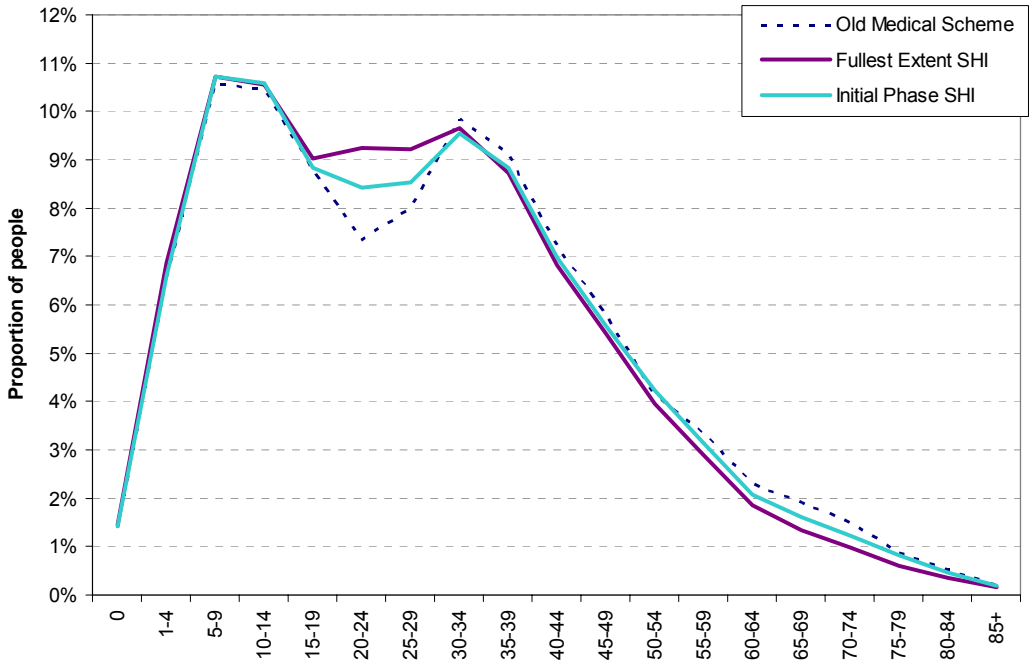

Figure 32: Age Profile Future Target Populations under SHI (OHS99)

Note that the age profile of the industry with the introduction of SHI is likely to become younger. That is because the elderly not already in medical schemes have incomes which are too low to be able to join a medical scheme and will remain in the public sector. A further key feature of the graph is the change in shape of the curves in the young adult years. The current voluntary environment is thought to lead to anti-selection in the young adult years.

Given that the REF Contribution Table uses age as a factor, no adjustment needs to be made to the raw price from the REF Study on account of age differences in the target population.

The ethnicity of the REF Study compared to that of the industry might have been an area of concern. In Section 7.5 it was shown that ethnicity has a major impact on the level of the price curve, particularly at the older ages. If the REF Study had many more White lives than the industry (or more correctly the target population for when the REF Contribution Table will apply), then the curves may be set too high. The graph below shows the ethnicity of the future target populations.

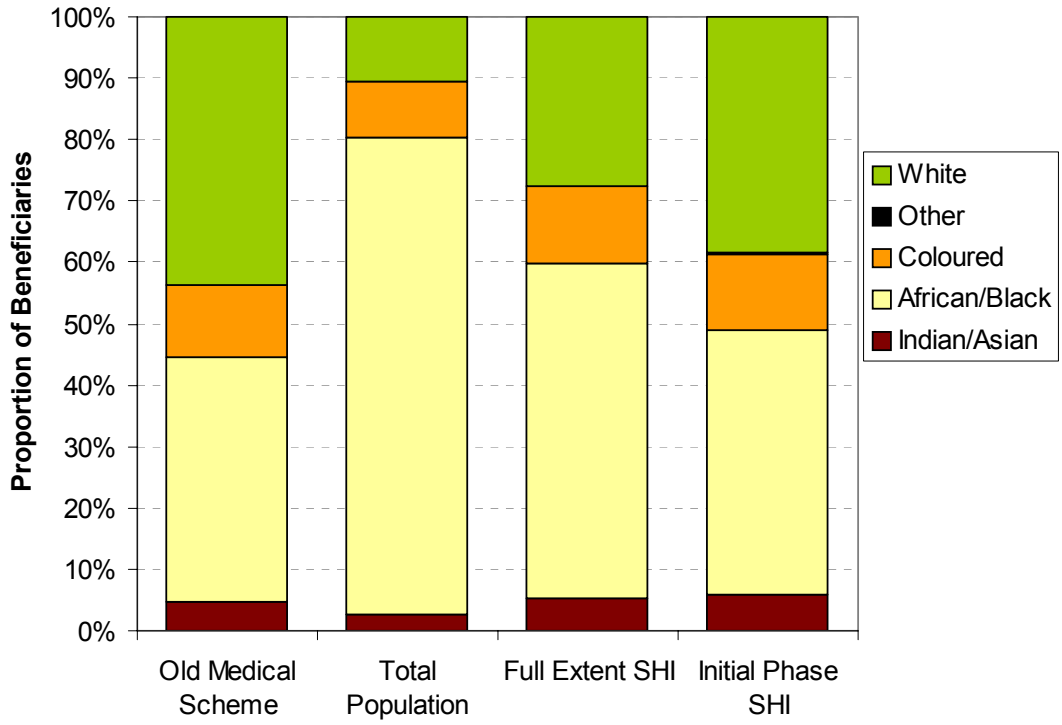

Figure 33: Ethnicity of Target Population (OHS1999)

The REF Study was estimated to have 42.0% African/Black lives. Using estimates from the October Household Survey 1999, the proportion of Africa/Black lives in medical schemes is 40.0%. The first phase of SHI could result in an industry with 43.2% Africa/Black lives and this could rise to 54.7% at the fullest extent of SHI.

Thus fortuitously the REF Study has a proportion of African/Black lives between the current industry level and the target population in the first phase of SHI. It is thus not recommended that there be any change to the raw PMB price from the REF Study as a result of ethnicity.

9.3 Adjustment from Raw to Full PMB Cost

The raw PMB price needs to be adjusted to take account of items in the PMB costing that may not be available in the data. While the definition of PMB-DTPs remains a matter for individual scheme interpretation, a large part of this adjustment is for the uncertainty in the price of PMBs. The margins and adjustments to go from the raw price to the full price of PMBs are detailed in the reports on the costing of PMBs by Fish et al (2002) and McLeod, Rothberg et al (2003).

Note that a decision was taken by the Formula Consultative Task Team to exclude non-healthcare costs (i.e. the costs of administration and managed care) in the work of the REF. The graph below shows the relationship between raw and full price from the data in the reports described above.

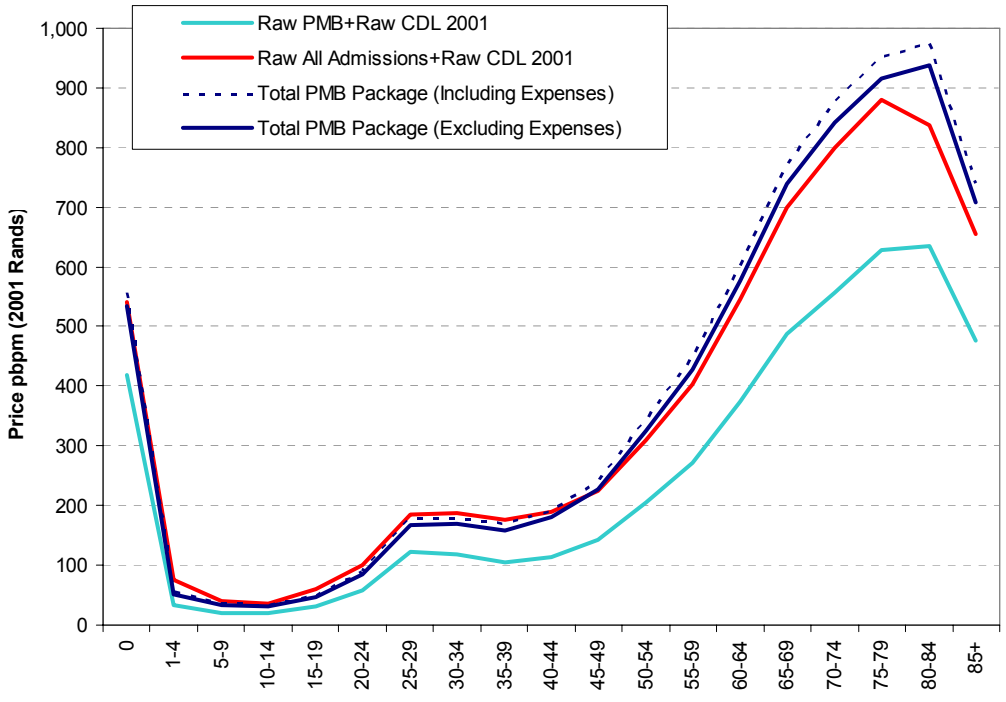

Figure 34: Adjustments and Margins for Full Price of PMBs by Age (2001)

Note that the non-healthcare costs (expenses in the graph) are a small component. The major difference between the raw and full prices is due to the margins for uncertainty in the PMB definition, both the PMB-DTPs and the PMB-CDL package.

This presented Grobler and McLeod with a dilemma: the adjustment from raw to full price had been determined for the CARE cross-walk (see Section 8.4) but not for the Mx Health cross-walk. The latter gives a higher raw price and it would be unreasonable to inflate that higher raw price with the margins from the CARE studies. The exact lower adjustment to make to the Mx Health version is unknown at this stage.

As part of the deliberation on this issue and the issue of policy adjustments on neo-nates (see section 9.7 below), standardised versions of the shapes were compared. The standardised versions of the shapes give an average of 100 on the same population and are shown below. The three shapes in order are the CARE studies of PMBs, the CARE crosswalk applied in the REF Study and the Mx Health crosswalk in the REF Study.

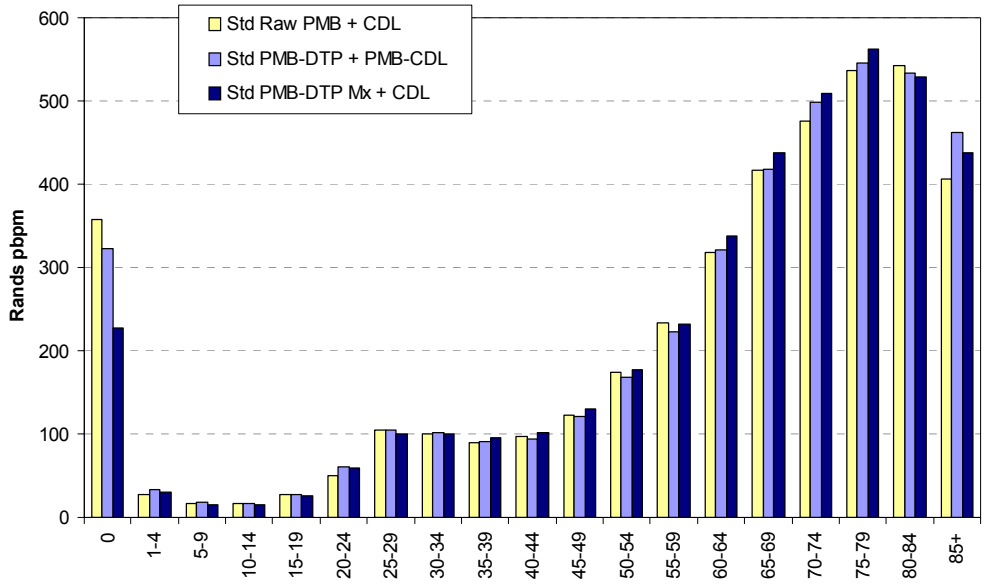

Figure 35: Standardised PMB Costing Shapes

There are large differences in age 0 for the three methods. The raw price is also a bit lower in the CARE shape than the others for 85+. If the Mx Health shape is chosen then it is not considered that any further adjustments to neo-nates will be appropriate. Except for these two age bands on the tails, the results will probably not be that sensitive to the curve used except for schemes with extreme demographics. On balance, Grobler and McLeod recommend using the middle of the three shapes i.e. the CARE crosswalk on the Medscheme and Discovery data in the REF Study. This is the line shown on the graph in Section 8.7.

This reverses the decision at the earlier FCTT meeting but this issue is one that needs to be discussed in that forum now that new evidence is available. For the purposes of the REF Contribution Table in this report, this is the decision taken on the shape. It has the major advantage of allowing for a known adjustment from raw to full price to be made. The factors for adjustment are given separately for PMB-DTPs and PMB-CDLs, as shown graphically below and in the table in Section 9.8.

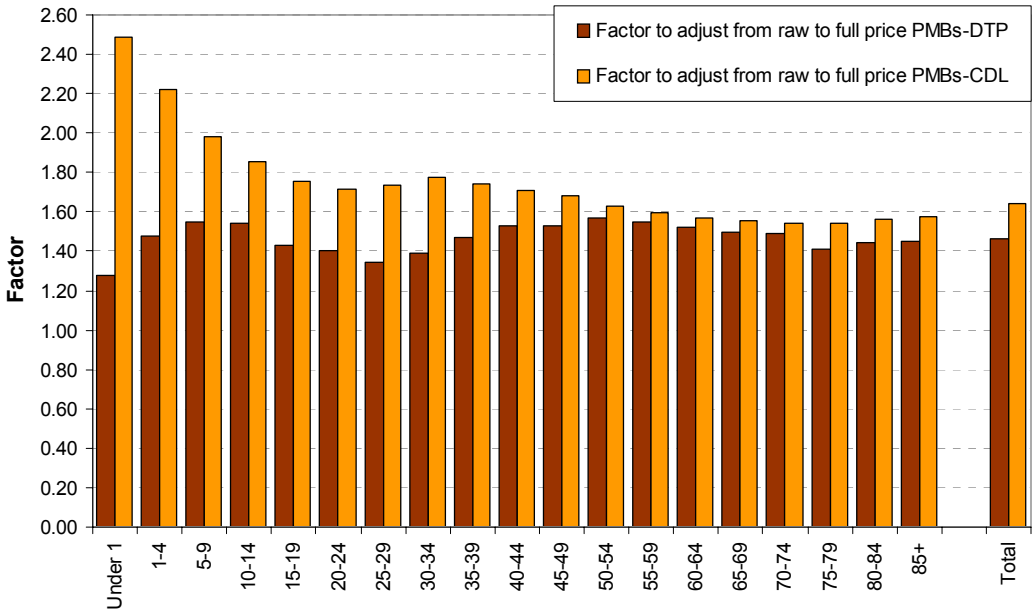

Figure 36: Factors for Adjustment from Raw Price to Full Price (no expenses)

Note that as PMB definitions and protocols improve in future, so these factors are expected to reduce.

9.4 Adjustment for Target Population

The table below gives the number of beneficiaries expected in each age group for the target populations, compared to the existing medical scheme population.

Table 6: Beneficiaries in Target Populations by Age Band

Age bands	Derived from Registrar's Returns 2002	October Household Survey 1999 data		
		Old Medical Scheme	Initial Phase SHI	Fullest Extent SHI
0	87,161	97,546	145,381	219,769
1-4	421,456	461,714	678,216	1,042,455
5-9	602,480	742,710	1,098,442	1,624,172
10-14	643,825	733,049	1,084,580	1,600,515
15-19	601,525	617,601	906,668	1,366,786
20-24	414,923	515,905	863,950	1,400,851
25-29	447,382	561,051	876,290	1,398,038
30-34	597,077	690,796	980,238	1,460,809
35-39	610,047	640,382	907,283	1,323,357
40-44	561,179	505,530	717,111	1,033,185
45-49	464,792	406,802	571,869	819,374
50-54	366,006	289,581	432,520	600,313
55-59	289,962	233,777	321,927	438,928
60-64	207,395	160,260	212,551	282,557
65-69	146,079	133,679	165,235	202,030
70-74	110,328	105,039	125,825	147,490
75-79	73,520	60,485	82,837	91,246
80-84	33,230	35,743	47,020	52,873
85+	35,502	16,155	19,710	23,469
(age unknown)		17,260	20,638	23,473
Total	6,713,870	7,025,065	10,258,291	15,151,692

The choice of target population is difficult to make before there is clarity on the work of the Subsidy Framework Consultative Task Team and clarity on the timing and extent of mandatory membership. Some have argued that for 2005 the target population should remain medical schemes as presently constituted. Others have suggested using the initial phase of SHI as the target population.

For the purposes of defining the first REF Contribution Table for stakeholders to consider, we have used the existing medical scheme population as derived from the age profiles submitted to the Registrar of Medical Schemes (see Section 3.2).

Note that the target population age profile used does not affect the REF Contribution Table itself, but does have a substantial impact on the Industry REF Community Rate derived from the Table and hence on the payments to or from the REF (see examples in Section 9.9).

The age profile from the Registrar's data differs from the age profile given in the OHS99 data because the latter estimates the shape of the population using the census. When an adjustment needs to be made to a new target population, we recommend taking the actual age profile from the Registrar's data and adjusting by a factor derived from the OHS99 data. The factor is the ratio of increase from the OHS99 medical scheme population to the OHS99 target population chosen. By that stage there could also be a more recent version of the OHS from StatsSA.

9.5 Adjustment for Inflation

The contribution table is based on raw data from 2002. This needs to be adjusted for inflation to the year to which the REF Contribution Table will apply.

The inflation used in the development of the REF Contribution Table is dealt with separately for the two major components.

An estimate of the inflation increase from 2002 to 2003 for PMB-DTP was obtained from the Discovery and Medscheme data used in the REF Study. The adjustment from 2002 to 2003 for PMB-CDL is based on an estimate as it is very difficult to derive an exact number from the Medscheme data because of the many benefit changes that took place between the two years.

The adjustments from 2003 onwards are based on estimates from actuaries at Medscheme and Discovery Health. It was not possible to obtain estimates from other sources at the time of the calculations because of the holiday season.

The inflation estimates allow for both price inflation and a utilisation component because of factors other than changes in the demographic profile (such as new technology). The recommended inflation adjustments are given in the below.

Table 7: Inflation Adjustment for REF Contribution Table

Year	PMB-DTP	PMB-CDL
2002 – 2003	11.3%	10.0%
2003 – 2004	9.4%	10.5%
2004 - 2005	9.3%	9.0%

Note that this first estimate of the REF Contribution Table has been prepared using data from 2002, adjusted to 2004 to facilitate comparison to scheme contribution tables during 2004. This is described as the REF Contribution Table [Base 2002, Use 2004].

The first REF Contribution Table for implementation in 2005 would use 2003 data and be adjusted for inflation to 2005. This would be known as the REF Contribution Table [Base 2003, Use 2005] to avoid confusion. A first estimate of the inflation for that Table is suggested above.

9.6 Adjustment for Efficiency

The Formula Consultative Task team is deeply grateful to Rob Parke and Mark Litow of Milliman USA, the major actuarial and clinical consulting firm in the USA, for their assistance on this aspect of the work.

Section 4.2 and Section 5.1 require that the REF seeks to equalise the “most reasonably achievable efficient cost” of PMBs. The FCTT has considered two ways to measure this.

Milliman USA makes use of a concept of levels of efficiency when pricing healthcare in the USA. They use three levels of efficiency in managed care and these have been interpreted for South Africa in discussions with Rob Parke:

- **Loosely managed**: the standard level of managed care interventions in general use by SA schemes i.e. includes pre-authorisation, case management, drug-utilisation review but almost no risk-sharing with providers. This use of the tools of managed care with little risk-sharing is described by Doherty & McLeod (2003).

- **Moderately managed**: an intermediate level of managed care that involves some risk-sharing. Examples would be per diem or per case rates on hospitalisation. In SA there has been substantial movement towards risk-sharing for some primary care options but less movement in hospital contracting. Although some options may be approaching this level, it is unlikely that many whole schemes would have reached this level yet.

- **Well managed**: a full implementation of managed care with extensive risk-sharing with providers or complete risk-taking by providers as in staff model Health Maintenance Organisations. The best examples in SA are the mine healthcare systems like Igolide and Impala Platinum.

In principle, McLeod believes the efficiency target should be set at “Moderately Managed”. This is achievable by schemes in the medium-term whereas only some schemes will proceed down the route to staff model type structures.

While it had been hoped to do a PMB costing in one of the Well Managed SA schemes, this has not been possible in the consultation period. This must still be the major goal of research in South Africa. The graph below illustrates the three levels of efficiency using data supplied by Milliman USA for their market.

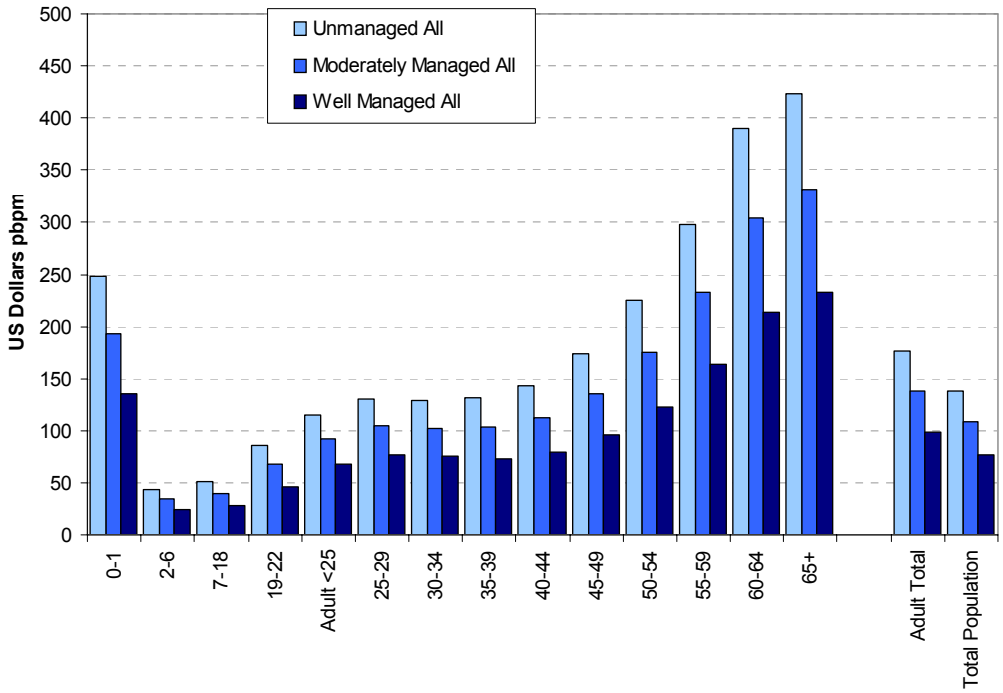

Figure 37: Effect of Efficiency on USA Hospital Costs (Inpatient + Outpatient)
Source: Milliman USA

Note the similar shapes for the different efficiency levels in the graph above. Once the shape of the curve is set, it is envisaged that the adjustment for efficiency in the South African REF formula effectively sets only the level of the curve.

The issue of where to pitch the adjustment for efficiency is likely to attract heated debate. Those schemes expecting to pay into the REF will no doubt argue for a smaller adjustment in order to reduce the REF Contribution Table.

The graph below illustrates the adjustment for efficiency that might be used, using the experience in the USA as a basis.

The graph suggests that an adjustment for efficiency from Loosely Managed to Moderately Managed should be some 80%. The variation by age is slight and this feature really needs to be estimated on local data. The debate is then likely to be about the pace of achieving that target and whether to take smaller adjustments in the initial years.

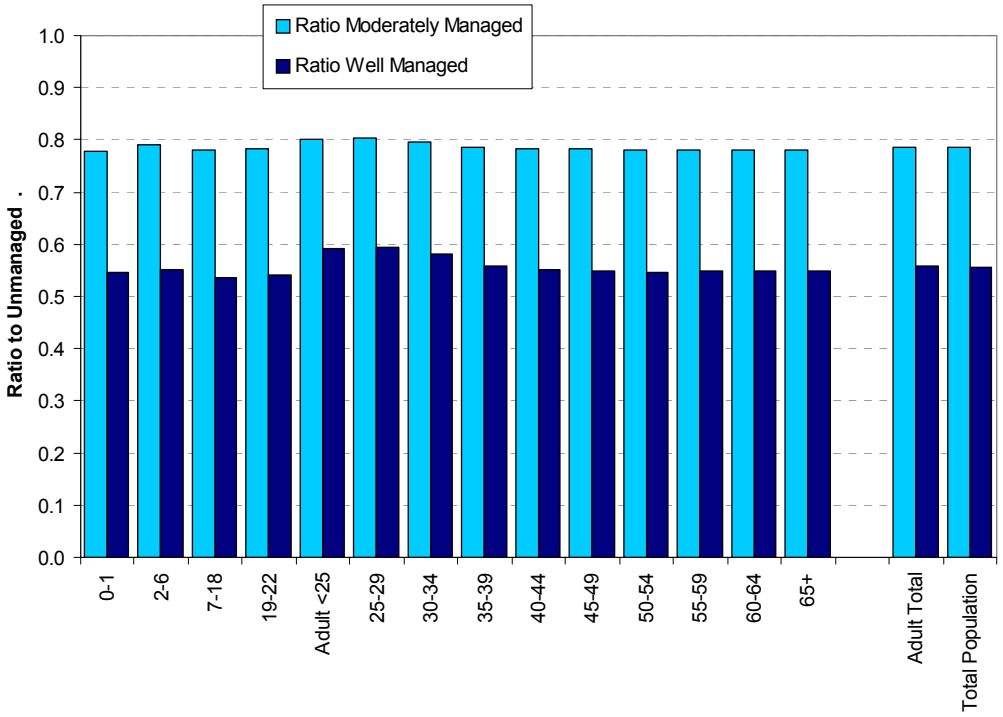

Figure 38: Possible Level of Adjustments for Efficiency in the REF

Source: Derived from data supplied by Milliman USA

It is recommended that the target be set at Moderately Managed and that a full adjustment of 80% across all age bands be taken into account immediately. The rationale is that the full price of PMBs contains substantial margins for the lack of clarity in definition.

A possible trade-off is to use a less aggressive adjustment for raw to full prices together with a lower efficiency adjustment. Although this would have the same effect on the REF Contribution Table but may prove to be more acceptable to the industry.

9.7 Adjustment for Policy Interventions

The final adjustments to obtain the REF Contribution Table are policy overlays on the shape of the curve. This gives a final opportunity to alter the shape or height of the curve for specific policy reasons or health issues.

Two areas where this is likely and that have been discussed in principle are:

- The high incidence and cost for neo-natal admissions in the private sector.
- The unusually high caesarean rate for giving birth in South Africa in the private sector (see Section 7.4).

If no adjustment is made, then excessive utilisation or cost is effectively rewarded. In a fee-for-service environment there could be many such areas of intervention needed and the best way to remove these from healthcare costs is to move more aggressively towards risk-sharing arrangements with providers. As demonstrated in Section 9.6, this has the potential to bring down the total cost of PMBs substantially in the future.

Exact disease costs for specific diseases should also be implemented at this stage. A potential example is the cost of treating HIV/AIDS which could be further reduced as more generic drugs are manufactured locally.

An issue that must be addressed in the final REF Contribution Table is the cost of treating haemophilia. The first REF Contribution Table has an amount of just over R10,000 per month for treating this disease. In the pricing of the CDL by McLeod, Rothberg et al (2003), the following was noted about the treatment of haemophilia:

> The mainstay of treatment of haemophilia is home therapy with replacement of the missing blood factor, an approach which has cut down on emergency admissions for problem bleeds, but out-patient treatment and hospital admission may well be required if/when haemorrhage occurs. In some cases patients develop antibodies to the plasma, in which case costs may escalate dramatically as highly specialised blood components may be required. The plasma is locally produced and obtained from one of the blood banks.
>
> Costs of treatment are difficult to ascertain. Discovery Health Medical Scheme argues for a cost per case of cost of R13 000 pm (R156 000 pa) and a price of R 0.52 pbpm (R6.24 pbpa). Medscheme shows an average

case cost of closer to R2 500 per month (R30 000 p.a.) for all claimants against the 'Blood and related products' benefit.

The analysis of Medscheme data showed 220 people claiming from the 'Blood and related products' benefit. However it is almost certain that the majority of these are renal failure patients who are using the benefit to cover costs of erythropoietin for treatment of chronic anaemia. The expected number of haemophiliac cases at Medscheme is some 67 people (of the above 220). The average cost per case is expected to be much lower then the amount of R30 000 quoted above once the renal failure cases are removed.

In the absence of clinical and case mix detail it is difficult to speculate on reasons for the differences. As stated above, costs may be different if there are some haemophiliacs who have antibodies to the missing factor, and/or older patients may have joint disease related to past bleeding into joints

It is recommended that these policy adjustments be done as the last stage of all the adjustments. While evidence needs to be gathered to support policy adjustments, the actual amount will always contain an element of judgement.

