



H e a l t h M a r k e t I n q u i r y

Promoting Healthy Competition

Report on analysis of medical schemes claims data – descriptive statistics

21 November 2016

CONTENTS

TABLES iii

FIGURES iv

ABBREVIATIONS v

INTRODUCTION 6

 Approach to understanding health care expenditure 7

DATA 8

 Data requested 8

 Approach to confidentiality 10

 Data received 10

 Data Quality 11

 Data quality checks 11

 Building of Analysis Datasets 12

 Results of Quality Checks and Final Dataset 12

 Membership Numbers Reasonability Checks 14

 Claim Amounts Reasonability Checks 16

 Summary of Reasonability Checks 18

 Final data set used for analysis 19

METHODOLOGY 20

 Beneficiary File 20

 Demographic Indicators 20

 Claims Utilisation Indicators 21

 Summary Claims Information 22

 Admissions File 23

 Patient Information 23

 Medical Practitioner Information 23

 Facility Information 24

 Admission Information 24

 Claim Information 25

 Additional Methodological Considerations for Descriptive Statistics 25

INDUSTRY TRENDS AND STATISTICS 27

Report 1 Claims data analysis – descriptive statistics

Demographic Trends27

Overall Claims Trends29

Out-of-hospital Costs30

In-hospital costs35

Appendix A – Member data comparison.....40

Appendix B: Claims Data Comparison42

TABLES

Table 1 Medical Schemes that provided no data to the HMI	11
Table 2 Medical schemes with incomplete submissions	13
Table 3 Medical schemes submitting data with material mismatches	14
Table 4 Demographic trends – all schemes	27
Table 5 Demographic trends - open schemes	28
Table 6 Demographic trends – restricted schemes	28
Table 7 Overall cost trends – all schemes	29
Table 8 Overall cost trends – open schemes	29
Table 9 Overall cost trends – restricted schemes	30
Table 10 Out-of-hospital cost trends – all schemes	30
Table 11 Out-of-hospital costs trends – open schemes	31
Table 12 Out-of-hospital cost trends – restricted schemes	31
Table 13 Out-of-hospital claims trends 2010-2014	33
Table 14 Out-of-hospital claims trends 2010-2014	34
Table 15 In-hospital cost trends – all schemes	35
Table 16 In-hospital cost trends – open schemes	36
Table 17 In-hospital cost trends – restricted schemes	36
Table 18 Top ten admitting disciplines 2010-2014	38
Table 19 Admitting diagnosis 2010-2014	38
Table 20 Top ten procedure claims 2010-2014	39

FIGURES

Figure 1 Scheme data requested, supplied, and excluded resulting in final dataset	19
Figure 2 Out-of-hospital claims split by type of service for 2014	32
Figure 3 Admissions per 1000 lives – all schemes 2010-2014	36
Figure 4 Overnight admissions claims split 2014	37

ABBREVIATIONS

BHF	Board of Health Care Funders
CMS	Council for Medical Schemes
Discovery Health	Discovery Health Pty Ltd
HMI	Health Market Inquiry
ICD10	International Classification of Diseases version 10
NAPPI	National Pharmaceutical Product Interface – a unique identifier owned by MediKredit, for all pharmaceutical, surgical and healthcare consumable products in RSA to enable electronic transfer of information throughout the healthcare delivery chain. https://www.medikredit.co.za/index.php?option=com_content&view=article&id=21&Itemid=31)
RSA	Republic of South Africa
WTW	Willis Towers Watson

INTRODUCTION

1. The Competition Commission's Health Market Inquiry (HMI) is an inquiry into the state, nature and form of competition within the South African private healthcare sector. The HMI was initiated as there was reason to believe that there are features of the private healthcare sector that prevent, distort or restrict competition, and in order to achieve the purposes of the Competition Act¹. The Statement of Issues, published on 1 August 2014, identified a number of potential sources of harm to competition in the South African healthcare sector. Subsequently, the HMI published a Revised Statement of Issues on 11 February 2016, which further elaborates on the HMI's areas of focus. The HMI seeks to assess whether, and (if so) to what extent, these potential sources of harm exist. The HMI will then make recommendations on how competition within the private healthcare sector can be promoted.
2. To allow the HMI to understand expenditure various data were requested from industry stakeholders.
3. The HMI, through an open tender, appointed Willis Towers Watson (WTW) to assist with the storage, warehousing and analysis of part of the data collected.
4. This report specifically deals with medical scheme claims data from the period 2010 – 2014 submitted by medical schemes and/or their administrators.
5. The HMI is releasing these data to present and test our analyses and findings before drawing conclusions. In order to make the information digestible the HMI will be releasing a series of reports based on the claims data.
6. This is the first of a set of reports and is a descriptive analysis of the data received. Further reports will use the available data to describe how various factors influence costs and change in costs over time (the attribution analyses), describing the impact of prescribed minimum benefits, billing practises and other related analyses. These reports are put out for information and comments are welcome.
7. This report is based on work done for the HMI by WTW.

¹ Section 43B(1)(i) and (ii) of the Competition Act 98 of 1998. See also Section 1 of the HMI Terms of Reference.

Approach to understanding health care expenditure

8. One of the objectives of the HMI is to analyse the drivers of expenditure in the private healthcare industry. The data held by medical schemes provides the best basis to form as holistic a view as possible of expenditure in the private sector, and hence is the primary source of data for many of the expenditure analyses undertaken by HMI.
9. These data do not report out-of-pocket spending where an individual pays a provider directly and does not submit this to their medical aid for reimbursement or is not a member of a medical aid.
10. The analyses presented in this, and subsequent reports in this series, are based on the detailed claims and membership data submitted either by the medical schemes directly or by the medical scheme administrators on behalf of the scheme. This has been supplemented with other data sources such as the practice numbering system files submitted by the Board of Healthcare Funders (BHF) and data provided by the hospitals, where necessary.

DATA

Data requested

11. The HMI send an information request to registered medical schemes in March 2015 requesting one year of data. One aim was to assess the structure of the medical schemes claims data and ascertain what was routinely available in order to inform our approach to gathering, storing and analysing these data.
12. A further call for claims data was made in October 2015. The HMI requested all claims submitted to medical schemes for treatments that occurred over the five-year period from 2010 to 2014. The expectation was that all claims would have been submitted by members to their medical schemes by October 2015 so that the HMI would have complete data for all requested years.
13. Stakeholders were requested to submit data in four files and seven tables:
14. File one containing:
 - 14.1. All of the healthcare providers with respect to whom claims had been submitted;
 - 14.2. Information on the provider geographic location; and
 - 14.3. The network contracts that the provider had agreed with the medical scheme.
15. File two containing:
 - 15.1. A list of all claim lines submitted to the medical scheme for the treatment period;
 - 15.2. The service dates upon which the claims were incurred;
 - 15.3. The values of the claims submitted by the service providers in Rand;
 - 15.4. The values of benefits paid by the medical schemes in Rand paid from members' risk/pooled benefit;
 - 15.5. The values of benefits paid by medical schemes in Rand from members' personal savings accounts;
 - 15.6. Information on the diagnoses codes (ICD10) pertaining to each claim;
 - 15.7. Information on the service/procedure codes (tariff codes and NAPPI codes) pertaining to each claim;