In this first version of the REF Contribution Table, no policy adjustments have been implemented. It is strongly recommended that an adjustment be made for haemophilia and to the shape of the curve to take into account the high caesarean rate, in time for the actual implementation in 2005.

9.8 Summary of Factors Used in Adjustment

The table below contains the factors for all the adjustments described in previous sections. It is recommended this be published to four decimal places.

Table 8: Factors for Adjustments to Obtain the REF Contribution Table

	Factor to adjust ethnicity of raw data	Factor to adjust from raw to full price PMBs DTP	Factor to adjust from raw to full price PMBs CDL	Factor to adjust to Target Population	Factor to adjust for inflation from 2002 to 2004	Factor to adjust for inflation from 2002 to 2004	Factor for Efficiency	Factor for policy overlay
Section of report	S 9.2	S 9.3	S 9.3	S 9.4	S 9.5	S 9.5	S 9.6	S 9.7
Apply to	Raw data	Raw price DTP	Raw price CDL	Industry age profile	Raw price DTP	Raw price CDL	Raw Price	Raw Price
Age Bands				not implemented this version				none in this version
Under 1	1.0000	1.2757	2.4901	1.4904	1.2176	1.2155	0.8000	1.0000
1-4	1.0000	1.4785	2.2194	1.4689	1.2176	1.2155	0.8000	1.0000
5-9	1.0000	1.5464	1.9830	1.4790	1.2176	1.2155	0.8000	1.0000
10-14	1.0000	1.5411	1.8563	1.4795	1.2176	1.2155	0.8000	1.0000
15-19	1.0000	1.4326	1.7571	1.4680	1.2176	1.2155	0.8000	1.0000
20-24	1.0000	1.4036	1.7142	1.6746	1.2176	1.2155	0.8000	1.0000
25-29	1.0000	1.3425	1.7327	1.5619	1.2176	1.2155	0.8000	1.0000
30-34	1.0000	1.3908	1.7739	1.4190	1.2176	1.2155	0.8000	1.0000
35-39	1.0000	1.4687	1.7451	1.4168	1.2176	1.2155	0.8000	1.0000
40-44	1.0000	1.5319	1.7115	1.4185	1.2176	1.2155	0.8000	1.0000
45-49	1.0000	1.5313	1.6816	1.4058	1.2176	1.2155	0.8000	1.0000
50-54	1.0000	1.5690	1.6314	1.4936	1.2176	1.2155	0.8000	1.0000
55-59	1.0000	1.5502	1.5951	1.3771	1.2176	1.2155	0.8000	1.0000
60-64	1.0000	1.5238	1.5711	1.3263	1.2176	1.2155	0.8000	1.0000
65-69	1.0000	1.4960	1.5538	1.2361	1.2176	1.2155	0.8000	1.0000
70-74	1.0000	1.4925	1.5409	1.1979	1.2176	1.2155	0.8000	1.0000
75-79	1.0000	1.4130	1.5428	1.3695	1.2176	1.2155	0.8000	1.0000
80-84	1.0000	1.4425	1.5607	1.3155	1.2176	1.2155	0.8000	1.0000
85+	1.0000	1.4512	1.5750	1.2200	1.2176	1.2155	0.8000	1.0000
Total	1.0000	1.4618	1.6442	1.4602	1.2176	1.2155	0.8000	1.0000

9.9 First Estimate of the REF Contribution Table

Using the adjustments discussed above, the raw price of PMBs is adjusted to obtain the REF Contribution Table [Base 2002, Use 2004] which is given in Appendix R. Stakeholders are encouraged to use this table to ascertain the impact on their own schemes. Feedback and comment should be provided to Heather McLeod to collate for the Risk Equalisation Fund Task Group (see page iii for contact details).

The Industry REF Community Rate could be determined by applying the REF Grid for the entire industry to the REF Contribution Table. The Industry REF Grid is not available at this point and the best estimate, using the Registered scheme age profile from 2002 (see Section 9.4) is that the Industry REF Community Rate for 2004 is R180.69 per beneficiary per month.

The use by schemes of the REF Contribution Table is illustrated below:

- The REF Contribution Table gives a rate of R81.42 per month for a beneficiary aged between 40 and 45 who has no chronic conditions and has not been a maternity case. The Industry REF Community Rate is R180.69 which implies that a payment of R99.27 per month is payable to the REF in respect of this beneficiary.

- The REF Contribution Table gives a rate of R1,062.61 per month for a beneficiary aged between 40 and 45 who has Type 1 diabetes, suffers from no other chronic condition and has not been a maternity case. The Industry REF Community Rate is R180.69 which implies that a contribution of R881.92 per month is payable to the scheme in respect of this beneficiary.

- The REF Contribution Table gives a rate of R1,429.91 per month for a beneficiary aged between 40 and 45 who has asthma and Type 1 diabetes and has not been a maternity case. (The higher cost disease is used, i.e. that for Type 1 diabetes, plus the modifier for two diseases). The Industry REF Community Rate is R180.69 which implies that a contribution of R1,249.22 per month is payable to the scheme in respect of this beneficiary.

Note that the decision at this stage not to adjust for the potential changes in the target population (see Section 9.4) does not affect the REF Contribution Table but does affect the Industry REF Community Rate. If the full adjustment to the expected population in the first phase of SHI is taken, then the Industry REF Community Rate in the above examples falls to R173.45. At the full extent of SHI the Industry REF Community Rate is estimated to be R163.90.

10. Impact of the Risk Equalisation Fund on Medical Schemes

This section uses data from the Registrar's Returns for 2002 in order to assess the impact of the REF on each scheme and hence on the industry. In order to do this comparison, the REF Contribution Table has been used but without the inflation adjustment from 2002 to 2004, in other words [Base 2002 Use 2002]. The Industry REF Community Rate for this Table is calculated using the Registered scheme age profile as R148.66 per month.

Note that in practice the REF Contribution Table uses not only age, but confinements, numbers with CDL conditions and numbers with multiple CDL conditions. The Registrar's Returns for 2002 were the source of age profile information. As there was no data collected on these other factors, the analysis that follows uses age only.

The analysis is done using only Registered medical schemes.

10.1 Scheme REF Community Rate

The REF Community Rate for each scheme is calculated using the age profile and a version of the REF Contribution Table that has age as the only risk factor.

The Total Community Rate for each scheme is total contributions for that scheme divided by the number of beneficiaries. Thus this measure includes non-healthcare costs and an allowance for the solvency margin. Extreme outliers may be due to small schemes with a large change in membership during year.

The graph below compares the scheme REF Community Rates to Total Community Rates.

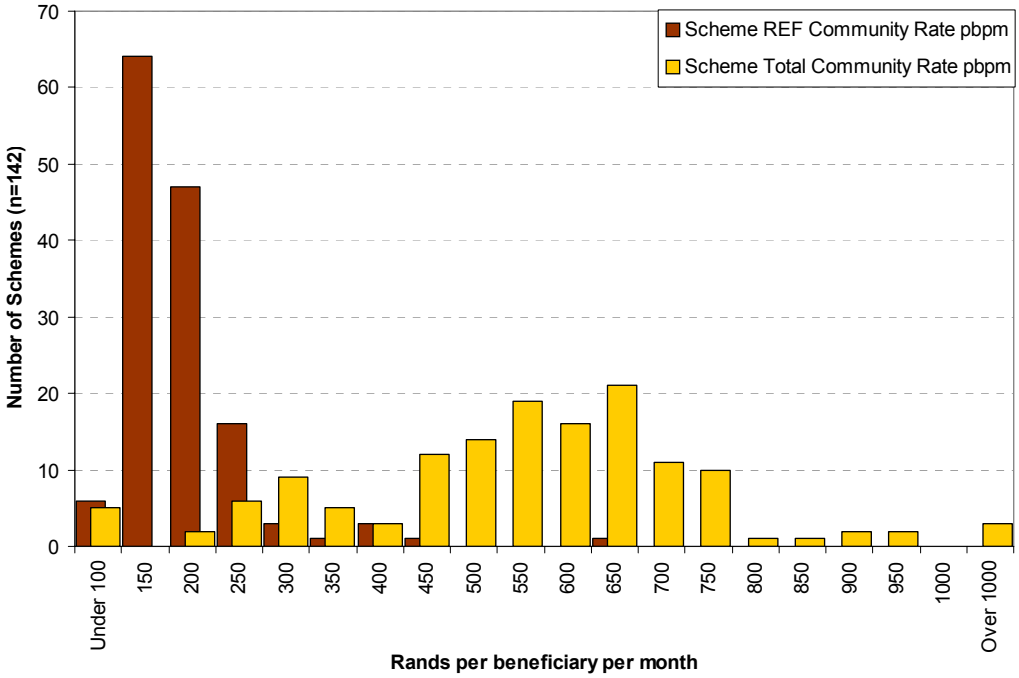

Figure 39: Total and REF Community Rates of All Schemes (2002)

The graph shows clearly that the Total Community rates are substantially higher than required by the schemes to meet the cost of PMBs, as determined in this REF study. This is a similar finding to the work of McLeod, Mubangizi et al (2003).

In this REF study it was found that:

- 88% of schemes have a Total Community Rate (Total CR) more than double their REF Community Rate (REF CR);
- 65% of schemes have a Total CR more than three times their REF CR; and
- 23% of schemes have a Total CR more than four times their REF CR.

10.2 Impact of REF on Cost of PMBs

The graph below illustrates the extent to which the cost of PMBs would have changed in each scheme if the REF had been in operation in 2002. Note that some schemes have a substantial increase or decrease in their cost of PMBs.

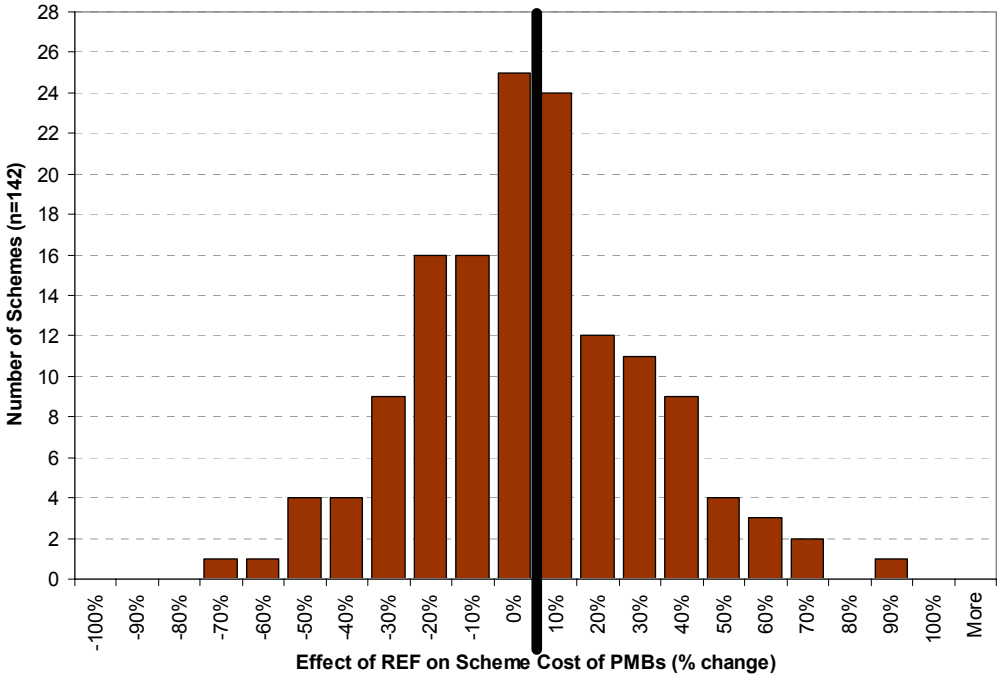

Figure 40: Impact of REF on Scheme Cost of PMBs (2002)

It was found that:

- 54% of schemes have a reduction or no change in PMB costs; and
- 46% of schemes have an increase in PMB costs.

10.3 Impact of REF on Contributions

The graph below illustrates the impact on contributions. While the differences in the scheme cost of PMBs are substantial, total contributions have been shown to be typically a substantial multiple of the PMB cost to the scheme. As the REF equalizes only the PMB package, the impact of the REF payments on total contributions is smaller.

Note the narrower scale of contribution changes in the graph below.

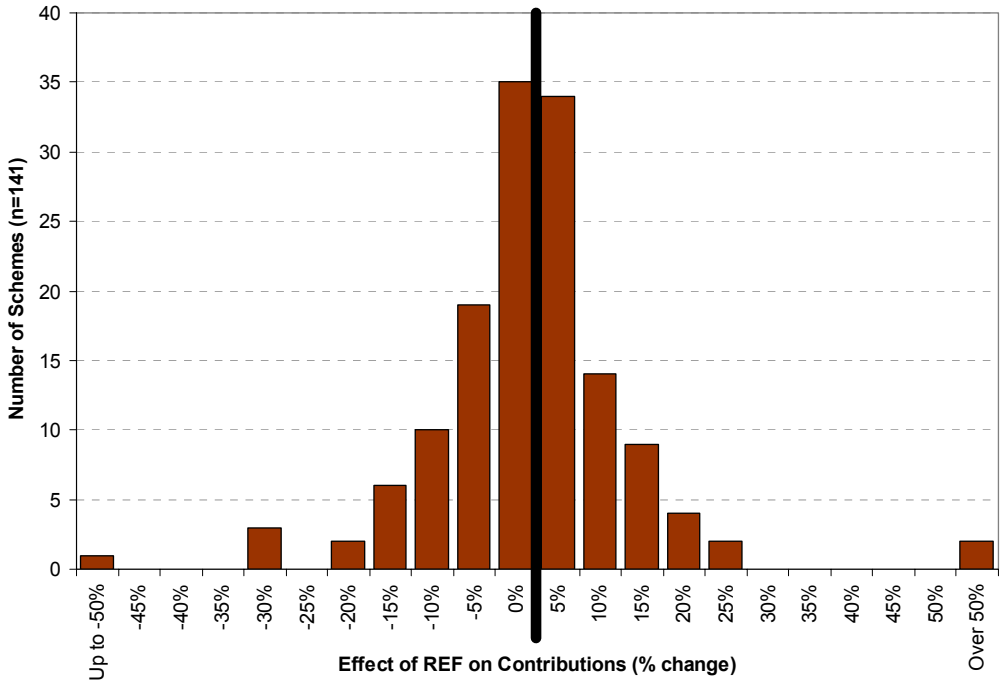

Figure 41: Impact of REF on Scheme Total Contributions (2002)

It was found that:

- 54% of schemes have a reduction or no change in contributions;
  - 29% have more than a 5% reduction;
  - 16% have more than a 10% reduction;
- 46% of schemes have an increase in contributions;
  - 26% have less than a 5% increase;
  - 34% have less than a 10% increase; and
  - 12% have more than a 10% increase.

Note that this REF study could only use age profile to investigate the impact on individual schemes. The actual implementation of the REF would use age, chronic diseases including HIV/AIDS and confinements as factors. It is not considered to be in the interests of the market to publish the individual scheme payments determined in this study. Individual schemes can apply the REF Contribution Table in Appendix R to begin to assess the impact. The payments need to become part of public domain information as implementation of the REF approaches.

10.4 Impact of REF on Solvency

The payments from the REF to schemes have been assumed to be applied to reduce the contributions charged to members. Where a scheme has to pay to the REF in this model (no per capita contribution subsidy has been assumed), this is assumed to increase the contributions collected from members. As the statutory calculation of solvency uses contributions as the base, the REF payments change the solvency status of the scheme. The impact is illustrated below.

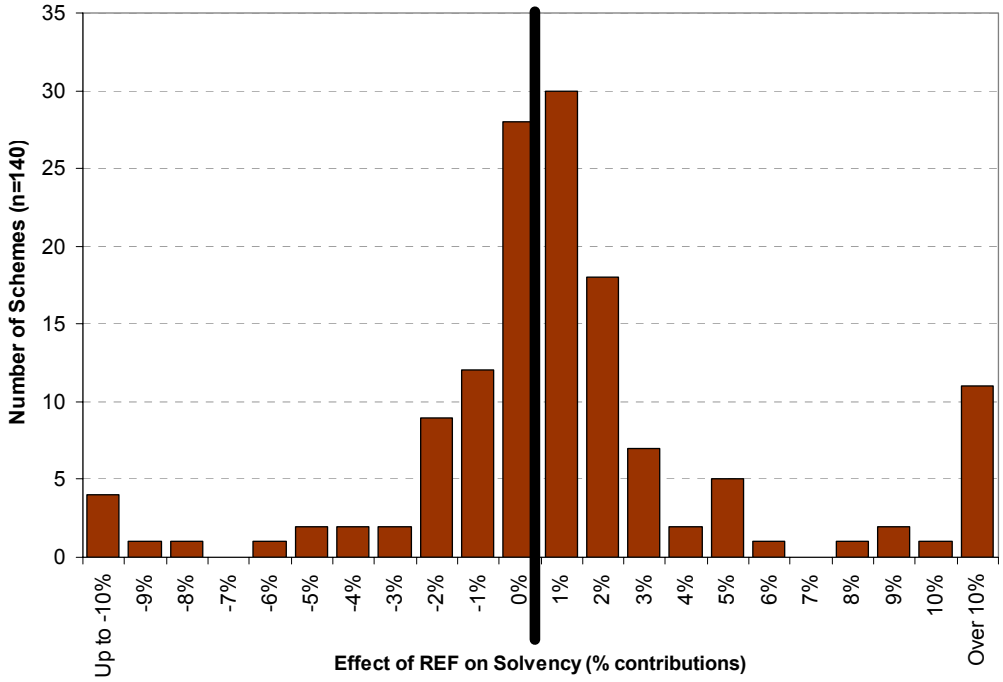

Figure 42: Impact of REF on Scheme Solvency (2002)

For the majority of schemes, the REF payments have a very small impact on solvency. It was found that 56% of schemes have an improvement in solvency. Those with a substantial reduction in solvency need to be individually investigated.

The calculation of solvency needs to be considered in the light of REF payments. As an immediate step this might include measuring solvency both against contributions and total claims. Research is under way to assess the possibility and impact of a risk-based capital approach to solvency.

10.5 Impact of REF on Competition

While the impact of the REF on competition cannot be empirically measured, the following comments have been used in the consultation process and are thus included here:

- Risk equalisation will equalise the risk profile faced by schemes, NOT the outcome of successful risk management or managed care.
- Schemes that are successful at reducing the cost of delivery of healthcare retain that benefit for their own members.
- All schemes will effectively face the same risk profile as reflected in the REF risk factors. The most successful ones will be those that can best manage that risk and reduce the cost of delivery.
- Future competition will be on healthcare delivery, not risk selection.

The extent of this effect is however reduced because only the PMBs are to be equalised and it has been shown that schemes have packages that can be several times the size of the PMB package.

11. Definition of Data for the REF

Data have to be forwarded to the REF in a specified format which will mirror the format of the REF Contribution Table. This data contains the detail of the REF risk factors in that scheme for a specified period and is referred to as the REF Risk Factor Grid (or more simply, the REF Grid). The first sample REF Grid is in Appendix T.

These sections were developed by Team 2, chaired by Dr Izak Fourie. Their recommendations to date were adopted by the Formula Consultative Task Team at a meeting held on 14 October 2003. The work of Team 2 is not yet complete and thus Team 4 can not complete the definition of data for the REF Grid as discussed in Section 11.6.

11.1 Coding System and Definition of PMB-DTPs

The FCTT reaffirmed its support for the early and compulsory implementation of the industry-agreed clinical coding system, namely ICD-10. Importantly this will facilitate the definition of the PMBs in terms of ICD-10 codes.

The work on the formula in Section 8.4 showed that the precise definition of PMBs differs across the industry at present. The FCTT is aware of the initiative by the Council for Medical Schemes to completely review the definition of each chapter of the PMB diagnosis-treatment pairs and to assign codes to these pairs in regulation. It is understood that both ICD-10 codes and CPT-4 codes will be used, although the revision of the first PMB chapter has not yet been completed. The process is expected to take several years to complete.

The Council for Medical Schemes and/or the REF is strongly urged as an interim measure to adopt and support one of the crosswalks in use in the industry. Two possible candidates are those used by the consortium that produced the PMB costing reports and the crosswalk maintained by Mx Health, but a process of inviting further submissions in this regard is recommended.

At the very least a common industry crosswalk would facilitate data collection on PMBs in a consistent manner across schemes, with other obvious benefits for members and providers.

Future revisions of the formula will need to use data from more schemes if not the entire industry. The additional cost and time of having to run data collection on several different crosswalks, as was done in this first exercise, is a cost the industry should not have to bear.

11.2 CDL Entry Criteria

The Formula Consultative Task Team requested that Team 2 recommend generally-accepted and auditable definitions (entry criteria) for the prescribed CDL conditions. This is so that the collection of the numbers of people with each CDL condition is performed by each scheme in a consistent way.

Team 2 discussed this and it was agreed that they would compile a list of definitions (entry criteria) for the CDL conditions from international (WHO, etc.) and local literature (including the CDL Algorithms). Once finalised in discussion by Team 2 the list of definitions will also be discussed with the Council for Medical Schemes Clinical Team, headed by Prof Jan van der Merwe.

In December 2003 Team 2 supplied two examples of chronic disease definitions (entry criteria) in respect of Diabetes Mellitus and Hypertension. These are included as Appendix U. The definitions have not yet been discussed with the Formula Consultative Task team nor their feasibility tested by Team 4.

The FCTT supports the position of Team 2 that the primary responsibility for these definitions or entry criteria should vest with the Council for Medical Schemes under the Medical Schemes Act. There should not be separate definitions for the Medical Schemes Act and for the Risk Equalisation Fund.

Team 4 commented that data on current health status will be used for the purpose of the formula and no anticipated disease progression data will be required in the short term. This issue might be readdressed as the formula is reviewed on a regular basis to allow fair representation of the essential components of the cost of delivery of the PMBs for the at-risk population. Care must be taken that the data and format required does not add to the complexity of the healthcare system.

Team 3 suggested that thought should also be given to compliance issues e.g. should a beneficiary with a certain CDL disease qualify as having that disease for REF purposes if no claim was made for that disease.

CDL exit criteria need to be considered as the point at which a person is no longer counted as having the disease is relevant for some conditions. For example, childhood asthma may improve as the person ages and at some point the person should no longer be counted for the REF data.

11.3 CDL Protocols and Costings

Team 2 felt very strongly that the inclusion of the CDL conditions in the REF common package should be on the basis of the actual prevalence of the respective conditions times a generally accepted basic protocol and formulary/drug reference price at standard industry tariff for each condition.

There was also agreement that these protocols should be “harmonised” with the CDL algorithms published in regulation. Team 2 was to have arranged a meeting with the Council’s Clinical Team towards the end October 2003 to discuss and, hopefully, reach consensus on the CDL definitions and protocols.

In spite of comments to the contrary at the 9 September meeting, Team 2 viewed it as essential that the drafting of these protocols be incorporated into the current REF process.

Team 2 viewed the above as the best way of achieving the stated goal “to equalize payments based on the most reasonably achievable efficient cost for an agreed set of benefits”. Similarly, Team 2 felt that any attempt to achieve this via a formula based on historic data would do little more than “entrench the inefficiencies of the past”.

Team 3 felt that both approaches were appropriate. The FCTT agreed that Teams 2 and 3 would approach the problem from their respective directions and the results would be compared. At this stage Team 2 has not suggested any amounts that can be compared to the work done by Team 3, as reported in Section 8.

11.4 Pregnancy and Delivery Protocols and Costs

A suitable description is needed for this risk factor. The reader may have noted several terms used in the report: namely births / deliveries /confinements / maternity. The issue of live and still births needs to be incorporated.

Team 2 reiterated its view that this condition should be incorporated into the formula based on actual incidences, an international best practice percentage of abnormal deliveries (Caesars, etc.) times the most reasonably achievable efficient protocol at standard industry tariff.

11.5 HIV/AIDS Protocols and Costs

The envisaged definition for HIV/AIDS is to include only patients on anti-retroviral therapy in terms of accepted clinical protocols. Much work remains to be done on an acceptable definition of this item.

11.6 Definition of Data for the REF Grid

Schemes must use the definitions and interpretation to set up the data sets required on a quarterly basis. A sample of the REF Grid for data submission is given in Appendix T.

The precise definition of the data fields required for the completion of the REF Grid has not been completed. The work, tasked to Team 4, can not be completed until the definitions of entry criteria for the CDL conditions, HIV/AIDS and deliveries is completed by Team 2. Once the material is completed it will be added as a revised Appendix V.

12. Data and Money Flows Required for the REF

Note that as yet there is no material in the public domain on the envisaged structures or tasks of the Risk Equalisation Fund. However, where necessary in this report the Formula Consultative Task Team has allocated certain tasks and processes to the REF. Section 12.1 is adapted from the Technical Report by Grobler, Theron & Cooper (2003). The subsequent sections were developed by Team 4, chaired by Susan Mynhardt.

12.1 High Level Conceptualisation of Data Flows

In order for any risk equalisation mechanism to operate efficiently, data needs to flow appropriately between the relevant parties. At a minimum, the parties include:

- The medical schemes;
- The Registrar of Medical Schemes; and
- The Risk Equalisation Fund.

It is strongly proposed that the REF uses the existing structures for reporting that exist between medical schemes and the Registrar, rather than duplicate the reporting structure. The Registrar collates the necessary information and passes it to the REF to process. A diagrammatic representation is given below.

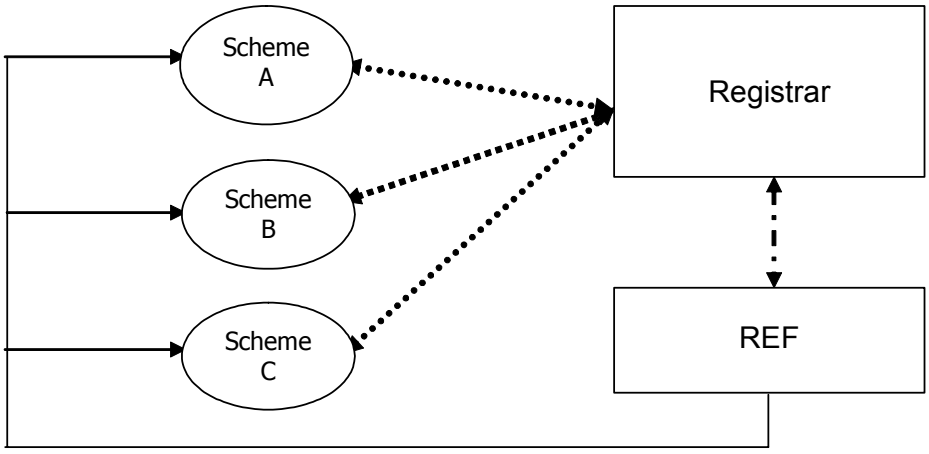

Figure 43: Flow of Data for the Risk Equalisation Fund

The arrows with the dotted lines refer to the flow of data between the medical schemes and the Registrar of Medical Schemes. This would include the quarterly and annual submission of the existing statutory returns from each medical scheme to the Registrar, as well as ad hoc requests from the Registrar for data. If a concurrent method for payments from the Risk Equalisation Fund is adopted, it places an increased importance on the need for the quarterly returns to be submitted to the Registrar. This implies that the contents of these returns will need to be more specific and defined to cater for the additional data requirements of the Risk Equalisation Fund.

The arrow with the dashed line refers to data being passed from the Registrar to the Risk Equalisation Fund. It is also possible that the REF may be required to pass information to the Registrar. This is very likely to be an ongoing line of communication. These two parties will need to work together to ensure that appropriate data is received, accurate funds are reimbursed and any further data requirements are timeously communicated to the medical schemes.

The arrows with the solid lines refer to data between the REF and the medical schemes. It may be possible for all correspondence between the medical schemes and the REF to go through the Office of the Registrar, or alternatively full or limited correspondence between the REF and medical schemes may be structured. The REF could request further information from particular schemes in order to assess new risk factors for inclusion in the formula or to audit any of the data submitted.

12.2 Availability of Data Required for the REF

The success of the process depends greatly on the ability of all medical schemes to submit the required data within required timelines and in a format that is usable by the Risk Equalisation Fund.

At present all schemes are required to submit a quarterly return to the Office of the Registrar of Medical Schemes. This is the only real measure of availability and quality of data available in the industry. Major strides have been made in the last two years with regards to the quality and type of data that is submitted for this purpose. Schemes have already been advised regarding the collection and submission of more clinical data to the Registrar.

The Committee for Standardized Data and Billing Practices from the Office of the Registrar for Medical Schemes has produced a document to standardize data collection in the healthcare industry. This document includes issues such as a breakdown of age groups and other indicators. Various schemes have not collected data in this standardized format.

The quality of the age data has improved substantially in recent years but problems remain in the most recent annual returns as outlined in Section 3.1 and detailed in Appendix E. As stated, age bands in the 2002 Statutory Returns were collected only to the band 75+. This needs to be extended to 85+ for the REF. The definition of age **MUST** be standardised as “Age last birthday on 1 January” for both annual and quarterly collection. Currently quarterly data is collected as “age last birthday” with no definition of the date.