Report 1 Claims data analysis – descriptive statistics

- 15.8. Information on the codes used to determine how each claim was classified for payment against the medical scheme rules (rule code);
 - 15.9. Flags to indicate the benefit category from which each claim was paid, for example an in-hospital claim versus a prescribed minimum benefit (PMB); and
 - 15.10. Links to the provider, member and beneficiary files.
16. File three containing:
- 16.1. A list of all medical scheme beneficiaries who were entitled to submit a claim for treatment over the treatment period;
 - 16.2. The gender of each beneficiary;
 - 16.3. The date of birth of each beneficiary;
 - 16.4. The medical scheme service history for each beneficiary; and
 - 16.5. Links to the member file and the table containing RSA identity numbers.
17. File four containing:
- 17.1. A list of all medical scheme main members who were entitled to submit a claim for treatment over the treatment period;
 - 17.2. A history of medical scheme main members' income;
 - 17.3. A history of and medical scheme plan options; and
 - 17.4. Links to the medical scheme main members' address history table.
18. The following tables were requested:
- 18.1. A scheme table to provide descriptions of the various medical schemes in the dataset and the associated benefit options for each of the years covered;
 - 18.2. Rule code table to provide descriptions of the various rule codes applied during the assessment of claims;
 - 18.3. In-house code table to provide descriptions of the in-house codes used by the administrator to pay claims where the standard tariff code tables were supplemented;
 - 18.4. Details of RSA identity number table;

Report 1 Claims data analysis – descriptive statistics

- 18.5. Family number table to provide details of the numbers used by the administrator to identify different families on each scheme;
- 18.6. Date of birth table; and
- 18.7. The address history of the member/beneficiary.

Approach to confidentiality

19. Confidential data is protected in accordance with the Competition Act. Date of birth, identity numbers and address data contain personal information that is protected. To protect information submitted and ensure anonymity the HMI published a “De-identification of personal data” document on the 1st of June 2016 and a related “Health Market Inquiry Standard Operating Procedure for Data De-identification” published on the 6th of November 2015. The de-identification of data was performed by the HMI. Subsequent to de-identification data could be linked appropriately but it was not possible to know the individual to whom the data referred. Thus all data, from then on, was anonymised. It is these anonymised data that was used for the analytical work. It was possible for any individual to be defined, for example, as a male with asthma who saw a particular doctor and was admitted to a particular hospital but not to know who that individual is or where they live beyond a reference to the Statistics South Africa enumerator area they live in.

Data received

- 20. In 2014 the CMS listed 91 registered medical schemes and noted that during the year 8 deregistered leaving 83 schemes still registered at the end of 2014. The requests outlined above were sent to these 83 registered medical schemes. Additional data was submitted for 10 schemes that were not approached but for whom data was available at some period between 2010-2014.
- 21. We received no data from three schemes listed in table 1.

Table 1 Medical Schemes that provided no data to the HMI

Scheme	Administrator
Community Medical Aid Scheme (COMMED)	Allcare Administrators (Pty) Ltd
Genesis Medical Scheme	Self-Administered
Makoti Medical Scheme	Universal Healthcare Administrators (Pty) Ltd

Data Quality

22. There is no industry standard data specification in the South African medical schemes industry. There has also been a proliferation of different administration systems in the South African medical schemes industry and changes in data management systems within one scheme over time. While formal specifications were sent to all stakeholders, nonetheless data was received in various non-comparable formats. This required a series of to-and-froes between the HMI and stakeholders to ensure clarity and data fidelity.
23. The variability of the data format and administrative systems used by schemes required unique cleaning algorithms to be developed to cater for each submitter.
24. As standard conventions do not exist regarding how practice numbers, tariff, NAPPI and ICD10 codes should be captured, stored and/or provided, data manipulation to make these comparable was required.
25. The HMI had to request some schemes to re-submit data.
26. This process was time consuming and the HMI had to balance having a complete data set against time limitations. After careful assessment of the additional benefit that would have been obtained if further efforts had been made to obtain additional correct and/or useable data, the HMI decided on a cut-off point (31 July 2016) after which data would no longer be processed.

Data quality checks

27. Following best practise, a number of checks on the quality and completeness of the data were performed before data were ready for analysis.
28. Quality assessment involved two broad steps:

Report 1 Claims data analysis – descriptive statistics

- 28.1. Checking that the data is consistent with itself i.e. that all years are submitted in the same format and that formats and other data characteristics are consistent across the dataset. For the medical scheme data this also involved making sure that the claims data could be matched to the membership data when the data were combined. This process was carried out in the data warehouse and has no formal outputs.
 - 28.2. Another level of quality control is to assess if data received is consistent with an external data source, if such exists.
29. For this exercise, the CMS data were used as CMS data are audited data that schemes are required by law to provide to the CMS. This allowed us to assess if the HMI data were the same as those data that the schemes themselves have verified as true and correct in the CMS submissions. Each year's total membership and claims data were checked against the applicable CMS annual report which contains financial details for all registered schemes.

Building of Analysis Datasets

30. The datasets extracted from the data warehouse and provided to the analysis team are large and cumbersome to work with on a routine basis. For this reason summarised analysis datasets were built to enable analysis at a high level of detail without returning to the raw data every time a new analysis is commissioned. These datasets form the basis for the quantitative claims analyses undertaken by the HMI, and are structured as follows:
- 30.1. The 'Beneficiary' dataset contains demographic information for every registered beneficiary in each of the years analysed, as well as several beneficiary characteristics and some summarised claims information;
 - 30.2. The 'Admissions' dataset contains details of each hospital admission in each year, including details of treating practitioners, treating facilities, diagnostic and procedure information as well as demographic information about the patient; and
 - 30.3. The 'Disciplines' dataset contains summarised cost trends by various cost categories, which are used to produce the summarised claims statistics contained in this report.

Results of Quality Checks and Final Dataset

Report 1 Claims data analysis – descriptive statistics

31. Nine schemes in table 2 were incomplete in the various aspects explained in the table.

Table 2 Medical schemes with incomplete submissions

Scheme	Administrator	Notes
Alliance Midmed Medical Scheme	Private Health Administrators (Pty) Ltd	Address, Date of Birth, Family No and RSAID tables missing
Building & Construction Industry Medical Aid Fund	Universal Healthcare Administrators (Pty) Ltd	Claims file missing medicine information
Compicare Wellness Medical Scheme	Universal Healthcare Administrators (Pty) Ltd	Claims file missing medicine information
Grintek Electronics Medical Aid Scheme	Universal Healthcare Administrators (Pty) Ltd	Claims file missing medicine information
Massmart Health Plan	Universal Healthcare Administrators (Pty) Ltd	Claims file missing medicine information
Medimed Medical Scheme	Providence Healthcare Risk Managers (Pty) Ltd	No membership listings provided
Platinum Health	Self-Administered	No membership listings provided
Tiger Brands Medical Scheme	Universal Healthcare Administrators (Pty) Ltd	Claims file missing medicine information
Topmed Medical Scheme	Private Health Administrators (Pty) Ltd	Address, Date of Birth, Family No and RSAID tables missing

32. As outlined above, the data cleaning process required either clarifications or re-submissions from a number of schemes, the majority of which were received prior to the cut-off point for inclusion in the final dataset. However, a few schemes did not provide re-submitted data in time and were excluded from the final analysis dataset. They are listed in table 3.

Table 3 Medical schemes submitting data with material mismatches

Scheme	Administrator	Notes
Sizwe Medical Fund	Sechaba Medical Solutions (Pty) Ltd	No link between membership and claims files
Hosmed Medical Scheme	Thebe Ya Bophelo Healthcare Administrators (Pty) Ltd	No link between membership and claims files
Sisonke Health Medical Scheme	Providence Healthcare Risk Managers (Pty) Ltd	Significant unmatched claims, some beneficiaries not assigned to policy
Suremed Health	Providence Healthcare Risk Managers (Pty) Ltd	Significant unmatched claims, some beneficiaries not assigned to policy
Rhodes University Medical Scheme	Providence Healthcare Risk Managers (Pty) Ltd	No policy file, significant unmatched claims

33. The excluded data constitutes 491 581 beneficiaries. The HMI has data covering 8 294 452 beneficiaries, constituting 94.41% of the 2014 medical scheme population of South Africa, at its disposal for analysis. It is more than reasonable to assume that this excluded data will have negligible material impact on the results presented in this and subsequent related reports. (See figure 1.)