The data on the factors required by the REF contribution table is partially requested in the current annual return to the Registrar. However the quality of submissions is poor and many schemes are unable to provide data on the numbers with particular diseases or the number of births. The definition of required clinical data or health status data needs to be standardized. The definition of the clinical terms will assist schemes with the building of templates for data extraction.

Certain medical schemes will however need to adjust data collection systems to ensure the availability of requested data to the REF. The quarterly report format for the Registrar of Medical Schemes will need to be amended to include all the data required by the REF, in consultation with the Committee for Standardized Data and Billing Practices. This must be dealt with as soon as possible in early 2004.

12.3 Data Flows Prior to the Operation of the REF

The process during 2004 will culminate in a proposal to the Minister of Health regarding the final formula in the form of the REF Contribution Table, as well as the final process to be followed for the introduction of the REF in 2005.

The published REF regulations will enable medical schemes to plan benefit structures and contribution increases and will facilitate the budget process for medical schemes for 2005 in general.

The process outlined below represents the data flows required during 2004 (or the year prior to the first year of operation of the REF). The flowcharts and timelines can be found in Appendix W.

Note that while the formally constituted REF is being established, which will require legislation to be passed by parliament, a group needs to be tasked with a number of items to ensure that momentum towards the REF continues. This group is described as the REF/REFTG to indicate that the ultimate responsibility would have been that of the Board of the REF, but that a mandated task group will need to function in the interim.

- The data required by the REF/REFTG to complete the process for 2004 will be communicated to the Registrar of Medical Schemes. A circular indicating the data requirements with timelines will be issued by the Office of the Registrar to all medical schemes.

- The first returns for the REF will be forwarded to the REF/REFTG offices by the 15th February 2004.

- The REF/REFTG needs to appoint a group of people to advise on the finalisation of the formula and other technical detail for implementation of the REF. This is the REF Technical Advisory Committee (REF TAC).

- The REF TAC will use the data supplied by the industry to assess the impact of the formula on individual schemes and will adjust the REF Contribution Table where needed.

- The final REF Contribution Table will be published for industry comment by end April 2004. This will be accompanied by a report from the REF TAC regarding the findings of the industry data tested.

- The REF/REFTG will liaise with the industry and the REF TAC will incorporate any input received to finalize the formula.

- The REF TAC will advise the REF Board (or REF/REFTG) during May 2004 regarding the final formula for implementation in January 2005.

- The REF Board (or REF/ REFTG) will advise the Minister of Health on the findings and proposals of the REF TAC with specific reference to the formula to be implemented in the form of the REF Contribution Table.

- Regulations will be published by the Minister of Health with regards to the implementation of the REF in January 2005. The Regulations will contain the REF Contribution Table valid for the calendar year ahead, i.e. 2005.

- Medical schemes and actuaries will use the detail as published to determine the payment flows to and from the REF and will determine increases or decreases in membership contributions for 2005, taking the effect of the REF payments into account.

It is critical that these Regulations be published by 31 July 2004 in order for schemes to implement the necessary changes. If the Minister is unable to meet a deadline of 1 July 2004, then the implementation of the REF would need to be delayed for a full year. It is not viable for schemes to incorporate REF payments in their own contribution tables at a date other than 1 January each year.

12.4 General Data Principles for REF Operation

The following general data principles lie at the heart of effective operation of the Risk Equalisation Fund:

- Data have to be forwarded to the REF in a specified format. This will be done in the same format as the REF Contribution Table. This table contains the detail of the REF risk factors in that scheme on a specified date and is referred to as the REF Risk Factor Grid (or more simply, the REF Grid). The first estimate of the REF Contribution Table is in Appendix R and the sample REF Grid is in Appendix T.

- The definition of the items in the REF Grid will need substantial further work in order to be published for the industry in regulations (see Section 11.6).

- Data must be based on the monthly statistics of the scheme analyzed and will be forwarded in quarterly cycles. The REF Grid must reach the REF by the second week of April, July, October and January of each year.

- Data forwarded to the REF will be in a summarized format as per the REF Grid. The REF can at any time request access to the complete data set to verify or substantiate any claim.

- Any monies due to the REF must accompany the data returns to the fund.

- Any monies due to the schemes will be paid within 21days from the receipt of a correct and complete REF Grid.

- Schemes will do a once-off correction of risk factor measurements in the REF Grid due to membership changes (e.g. retrospective suspensions of members) at the time of the annual audit of the scheme financial statements.

12.5 Data Flows To Facilitate On-going REF Operation

The process of data flows after the first REF regulations have been published will facilitate the payments to and from the REF. These payments are determined by applying the published formula in the form of a contribution table.

The process outlined below represents the first data flows required for the REF fund implementation January 2005 and then quarterly thereafter. The flowcharts and timelines can be found in Appendix X and Appendix Y.

The process flows included in this document represent two strong views in the industry. The final outcome of the work of the Subsidy Framework Consultative Task Team will assist in making final adjustments to the process to follow with specific regard to the first data and payment flows from the REF. Critically, the link to any future per capita subsidy and the resulting flows from National Treasury or the Department of Health need to be worked on in more detail.

The first process, Process A shown in Appendix X, will involve a provisional payment by the REF to schemes based on the REF Grid from the third quarter 2004 returns to the Registrar of Medical Schemes. This payment will assist smaller scheme with cash flow to pay accounts within 30 days as required by the Medical Schemes Act. This also applies to schemes that cover little other than the PMBs in their benefit structures and as such will be receiving a higher percentage of their contributions from the REF if a per capita subsidy is in place.

This process also allows for a correction of data during the first week of January 2005 as most scheme membership changes happens during January of each year. The first payment as well as the correction during January 2005 will be based on a projected beneficiary profile and not on actual membership experience of the medical scheme.

This process will assist the cash flow of smaller schemes as well as schemes experiencing significant membership changes during January 2005. The administration of revisions and corrective payment will be an administrative burden to the REF but Team 4 considers the process will only be necessary once-off at the introduction of the REF. This need should be further tested with the industry.

- Medical scheme third quarter 2004 data will be forwarded to the Registrar of Medical Schemes. This should include the required REF Grid data as per the circular from the Registrar (or REF/REFTG) in early 2004.

- Required data will be forwarded to the REF.

- Payment flows to and from the fund will be determined and schemes will be informed of payments due in January 2005 from and to the REF.

- The first provisional payment will be made to schemes during the first week of January 2005.

- Schemes owing money to the fund will be allowed to forward this with the first quarterly return for 2005.

- Any scheme that experienced a membership change of more than 10% due to loss of membership or new membership to the scheme will be allowed to forward data required to the REF during January 2005.

- The REF will determine any corrections on the provisional payments and forward the payment needed to the scheme within 21 days after the receipt of the correction notice.

The second process, Process B in Appendix Y, involves the first data flows to the REF at the end of the first quarter of 2005 and payments will as such be based on the actual membership experience for the first quarter of 2005.

- Medical scheme first quarter 2005 data will be forwarded to the Registrar of Medical Schemes. This should include the required REF Grid data as per the circular from the Registrar (or REF/REFTG) in early 2004.

- The REF Grid data will be forwarded to the REF by the second week of April 2005.

- The REF will manage all the funds.

- Payment due by a scheme must accompany the returns to the REF.

- Payment due to the schemes will be paid to the schemes within 21 days after the receipt of a complete and correct REF Grid.

The process described above for first quarter 2005, Process B, will be repeated quarterly thereafter.

12.6 Further Processes

Issues related to the annual audit of data still need to be discussed but cannot be proceeded with until the clinical entry definitions for the REF Grid are finalised. The issue of the annual audit is thus outstanding and liaison in this regard is dealt with in Section 15.3.

A system of penalties for late submission, late payment or misrepresentation needs to be developed.

A process for the regular review of the REF formula needs to be developed. Once the REF Technical Advisory Committee is in place, this body should be tasked with developing the process for the regular review of the formula and REF Contribution Table and consultation with stakeholders.

Section 5.1 outlined principles for the REF formula which included the two below:

Dynamic	The REF formula needs to be dynamic to deal with such changing influences on health care costs such as inflation, medical technology, managed care developments and changing regulation.
On-going validity	The REF formula needs to be tested rigorously at least every three years but should be reviewed each year for at least the first three years of operation.

The need for high-level technical support to the REF will thus be high in the first three years of operation of the Fund. The process suggested in Section 12.3 and shown in Appendix W could be adapted and used for the regular review of the formula.

There is also a need to consider the problem of retrospective withdrawals that can occur more than 12 months back, particularly with Persal (the Government salary system that provides membership data to the schemes).

13. Operation and Financial Soundness of the REF

Section 12 has provided an indication of the amount of work that the REF may be required to perform on an on-going basis. The skills within the Formula Consultative Task Team and the terms of reference given do not lead us to make complete recommendations on all aspects of the operation of the Risk Equalisation Fund. However in considering the development of the formula, several stakeholders suggested aspects that will need to be incorporated in the governance of the REF.

See also the principles for the operation of the REF set out in Section 5.3.

13.1 Administration Costs of the REF

This section is developed from the Technical Report by Grobler, Theron and Cooper (2003).

It is common in health insurance markets where risk equalisation exists for a single national body to be appointed to administer the fund. Should participants in the market include private and public players, a body autonomous from government and private administrators should be appointed to administer such a fund. This would resolve possible conflict of interest scenarios that may arise in the future. Given that the South African market comprises private funders and that the government's role is regulatory, a government body or semi-government body needs to be established to administer risk equalisation. The entity would probably be known as the Risk Equalisation Fund or REF.

The administration costs of the REF should be identified and determined before implementation. This is because the cost of the REF would need to be funded from the cashflows to the REF and any undue expenses would result in less being available for the REF to distribute.

The administration costs are likely to include:

- The initial costs of setting up the entity;
- The ongoing costs of collecting and cleaning the data from schemes;
- The costs of initiating audits or investigations of suspicious data from schemes;
- Systems required to analyse the data in order to make payments;
- The costs of assessing and adjusting the applicable formula, when necessary;
- The costs of consultation with stakeholders and communication with schemes;
- The distribution of funds to the schemes (using electronic payments to reduce cost);
- The costs of collection of funds from schemes (in the absence of a per capita subsidy payment);
- Accounting and auditing costs;
- Costs involved in dealing with queries and concerns that may arise;
- A dispute process to deal with complaints; and
- An appropriate report back mechanism to the Minister of Health and the Registrar of Medical Schemes.

The medical schemes are likely to face increased administration with respect to collecting and preparing the data for submission to the REF. However, the increase will be insignificant if the data is based on the Registrar's returns and the frequency of the submissions to the Registrar is not increased. Schemes would need to seek advice on assessing the residual risk they carry and to determine the impact on pricing.

The Office of the Registrar of Medical Schemes is also likely to incur additional administration costs with respect to gathering the additional data for the REF and monitoring the entire process on an ongoing basis. Some changes to the monitoring of medical scheme solvency may be needed as payments to and from the REF are implemented.

There will be significant expenses involved in the initial process of informing the industry and preparing scheme trustees for the implementation of the REF. The on-going programme of trustee training by the Council for Medical Schemes is a useful opportunity to reach trustees.

The South African Treasury may incur additional administration costs as a result of changes to the tax system and the actual transfer of funds to the risk equalisation fund. These expenses may increase further with ongoing monitoring of the funds transferred and the utilisation of those funds.

Ideally a cost impact assessment would need to be performed to determine the overall cost that the medical schemes industry would incur due to the introduction of the Risk Equalisation Fund.

13.2 Model of Risk Equalisation Fund Cashflows

The model of the REF used to assess the impact on the industry in Section 10 also provides an insight into the functioning of the Fund itself. Note that this model is for the year 2002 and uses the age profiles of schemes together with a version of the REF Contribution Table that has age as the only risk factor. In practice, the REF Contribution Table uses not only age, but confinements, numbers with CDL conditions and numbers with multiple CDL conditions. Thus the actual payments will differ depending on the health profile of the schemes.

In this study it has been assumed that the REF is implemented without any of the changes being considered by the Subsidy Framework Consultative Task Team. In other words no contribution subsidy is assumed.

The two graphs overleaf illustrate the size of the monthly payments to and from the REF, as determined for 2002. The graphs show the size of payments, not the direction of flow i.e. the sign of the payments has been removed.

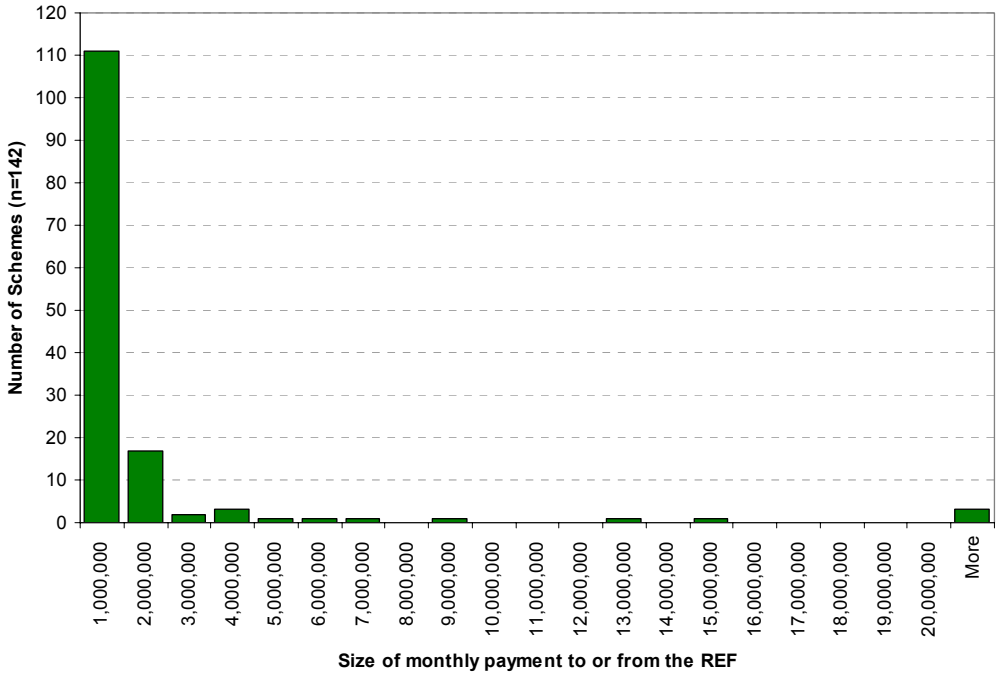

Figure 44: Size of Individual Monthly REF Payments (2002)

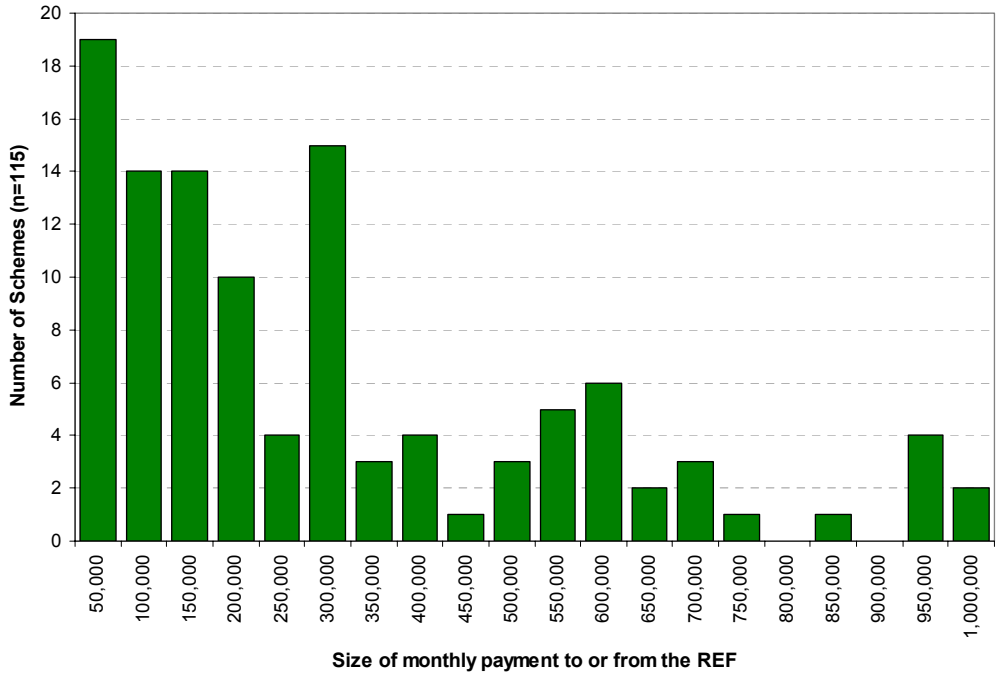

Figure 45: Size of Individual Monthly REF Payments under R1 million (2002)

It was found in the REF study that:

- 78% of payments (111 schemes) are less than R1 million per month.
- 23% of payments (33 schemes) are less than R100,000 per month.
- Largest payment is from the REF to a scheme for R27.6 million per month.
- Largest payment by a scheme to the REF is R22.5 million per month.

The total cashflow in each direction is R97.4 million per month or R1.169 billion per annum. Double this amount, i.e. R2.337 billion, is the first estimate of the size of the payment needed to ensure that all schemes receive money from the REF, instead of some schemes paying in and others receiving payments. Note that in this example, the total cost of PMBs to the industry for 2002 is R998 million per month or R11.977 billion per annum.

If the 2002 age profiles are applied to the REF Contribution Table [Base 2002, Use 2004] given in Appendix R, then the total cashflow in each direction is estimated to be R118.5 million per month or R1.422 billion per annum. The amount needed to ensure that all schemes receive money from the REF is thus R2.844 billion. The total cost of PMBs to the industry for 2004 is estimated to be R1 215 million per month or R14.576 billion per annum. These estimates need to be integrated with the subsidy framework discussions.

13.3 Financial Soundness Issues

The concepts in this section were developed by Shaun Matisonn for Team 6. The preliminary modelling work was done by Heather McLeod.

The size of payments is very sensitive to the Industry REF Community Rate used. If for 2002 this is set using the target population for the initial phase of SHI (instead of the current medical scheme profile, see Section 9.4) the amount is R142.66 pbpm instead of R148.66 pbpm. The largest payment from the REF increases to R28.8 from R27.6 million and the largest payment by a scheme reduces from R22.5 to R18.4 million per month.

This result is due to the assumption of a generally younger group joining under SHI, as demonstrated in Section 9.2. If the assumption was made and the beneficiaries did not materialise at all, the REF would be in deficit by some R40 million per month.

One way to ensure that the REF does not carry this risk would be to take the REF Grids from the industry each quarter and use them to determine an Industry REF Community Rate each quarter. However this approach is strongly rejected by the schemes because they would not know the payments to or from the REF until each quarter. This could result in the industry needing to make quarterly changes to contribution rates which would not be in the interest of members.

If the schemes do not take this risk, then the REF needs to bear this risk. In this report it is envisaged that the REF Contribution Table, together with the appropriate Industry REF Community rate is published in advance by August of each year. To the extent that the membership of the industry is different from that assumed in determining the Industry REF Community Rate, so the REF itself could be either in surplus or deficit.

While the modelling work to look at the fluctuations of the REF is not complete it is clear that there will be some potential for error in the REF calculations. In addition it is likely that there will be delays and changes in actual payments to the REF versus those expected. The net result is that the REF will either need a bank overdraft facility or a starting amount of capital for its operations.

A choice therefore needs to be made whether:

- National Treasury provides the initial reserve requirements – which may follow as a consequence of changes in the tax regime; or
- National Treasury provides a guarantee to smooth the cashflow requirements from the fund on the basis that annual/ tri-annual reviews of the REF formula will correct and allow the REF to repay any advances from the Treasury.

It is possible to price for an amount that would cover the solvency requirements of the REF. To the extent that the REF is in sufficient surplus, so the adjustment for solvency would reduce. Note that the models in this report do not have an adjustment for solvency as yet.

It is strongly recommended that further work on the modelling of the Fund itself be conducted to ascertain the impact of different target groups coming into the medical schemes industry. This work lends itself to stochastic modelling which will give an indication of the probability of ruin of the Fund under different circumstances. Work also needs to be done on the performance of the REF in the longer term. Detailed modelling can be done to ensure that with 95% confidence the REF will not be insolvent over a 5 year period.

Any material changes to the mechanics of the tax subsidy, including many of the options currently under consideration, will have a material impact on the workings of the REF so this section of the report has been prepared on the basis that the tax regime remains unchanged.

The current thinking in the Formula Consultative Task Team is to recommend that there is an explicit allowance in the calculation of the REF payments for expenses and an accumulation of some reserves for the REF. This is to be levied equally on all schemes to ensure equity and an efficient running of the fund.

While the above focuses on the most immediate issue of liquidity it is essential that the governance and management of the REF operates consistent with a large risk taking financial institution in approach, for example in the certification of pricing. At the same time the REF Board will need to ensure that the costs and expenses of the REF are minimized.

Finally it is critical that financial penalties at rates in excess of the prevailing rates of interest are levied on schemes for late payment.

14. Issues and Potential Consequences Arising from the Formula

This section was developed by George Marx for Team 5. The document was circulated for input by other team leaders but has not yet been discussed at a Formula Consultative Task Team meeting.

14.1 Cashflow Implications for Schemes

The cashflow implications for the scheme revolve around payment to and from the REF. Payments to the REF are made coinciding with schemes' quarterly returns to the Registrar and payments from the REF are to be received within 21 days of submitting the return. The quarterly returns are to be made within two weeks of the quarter end (see section 12.4).

Consider an extreme example of a scheme that only has older members and that is entitled to a payment in respect of each member. This scheme has anticipated the payments from the REF in its contribution table which is set at R1 000 pbpm whereas its expected cost of benefits and administration is R1 200 pbpm, i.e. in anticipation of a payment of R200 pbpm from the REF.

In this example the scheme will only receive the R200 REF payment per beneficiary on average per quarterly tranche 66 days late if it charges contributions monthly in arrears and 96 days late if it charges contributions monthly in advance.

Schemes will have to budget for this interest cost in setting their contributions to the extent that they expect recoveries from the REF.

Alternatively the REF may be approached for advances. In a detailed analysis of the impact of the REF formula on each scheme, the extent of the need for such advances should be determined.

This may indicate that there are very material cash flow implications for certain schemes in which case adjustment to the formula or other specific measures may be necessary.

Conversely schemes that are expected to pay contributions to the REF will have the benefit of earning interest on the excess contributions that they have to charge their members of between 15 and 105 days on a month's contributions if it receives contributions in arrears and between 45 and 135 days if it receives contributions in advance.

14.2 Cashflow Implications for the Fund

If the REF receives contributions coinciding with the receipt of the quarterly returns and makes payments only 21 days thereafter, there should be no cashflow shortage. This will not materialise if the REF formula is incorrect or if the actual health profile differentiation experienced is different to that which was anticipated. This is essentially not a cashflow issue but rather a point on the soundness of the formula when used over a calendar year. Work needs to be done on understanding the dynamics of the REF itself.

14.3 Investment Implications of REF Payments

Income to schemes from the REF will be anticipated in the setting of contribution levels and will be needed to pay for the costs of the scheme. It is argued that there is no special requirement regarding investment of the REF reimbursements other than short-term investment in money market types of instruments. The asset allocation requirements would need to be reconsidered in view of the impact of the REF, although it is likely to effect only schemes with rather extreme membership profiles.

14.4 Adjustment to Existing Solvency Calculation

The current solvency calculation has been criticised for not being scientific and not being diligently enforced by the Registrar. Even in the absence of the REF the solvency formula is in urgent need of revision. With the introduction of the REF certain risks are alleviated but there are risks that are not addressed through the REF, inter *alia* the risk of random fluctuation of costs of benefits.

Intuitively the fluctuation risk is higher for smaller schemes. This can be proven scientifically and empirically. Fluctuation risk for small schemes can conveniently be mitigated through reinsurance, particularly non-proportional types of reinsurance. Furthermore, the more comprehensive benefits are offered by the scheme, the less the fluctuation risk.

The above arguments indicate that a solvency formula that will address fluctuation risk needs to be a function of the size of the membership, the benefit structure and the extent and nature of reinsurance arrangements. Other risks that are meant to be mitigated through the solvency requirement include currency risks, catastrophes, inflation, investment failures, etc.

It is understood that the Financial Soundness Focus Group of the Council for Medical Schemes is tasked with making recommendations on solvency issues.

With regard to claim risks the existence of a REF Contribution Table provides a fair guide to expected claims of schemes on the PMBs. Hence the calculation of the total REF contribution for a scheme for the year in question can be used in the interim, rather than the claims or the contributions of the scheme per se, particularly for schemes that show large membership movements over the short term.

14.5 Effect of the REF on the Need for Reinsurance

The REF equalises age and health profiles between medical schemes. The risk of higher than expected (i.e. provided for in the contribution table of the scheme and the REF) claim costs remains. Reinsurance remains a means whereby the variability risk can be contained.

The residual risks have been identified and described by Team 1. These risks can be alleviated by the following:

- Ensuring accurate, consistent and timeous data;
- Proper reserving (including statutory solvency margin);
- Dropping the medical savings account limits (see Section 14.10);
- Risk rating for contributions in respect of benefits outside the package to be equalised (see Section 14.10);
- Reinsurance to stabilise fortuitous (random) fluctuation in claims experience;
- Reinsurance of low frequency high severity types risks not provided for by the REF; and
- Proper governance in general.

14.6 Possible Perverse Incentives in the System

A perverse incentive would arise when a scheme is compensated by the REF for inefficiencies. The mitigation would be achieved if the reimbursement is equal to the reasonably achievable, efficient cost. Schemes that are even more efficient than this level will then by implication be rewarded for it.

Artificial exaggeration of health conditions of existing members by schemes may result if they expect to receive more money from the REF in such circumstances. This might be described as “diagnosis-creep”. The mitigation lies in ensuring that an incentive remains that the scheme will in fact lose money following such an attempt.

There may be an argument that schemes get reimbursed materially less (say 20% less) than the reasonably efficient cost level in order to keep an incentive for schemes not to exaggerate illness conditions.

A retrospective equalisation of actual costs of all the schemes in the industry would most definitely create perverse incentives. Therefore the equalisation is to be achieved only with respect to the expected costs of benefits for differing health profiles of schemes. This is achieved through the proposed operation of the REF of a retrospective collection / disbursement regarding the risk profile of members (age and chronic illness status). The expected cost for an individual within each risk factor cell as per the REF Contribution Table is determined prospectively.

This is believed to be the most practical and fair dispensation.

14.7 Urgent Need for Mandatory Membership

The current most risky feature of the medical schemes industry is open enrolment associated with community rating and Prescribed Minimum Benefits. On the one hand schemes run the risk of attracting older and less healthy members as well as losing younger and healthier members than what its contribution table provides for. This means that it runs material risks of making sudden underwriting losses in such an environment. On the other hand it maintains the (perverse) incentive of targeting the younger and healthier lives as new members thereby nullifying the aim of more cover for more people. A mandatory dispensation will rectify this situation and it is recommended that such a dispensation be implemented as soon as possible.

A mandatory dispensation for Social Health Insurance ensures that the body of lives being covered is balanced between healthy and less healthy lives. In the absence of a mandatory system, the healthy tend to leave because they see no merit in subsidising others. Consequently the body of lives becomes sicker and sicker and more costly until a point where it becomes too expensive and the entire

system collapses. In a voluntary system the healthy have no guarantee that the system will not collapse (fairly quickly) in such a way. Hence they are afraid to join or to remain in the system while they are still healthy. The mandatory system provides some guarantee to the healthy lives that they will in turn be subsidised when they become ill.

Also, in the absence of a mandatory system, solidarity is hardly likely to be achieved through free choice in such a diverse community as is envisaged to be covered ultimately by Social Health Insurance in South Africa.

The medical scheme industry as it stands at present under community rating, open enrolment and minimum benefits, is extremely treacherous and can cause major systemic risk in the entire financial services industry if mandatory membership is not enforced quickly.

However, a mandatory risk equalised system will create much more need for a true private dispensation as an alternative to the social system.

The mere introduction of the REF may be seen by some schemes (e.g. those with more healthy lives than the average medical scheme) as a threat unless mandatory membership is enforced.

The REF is feasible in the absence of mandatory membership. However, the entire aim of comprehensive and sound social health insurance will be achieved much quicker if mandatory membership of all formally employed people is instituted. Mandatory membership will not be affordable to the lower end of the income spectrum unless the suggested tax subsidy change is largely effected.

It is realised that mandatory membership will be easier if the reallocation of the tax subsidy has been completed. It is recommended in the strongest possible terms that mandatory membership be introduced simultaneously with the revision of the tax subsidy and not delayed beyond this point.

14.8 Self-sufficiency of Options

The REF is suggested to equalise health profiles for the reasonably expected cost of the prescribed minimum benefits. All options must provide for these benefits and therefore there is a sound argument that the cost of PMBs within a scheme may be cross-subsidised between options. This leads to the question of option design based on a hierarchy of options whereby the basic option only covers PMBs by designated service providers and further options provide various types and levels of benefits in addition to PMBs or through other service providers.