Membership Numbers Reasonability Checks

34. In order to assess the completeness of the membership files supplied by the stakeholders, the total exposed beneficiaries calculated for each submitting scheme from the data provided was compared to the total figures provided in the CMS annual reports for the periods covered. The detailed results are contained in Appendix A, and show the calculated membership per scheme per year divided by the membership reported in the CMS report (100% would indicate an exact match, less than 100 suggests that more data was submitted to the CMS than to the HMI and more than 100 indicates that more (maybe duplicate data) were submitted to the HMI compared to that submitted to the CMS. The general findings from the comparison were as follows:

34.1. In the majority of cases, the figures were very close, allowing for the fact that backdated membership changes can occur and for the inherent volatility of membership databases;

Report 1 Claims data analysis – descriptive statistics

- 34.2. However, certain specific issues were identified as follows:
- 34.2.1. Afrisam Medical Scheme amalgamated with Discovery Health Medical Scheme on 1 June 2010 and hence the data is incomplete for 2010 and no data exists after 2010 (even though the scheme no longer operates, the data has been kept by Discovery Health (Pty) Ltd (Discovery Health) and was provided to the HMI);
 - 34.2.2. Altron Medical Scheme amalgamated with Discovery Health Medical Scheme on 1 January 2014 and hence no data exists after 2013 (again, even though the scheme no longer operates, the data has been kept by Discovery Health and was provided to the HMI);
 - 34.2.3. Anglo Medical Scheme changed administrators from Momentum to Discovery Health on 1 January 2014, and it appears the historical data kept by Momentum and provided to the HMI overstates the membership of the scheme;
 - 34.2.4. BMW Employees Medical Aid Scheme changed administrators from Medscheme to Discovery Health on 1 January 2014, but the historical data was not provided by Medscheme, and thus BMW is only included for 2014;
 - 34.2.5. Edcon Medical Aid Scheme amalgamated with Discovery Health Medical Scheme on 1 January 2012 and hence no data exists after 2011 (again, even though the scheme no longer operates, the data has been kept by Discovery Health and was provided to the HMI);
 - 34.2.6. Glencore Medical Aid Scheme only provided data for the 2014 benefit year, and was not included in CMS reports prior to 2014;
 - 34.2.7. IBM South Africa Medical Scheme amalgamated with Discovery Health Medical Scheme on 1 July 2013 and hence the data is incomplete for 2013 and does not exist for 2014 (even though the scheme no longer operates, the data has been kept by Discovery Health and was provided to the HMI);
 - 34.2.8. Impala Medical Plan did not submit data for 2010 and 2011, and the data submitted for the other years appears incomplete;
 - 34.2.9. KeyHealth only submitted data for 2013 and 2014;