In essence option design could be seen as consisting of two dimensions, the first being the nature of the benefit, e.g. PMBs, acute dental treatment, homeopathy, etc and the second dimension being the character of the services provider, i.e. designated with capitation arrangements, designated on fee for service, free choice, etc. The cheapest option should therefore be the provision of only the Prescribed Minimum Benefits by designated service providers. The least risky (for the scheme) such cheap option will then be one where there are fixed fees, capitation arrangements, etc with the designated service providers.

The non-PMB benefits could obviously also be contracted with designated service providers at fixed rates (typically capitation), as is often the case in arranging primary care for lower income groups.

Furthermore, the fact that PMBs get equalised through the REF raises the question as to whether the additional benefits may be risk-rated. This argument is further discussed in Section 14.10 below.

In view of the social solidarity principle applied to medical schemes at large (particularly with community rating), the question is raised why the same principle cannot be carried through to options within schemes. Provided the scheme has active control of the performance of the entire scheme and pro-actively monitors the movement between options of members, the issue really remains the solvency of the scheme in its entirety and not the self-sufficiency of each option.

In this regard the single biggest risk is the actual movement of members following a restructuring of options and contribution tables at the end of every year. The solution for this risk is a revision of the budget (and the contribution table) as soon as possible after 1 January. This is after the fact. Much can be done before the fact if risk rating above PMBs or restriction of movement between options is allowed.

In the past the choices of members to enable them to enjoy chronic drug benefits has been a major driver in option selection. With most chronic drugs being PMBs from 2004, this risk is diminished. However, there can still be a selection effect if there are choices of providers between the different options.

Since the REF operates at scheme level and is confined to Prescribed Minimum Benefits (PMB) then the consideration of the financial soundness PMB piece of options within a medical scheme should be done at scheme level to prevent unintended consequences. This could be achieved by a circular from the Registrar with appropriate guidance and assistance from professional bodies as to how to manage it or if necessary amendments to section 33(2) of the Medical Schemes Act could be made with the introduction of the REF Act.

The diagram below is another possibility for the structuring of options in future that has been discussed in the Financial Soundness Focus Group with industry stakeholders.

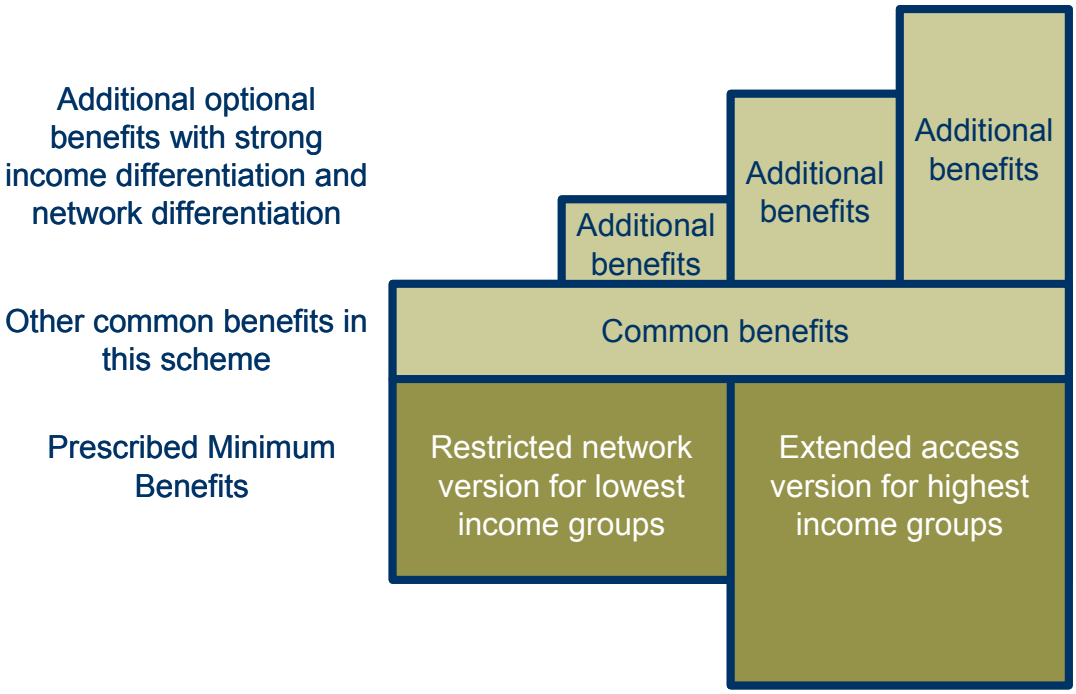

Figure 46: Emerging Consensus for Option Design
Source: Financial Soundness Focus Group of the Council for Medical Schemes

14.9 Changes to Prescribed Minimum Benefits

The longer-term implications are that the REF creates the opportunity to gradually move towards a comprehensive set of benefits that will enable a meaningful Social Health Insurance, especially if membership is mandatory. As long as the extension of the benefits, and consequent adjustment of the REF Contribution Table, is done ahead of budget time for medical schemes, there is little impediment to this from a practical point of view.

From a principle point of view, this raises the issue of an open-ended (tax) liability.

14.10 Treatment of Benefits Above PMBs

The REF is aimed to achieve equalisation of the health profiles of members of medical schemes and compensated at no more than a level commensurate with a reasonably efficient delivery of the prescribed minimum benefits. It is to be expected that if risk equalisation is not applied to a material part of the benefits of a scheme or an option within a scheme, and community rating and open enrolment also apply to these benefits, schemes run the same material risks of making underwriting losses on such benefits. The solution is to allow risk rating of such benefits. This is also strongly argued by Grobler, Theron and Cooper (2003).

Consideration is given below as to what these benefits are and what their risk characteristics are.

The non-chronic PMBs are largely fortuitous events requiring hospitalisation. The chronic medication benefits are largely predictable. The question is then raised as to what the risk characteristics (predictability, frequency, severity, etc) are of the benefits that are not risk equalised.

The type of benefits that would typically be included as benefits in addition to the PMBs are consultations of GP's and Specialists for acute non-hospital care, dental benefits, out-of-hospital treatment for non-chronic ailments, etc. These are the benefits that schemes have generally attempted to provide out of medical savings accounts until the 25% limit to savings accounts was introduced.

The key features of these benefits are that they are either rather predictable (e.g. six monthly dental check-up) or involve low frequency low severity cases. This environment may not really be conducive to a meaningful and substantial risk rated environment, as was evidenced in the limitless first Rand conventional schemes until the early nineteen nineties.

If the medical savings account limit is dropped and schemes are allowed to risk rate for these additional benefits, it can be expected that at least some schemes will simply provide for these benefits out of medical savings accounts.

From financial soundness and equity arguments in a private free choice environment, it is argued that the limitation with respect to medical savings accounts should be dropped.

Marx suggests there are cases where the PMBs may not cover low frequency high severity cases. It is expected to be of little practical significance for the medical schemes industry (and the REF) if schemes or insurers be allowed to risk rate for these kinds of benefits. Again, this can be quantified to a reasonable extent once the REF Contribution Table is known and can be applied to individual schemes. Such providers should also recognise that the government retains the prerogative to at any time include these benefits with PMBs which would impact their future market for these benefits.

Whereas much of the argument above presupposes that the non-PMB benefits could be funded out of medical savings accounts, schemes should in practice have the liberty to risk-rate these if they wish to.

Hence, Marx recommends that risk-rating and non-limitation of medical savings accounts be considered in respect of benefits other than PMBs. The mere fact that there is general support for the REF from the industry is evidence of the fact that community rating and open enrolment in a non-REF environment is treacherous. It is practically impossible to equalise non-standard benefits. Hence, to maintain a financially sound dispensation in respect of non-equalised benefits, it is imperative that risk-rating and no limits to savings accounts be allowed.

There is fair argument that risk rating is not conducive to solidarity, which is the aim in Social Health Insurance. The non-equalised benefits are essentially part of a private (free choice of insurance provider and of care provider) health insurance dispensation under which solidarity is not required.

14.11 Effect on AC116 liabilities

Along with international accounting standards, South Africa's accounting standards also require, through AC116, that post-employment financial obligations of employers be accounted for through the income statement and on balance sheet. The standard requires (at least) the contribution liability of employers for post-employment medical scheme contribution subsidies be treated as such. Since the REF could affect contribution tables of schemes, it would also impact on the AC116 liabilities.

AC116 liabilities need to be distinguished between the contribution liability and the cross-subsidy liability. The introduction of the REF can be argued to remove the need for the cross-subsidy liability entirely; at least in theory. This is because the REF will entrench in law the cross-subsidisation from young to old members which will be further enhanced if membership is mandatory.
However, in practice the cross-subsidy liability will not be removed entirely and would continue to remain so in circumstances where it was necessary to retain such liability for:

- The cost of benefits that are in excess of the package to be covered by the REF; and
- The extent to which the scheme is less effective and therefore costs more for the actual delivery of the REF package of benefits.

The contribution liability may be affected in the following ways:

It is presumed that the contribution liability is calculated on the contribution table(s) currently in existence for the members who are entitled to this benefit. Hence the effect on the liability will depend on the extent to which the current contribution table(s) will be affected by the REF. If the scheme has on average the same member profile of the national population on which the REF is aiming its equalisation, there will be no effect.

However, if the scheme has on average younger and healthier lives, the entire scheme will be making a contribution to the REF and hence will need to increase its own contribution table, thereby increasing the AC116 liability. The converse applies if the scheme is on average older and less healthy than the national population.

There are circumstances where a scheme has been successful to contain members in a specific option. Remember that each option is supposed to be financially self-standing. If such an option has on average older and less healthy members than the national population, this option is entitled to a subsidy from the REF. If the remaining members of the scheme (i.e. in other options) are younger and healthier than the national population, then they would need to make a contribution. These two sets of contributions by the medical scheme may cancel each other out and hence lead to no contribution to or from the REF. However, the option containing the older members may argue that were it not for them, the scheme would have had to make a contribution to the REF and hence that option should actually be compensated with the REF subsidies it would have got were this option a self-standing scheme on its own.
If the latter was the case, the contribution table for this option would reduce and consequently also the AC116 liability.

Employers who retain the AC116 liability often have their own in-house (restricted) medical schemes and their health care / medical scheme benefit and contribution design takes into account or is reflected in the management of the AC116 liabilities. This may cause such employers (and hence their medical schemes) to react differently to the REF than those who tend to get rid of the AC116 liability and where there is often participation in an open medical scheme by employees and former employees.

Mandatory membership of medical schemes would further impact on AC116 liabilities, as will the change in the tax subsidy once it is implemented.

14.12 The Option to Opt Out of the REF

The schemes for certain bargaining councils have been considered to be exempted from PMBs and hence the REF for a variety of reasons. There could be situations for registered medical schemes that make for similar or other arguments. A number of arguments **could** be put forward by various parties in the industry as reasons for opting out of the REF. These are given in Appendix z.

The arguments find practical relevance mostly in the case of restricted schemes. These arguments also depend on the tax subsidy policy. If the subsidy is sufficient for most schemes to receive money from the REF then the picture would change.

It is recognised that mandatory membership of a medical scheme under the REF dispensation may alleviate some of the above arguments.

Whereas it can be expected that the vast majority of restricted schemes are likely to have older members than the average medical scheme, these schemes stand to benefit from the introduction of the REF. However, the longer-term development of an entire medical scheme industry under the auspices of a REF regime may bring some or all of the arguments to fruition. Hence it is recommended that consideration be paid to the circumstances or conditions under which a scheme might be allowed to opt out of the REF. These are proposed in Appendix Z.

The difference between this dispensation and the solidarity principle is one where the excess current contributions of the more healthy is not used to pay for the currently unhealthy, but reserved for the same individuals who contribute the excess for the (later) times when he/she becomes unhealthy. This is the same principle that is being adopted more and more over the world in respect of pension systems, both private and national.

Falkena and Marx argue this position more strongly in section 3.4 of their report to the Policy Board for Financial Services and Regulation.[6] It is however acknowledged that there is little evidence of this kind of dispensation in health systems.

Opting out of the REF should only be allowed in circumstances where the aims of universal access to affordable healthcare are not undermined. Hence the erosion of the social health "risk" pool must be avoided. It is considered that the requirement of long-term funding will level the playing fields between the social and the private pools. The social pool will tend towards limited choice by members, cheaper costs and providers carrying financial risk. The private pool will tend towards more member choice, a fee-for-service dispensation and higher costs. As the latter becomes less affordable to its members, such members will resign and join the social system. Provided such members then transfer their accrued reserves to the social system, there should not be an objection from the social system. In fact, these measures could result in the social system "profiting" from the transfer of reserves from the private system since the private system needs to build reserves on its generally higher level of expenditure.

There may be arguments that only restricted schemes would be allowed to opt out as above but then individual members who would tend to belong to open schemes, would not have the same choice as members who, incidentally, belong to groups that would qualify for restricted membership.

[6] Falkena, H.B. and Marx, G.L. (2003) Systemic Risk in the Financial Architecture of Health Care (with special reference to South Africa). First Interim Paper for the Policy Board for Financial Services and Regulation. July 2003

15. Process for Finalisation and Implementation

The time allocated for the Formula Consultative Task Team to make recommendations to the Risk Equalisation Fund Task Group was only six months. While substantial progress has undoubtedly been made on a range of practical issues, there remain a number of items where further discussion or liaison is needed. All the authors contributed to this section.

In Section 12.1 it was identified that two bodies needed to be set up:

- Until the formally constituted REF is established a group needs to be tasked with a number of items to ensure that momentum towards the REF continues. This group is described as the **REF/REFTG** to indicate that the ultimate responsibility would have been that of the Board of the REF, but that a mandated task group will need to function in the interim.
- The REF/REFTG needs to appoint a group of people to advise on the finalisation of the formula and other technical detail for implementation of the REF. This is the **REF Technical Advisory Committee** (REF TAC).

15.1 Finalisation of the Formula

In order to finalise the formula, the diseases to be included in the formula also needs to be finalised. Currently there is agreement that all the CDL diseases as well as HIV/AIDS should be included. At the meeting of 1 December it was however agreed that the 270 PMB – DTP conditions should also be analysed to see if there are any other chronic diseases that should be recommended for inclusion. A possible inclusion would be the very high cost and rare Gaucher's disease.

Initial estimates of the entries in the cells of the REF Contribution Table have been made from data from Discovery Health and Medscheme. Team 2 would prefer to verify these amounts from the bottom up, i.e. by considering the expected cost for that risk profile based on sound clinical practice.

At the meeting of 1 December, it was proposed that a subset of the data used in the REF study be used to compare against hospital data provided by MediClinic. The hospitals should have a complete clinical record of each admission and this additional information could be used to verify the shape of the PMB curve.

Some stakeholders feel strongly that an objective party will need to be appointed to certify the rates.

Once the 2003 data has been run off (by end April 2004), the formula should be fitted on this more recent data set. It is not essential to gather data from additional schemes as over half the industry is already represented. Additional sources of data that can be supplied in the common format are of course appreciated. The adjustments in Section 9 should then be applied to these new results to obtain the REF Contribution Table [Base 2003, Use 2005]. This would need to be published for comment and then revised in time to publish by 31 July 2004 so that schemes can use it in pricing for January 2005.

The REF Technical Advisory Committee should be set up as soon as possible to continue the work on the finalisation of the formula, to make decisions in this regard and to oversee the process. The appointment of an objective party to certify the work may be a part of this responsibility.

15.2 Data Definition and Collection

A specific area of work that still requires substantial resources is in the definition of data for collection. The final definition of the data is however dependent on the definitions of entry criteria for the chronic conditions and maternity. Although this is primarily of concern for the on-going running of the REF, the definitions of course also affect the work on the finalisation of the formula discussed above.

A model for the format in which the data definitions need to be communicated to the industry is the Guide to the Risk Equalisation Scheme prepared by the Health Insurance Authority in Ireland (2003).

Schemes should be required with effect from their first quarterly return in 2004 to submit their membership profile in the format that will be required for the REF Grid. With the implementation of the chronic disease list as part of the Prescribed Minimum Benefits this is not expected to be a major problem.

Timeous notice of changes in data collection will need to be given to schemes and administrators. Notification should, if at all possible, be given before 1 February 2004 so that data can be gathered for the full year 2004 in the correct format. However as the definition of data still needs to finalised, this is not attainable.

It is strongly recommended that a means be found to continue the mandate of Teams 2 and 4, under the auspices of the newly-appointed REF Technical Advisory Committee, in order to complete the work already begun on the data definitions.

15.3 Liaison with SAICA on Audit of REF Grid Data

No formal discussion has yet taken place with the South Africa Institute of Chartered Accountants (SAICA). The following principles are suggested by the Formula Consultative Task Team:

- All data forwarded to the REF will be subject to an annual audit.
- This will form part of the annual audit of the medical scheme.
- SAICA will need to draft guidelines to assist the auditors with the process of auditing the clinical and demographic data forwarded to the REF.

The REF/REFTG needs to undertake the task of liaison with SAICA on this issue.

15.4 Liaison with Council for Medical Schemes

This report proposes that the Risk Equalisation Fund make use of the existing channels for data and communication with schemes that are well-established by the Council for Medical Schemes through the Office of the Registrar of Medical Schemes. If this principle is adopted, then collaboration with the Office will be the single most important element in bringing the REF to fruition.

Areas that require collaboration between the Council for Medical Schemes and the Risk Equalisation Fund include:

- Data definition for the quarterly and annual returns to the Registrar and for the REF Grid.
- The gathering and passing over of data for the REF processes.
- The definition of industry data standards and coding standards.
- The definition of Prescribed Minimum Benefits.
- The amendment to scheme financial accounts to account for REF payments.
- The amendment to the solvency calculation for medical schemes to account for REF payments.
- The impact of the REF on options design and the monitoring of financial soundness of options.
- Communication with trustees and stakeholders.

The REF/REFTG needs to undertake the task of liaison with the Council for Medical Schemes on these issues.

15.5 On-going Industry Consultation

As described in the foreword, this Consultative Process has been characterised by openness and transparency to date. The publication of this report will facilitate further consultation and broader consultation on the proposed REF.

The REF/REFTG needs to take on responsibility for maintaining this transparency in the lead up to the implementation of the REF. If the decision to go ahead for January 2005 is still regarded as feasible, then a series of briefings and meetings with trustees of medical schemes, together with their consultants and advisors will be needed in March of 2004. This is in order to gather input for the finalisation of the formula as well as to enable trustees and consultants to plan for the revision of scheme benefit structures and contribution changes for 2005.

Administrators will need to be briefed at the same time to ensure that data collection is altered appropriately.

Once the final REF Contribution Table is ready for publication, a further round of briefings will be needed to ensure that all questions are answered as schemes finalise their 2005 benefits and contributions. This series of meetings are particularly critical for taking into account the expected impact of REF payments in the scheme contribution tables.

There will need to be on-going liaison with the media, consumer groups and unions in order to prepare members for the changes.

15.6 Proceeding Independently of the Subsidy Reform

This issue was a specific question to the Formula Consultative Task Team by the Risk Equalisation Fund Task Group. This report has showed that there is an overwhelming need for risk equalisation. To delay the implementation of the REF in order to finalise the more difficult subsidy reform would be fool-hardy.

The main impact of subsidy reform is on the revenue to be received by the REF and thus on the magnitude of the payments to and from the REF. The initial modelling work has shown the operation of the REF in the absence of subsidy reform. Any contribution subsidy will reduce the necessity for payments by schemes to the REF which can only make the operation of the Fund more simple.

The Formula Consultative Task Team strongly urges the Department of Health to process with the implementation of the Risk Equalisation Fund as soon as possible, independent of the outcome of the discussions on subsidy issues.

15.7 The Need to Maintain Momentum

The Formula Consultative Task Team has expressed a deep concern that momentum towards the implementation of the Risk Equalisation Fund may now slow down. The FCTT was given a brief to operate for six months from 10 July 2003 and that period is now over with the submission of this report.

As a first step, it is strongly recommended that the Department of Health mandates a formal **Risk Equalisation Fund Steering Committee** immediately after this consultative process. Some of the responsibilities for that body have been outlined above in references to the REF/REFTG. The body needs to be tasked with preparing budgets and detailed operational plans for the implementation of the Risk Equalisation Fund.

As the legislative process to establish the Risk Equalisation Fund is completed, so the Steering Committee would relinquish responsibility to the newly-appointed Board and chief executive of the Risk Equalisation Fund.

It is envisaged that the REF Technical Advisory Committee will continue beyond the implementation period as a mandated delegation from the REF Board in future. The REF Technical Advisory Committee will effectively continue the work begun by this Formula Consultative Task Team.

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Appendix A: Social Health Insurance Policy

This is the full text of a document prepared by Brenda Khunoane who is responsible for Social Health Insurance at the National Department of Health. The document was prepared in July 2003 as a short summary of SHI policy for use by the Risk Equalisation Fund Consultative Task Teams.

The Department has formulated a view on the introduction of mandatory cover in South Africa. In the immediate term, we are of the opinion that a Social Health Insurance system is a feasible policy goal to pursue. Our objectives for SHI are:

- To strengthen the public health care system by increasing the revenue available to it.
- To obtain pre-paid contributions from those who are able to pay.
- To reduce inequities in health care financing by improving income and risk-related cross-subsidies, and
- To improve access of lower income groups to quality health care.

In our context, the following would comprise a social health insurance system:

- Government-mandated health insurance cover for specified groups.
- Income cross-subsidies among contributors.
- Risk-related cross-subsidies among contributors.

Government-mandated health insurance cover

Over time, contribution to some form of health care cover should become mandatory for all those with the ability to pay. The mandates should be phased in over time, beginning with high-income earners and specific categories of employers. The mandates could then be broadened with the establishment of a state-sponsored scheme to meet the needs of lower-income people who would not be able to afford conventional medical schemes. Such a scheme would include the use of public hospital services as providers of choice, and also offer primary health care services in the private sector.

Income cross subsidies among contributors

We believe that under the mandatory environment, there should be income cross subsidies among contributors. Since the current medical scheme environment is based on flat rate contributions, we would like to explore options for achieving income cross subsidies. A key consideration in this regard is the tax subsidy on medical scheme contribution, currently estimated at R7.8 billion. The subsidy is an important reflection of government commitment to encourage people to provide for their own health care. Because it is linked to the size of the medical aid contribution, it tends to favour high-income earners, who can afford expensive medical aid cover. It is therefore imperative that it should be restructured so that the low-income earners receive greater subsidies than high-income earners. This in turn should make medical scheme coverage more accessible for a greater number of people. Because of its direct link to employment costs, the department has specifically invited employers to give us their views on this.

Risk-related cross-subsidies among contributors

The Medical Schemes Act makes certain provisions to protect the ill from risk rating. Despite these provisions, some room still exists for schemes to structure their benefits in a manner that discourages high-risk members from joining. A system of risk equalisation is therefore needed, in which a central fund receives contributions from below average risk schemes and allocates funds to above average risk schemes. This system creates a much larger risk pool and, instead of schemes competing on the basis of risk selection, they compete on the basis of cost and the quality of health care services. We are convinced that in this country the Risk Equalisation Fund would be an important instrument to buttress the sustainability of the contributory environment.

Our intention is to address the cross-subsidy issues by restructuring the tax subsidy and establishing the Risk Equalisation Fund by the year 2005. We are satisfied that the cross-subsidies can be addressed even outside of any mandatory SHI, as they will greatly enhance the stability and sustainability of the medical schemes environment. The timing of the introduction of mandates is a subject for Cabinet to decide, although the Department would like this to occur as close as possible to the establishment of the Risk Equalisation Fund.

Appendix B: Terms of Reference

Risk Equalisation Fund Task Group

Terms of Reference for Consultative Task Teams

Risk Equalization Fund Task Group

The Department of Health has established a Risk Equalization Fund Task Group (REFTG), to finalize the department's views on the establishment of a Risk Equalization Fund (REF). This REFTG comprises officials from the Department and from the Office of the Registrar of Medical Schemes. In addition, the REFTG has formed a joint working group with National Treasury, and will interact with individuals contracted to do some technical work to support the process. The REFTG has six months from 10 July 2003 to make its final recommendations to the National Department of Health.

The establishment of two technical task teams was announced at the Consultative Forum on 10 July 2003. The intention is that at the end of six months, the Department will receive a final report from the REFTG, based on the input of the two technical task teams. The Department will then make its final policy decisions and implementation plans based on this final report.

Formula Consultative Task Team

Professor Heather McLeod will chair the Formula Consultative Task Team (FCTT). The terms of reference of the FCTT are to:

- Develop the REF formula, and make recommendations in this respect;
- Consult directly with external stakeholders and affected parties and to co-ordinate their inputs into the process;
- Identify any benefits and risks that may result from any proposed formula;

Their output will be a final Report to the REFTG advising on the formula and the required implementation requirements for a REF.

Subsidy Framework Consultative Task Team

Mr Anton Roux will chair the Subsidy Framework Consultative Task Team (SFCTT). The terms of reference of the SFCTT will be to:

- Develop a revised subsidy framework for medical schemes which achieves an equitable redistribution of income between both public and private sector health system users;
- Assess various options for revising the subsidy to address horizontal and vertical equity goals of the Department.
- Revise the tax rebate framework to ensure appropriate employer participation in the provision of medical scheme cover;
- Examine the fiscal implications and requirements associated with alternative subsidy configurations;
- Consult directly with affected stakeholders and parties to co-ordinate their inputs into the process.

Their output will be a final Report to the REFTG advising on the appropriate subsidy framework that achieves the objectives of national health policy.

Source: Presentation by Brenda Khunoane, Director: Social Health Insurance, *The Context For Health Financing Reform In South Africa,* 10 July 2003, Gallagher Estate, Midrand.

Appendix C: Work Plan for Formula Consultative Task Team

Formula Consultative Task Team

Detailed Work Plans for Teams

At a meeting at Gallagher Estate, Midrand, on 28 July, the FCTT established four teams to deal with specific aspects of their brief. At a meeting on 9 September, with the work of Team 1 completed, two further teams were established.

Team 1: Definition of Risk and Principles for Choice of Formula

Chair: Shaun Matisonn. E-mail: shaunM@discovery.co.za

Team 2: Definition of Package and Funds to Be Equalised

Chair: Izak Fourie. E-mail: izakf@healthmonitor.co.za

Team 3: Risk Factors to be Used in Formula

Chair: Pieter Grobler. E-mail: PieterG@Medscheme.co.za

Team 4: Implementation Requirements of Formula

Chair: Susan Mynhardt. E-mail: susanm@mxgroup.co.za

Team 5: Consequences of Formula

Chair: George Marx. E-mail: george.marx@healthmonitor.co.za

Team 6: Financial Soundness of Risk Equalisation Fund

Chair: Shaun Matisonn. E-mail: shaunM@discovery.co.za

Chair of Formula Consultative Task Team: Heather McLeod.

E-mail: hmcleod@iafrica.com

Web-site for Risk Equalisation Fund Task Teams: site http://196.23.139.67/REF/

Or link from front page of **http://www.medicalschemes.com**

Formula Consultative Task Team

Team 1: Definition of Risk and Principles for Choice of Formula

Terms of Reference and Work Plan

1. Develop a definition of the term “risk” as it applies to the Risk Equalisation Fund.
2. Develop a definition of “residual risk” which needs to be measured to determine the effectiveness of any particular risk equalisation formula.
3. Develop a set of guiding principles for the final choice of a formula. Suggested starting points: see CARE discussion document and source documents in that bibliography; Irish Society of Actuaries document; document by Pieter Grobler. [Documents on REF Task Team web-site]
4. Consider whether risk equalisation can proceed independently of the subsidy reform.
5. Present document for discussion at a meeting of Formula Task Team on Tuesday 9 September 2003.

Note that this team needs to complete work by early September to enable the other teams to progress their efforts. This team may then be given additional tasks or may disband at that point with work shifting to other teams in the months thereafter.

Chair: Shaun Matisonn
Adrian Baskir
Sarah Bennet
Colin Bullen
David Green
George Marx
Penni Putman
Mike Settas
Carel Stadler
Penny Thlabi
REFTG and Heather McLeod

06 August 2003

Formula Consultative Task Team

Team 2: Definition of Common Package and Funds to be Equalised

Terms of Reference and Work Plan

1. Recommend to Formula Task Team the extent of the common package to be equalised.
2. Provide definitions for use with clinical items to be collected for formula or recommendations for how these might best be achieved before REF begins to function. If definitions expected to be improved in future, provide expectation of improvements.
3. As a starting point (until further work by Team 3), use recommendations for formula items contained in technical report by Pieter Grobler. I.e. consider age, numbers with CDL conditions, deliveries.
4. Liaise with Council for Medical Schemes clinical team on definitions to be used for data items, particularly the CDL conditions.
5. Liaise with REFTG on issues related to extension of common package from existing PMBs and CDLs to include possibly:
    a. ARVs for HIV/AIDS
    b. Care for the disabled (as announced in the public sector by Minister of Health)
    c. Defined package of primary care.
6. Formulate a recommendation on whether and how Bargaining Council schemes should be included in the REF.
7. Consider the possibility of the REF becoming involved in delivery issues, as proposed in one version of the BHF high risk pool.

Chair: Dr Izak Fourie
Thandi Maqubela
Dr Leonard Petersen
Penni Putman
Priscilla Scott
Barry Swartzberg
REFTG and Heather McLeod

Thursday, 07 August 2003

Formula Consultative Task Team

Team 3: Risk Factors to be Used in Formula

Terms of Reference and Work Plan

1. Identify risk factors not yet in suggested formula by Pieter Grobler. Provide evidence of impact on risk and residual risks remaining if they are not included in the formula. [NB. For meeting on 9 September 2003, so that further work can be initiated if necessary]
2. Test the significance of currently defined risk factors on data in own environment and share the results. [For 9 September if possible]
3. Test the impact of the Grobler formula on specific schemes in own environment and share the results. [For 9 September if possible]
4. Consider the evidence for conditions suggested for the BHF high risk pool and provide evidence of impact on risk and residual risk if not included in formula.
5. Consider the particular issues on risk equalisation as a result of the progression of the HIV/AIDS epidemic.
6. Make recommendations on the extent of the population to be equalised and the determination of the risk factors for that population.
7. Recommend the process for the finalisation of the formula in the first half of 2004.

Chair: Pieter Grobler

Corene Agenbach
Thiru Appasamy
Adrian Baskir
Colin Bullen
Barry Childs
Dawid du Plooy
Niyaaz Ebrahim
Mark Ferreira
Dan Krige
Lettie Le Grange
REFTG and Heather McLeod
Leon Liedeman
George Marx
Brett Mill
Susan Mynhardt
Richard Parsons
Mike Settas
Helena Theron
Boshoff Steenekamp
Tony Warner

Saturday, 27 September 2003

Formula Consultative Task Team

Team 4: Implementation Requirements of Formula

Terms of Reference and Work Plan

1. Develop a detailed plan for the implementation of the risk equalisation formula, dealing with the timing of data and cashflows.
2. Recommend definitions for data to be collected for the finalisation of the formula and the running of the REF, building on the work of Teams 2 and 3.
3. Incorporate the recommendations of Team 3 on the finalisation of the formula into the implementation plan.
4. Consider all possibilities of manipulation of the formula and/or the data and recommend changes or procedures to eliminate any such possibility. May require further work with Team 3.
5. Consider the auditing of data necessary to satisfy all parties that the risk equalisation process is fair.
6. Consider and make recommendations on any other practical issues that may arise in the implementation of the formula.

Chair: Susan Mynhardt
Sarah Bennet
Nadine Broodrijk
Helen Kruger
Esmé Prins
Priscilla Scott
REFTG and Heather McLeod

Saturday, 27 September 2003

Formula Consultative Task Team

Team 5: Consequences of Formula

Terms of Reference and Work Plan

1. Identify areas of concern and risks arising from the implementation of the formula emerging from the work of Team 3. Make recommendations on ways to mitigate or eliminate these concerns and risks.
2. Consider the possible perverse incentives that could be introduced to the healthcare system as a result of the use of the risk equalisation formula. Make recommendations in this regard.
3. Recommend the adjustment needed to the existing solvency calculation for medical schemes, to take into account actual and anticipated cashflows from the REF. Ensure liaison with the Financial Oversight area of the Council for Medical Schemes and with SAICA in this regard. Both the annual calculation and quarterly calculation of solvency to be considered.
4. Recommend the approach to the investment treatment of actual and anticipated cashflows from the REF. Ensure liaison with the Financial Oversight area of the Council for Medical Schemes and with SAICA in this regard.
5. Recommend the approach to regulation of options and option designs with regard to the self-sufficiency of options in the light of REF developments. Ensure liaison with the Financial Oversight area, the Research and Monitoring area and the Financial Soundness Working Group of the Council for Medical Schemes in this regard.
6. Consider the alternatives and consequences for the community-rating of benefits in excess of those in the common package.
7. Consider the issues and consequences related to introducing the REF with and without mandatory membership. Make recommendations on the pace with which mandatory membership should be introduced.
8. Identify and evaluate risks not equalised within the benefit package as well as benefits outside the package and recommend an approach to these benefits.
9. Consider and advise on the impact on schemes of any retrospective collection / disbursement by and from the REF.

10. Describe the likely effects on AC116 liabilities.
11. Indicate the implications for the need for reinsurance of a scheme.
12. Indicate the pros and cons of all schemes (open, restricted, exempted) participating in the REF vis-à-vis an opportunity for a scheme to opt out of the REF dispensation.
13. Consider implications of changes (additions) to the benefit package in the future.

Chair: George Marx
Sarah Bennet
Pieter Grobler
REFTG and Heather McLeod

Saturday, 27 September 2003

Formula Consultative Task Team

Team 6: Financial Soundness of Risk Equalisation Fund

Terms of Reference and Work Plan

1. Identify the issues and formulate recommendations related to the following Principles for the Operation of the Risk Equalisation Fund:

Frequency of Calculation of Payments	The frequency of payments to and from the REF should be on a quarterly basis, in line with the quarterly statutory returns to the Registrar of Medical Schemes.
Sustainability	The REF should be sustainable in its own right and not require additional funding in the long run and should remove instability in the market.
Efficiency of Operation of the REF	The cost of the operation of the REF and the mechanism for guaranteeing solvency of the REF needs to be implemented at the lowest practical level.

2. Specifically, make recommendations on the establishment and maintenance of solvency of the REF.
3. Consider the potential for bad debt problems if risk equalisation proceeds independently of tax expenditure subsidy reform.
4. A priority is to consider and make recommendations on the minimum cashflow from the revised tax expenditure subsidy that would be necessary for financial soundness of the REF. This recommendation will have impact on the work of the Subsidy CTT.
5. Consider the issue of late payments to the REF by a scheme and the penalties or other sanctions that need to be imposed, together with the impact on the REF.

Chair: Shaun Matisonn
Colin Bullen
REFTG and Heather McLeod

Saturday, 27 September 2003

Appendix D: Formula Consultative Task Team Participants

			FCTT Meetings				Teams					
Surname	**First Name**	**Employer**	**Meeting 28 July**	**Meeting 9 September**	**Meeting 14 October**	**Meeting 1 December**	**Team 1**	**Team 2**	**Team 3**	**Team 4**	**Team 5**	**Team 6**
REFTG, Chairs of Task teams			1=attended	0=apology			1=team 1	2=team 2	3=team 3	4=team 4	5=team 5	6=team 6
Total attending/ volunteering			38	32	15	12	10	8	21	8	4	3
Agenbach	Corene	Medihelp	1	0					3			
Appasammy	Thiru	BHF	1	1					3			
Baskir	Adrian	Old Mutual Health	1	0	0		1		3			
Bennet	Sarah	NMG-Levy	0	1		1	`			4	5	
Broodrijk	Nadine	Mediscor PBM	1	1	0	1				4		
Bullen	Colin	Lekana Employee Benefits	1	0	0		1		3			6
Buys	Roly	MediClinic	0	0	0							
Childs	Barry	Discovery Health							3			
Colman	Malcolm	Private Health Administrators		1								
Cowley	Justin	Investec	1									
Griesel	Dr Francois	Medihelp										
du Plooy	Dawid	MediClinic	1	1	1				3			
Ebrahim	Niyaaz	Metropolitan Health Group	1						3			
Erasmus	Wynand	Medscheme		1								
Ferreira	Dr Mark	Mx Health	1	1					3			
Fourie	Dr Izak	Health Monitor Company		1	1	1		chair				
Green	David	Prosano Medical Scheme	1				1					
Grobler	Pieter	Medscheme	1	1	1	1			chair		5	
Guzman	Rodrigo	Monitor										
Hendrie	Simon	Discovery Health		1								
Khunoane	Brenda	National DoH	1	0	1	1						
Kriek	Nico	Mx Health		1								
Krige	Dan	Natal University		1					3			
Kruger	Helen	MediKredit								4		
Koolen	Jack	Monitor										
Le Grange	Lettie	Angloplatinum	1	1					3			
Liederman	Leon	NEHBA	1						3			
Litow	Mark	Milliman USA	Evidence for section of the report									
Maqubela	Thandi	SA Nurses in Business	1					2				
Marx	George	Health Monitor Company	1	1	1	1	1		3		chair	
Matisonn	Shaun	Discovery Health	1	1	1	1	chair					chair
Mayet	Khalik	Discovery Health	1									
Metz	Ralf	Old Mutual Health		1	1							
McLeod	Heather	University of Cape Town	1	1	1	1	1	2	3	4	5	6
Mill	Brett	Discovery Health		1					3			
Ming	Candice	NMG-LEVY	1	0								
Mohamed	Elamin	CMS	1	1	1							
Mxenge	Mbasa	Polmed										
Mynhardt	Susan	Mx Health	1	1		1			3	chair		
Noble	Jenni		0					2				
Parke	Rob	Milliman USA	Evidence for section of the report									
Parsons	Richard	NMP	1						3			
Petersen	Dr Leonard	Medihelp	1	1				2				
Prins	Esme	Healthcare Navigator	1		1					4		
Putman	Penni	Private Health	1	1	1	1	1	2				
Rakoloti	Thabo	National DoH	1	1	1							
Rametse	Tim	Polmed										
Ramukumba	Albert	HASA	1									
Roux	Anton		1	1	1	1				4		
Rothberg	Dr Alan	Medscheme	Assisted with two sections of the report									
Ruff	Brian	Discovery Health										
Scott	Priscilla	AACMED	1	1	1	1		2		4		
Settas	Michael	Gallet Healthcare	1	1			1		3			
Schubach	Jeanine	Lekana Employee Benefits	1	0	1							
Stadler	Carel	Platinum Health	1	1			1					
Steenekamp	Boshoff	iGolide Healthcare Access	1	1					3			
Stipp	Emile	Deloitte							Submission			
Swartzberg	Barry	Discovery Health	1					2				
Theron	Helena	Medscheme							3			
Thlabi	Penny	BHF	1	1			1					
van der Heever	Alex	CMS	1	0	0	0						
Venter	Casper	HealthMan		1								
Volschenk	Braam	SAMA		1								
Warner	Tony	Openplan	1	1					3			

Appendix E: Age/Gender Data Problems in 2002 Statutory Returns

Scheme	Scheme Reference	Scheme Type	Size	Beneficiaries	Total Unknown Age	Proportion Age Unknown
Some ages unknown				**945,695**	**1,841**	**0.19%**
Bestmed	1252	Open	large	60,156	24	0.04%
COMMED	1552	Open	large	35,024	10	0.03%
Medshield	1140	Open	large	277,916	7	0.00%
MetHealth OpenPlan	1560	Open	large	75,842	7	0.01%
MSP Sizwe	1486	Open	large	179,161	47	0.03%
Protector	1285	Open	large	88,936	2	0.00%
Selfmed	1446	Open	large	42,947	2	0.00%
Telemed	1147	Open	large	56,779	197	0.35%
Topmed	1422	Open	large	57,133	494	0.86%
Eyethumed	1585	Restricted	small	10,954	1	0.01%
Metropolitan	1105	Restricted	small	12,087	6	0.05%
Southern Sun	1579	Restricted	small	4,099	830	20.25%
Minemed	1569	Restricted	medium	19,646	12	0.06%
Remedi	1430	Restricted	medium	25,015	202	0.81%
Missing gender				**44,062**	**236**	**0.54%**
NIMAS	1166	Open	large	34,449	-	0.00%
Golden Arrow	1270	Restricted	small	6,046	142	2.35%
Trawlermen's	1271	Restricted	small	3,567	94	2.64%
10 year age bands				**337,888**	**15,147**	**4.48%**
Caremed (Oxygen)	1215	Open	large	139,535	11,527	8.26%
MEDS	1142	Open	large	35,256	-	0.00%
Billmed	1089	Restricted	small	3,543	-	0.00%
Clicks	1521	Restricted	small	4,594	-	0.00%
Imperial	1559	Restricted	small	12,290	-	0.00%
Moremed	1566	Restricted	small	9,943	1,690	17.00%
Mutual & Federal	1208	Restricted	small	6,270	-	0.00%
SAMANCOR	1557	Restricted	small	10,646	-	0.00%
AngloGold GOLDMED	1503	Restricted	medium	26,300	-	0.00%
Medipos	1548	Restricted	medium	23,416	548	2.34%
Nedcor	1469	Restricted	large	35,881	361	1.01%
Old Mutual Staff	1214	Restricted	large	30,214	1,021	3.38%
Age unknown				**150,446**	**150,446**	**100.00%**
Building Industry East London	3378	BCS	small	382	382	100.00%
Autoworkers AUTOMED	3456	BCS	large	60,908	60,908	100.00%
Clothing Industry Cape Town	3304	BCS	large	89,156	89,156	100.00%
Age unknown; Missing gender				**139,423**	**139,423**	**100.00%**
PRETMED	1242	Open	medium	21,848	21,848	100.00%
Rand Water	1201	Restricted	small	5,757	5,757	100.00%
SEDMED	1531	Restricted	small	1,701	1,701	100.00%
Food Workers	1086	Restricted	large	30,186	30,186	100.00%
Building Industry Western Cape	3302	BCS	small	11,642	11,642	100.00%
Clothing Industry Free State	3327	BCS	small	462	462	100.00%
Clothing Industry Northern	3339	BCS	small	6,147	6,147	100.00%
Furniture and Allied	3336	BCS	small	616	616	100.00%
Knitting Industry Northern	3419	BCS	small	913	913	100.00%
Furniture Natal	3479	BCS	small	7,310	7,310	100.00%
Hairdressers Natal	3314	BCS	small	758	758	100.00%
Motor Industry	3324	BCS	large	52,083	52,083	100.00%
All Problems				**1,617,514**	**307,093**	**18.99%**
All Industry				**6,962,914**	**307,093**	**4.41%**
All Registered Schemes				**6,713,870**	**76,716**	**1.14%**

Appendix F: Age Profiles of Youngest and Oldest Medical Schemes

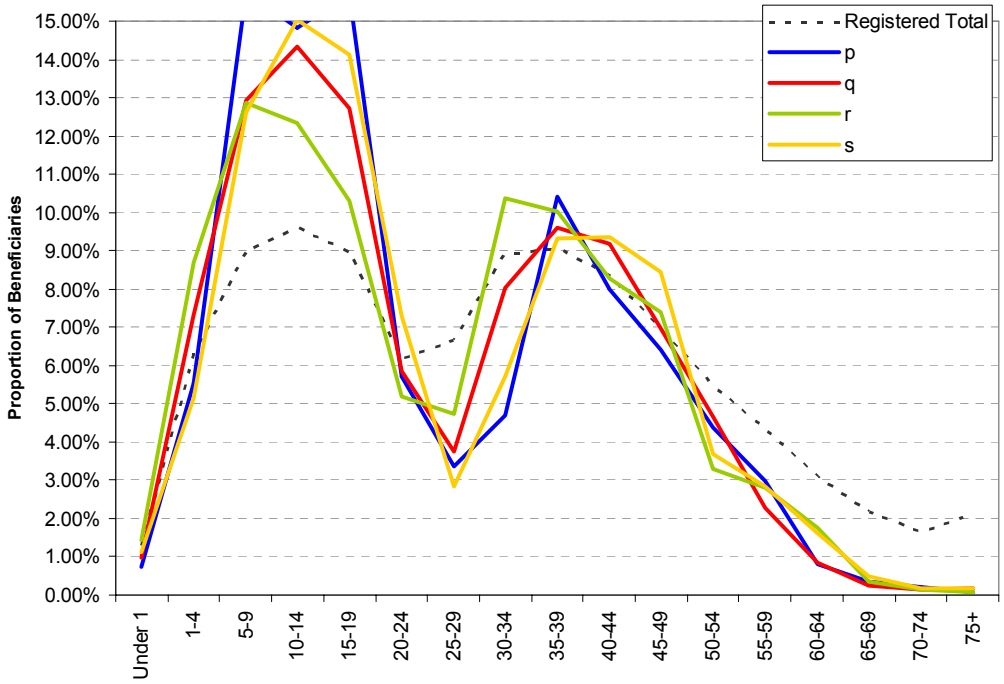


Figure F1: Age Profiles of Youngest Open Schemes (2002 Data)

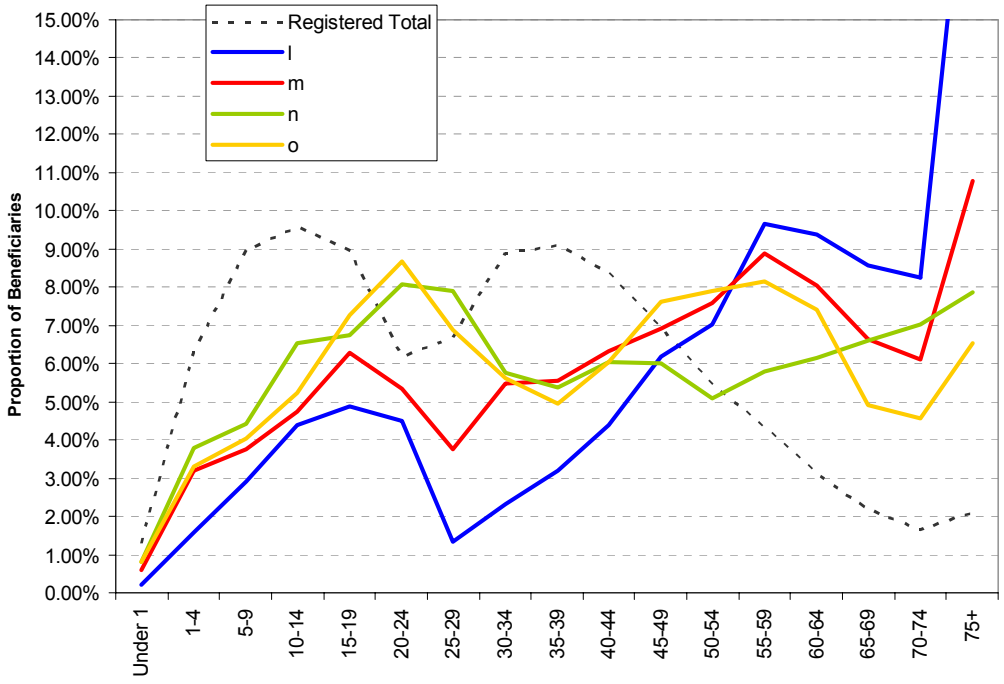


Figure F2: Age Profiles of Oldest Open Schemes (2002 Data)

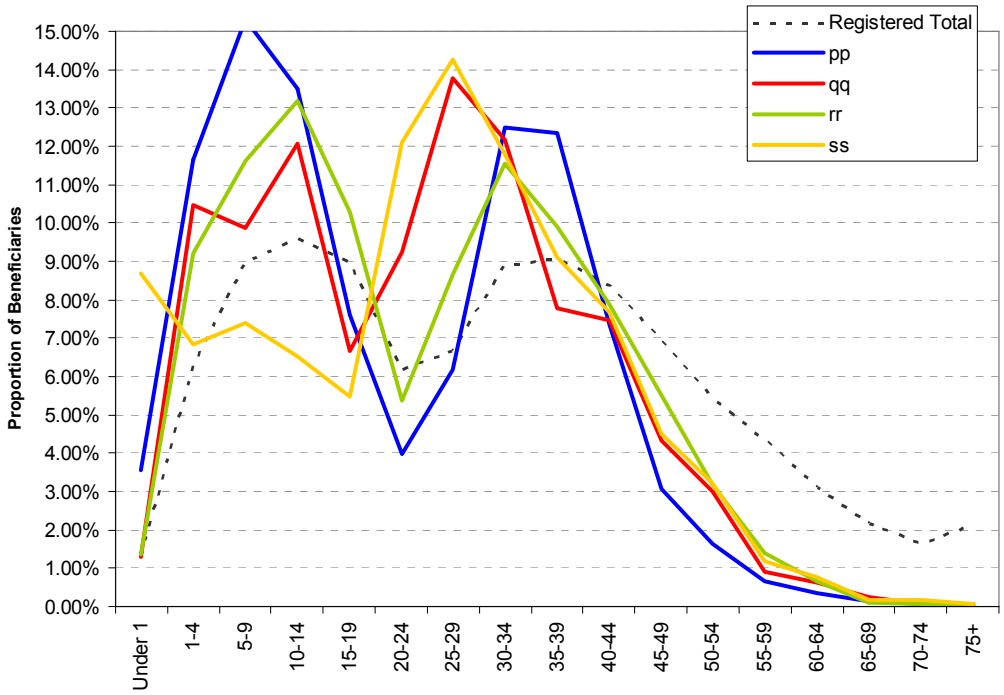


Figure F3: Age Profiles of Youngest Restricted Schemes (2002 Data)

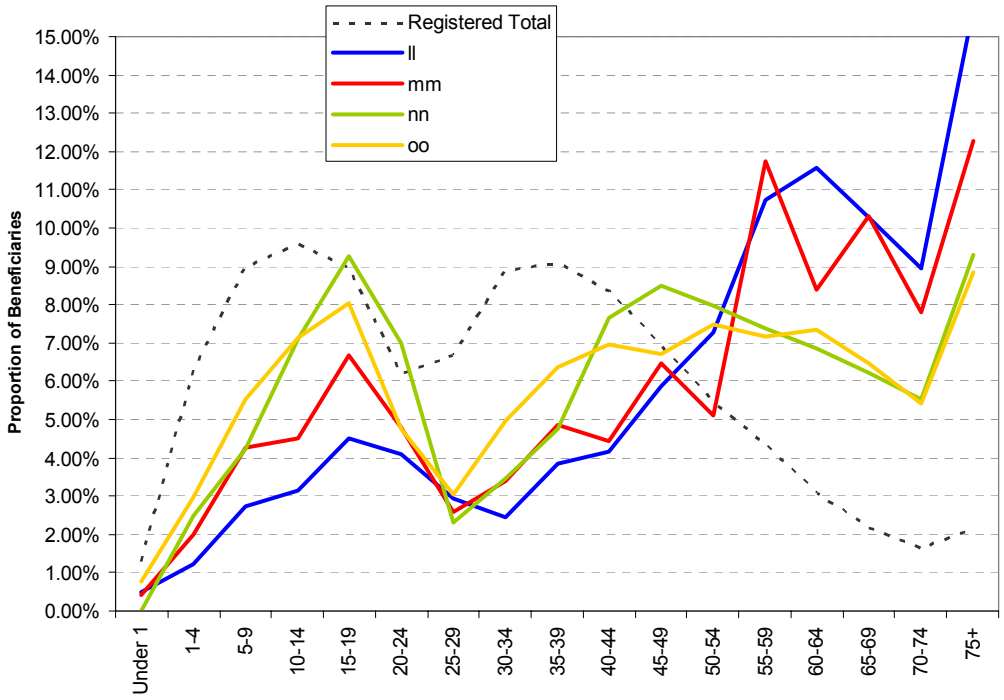


Figure F4: Age Profiles of Oldest Restricted Schemes (2002 Data)

For ease of comparison, all graphs are shown on a common set of axes, with a maximum at 15% of beneficiaries. Some schemes have lines which extend beyond this range, as shown in Section 3.2

Appendix G: Price of Prescribed Minimum Benefits

These tables are extracted from Chapter 3 of the report:

> McLeod H.D., Mubangizi D.B., Rothberg A. and Fish T. (2003). *The Impact of Prescribed Minimum Benefits on the Affordability of Contributions.* Council for Medical Schemes, Pretoria.

Extract from Tables 3 and 4: Price of Complete PMB Package by Cluster

Price pbpa in 2001 Rand terms	High	High and Medium	Low	Total Study	Weighted Industry
Inpatient PMB package	R 1,994.95	R 1,591.46	R 867.47	R 1,073.31	R 1,188.01
Ambulatory PMB package	R 477.24	R 416.72	R 308.12	R 339.00	R 356.20
CDL Medicine Package	R 1,154.35	R 805.33	R 286.33	R 421.58	R 499.09
Non-healthcare costs	R 170.96	R 141.97	R 89.55	R 104.82	R 113.47
Complete PMB package Private Sector	**R 3,797.50**	**R 2,955.48**	**R 1,551.47**	**R 1,938.71**	**R 2,156.78**
Complete PMB package Public Sector	**R 2,425.48**	**R 1,901.87**	**R 1,015.61**	**R 1,261.73**	**R 1,400.07**

The PMB price was developed using private sector data and thus the Private Sector prices are for delivery of the PMB package in a private sector fee-for-service environment in 2001. To the extent that contracts with providers are entered into on a risk-sharing basis, the protocols for treatment may alter. The greater the degree of risk-sharing, the more careful providers are expected to be in ensuring that an appropriate standard of care is delivered and that wastage in the system is reduced. It is not possible to put an estimate on that effect, but the impact would be to reduce the price in the private sector from the levels quoted.

The estimate of the price of the Complete PMB package delivered in the Public Sector in 2001 is also given above. See the original report for assumptions and methodology.

The table below gives the price of the Complete PMB package for a typical family of two adults plus two children, on a per family per month basis.

Table 7: Price of the Complete PMB Package per month for a Family of Four

Price per family per month (2001 Rands)	High	High and Medium	Low	Total Study	Weighted Industry
Total Inpatient package	R 556.37	R 466.84	R 291.98	R 345.27	R 373.29
Total Outpatient package	R 98.28	R 84.98	R 59.00	R 66.93	R 71.09
Toal CDL package	R 338.95	R 259.47	R 138.33	R 176.00	R 195.94
Complete PMB package Private Sector	**R 993.59**	**R 811.28**	**R 489.31**	**R 588.19**	**R 640.33**
Complete PMB package Public Sector	R 638.26	R 525.01	R 321.15	R 383.75	R 416.76

The table below shows the monthly price for a single adult, as an additional reference point.

Table 9: Price of the Complete PMB Package per month for a Single Adult

Price per single adult per month (2001 Rands)	High	High and Medium	Low	Total Study	Weighted Industry
Total Inpatient package	R 219.42	R 177.58	R 110.50	R 132.69	R 143.84
Total Outpatient package	R 36.51	R 30.28	R 20.29	R 23.59	R 25.26
Toal CDL package	R 155.83	R 117.65	R 60.47	R 78.51	R 87.97
Complete PMB package Private Sector	**R 411.76**	**R 325.51**	**R 191.25**	**R 234.79**	**R 257.07**
Complete PMB package Public Sector	R 261.37	R 207.92	R 124.26	R 151.52	R 165.43

Appendix H: Community Rate of PMBs by Scheme

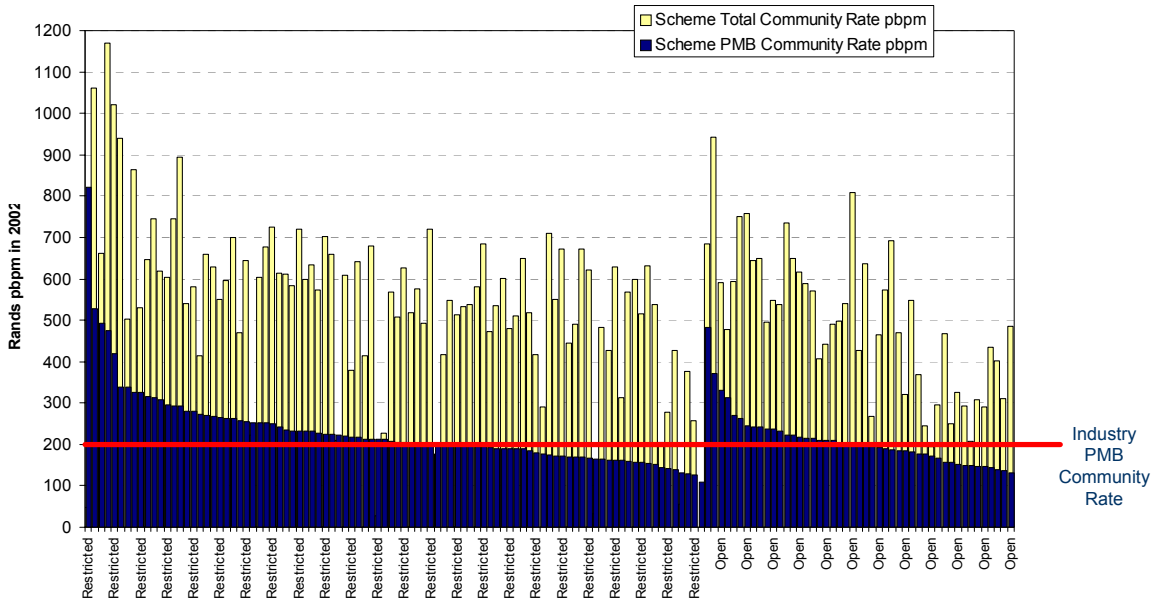


Figure H1: Community Rate by Scheme Type
(2002 age profile, 2001 PMB price by age)

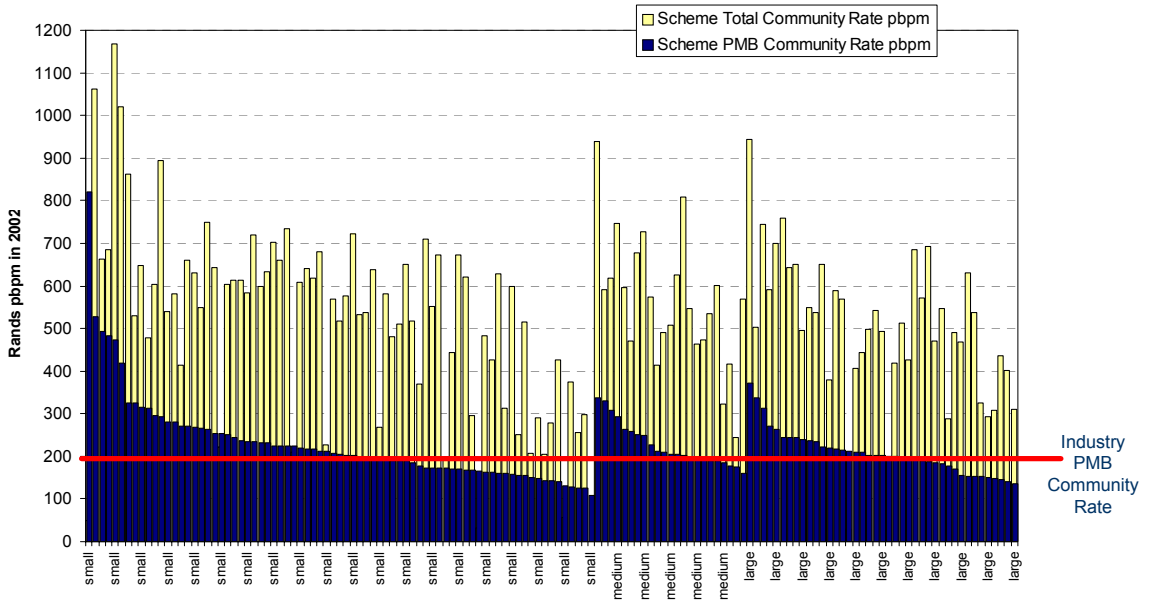


Figure H2: Community Rate by Scheme Size
(2002 age profile, 2001 PMB price by age)

Appendix I: Financing for Pensioners and Disabled

Note that all graphs are on the same scale.