Report 1 Claims data analysis – descriptive statistics

- 34.2.10. Malcor Medical Scheme changed administrators from Eternity to Discovery Health in 2015 and although Discovery Health submitted data in respect of Malcor, the data did not cover the period requested and hence no submission could be used for Malcor;
- 34.2.11. Medihelp only submitted data from 2012;
- 34.2.12. Naspers Medical Fund was self-administered in 2010 and transferred to Discovery Health from 2011 and, although some data was provided in respect of 2010 by Discovery Health, it appears incomplete;
- 34.2.13. PG Group Medical Scheme is still operational, but only submitted data for 2010 and 2011;
- 34.2.14. Profmed only submitted data from 2013;
- 34.2.15. Resolution Health Medical Scheme only submitted data from 2012;
- 34.2.16. A comparison with the CMS report would suggest that SAMWUMED have submitted membership data which is incomplete;
- 34.2.17. Sedmed only provided data from 2012, and appears to have been excluded from the 2013 CMS report for non-submission of their annual financial reports;
- 34.2.18. Selfmed only provided data from 2012, and the membership files appear to overstate the membership of the scheme;
- 34.2.19. Spectramed only provided data from 2012;
- 34.2.20. TFG Medical Aid Scheme only provided data from 2012;
- 34.2.21. Umed amalgamated with Discovery Health Medical Scheme on 1 August 2010 and hence the data is incomplete for 2010 and no data exists after 2010 (even though the scheme no longer operates, the data has been kept by Discovery Health and was provided to the HMI); and
- 34.2.22. Witbank Coalfields Medical Scheme appears to have provided an incomplete membership listing as part of its submission.

Claim Amounts Reasonability Checks

- 35. In order to assess the completeness of the claims data files supplied by stakeholders, the total insured benefits calculated for each submitting scheme from the data provided was compared to the total figures provided in the income statements outlined in the CMS annual reports for the periods covered. The detailed results are contained in Appendix B,

Report 1 Claims data analysis – descriptive statistics

and show the calculated claims incurred per scheme per year divided by the membership reported in the CMS report (100% would again indicate an exact match in this case).

36. We note that the CMS figures include some managed care and risk transfer/capitation arrangements which do not feed into the detailed data, so claims figures are expected to be lower for schemes with such arrangements. The general findings from the comparison are as follows:

36.1. In the majority of cases, the figures are very close, allowing for the fact that claims can be submitted post the CMS reporting period and for the inherent volatility of claims databases;

36.2. However, note should be taken of the following:

36.2.1. The same set of issues around incomplete submissions and amalgamations will be relevant to this comparison as well;

36.2.2. As with the membership, the claims amounts in the Anglo Medical Scheme data supplied by Momentum appear to be overstated;

36.2.3. Again, as with the membership, Food Workers Medical Benefit Fund appears to have provided an incomplete data set;

36.2.4. Horizon Medical Scheme shows lower claims than outlined in the CMS report, however the CMS report also indicates a significant risk transfer arrangement for the scheme, which is likely the reason for the difference;

36.2.5. As per the membership data checks above, Impala Medical Plan appears to have provided an incomplete dataset, although a significant risk transfer arrangement is also reported in the CMS report for the scheme;

36.2.6. Lonmin Medical Scheme shows significantly lower claims than outlined in the CMS report, however the CMS report also indicates a significant risk transfer arrangement for the scheme, which is likely the reason for the difference;

36.2.7. The Naspers Medical Fund was self-administered in 2010 and these 2010 data are incomplete;

36.2.8. As per the membership file checks, SAMWUMED appears to have provided incomplete data;

36.2.9. Umvuzo Health also shows significantly lower claims than outlined in the CMS report, however the CMS report also indicates a significant risk

transfer arrangement for the scheme, which is likely the reason for the difference;

- 36.2.10. Witbank Coalfields Medical Aid Scheme also shows significantly lower claims than outlined in the CMS report, however the CMS report indicates a significant risk transfer arrangement for the scheme, which is likely the reason for the difference.

Summary of Reasonability Checks

37. As a result of the checks against the CMS report, three key issues have been identified, and our approach to them is as follows:

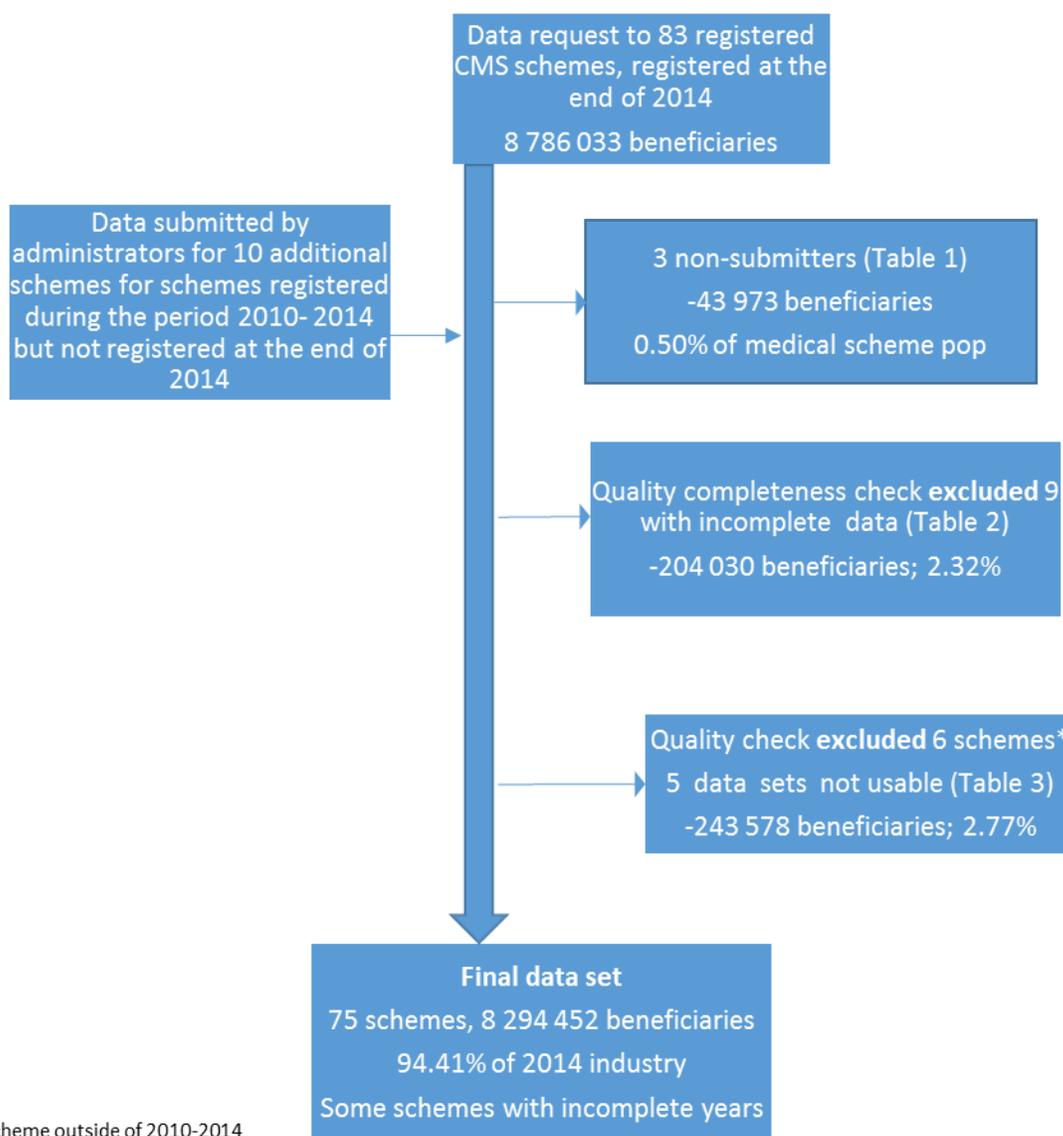
- 37.1. A number of schemes have only provided data for part of the requested time period (2010-2014); either for systems reasons or because the scheme amalgamated and is no longer registered independently. These data have been included in our analyses. Thus when total numbers are used these may vary, for example, in a year it would appear that there are more lives covered but this is as a result of more complete data for that year rather than a real change in the number of lives covered. Membership analysis (number of lives covered) at the industry level are best understood using CMS data. However when analyses are done as a ratio the numerator and denominator are aligned and these results are not impacted by missing data for particular years. Trend analyses are conducted at a 'per beneficiary' level and are thus unaffected by the change in absolute numbers.
- 37.2. A number of schemes appear to have provided incomplete data for both membership and claims. However the incompleteness is consistent across both files, and suggests only a subset of members has been provided to the HMI for whatever reason. Since the analysis data has been cleaned to ensure all claims match to the membership file, there is no problem including these schemes in the analysis dataset. However, to the extent these schemes are isolated in any individual analyses, the results should be interpreted with some caution.
- 37.3. Anglo Medical Scheme shows overstated claims and membership for the years it was administered by Momentum. Since the scheme is small and no specific analyses by individual scheme are envisaged, the results should not be materially impacted by including the Momentum data. This could be important since Anglo