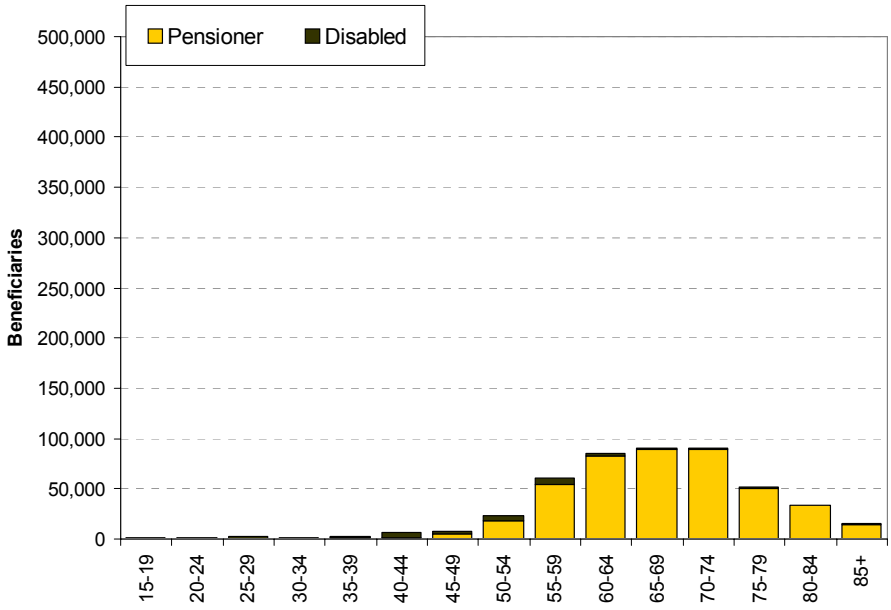


Figure I1: Pensioners and Disabled in Existing Medical Schemes (OHS99 data)

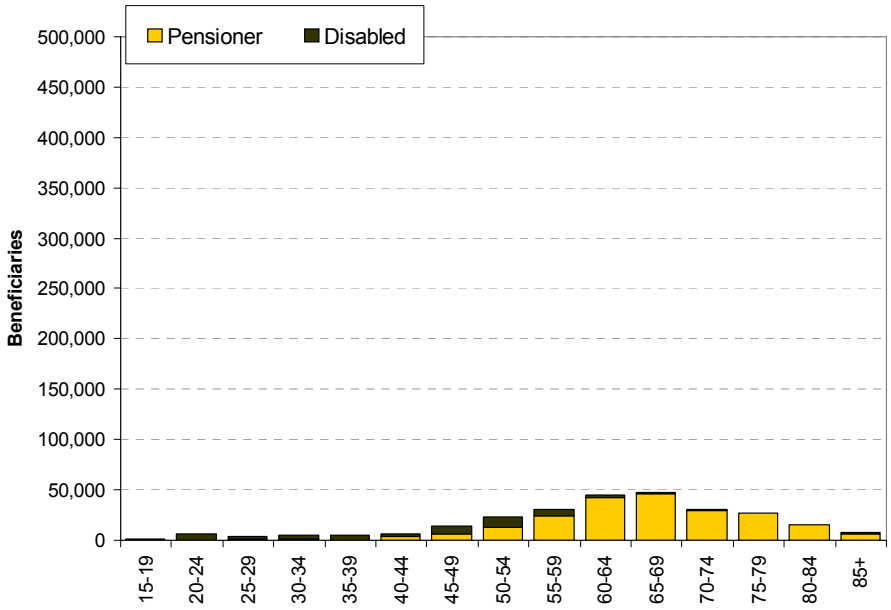


Figure I2: Pensioners and Disabled in Potential Medical Schemes Under SHI (OHS99 data)

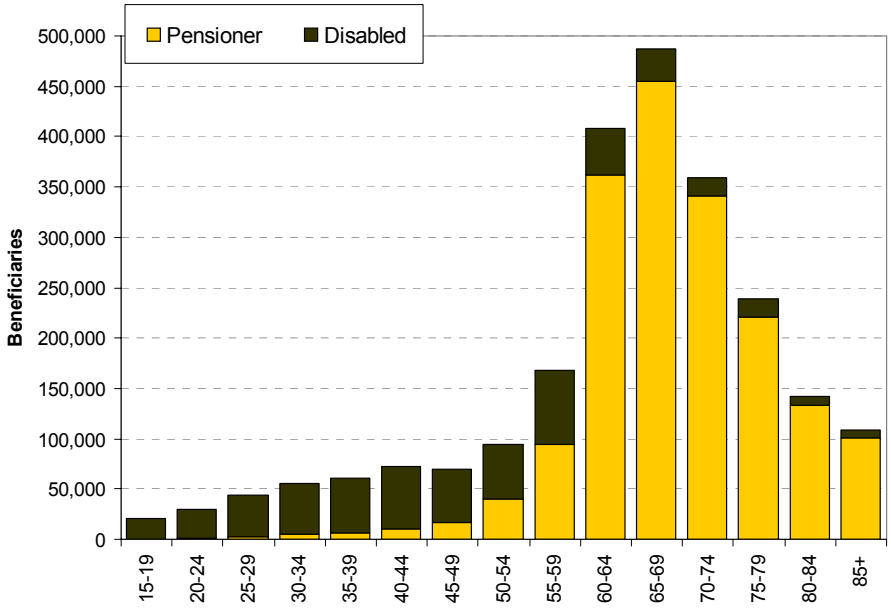


Figure I3: Pensioners and Disabled Financed by the Public Sector (OHS99 data)

Appendix J: Affordability Issues for Bargaining Council Schemes

This is a verbatim extract of Chapter 6 of:

> McLeod H.D., Mubangizi D.B., Rothberg A. and Fish T. (2003). *The Impact of Prescribed Minimum Benefits on the Affordability of Contributions.* Council for Medical Schemes, Pretoria.

Bargaining Council schemes (previously called "exempt schemes") are those schemes that are not able to comply fully with the Act and are thus granted exemptions from certain of its provisions, particularly with respect to the provisions of PMBs. Historically the exempt schemes included those covering the police service, correctional services and the defence force, as well as schemes that were created before the first Medical Schemes Act of 1967. Over time many exempt schemes have acquired the status of registered schemes. Those that remain tend to offer very limited benefits, often only primary health care delivered by salaried or panel doctors. In 2001 the name of these schemes was changed to Bargaining Council schemes.

In 2001 only eight of the 19 Bargaining Council schemes reported to the Registrar and they accounted for 3.8% of total beneficiaries. However, there are estimated to be some 42 Bargaining Council schemes in total if all were brought within the regulatory framework of the Medical Schemes Act (personal communication Stephen Harrison, Council for Medical Schemes).

In 2001 Bargaining Council schemes catered for 3.8% of total beneficiaries in the medical scheme industry and spent a total of R113 424 310 on benefits, which is equivalent to only 0.4% of the total spend on benefits in the industry. As only eight of the bargaining council schemes made returns to the Registrar in 2001, the 2001 figures may not be representative of this sector of the industry. However, the 2000 figures are more complete with data received on 19 schemes and thus a study by McLeod & Dreyer (forthcoming) using the 2000 data has been used in parts of this analysis.

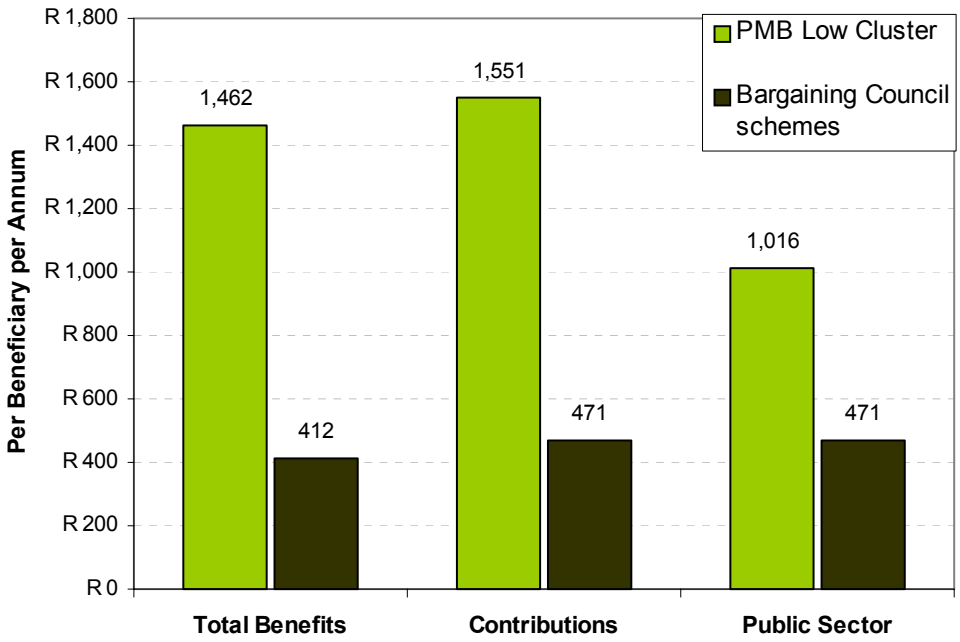
The benefit design of these schemes is of increasing interest as the prospect of Social Health Insurance becomes a reality. These schemes have been able to offer basic services to their members within a very constrained budget and they could offer a better reference for designing primary care for new low cost options within registered schemes.

Most of the expenditure in Bargaining Council schemes goes to general practitioners as these schemes often rely solely on GP's to provide a comprehensive range of services. In many cases the schemes offer only primary care benefits. Members and their families make use of the public sector for chronic medicine as well as all specialist needs and hospitalisation. At least one scheme has engaged in discussions with the public sector to begin to integrate these benefits with the rest of the scheme and to work towards being able to reimburse the public sector for usage by their members.

Appendix F (of the PMB report) on CD-ROM gives detailed benefit expenditures per beneficiary for each of the 19 exempt schemes in 2000. Appendix D contains benefit and contribution information for the eight Bargaining Council schemes reporting in 2001.

Bargaining Council schemes spent on average R 411.57 per beneficiary per annum in 2001 on benefits, which is equivalent to 10.0% of what registered schemes spent on benefits. The Low cluster PMB package price is more relevant to this group of schemes. A comparison of the Low cluster PMB price in the private and public sectors with total benefits and contributions of Bargaining Council schemes in 2001 is shown below.

Note that the public sector price includes some administration and managed care costs that would be implemented by the public sector and not the scheme. Effectively, the public sector PMB price would be capitated to the scheme.



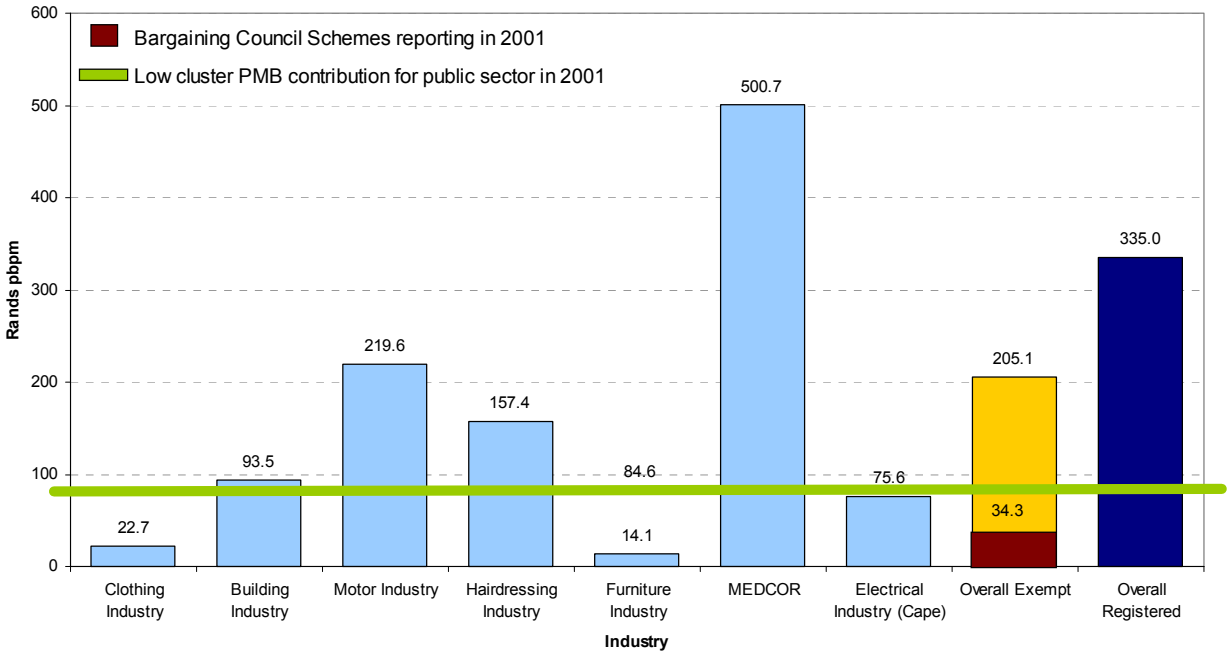
(Figure 16): Low Cluster Complete PMB Package Compared to Total Benefits and Contributions of Bargaining Council Schemes

At an industry level, the graph shows clearly that Bargaining Council schemes are in no position to meet the demands of the PMB package, even when delivered in the public sector. The public sector Low cluster price is 2.2 times the contributions per beneficiary per annum in this sector.

The industry level figures mask great variability in this sector. Of the eight Bargaining Council schemes that made returns to the Registrar in 2001, four of them spent between R 922 and R2 634 per beneficiary on medical benefits. The scheme spending R2 364 pbpa can almost certainly accommodate the Low cluster PMB package with a few adjustments.

What is needed however, is engagement with each scheme in this group to explore how their current benefit structures can be changed to accommodate an acceptable, if initially limited, version of PMBs delivered in the Bargaining Council scheme environment and the public sector. The readiness of the public sector to engage with these schemes also requires some attention at a national level as different provinces are proceeding at different paces.

The graph below shows benefit spend per beneficiary per month for exempt schemes in 2000. The schemes have been categorised into industries.



(Figure 17): Exempt Schemes Benefit Expenditure pbpm in 2000 by Industry

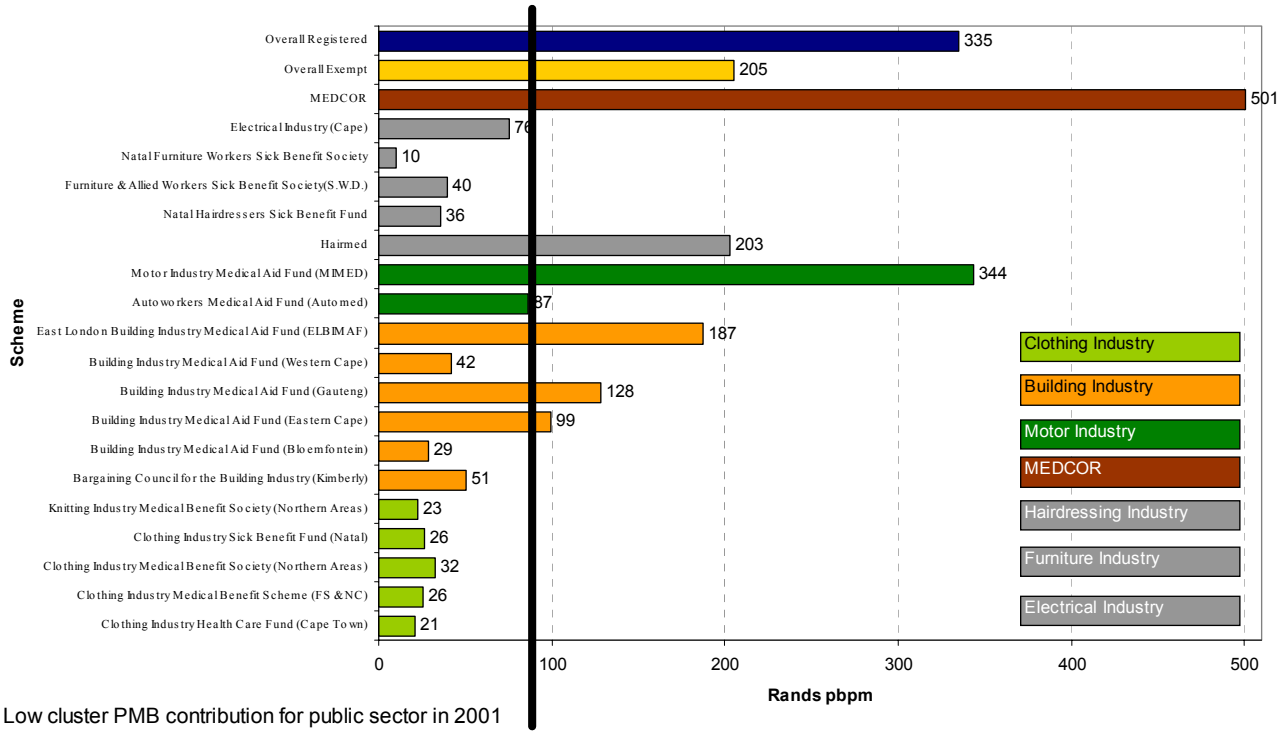
The Overall Exempt bar has an overlay showing the low expenditure reported in 2001 compared to 2000. This illustrates how sensitive the industry numbers are to which schemes are included in the reporting. Note the unusually high expenditure of MEDCOR in 2001, at levels much greater than even registered schemes. At the other end of the scale, the average benefit expenditure pbpm in the clothing industry was only R 22.70.

It was considered not reasonable to attempt to estimate what the benefits in the PMB package in the public sector might have cost in 2000. So although the comparison is very rough, the public sector PMB package price for the Low cluster of R 84.63 pbpm has been overlaid on the graph above. Only the motor industry, MEDCOR and possibly the hairdressing industry appear able to cover the PMBs within existing benefit expenditure. Whether this is actually feasible or whether the

switch from primary care to tertiary care would be acceptable, would need to be considered carefully in each case.

Even within industries, there is a wide range of benefit structures in these schemes. The graph below uses the 2000 data to explore this issue at scheme level. Again the price of the public sector PMB package for the Low cluster in 2001 has been overlaid on the graph.

Out of 19 schemes, only 6 or possibly 7 have benefit expenditure at a level that could conceivably cover the PMB package in the public sector. Again, whether trading off primary care for tertiary care is even feasible, is something that will need to be considered by the Bargaining Councils themselves.



(Figure 18): Exempt Schemes Benefit Expenditure pbpm in 2000 by Schemes

From an affordability perspective, understanding the design of benefits under Exempt schemes is crucial for benchmarking low-cost options and provides what could be considered the lowest cost reference point for the PMB package price. While the basket of benefits offered under Bargaining Council schemes differs from what is offered under the registered schemes environment, these schemes are still relevant for comparison purposes to show that with carefully designed benefit structures, it is possible to lower the price of healthcare to within the income levels of their members.

Before reaching conclusions on the difficulty that Bargaining Council schemes might have with including the PMB package in their benefit structures, the recommendations by the Taylor Committee with regard to healthcare need to be explored. If the existing tax structure for the medical schemes industry is replaced with a per capita subsidy, this would have most impact at lower income levels. The price of the PMB package for the Low cluster, when delivered in the public sector, is only R1 015.51 per beneficiary per annum. A per capita subsidy of this order would dramatically affect any conclusions on the affordability for Bargaining Council schemes.

Appendix K: Gender Study Results

This study was performed using the 2001 data used in the PMB Costing study by Fish, McLeod et al (2002).

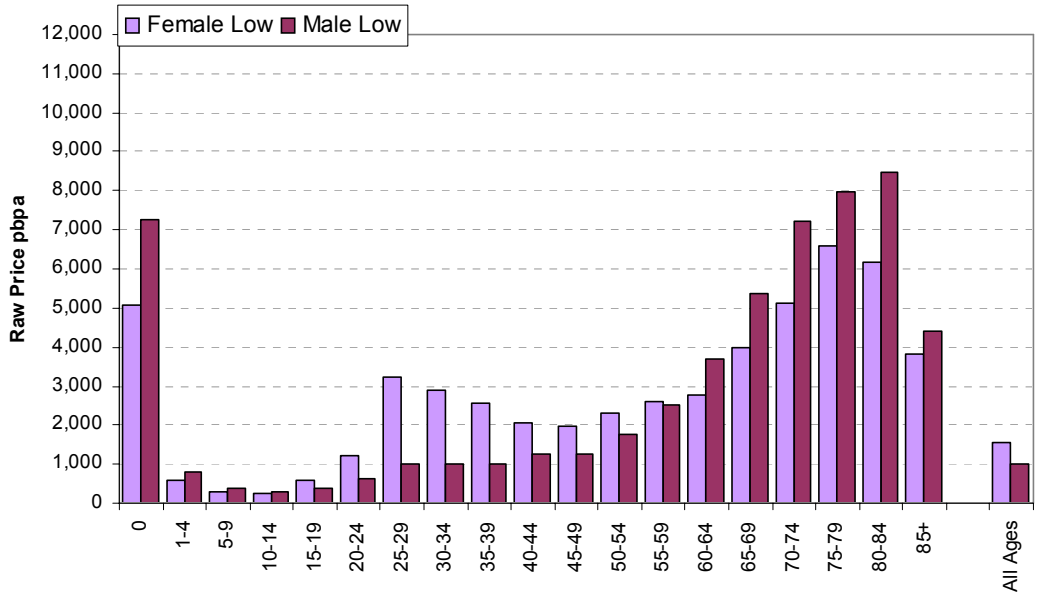


Figure K1: All Admissions Raw Price Low Cluster (2001)

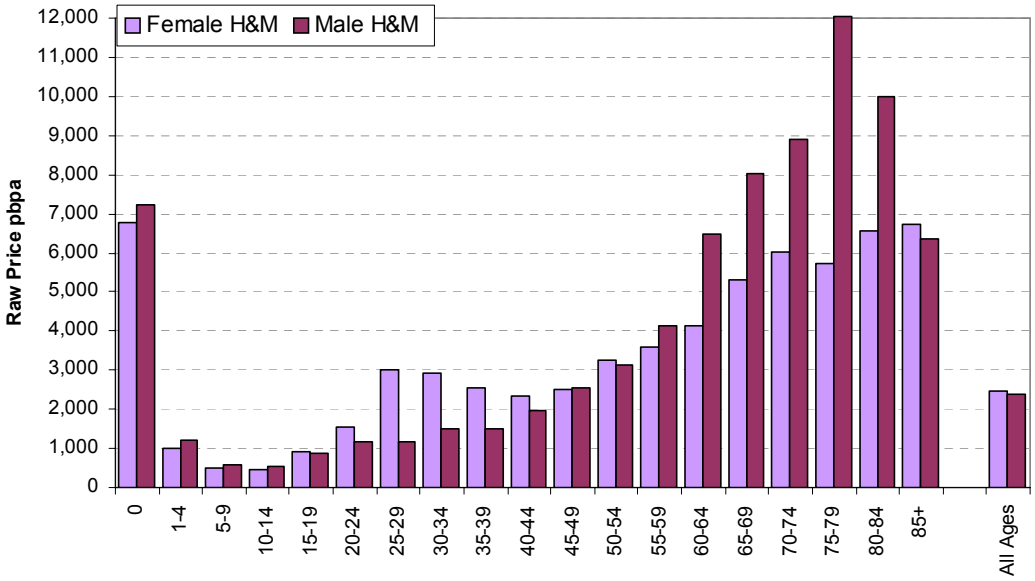


Figure K2: All Admissions Raw Price High and Medium Clusters (2001)

The concept of “cluster” is a proxy for socio-economic grouping. Low cluster options are approximately 50% of the cost of High cluster options. Low cluster beneficiaries tend to be younger and predominantly of African/Black ethnicity. This cluster is a useful proxy for the emerging market under Social Health Insurance.

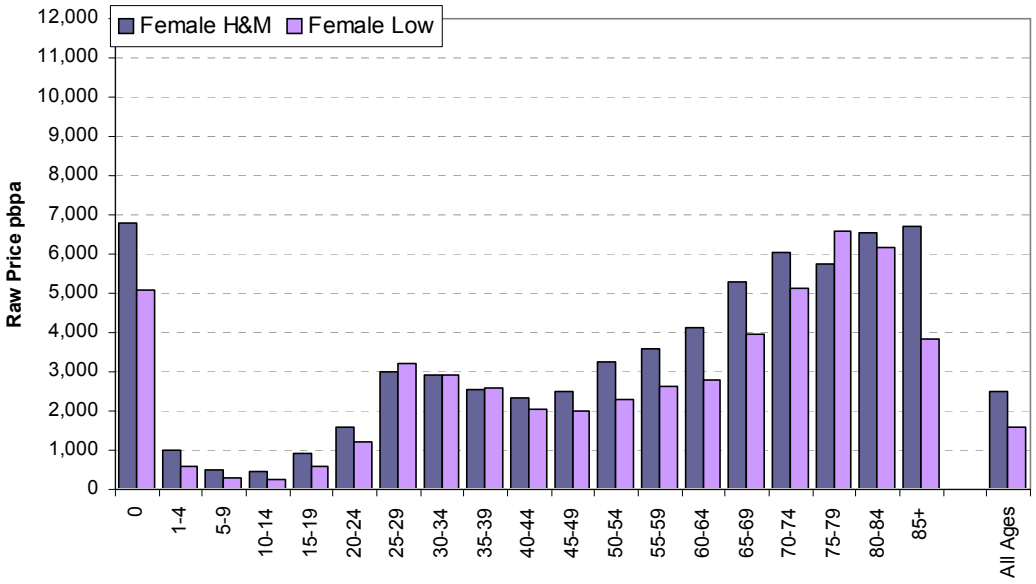


Figure K3: All Admissions Raw Price Female (2001)

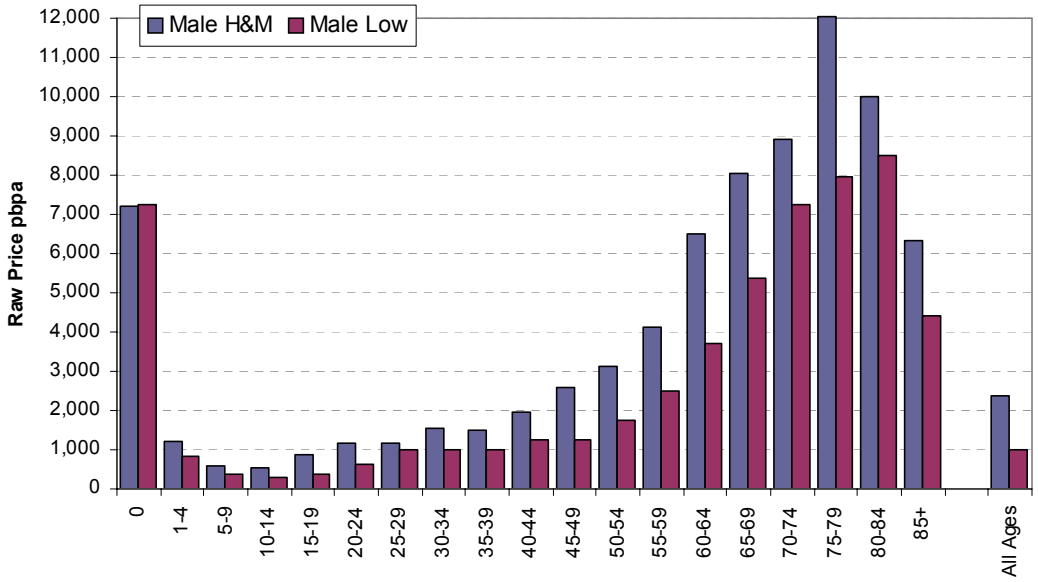


Figure K4: All Admissions Raw Price Male (2001)

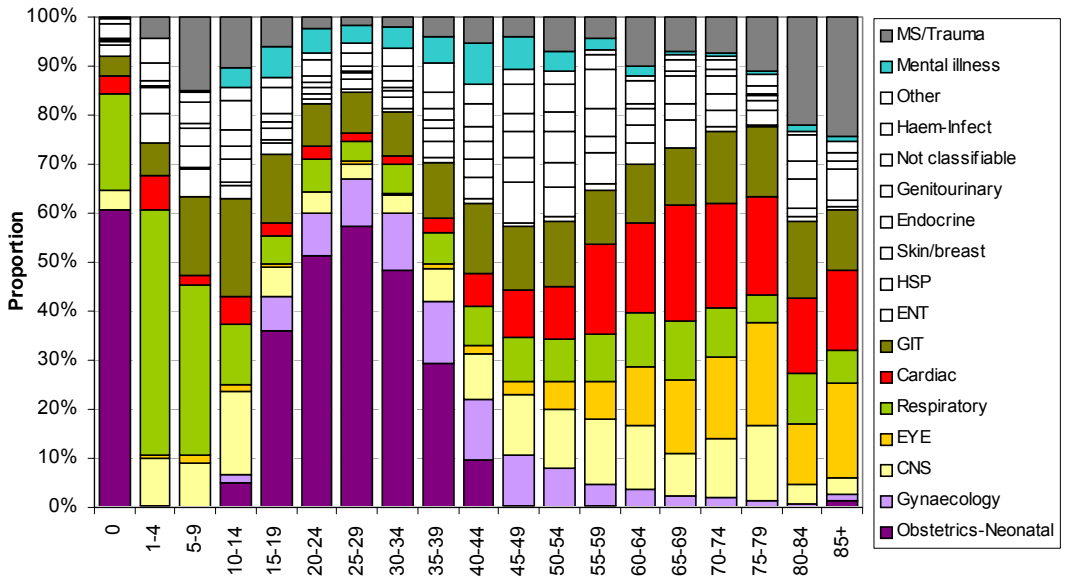


Figure K5: PMB Cost Low Cluster Female (2001)

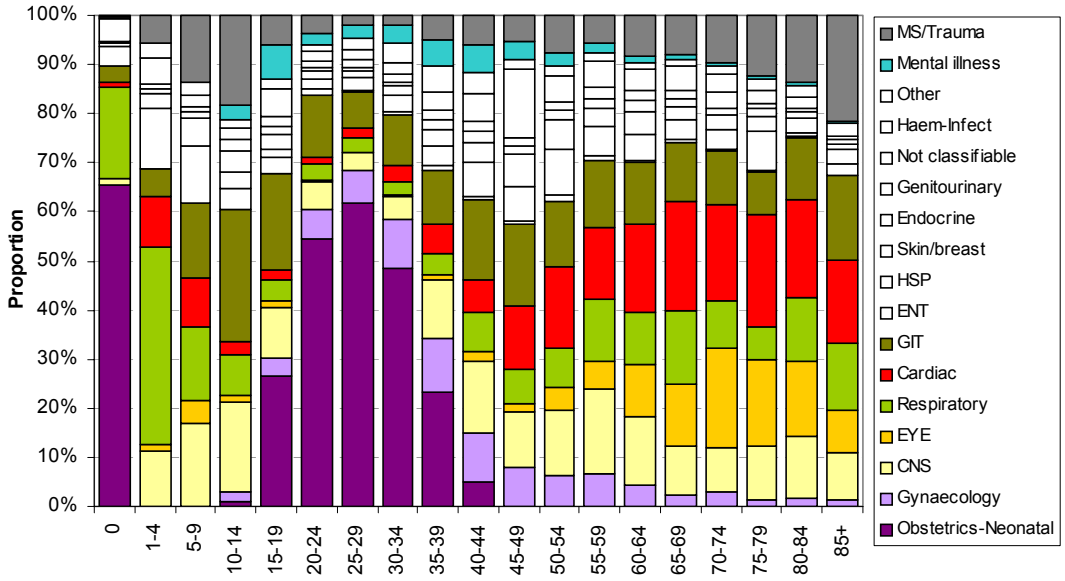


Figure K6: PMB Cost High and Medium Clusters Female (2001)

Note the influence of deliveries in the two graphs above. The chapters “Obstetrics-Neonatal” and “Gynaecology” are relevant.

Appendix L: Ethnicity Study Results

This study was performed using the 2001 data used in the PMB Costing study by Fish, McLeod et al (2002).

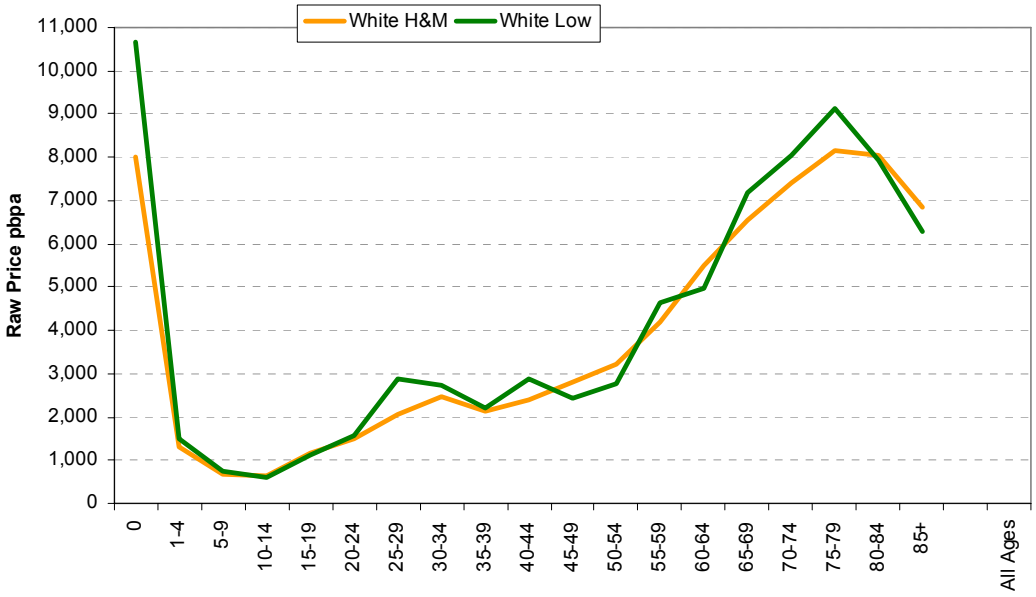


Figure L1: All Admissions Raw Price White (2001)

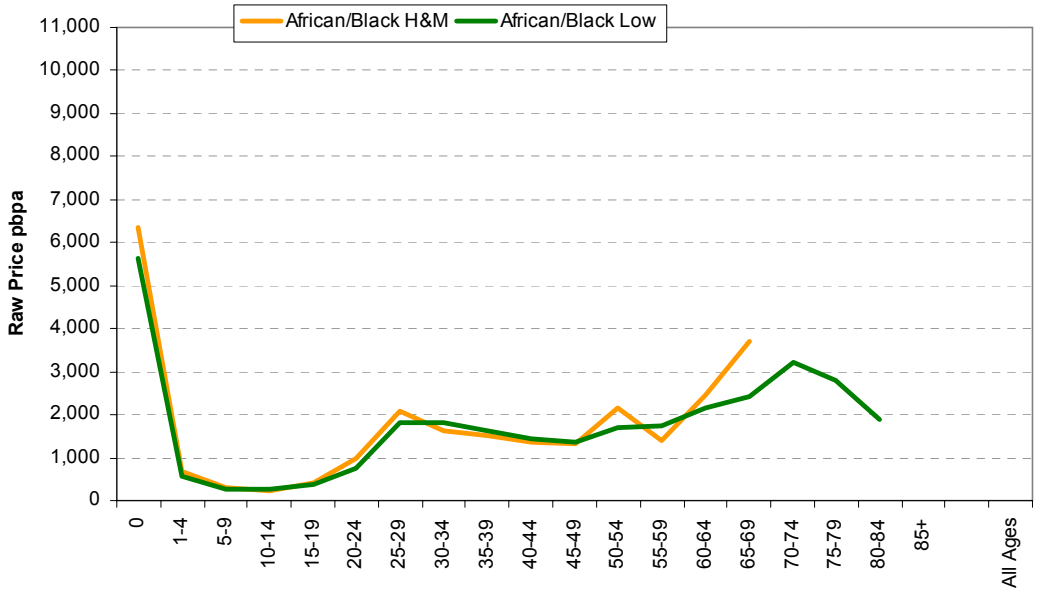


Figure L2: All Admissions Raw Price African/Black (2001)

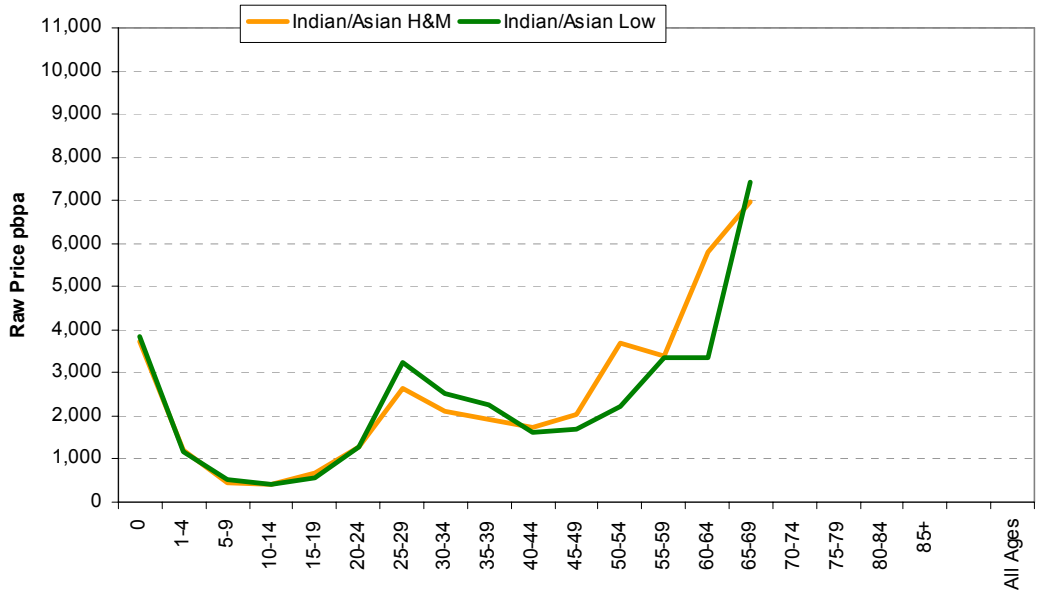


Figure L3: All Admissions Raw Price Indian/Asian (2001)

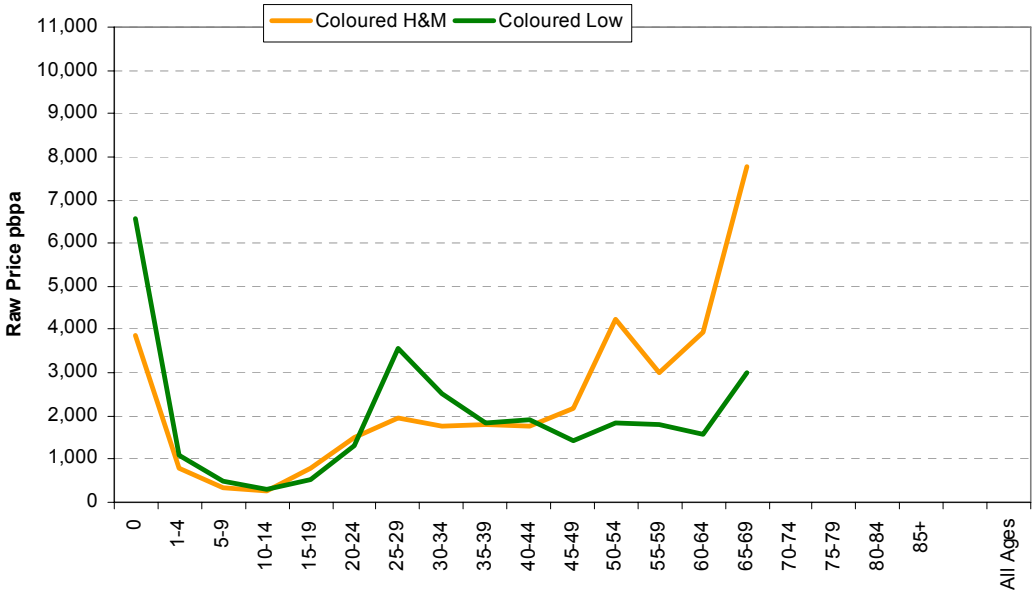


Figure L3: All Admissions Raw Price Coloured (2001)

The concept of "cluster" is a proxy for socio-economic grouping. Low cluster options are approximately 50% of the cost of High cluster options. Low cluster beneficiaries tend to be younger and predominantly of African/Black ethnicity. This cluster is a useful proxy for the emerging market under Social Health Insurance.

Appendix M: BHF High Cost, Low Incidence Events

The material in this Appendix was supplied by the Board of Healthcare Funders. This formed part of the BHF deliberations on the feasibility of a high cost, low incidence risk pool. The "PMB?" column was added by Medscheme in order to facilitate decisions.

GENERAL: Consensus management protocols will have to be drawn up for all conditions that are to be entered into the high-cost low-incidence risk pool. Inputs from medical advisory services are sought before entering a condition into the list.

Unpredictable catastrophic events such as multiple burns/injuries with multi-organ failure, hi-jack gunshot injuries with organ failure and multiple pregnancies with multiple premature babies etc. Individual scheme re-insurance may be the appropriate vehicle for such events.

Serious diseases that may be predictable but the scheme cannot risk rate or decline and must accept in terms of legislation. A skewed distribution of any of these diseases due to anti-selection against the scheme e.g. High Risk groups subject to Gauchers disease and Crohns disease.

The conditions are broken into two groups;

PMB?	Acute Treatment	Notes:
	RS Virus in Neonates Prophylaxis	Palivizumab (Synagis) and/or SVIG (Respigam: IMMUNOGLOBULIN TREATMENT)
	Chronic Hepatitis B and C	Alfa-2a, alfa-2b, consensus interferon, peginterferons: peginterferon alfa-2a (Pegasys®: Hoffman La Roche: Nutley, NJ) and peginterferon alfa-2b (Pegintron®: Schering-Plough Corporation, Kenilworth, NJ)
PMB	Bone Marrow Transplants	
PMB	Transplants (incl Heart, Lung, Kidney, Liver)	
Surfactant not listed in PMB	Premature Babies	Neonatal ICU costs: lodging, incubators, management of all complications of prematurity in ICU, including Surfactant.
	Cochlear Implants	Cost of implant and associated equipment
	Adjustable Knee Prostheses	
Skin substitutes not listed in PMB	Major Burns	If admitted into ICU care, and skin transplants and other material used as skin substitutes
cardiac defibrillator not listed in PMB	Prevention of sudden Cardiac arrest	Implantable cardiac defibrillator only

	Chronic Treatment	
Biologicals not listed in PMB	Rheumatoid Arthritis with new Biologicals	Biologicals: etanercept (Enbrel) and adalimumab (Humira) and infliximab (Remicaide) and drugs of same group
Inteferon not listed in PMB	Multiple Sclerosis requiring Interferon	Alpha interferon only
	Cystic Fibrosis	All costs included
Leevec not listed in PMB	Chronic Myeloid Leukaemia requiring Gleevec	Gleevec costs only
	Motor Neurone Disease on Riluzole	Riluzole (2-Amino-6-(trifluoromethoxy)-benzothiazole)/ rilutek in Motor Neurone disease (Amyotrophic lateral sclerosis) OK: but indication must be managed very carefully).
Infliximab not listed in PMB -	Crohns Disease with Fistula or resistant to other forms of treatme	Anti-tumor necrosis factor antibody (Infliximab: Remicaide)
	Chronic Hepatitis C	Interferon alpha 2-b (may be in combination with Ribavirin).
	Haemophilia	Treatment with Factor VIII substitutes
PMB	Gauchers Disease	
	Transplants:	
PMB in hospital	Heart	
	Heart/Lung	
	Lung	
PMB in hospital	Kidney	
PMB in hospital	Liver	
	Bone Marrow	
	Implantable Nervous System Stimulators	
PMB	Chronic renal Failure : Dialysis	Chronic dialysis: peritoneal of heamodialysis.
	High incidence - High to medium cost interventions (may become less costly):	
	HIV/AIDS Treatments	HAART/ ART
	Conditions that require further discussion	
PMB	Chemotherapy	
PMB	Oncology	Immunotherapy (with monoclonal antibodies)
	: Carcinomas - Breast, Colon, Stomach, Ovary	
	Lymphomas	
	Leukaemias	
PMB	Polytrauma	Only if admitted into ICU care

Appendix N: Initial Technical Report on Formula

Grobler, P., Theron, H. and Cooper M. (2003). *Technical Report: Risk Equalisation in South African Medical Schemes.* Technical report prepared by Medscheme Integrated Care and submitted to the Risk Equalisation Fund Task Group of the Department of Health, June 2003.

The full technical report of 59 pages is not included in this version of the document. It is available on the Risk Equalisation Fund Task Group web-site at http://196.23.139.67/REF/

Alternatively, contact Pieter Grobler, at: PieterG@Medscheme.co.za

Appendix O: Risk Equalisation Fund Payment Formula

This is a verbatim extract from *Technical Report: Risk Equalisation in South African Medical Schemes* by Grobler, Theron and Cooper (2003).

6.1 The general formula

A generic formula for obtaining the subsidy per beneficiary is given below:

$$Sub_{ij} = \{AC * \sum_i \sum_j M_{ij} * [(W_{ij} / \sum_i \sum_j (W_{ij} + M_{ij})) * \sum_i \sum_j M_{ij} - 1] + TS\} / \sum_i \sum_j M_{ij}$$

Sub_{ij} = The subsidy per annum for beneficiaries with disease i and age band j;

AC = *The average cost of the PMB conditions for the total population per beneficiary per annum;*

W_{ij} = The cost weighting given to beneficiaries with disease i and age band j;

M_{ij} = The total number of beneficiaries with disease i and age band j across all schemes

TS = The total subsidy available for all beneficiaries in all schemes.

Deliveries could be treated as an additional disease for the purpose of making this formula generic.

It can be seen that the formula is dependant upon the cost of treating the PMB conditions. The subsidy per scheme obtained will therefore depend on the base used, namely either private or state hospital costs.

The derivation of the above formula is set out in Appendix A [of the Technical Report – reproduced overleaf]

Appendix A

A derivation of the formula set out in 6.1 follows below.

Sub_{ij} = The subsidy per annum for beneficiaries with disease i and age band j;

AC = *The average cost for the PMB conditions for the total population under consideration per beneficiary per annum;*

W_{ij} = The cost weighting given to beneficiaries with disease i and age band j;

M_{ij} = The total number of beneficiaries with disease i and age band j across all schemes

TS = The total subsidy available for all beneficiaries in all schemes;

C_{ij} = The expected cost for the PMB conditions for a beneficiary with disease i and age band j;

C'_{ij} = The expected cost for the PMB conditions for a beneficiary with disease i and age band j, net of any Risk Equalisation subsidy.

Now:

$$C_{ij} = AC * W_{ij} \quad \text{if} \quad AC * \sum_i \sum_j (W_{ij} * M_{ij}) / \sum_i \sum_j M_{ij} = AC . \tag{1}$$

In the more general case where the condition in (1) is not met:

$$C_{ij} = AC * W_{ij} / \sum_i \sum_j (W_{ij} * M_{ij}) * \sum_i \sum_j M_{ij} . \tag{2}$$

Per definition:

$$Sub_{ij} = C_{ij} - C'_{ij} . \tag{3}$$

Per definition, after the application of Risk Equalisation, all members will have the same expected cost for the PMB conditions, net of any Risk Equalisation subsidy.

$$\therefore C'_{11} = C'_{12} = ... = C'_{nm} = \sum_i \sum_j C'_{ij} / \sum_i \sum_j M_{ij} \tag{4}$$

substituting (3) into (4) then gives:

$$C'_{ij} = AC - TS / \sum_i \sum_j M_{ij} \tag{5}$$

Substituting (2) and (5) into (3) and simplifying gives:

$$Sub_{ij} = \{AC * \sum_i \sum_j M_{ij} * [(W_{ij} / \sum_i \sum_j (W_{ij} * M_{ij})) * \sum_i \sum_j M_{ij} - 1] + TS\} / \sum_i \sum_j M_{ij}$$

Appendix P: Offers of Data to Test the Formula

The medical schemes, administrators and organisations in the table below offered data for the testing of the formula at a meeting on 28 July 2003. The offers represent some 67% of industry beneficiaries.

	Beneficiaries	
Medscheme	1,100,000	
Discovery	1,500,000	
MX Health	350,000	
Old Mutual Health	450,000	
Medihelp	250,000	
Sovereign Health	450,000	
MHG	600,000	
TOTAL	**4,700,000**	
Mediclinic	1,000,000	hospital admissions
Mediscor	800,000	CDL only
Igolide	75,000	HMO model

Those highlighted were able to test the formula or supply results to Team 3. The data used in the technical work of Team 3 thus represents 49% of the industry beneficiaries. Data from hospital admissions to Mediclinic was used to confirm aspects of the results.

Appendix Q: Risk Equalisation Model Steps

This document was prepared by Pieter Grobler and Helena Theron for the other members of Team 3 in July 2003.

1. Introduction

This document summarises the steps that should be followed to test the significance of certain risk factors for the risk equalisation formula as well as to test the impact of a formula on a specific scheme. If problems are experienced with the regression part, it will add value to the work of the Team to just do part 4.

2. Data preparation

2.1 Beneficiary File

- The data must be manipulated so that there is one record per unique beneficiary.
- Only members with exposure of at least one month in 2002 are stored in the final dataset.
- Use this set to create dichotomous demographic variables (age bands, gender, ethnicity etc.). A dichotomous variable has a value of 1 if it is true for a beneficiary, else it has a value of 0. For any given beneficiary, there will thus be 18 age variables with a value of 0 and one age variable with a value of 1.
- For each member, calculate the total 2002 exposure months, ranging from 1 month to 12 months.

2.2 Chronic disease data

- Extract data from the system that captures the chronic medicine authorizations in order to obtain a list of chronic diseases per member.
- These diseases include the CDL diseases as well as non-CDL diseases.
- Manipulate the dataset so that there is one record per beneficiary with a yes/no indicator per disease.
- Merge the disease data with the beneficiary data per beneficiary.
- The resultant set contains data of members with and without chronic diseases. For each disease a dichotomous variable is created where 1 indicates the presence of a disease and 0 the absence of a disease.

2.3 Hospital data

- Create a dataset that summarizes per hospital event, all costs related to that event.

- Link hospital pre-authorization data to this dataset to obtain ICD and or CPT codes applicable to the hospital event.
- Use the list of PMB ICD codes [or another defined crosswalk] to identify PMB hospital admissions.
- Calculate the total cost of PMB admissions per beneficiary and annualize through dividing by exposure months and multiplying by 12.
- Identify hospital events with obstetric deliveries (CPTs can be used).
- Merge this dataset with the dataset as created in 2.2. The resultant dataset will now have an annualized 2002 PMB cost per beneficiary added for beneficiaries where this cost is applicable. Beneficiaries with no PMB cost should have a value of 0.
- Create a dichotomous obstetric delivery indicator where 1 indicates that there was a hospital event where a delivery CPT was identified and 0 indicates that an obstetric delivery was not applicable.

2.4 NAPPI data

- Isolate all NAPPIs claimed by the beneficiaries with at least one CDL condition.
- Subset NAPPIs further by only using the Primary NAPPIs as defined in The Costing of the Proposed Chronic Disease List Benefits in South African Medical Schemes in 2001 (McLeod H et al. 2001).
- Determine compliance per disease. If a primary NAPPI that is applicable to a certain disease was claimed, but the beneficiary was not identified as having that disease then the NAPPI is excluded. Also, if a member is identified with a certain disease (through the authorization of chronic medicine) but never claimed a primary NAPPI for that disease, then it is assumed that the beneficiary does not really have the disease.
- Summarize the costs of all disease compliant primary NAPPIs per beneficiary. Use the tariff or “Blue Book amount since the paid amount may be influenced by limits and co-payments. This total 2002 CDL cost is annualized through dividing by exposure months and multiplying by 12.
- Merge the total CDL cost per beneficiary with the dataset as created in step 2.3.

3. Regression methodology

- Obtain statistical software that has the function of stepwise regression modelling.
- The regression methodology of the PMB and CDL models is similar. In the case of the PMB model (dataset resultant from 2.3) the dependent variable is the annualized PMB cost and in the case of the CDL model (dataset resultant from 2.4) it is the annualized CDL cost. Different sets of independent variables can be used to obtain different types of models that can be compared.
- Divide the dataset that is now in the format of one record per beneficiary randomly into two sets.

- Apply a stepwise regression on the first dataset with the significance level for entry and staying in the model equal to 0.01 (these probabilities can be changed depending on the significance levels required).
- Apply a stepwise regression on the second dataset using only independent variables significant from the model done on the first dataset.
- Apply regression on the total dataset using only independent variables significant from the model done on the second dataset. Specify that each record (beneficiary) be weighted by the 2002 exposure months of that beneficiary.
- Record the goodness of fit measures so that models can be compared.
- Determine the expected cost per beneficiary by applying the final regression model to the dataset. Observed to expected cost ratios per risk group can now be determined to further compare various models.
- Scale the regression parameters to obtain final model weights.

4. Testing the subsidy formula [directly]

- Summarise the data per age band and disease combination (taking deliveries as just another disease), with the beneficiary months as the variable.
- Calculate the expected cost per age band and disease combination, based on the formula (see formulae on pages 36 and 37 of the report by Grobler, Theron & Cooper (2003)).
- Calculate the subsidy per age band and disease combination from the following:
  - (i) expected cost per age band and disease combination (calculated above) divided by (/) the average number of beneficiaries for the period under review for that combination minus (this gives an expected cost per beneficiary per annum)
  - (ii) the average cost per beneficiary per annum of the benefit package being equalised (one can refer to the PMB costing reports by McLeod et al. for an indication).
  - (iii) Take the tax subsidy as 0 at this stage, as this is just a constant that is added. (This is a simplified version of the formula on page 38 of the Grobler et al report).
- The subsidy per age band and disease combination for the year is then: [(i) – (ii)] * the average number of beneficiaries for the period under review.
- Sum this over all age band and disease combinations to get the subsidy for the scheme for the year, assuming a tax subsidy of R0.

Note that Part 4 has been simplified for general industry use by the decision to publish the formula in the form of a contribution table.

Appendix R: REF Contribution Table

REF Contribution Table [Base 2002, Use 2004]											
Per Beneficiary Per Month							Industry REF Community Rate				R180.69
Age Bands	No CDL Diseases	CDL Conditions									
	NON	ADS	AST	BCE	BMD	CHF	CMY	COP	CRF	CSD	DBI
Column	1	2	3	4	5	6	7	8	9	10	11
Under 1	430.89	680.13	835.38	673.79	1,384.40	1,586.74	1,801.75	1,254.42	5,781.48	2,066.09	1,683.40
1-4	43.51	292.75	448.00	286.41	997.02	1,199.36	1,414.37	867.04	5,394.10	1,678.71	1,296.02
5-9	17.54	266.78	422.03	260.44	971.05	1,173.39	1,388.40	841.07	5,368.13	1,652.74	1,270.05
10-14	16.86	266.10	421.35	259.76	970.37	1,172.71	1,387.72	840.39	5,367.45	1,652.06	1,269.37
15-19	23.06	272.30	427.55	265.96	976.57	1,178.91	1,393.92	846.59	5,373.65	1,658.26	1,275.57
20-24	38.66	287.90	443.15	281.56	992.17	1,194.51	1,409.52	862.19	5,389.25	1,673.86	1,291.17
25-29	54.39	303.63	458.88	297.29	1,007.90	1,210.24	1,425.25	877.92	5,404.98	1,689.59	1,306.90
30-34	62.57	311.81	467.06	305.47	1,016.08	1,218.42	1,433.43	886.10	5,413.16	1,697.77	1,315.08
35-39	74.19	323.43	478.68	317.09	1,027.70	1,230.04	1,445.05	897.72	5,424.78	1,709.39	1,326.70
40-44	81.42	330.66	485.91	324.32	1,034.93	1,237.27	1,452.28	904.95	5,432.01	1,716.62	1,333.93
45-49	96.33	345.57	500.82	339.23	1,049.84	1,252.18	1,467.19	919.86	5,446.92	1,731.53	1,348.84
50-54	123.42	372.66	527.91	366.32	1,076.93	1,279.27	1,494.28	946.95	5,474.01	1,758.62	1,375.93
55-59	156.82	406.06	561.31	399.72	1,110.33	1,312.67	1,527.68	980.35	5,507.41	1,792.02	1,409.33
60-64	244.29	493.53	648.78	487.19	1,197.80	1,400.14	1,615.15	1,067.82	5,594.88	1,879.49	1,496.80
65-69	309.80	559.04	714.29	552.70	1,263.31	1,465.65	1,680.66	1,133.33	5,660.39	1,945.00	1,562.31
70-74	388.61	637.85	793.10	631.51	1,342.12	1,544.46	1,759.47	1,212.14	5,739.20	2,023.81	1,641.12
75-79	410.84	660.08	815.33	653.74	1,364.35	1,566.69	1,781.70	1,234.37	5,761.43	2,046.04	1,663.35
80-84	416.25	665.49	820.74	659.15	1,369.76	1,572.10	1,787.11	1,239.78	5,766.84	2,051.45	1,668.76
85+	356.98	606.22	761.47	599.88	1,310.49	1,512.83	1,727.84	1,180.51	5,707.57	1,992.18	1,609.49

Age Bands	CDL Conditions (continued)										
	DM1	DM2	DYS	EPL	GLC	HAE	HYL	HYP	IBD	IHD	MSS
Column	12	13	14	15	16	17	18	19	20	21	22
Under 1	1,412.08	670.09	893.21	1,263.61	635.98	10,449.66	790.34	713.00	1,371.60	1,291.84	1,669.19
1-4	1,024.70	282.71	505.83	876.23	248.60	10,062.28	402.96	325.62	984.22	904.46	1,281.81
5-9	998.73	256.74	479.86	850.26	222.63	10,036.31	376.99	299.65	958.25	878.49	1,255.84
10-14	998.05	256.06	479.18	849.58	221.95	10,035.63	376.31	298.97	957.57	877.81	1,255.16
15-19	1,004.25	262.26	485.38	855.78	228.15	10,041.83	382.51	305.17	963.77	884.01	1,261.36
20-24	1,019.85	277.86	500.98	871.38	243.75	10,057.43	398.11	320.77	979.37	899.61	1,276.96
25-29	1,035.58	293.59	516.71	887.11	259.48	10,073.16	413.84	336.50	995.10	915.34	1,292.69
30-34	1,043.76	301.77	524.89	895.29	267.66	10,081.34	422.02	344.68	1,003.28	923.52	1,300.87
35-39	1,055.38	313.39	536.51	906.91	279.28	10,092.96	433.64	356.30	1,014.90	935.14	1,312.49
40-44	1,062.61	320.62	543.74	914.14	286.51	10,100.19	440.87	363.53	1,022.13	942.37	1,319.72
45-49	1,077.52	335.53	558.65	929.05	301.42	10,115.10	455.78	378.44	1,037.04	957.28	1,334.63
50-54	1,104.61	362.62	585.74	956.14	328.51	10,142.19	482.87	405.53	1,064.13	984.37	1,361.72
55-59	1,138.01	396.02	619.14	989.54	361.91	10,175.59	516.27	438.93	1,097.53	1,017.77	1,395.12
60-64	1,225.48	483.49	706.61	1,077.01	449.38	10,263.06	603.74	526.40	1,185.00	1,105.24	1,482.59
65-69	1,290.99	549.00	772.12	1,142.52	514.89	10,328.57	669.25	591.91	1,250.51	1,170.75	1,548.10
70-74	1,369.80	627.81	850.93	1,221.33	593.70	10,407.38	748.06	670.72	1,329.32	1,249.56	1,626.91
75-79	1,392.03	650.04	873.16	1,243.56	615.93	10,429.61	770.29	692.95	1,351.55	1,271.79	1,649.14
80-84	1,397.44	655.45	878.57	1,248.97	621.34	10,435.02	775.70	698.36	1,356.96	1,277.20	1,654.55
85+	1,338.17	596.18	819.30	1,189.70	562.07	10,375.75	716.43	639.09	1,297.69	1,217.93	1,595.28

Age Bands	CDL Conditions (continued)					HIV/AIDS	Modifiers	Additions to amounts from Columns 1 to 28			
								Maternity	Number of chronic conditions		
									2	3	4 or more
	PAR	RHA	SCZ	SLE	TDH	HIV		MAT	CC2	CC3	CC4
Column	23	24	25	26	27	28		29	30	31	32
Under 1	1,256.53	737.50	1,190.20	682.26	480.71	1,902.51		1,398.84	367.30	800.97	1,496.09
1-4	869.15	350.12	802.82	294.88	93.33	1,515.13		1,398.84	367.30	800.97	1,496.09
5-9	843.18	324.15	776.85	268.91	67.36	1,489.16		1,398.84	367.30	800.97	1,496.09
10-14	842.50	323.47	776.17	268.23	66.68	1,488.48		1,398.84	367.30	800.97	1,496.09
15-19	848.70	329.67	782.37	274.43	72.88	1,494.68		1,398.84	367.30	800.97	1,496.09
20-24	864.30	345.27	797.97	290.03	88.48	1,510.28		1,398.84	367.30	800.97	1,496.09
25-29	880.03	361.00	813.70	305.76	104.21	1,526.01		1,398.84	367.30	800.97	1,496.09
30-34	888.21	369.18	821.88	313.94	112.39	1,534.19		1,398.84	367.30	800.97	1,496.09
35-39	899.83	380.80	833.50	325.56	124.01	1,545.81		1,398.84	367.30	800.97	1,496.09
40-44	907.06	388.03	840.73	332.79	131.24	1,553.04		1,398.84	367.30	800.97	1,496.09
45-49	921.97	402.94	855.64	347.70	146.15	1,567.95		1,398.84	367.30	800.97	1,496.09
50-54	949.06	430.03	882.73	374.79	173.24	1,595.04		1,398.84	367.30	800.97	1,496.09
55-59	982.46	463.43	916.13	408.19	206.64	1,628.44		1,398.84	367.30	800.97	1,496.09
60-64	1,069.93	550.90	1,003.60	495.66	294.11	1,715.91		1,398.84	367.30	800.97	1,496.09
65-69	1,135.44	616.41	1,069.11	561.17	359.62	1,781.42		1,398.84	367.30	800.97	1,496.09
70-74	1,214.25	695.22	1,147.92	639.98	438.43	1,860.23		1,398.84	367.30	800.97	1,496.09
75-79	1,236.48	717.45	1,170.15	662.21	460.66	1,882.46		1,398.84	367.30	800.97	1,496.09
80-84	1,241.89	722.86	1,175.56	667.62	466.07	1,887.87		1,398.84	367.30	800.97	1,496.09
85+	1,182.62	663.59	1,116.29	608.35	406.80	1,828.60		1,398.84	367.30	800.97	1,496.09

Diseases/Conditions	
Code	**Explanation**
NON	No CDL disease
ADS	Addison's Disease
AST	Asthma
BCE	Bronchiectasis
BMD	Bipolar Mood Disorder
CHF	Cardiac failure
CMY	Cardiomyopathy
COP	Chronic Obs. Pulmonary Disease
CRF	Chronic Renal Disease
CSD	Crohn's Disease
DBI	Diabetes Insipidus
DM1	Diabetes Mellitus 1
DM2	Diabetes Mellitus 2
DYS	Dysrhythmias
EPL	Epilepsy
GLC	Glaucoma
HAE	Haemophilia
HYL	Hyperlipidaemia
HYP	Hypertension
IBD	Ulcerative Colitis
IHD	Coronary Artery Disease
MSS	Multiple Sclerosis
PAR	Parkinson's Disease
RHA	Rheumatoid Arthritis
SCZ	Schizophrenia
SLE	Systemic LE
TDH	Hypothyroidism
HIV	HIV/AIDS
MAT	Caesarean / NVD in period
CC2	Two simultanoeus conditions
CC3	Three simultanoeus conditions
CC4	Four or more simultaneous conditions

Appendix S: Chronic Disease List Conditions

Extract from Government Notice No. R. 1360, Amendment to the General Regulations made in terms of the Medical Schemes Act, 1998 (Act 131 of 1998). Published in the Government Gazette Volume 449, No. 24007, Regulation Gazette No. 7496, 4 November 2002. As amended by Government Notice No. R. 1397 of 6 October 2003.

The CDL list consists of the following diagnoses:

Addison's Disease
Asthma
Bipolar Mood Disorder
Bronchiectasis
Cardiac Failure
Cardiomyopathy
Chronic Obstructive Pulmonary Disease
Chronic Renal Disease
Coronary Artery Disease
Crohn's Disease
Diabetes Insipidus
Diabetes Mellitus Type 1 and 2
Dysrhythmias
Epilepsy
Glaucoma
Haemophilia
Hyperlipidaemia
Hypertension
Hypothyroidism
Multiple Sclerosis
Parkinson's Disease
Rheumatoid Arthritis
Schizophrenia
Systemic Lupus Erythematosus
Ulcerative Colitis

Appendix T: Sample REF Grid for Data Submission

REF Grid for data submission							Scheme name				
Total number of beneficiariy months in the cell for the period							Scheme number			Period	
Age Bands	No CDL Diseases	CDL Conditions									
	NON	ADS	AST	BCE	BMD	CHF	CMY	COP	CRF	CSD	DBI
Column	1	2	3	4	5	6	7	8	9	10	11
Under 1											
1-4											
5-9											
10-14											
15-19											
20-24											
25-29											
30-34											
35-39											
40-44											
45-49											
50-54											
55-59											
60-64											
65-69											
70-74											
75-79											
80-84											
85+											
Total by Condition											

Age Bands	CDL Conditions (continued)										
	DM1	DM2	DYS	EPL	GLC	HAE	HYL	HYP	IBD	IHD	MSS
Column	12	13	14	15	16	17	18	19	20	21	22
Under 1											
1-4											
5-9											
10-14											
15-19											
20-24											
25-29											
30-34											
35-39											
40-44											
45-49											
50-54											
55-59											
60-64											
65-69											
70-74											
75-79											
80-84											
85+											
Total by Condition											

Age Bands	CDL Conditions (continued)					HIV/AIDS	Total by Age Band	Maternity	Number of chronic conditions		
									2	3	4 or more
	PAR	RHA	SCZ	SLE	TDH	HIV		MAT	CC2	CC3	CC4
Column	23	24	25	26	27	28		29	30	31	32
Under 1											
1-4											
5-9											
10-14											
15-19											
20-24											
25-29											
30-34											
35-39											
40-44											
45-49											
50-54											
55-59											
60-64											
65-69											
70-74											
75-79											
80-84											
85+											
Total by Condition							**				

** must sum to total exposed beneficiaries in the scheme for the period

Diseases/Conditions	
Code	**Explanation**
NON	No CDL disease
ADS	Addison's Disease
AST	Asthma
BCE	Bronchiectasis
BMD	Bipolar Mood Disorder
CHF	Cardiac failure
CMY	Cardiomyopathy
COP	Chronic Obs. Pulmonary Disease
CRF	Chronic Renal Disease
CSD	Crohn's Disease
DBI	Diabetes Insipidus
DM1	Diabetes Mellitus 1
DM2	Diabetes Mellitus 2
DYS	Dysrhythmias
EPL	Epilepsy
GLC	Glaucoma
HAE	Haemophilia
HYL	Hyperlipidaemia
HYP	Hypertension
IBD	Ulcerative Colitis
IHD	Coronary Artery Disease
MSS	Multiple Sclerosis
PAR	Parkinson's Disease
RHA	Rheumatoid Arthritis
SCZ	Schizophrenia
SLE	Systemic LE
TDH	Hypothyroidism
HIV	HIV/AIDS
MAT	Caesarean / NVD in period
CC2	Two simultanoeus conditions
CC3	Three simultanoeus conditions
CC4	Four or more simultaneous conditions

Appendix U: Examples of Chronic Disease Definitions / Entry Criteria

Diabetes Mellitus

In both symptomatic and asymptomatic patients the diagnosis is based on the following plasma venous blood values:

- Random blood glucose > 11.1 mmol/l
- Fasting blood glucose > 7.0 mmol/l

A single finding is inadequate for diagnosis. The abnormal value must be confirmed at least twice before diabetes is diagnosed.

If the results are equivocal, a glucose tolerance test (GTT) is required. The following guidelines apply to the GTT:

- Adults, ingest 75g oral glucose (in 250-300ml of water over 5 minutes) after an overnight fast (10 hours)
- For children, use 1,75g of glucose per kg body weight up to total of 75g
- Confirm diagnosis if:
  - Fasting blood glucose > 7.0 mmol/l and/or
  - 2 hours post prandial glucose load > 11.1 mmol/l

Source: WHO

Hypertension

The definition/entry criteria and classification of hypertension in adults (i.e. >18 years) who are not taking antihypertensive medication are summarised in the following table:

Classification	Systolic Bp Mm Hg		Diastolic Bp Mm Hg
Normal	<120	and	<80
High-normal	120-139	and/or	85-89
Stage I (mild)	140-159	and/or	90-99
Stage II (moderate)	160-179	and/or	100-109
Stage III (severe)	>180	and/or	>110

The classification is based on the average of 2 or more properly measured, seated BP readings on each of 2 or more office visits.

When a patient's systolic and diastolic blood pressures fall into different categories, the higher category should apply.

Sources: Joint National Committee on Prevention, Detection, Evaluation and Treatment of High Blood Pressure (USA) and the Southern African Hypertension Society recommendations.

Appendix V: Definition of Data for REF Grid

Important Note: This Appendix is not complete. Further input from Team 2 is awaited before Team 4 can complete this task.

Data is to be collected monthly, for quarterly submission in the REF Grid (see Appendix T).

1. **Age**

   Age last birthday as at 01 January of the calendar year of the period of reporting. A beneficiary is to be counted as 1 for the month if he/she was a beneficiary for any period during that month.

   Age bands are to be interpreted as follows:
   "20 to 24" means greater than or equal to age 20 and less than age 25.
   "25 to 29" means greater than or equal to age 25 and less than age 30, etc.

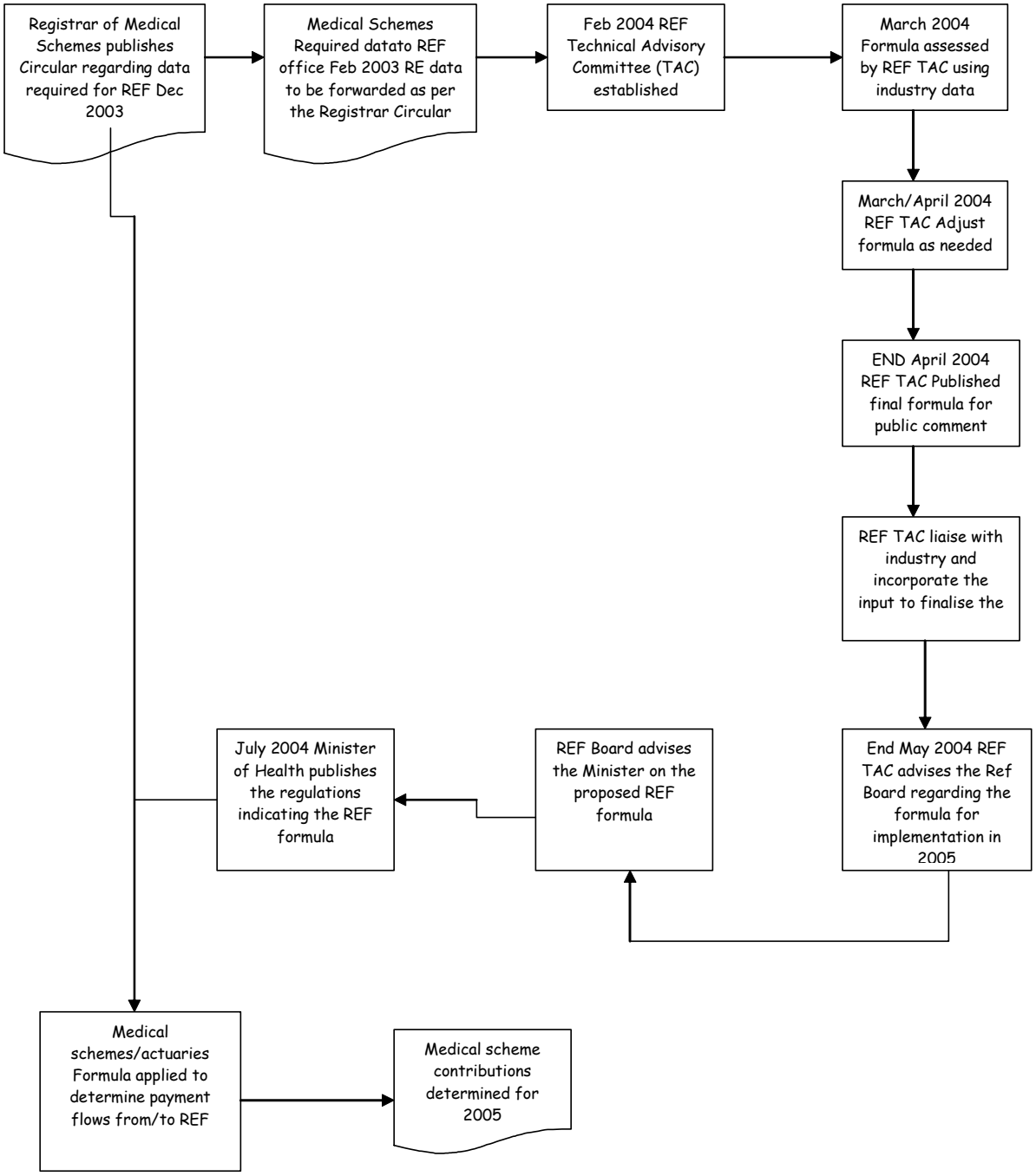
2. **Maternity/ Delivery**

   [to be completed]

3. **Chronic disease**

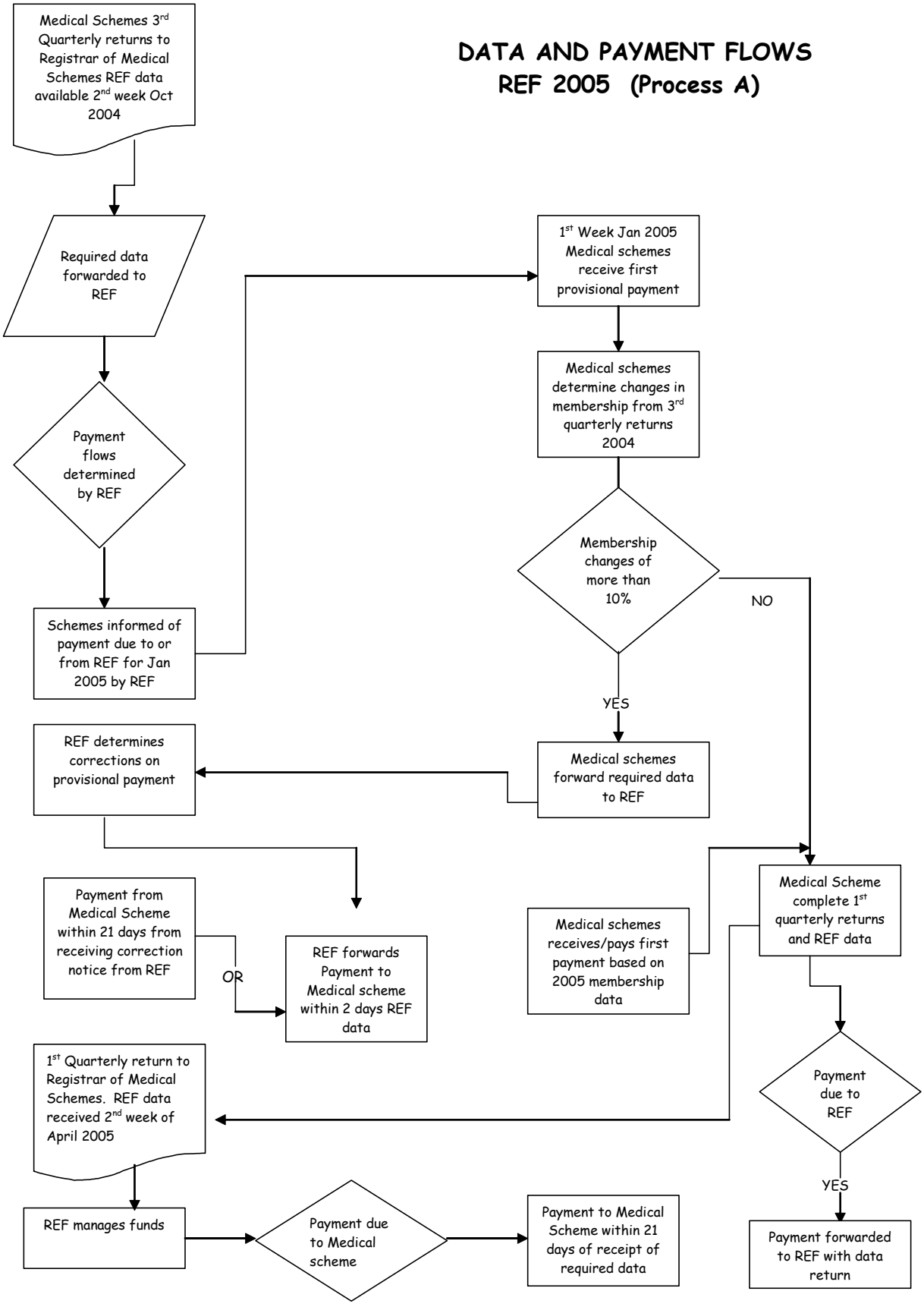
   [to be completed]

Appendix W: Initial Data Flow



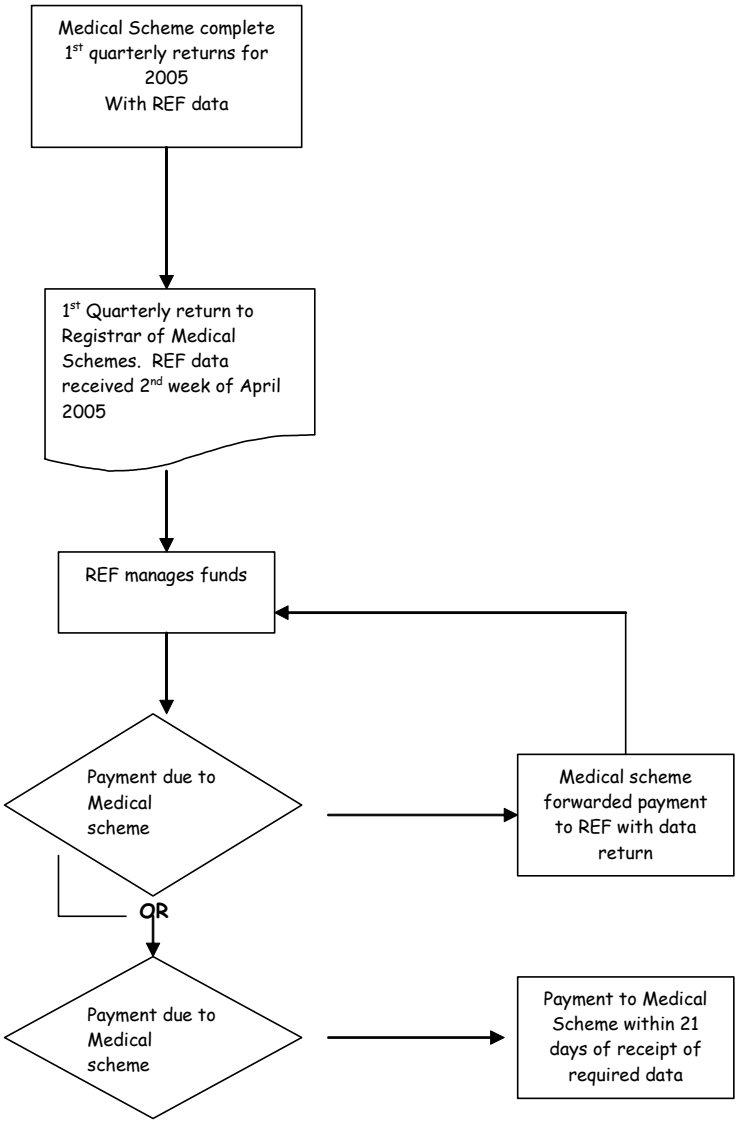
Risk Equalisation Data Flow 2004

Appendix X: Data and Payment Flows Process A



Appendix Y: Data and Payment Flows Process B

DATA AND PAYMENT FLOWS
REF 2005 (Process B)



The process repeats with every quarterly return to the office of the REF

Appendix Z: Arguments and Conditions for Opting Out of the REF

This document was prepared by George Marx for Team 5.

Possible arguments for opting out of the Risk Equalisation Fund:

(a) A scheme may consider that it is unfair if its members who are relatively young and healthy, are required to pay for other schemes' older and less healthy profiles if there is no guarantee that the contributions that it pays to the REF will be reserved to pay for its own members when they are old or suffer from ill-health.

(b) A scheme may consider that its members are contributing to the REF for benefits that those members are most unlikely to ever utilise. An example would be a scheme whose members show little or no prevalence of HIV / AIDS.

(c) A scheme may consider that it can provide the benefits significantly cheaper than what it is required to contribute to the REF.

(d) A scheme may believe, or even demonstrate, that it provides more effective primary care to its members so that those members utilise far less benefits than provided for by the REF; consequently it needs to contribute for benefits that its members do not utilise to the same extent as those of the general medical scheme industry's membership.

(e) A scheme may have followed a long-term funding strategy in terms of which its reserves have been created to subsidise those members' contributions when they are in old age. If this scheme's membership profile is such that it needs to contribute to the REF, the long-term funding strategy may be compromised and members may feel that they have contributed more in the past to subsidise their own contributions in future but now have to contribute to the REF for other scheme's members who have not been pro-active in adopting a long-term funding strategy.

(f) Schemes who have built up more reserves than required for the statutory solvency margin for whatever reason, may consider that these reserves could become threatened following the introduction of the REF. If the REF Act can equalise contributions, sceptics may argue that it might be expected that only a small legislative step would be needed to also equalise reserves.

(g) A scheme may feel that the REF creates an open-ended liability for future contribution increases to pay for future high cost healthcare (in terms of frequency, severity or both) needed by the population at large which the members of this scheme are not likely to utilise to the same extent and therefore that the REF creates an open-ended type of tax liability on this and other schemes. They may therefore object to being part of the REF for reasons of lack of fiscal discipline that may be created through the REF.

(h) The introduction of the REF, especially once it is combined with mandatory membership of all formally employed persons and if benefits become more and more extended, comprises formal social health insurance. Such a situation is not much different to social or national health insurance systems in other countries, such as Britain's NHS. The difference in the SA situation is merely that the SHI is administered by a (large) number of medical schemes that compete on price and quality, which is obviously desirable. However, there is reason to believe that the price competition will eventually lead to compromises on quality in certain respects such as queues, rationing, less effective treatment or whatever. No social system anywhere in the world has escaped these tendencies. Such circumstances beg for a situation where those who can afford it could either opt out of the system or buy additional types of cover (even if its only for an opportunity to "jump the queue").

The conditions under which a scheme might be allowed to opt out of the Risk Equalisation Fund might be:

i. The scheme must provide at least the prescribed minimum benefits.
ii. The scheme must be funded on a long-term basis, i.e. contributions set on a level whole-of-life basis, so that reserves are built up.
iii. Actuarial certification of the scheme's long-term financial soundness is mandatory. Strict requirements will be set in terms of reserves, both for purposes of long-term funding and for solvency protection. Should the scheme become under financial strain, the scheme will be wound up and the reserves transferred to the REF. Should a member resign from such a scheme, that member's reserves must either be transferred together with membership to another REF exempted scheme, otherwise to the REF.
iv. The scheme may risk underwrite, but only upon initial application. Once a member becomes a member, that member and his current and future child dependants, are guaranteed whole of life (or until child dependants attain independence) cover as long as his/her contributions are paid.