Medical Scheme is the only case where data has been supplied pre- and post an administration change for a scheme, if specific analysis results based on the Momentum data is used to understand pre-post administration change for this case, it should be interpreted with caution.

Final data set used for analysis

38. A graphic illustration of the final data set, the number of lives covered and percentage of the industry reflected in the analyses is presented in Figure 1 below.

Figure 1 Scheme data requested, supplied, and excluded resulting in final dataset



* 1 scheme outside of 2010-2014 period

METHODOLOGY

39. We describe our approach to produce the summary analysis datasets and the methods used in preparing the descriptive statistics presented in this report. It should be noted that methods presented here will also be relevant to subsequent publications on further analyses forthcoming.

Beneficiary File

40. The beneficiary file contains various demographic information about each registered beneficiary in each benefit year, as well as some indicators built off claims data and summary claims information.

Demographic Indicators

41. The demographic information (age, gender, medical scheme, plan selection, dependent type) was extracted directly from the information provided by the stakeholders. In addition two indicator variables were created to describe individual clinical profiles and member movements in the industry.

41.1. The clinical profile indicator is used to standardise the clinical profiles of beneficiaries including the burden of disease across the industry and over time. It builds a clinical profile of each beneficiary's health status using the claims experience over time. Beneficiaries are then grouped into 18 different clinically and financially homogeneous groups which are created as follows:

41.1.1. Using the Clinical Classifications Software (CCS) published by the Healthcare Cost and Utilisation Project (HCUP) we grouped ICD10 codes into clinically consistent diagnosis groups, which are summarised into the 18 groups used for the indicator;

41.1.2. As far as possible, medicine NAPPI codes are mapped to the conditions they are used to treat, and similarly assigned a summary group;

41.1.3. A beneficiary is then assigned to a group if either:

41.1.4. They have two or more out-of-hospital medical practitioner consultations within that diagnosis group; or

Report 1 Claims data analysis – descriptive statistics

- 41.1.5. They have a single out-of-hospital medical practitioner consultation within that group, but have also claimed two or more times for medications associated with that diagnosis group.
- 41.1.6. The conditions are then prioritised by severity and beneficiaries assigned uniquely to the group corresponding to the most severe of the conditions they have been assigned to. For example, if a beneficiary is assigned to the “Acute Respiratory” and “HIV” group they will be labelled as “HIV”.
- 41.2. The member movements indicator is created as follows²:
 - 41.2.1. Beneficiaries joining their scheme (not the industry) in the analysis year for any reason are grouped as ‘Joiners’;
 - 41.2.2. Beneficiaries resigning from their scheme in the analysis year for any reason are grouped as ‘Leavers’;
 - 41.2.3. Beneficiaries who are on a different plan within the same scheme in the analysis year to the one they were on in the previous year are grouped as ‘Switchers’; and
 - 41.2.4. All other beneficiaries are grouped as ‘Stayers’.

Claims Utilisation Indicators

42. A number of claims utilisation indicators have been built to describe how beneficiaries navigate through the healthcare system when in need of care. These describe what type of medical practitioners a beneficiary claims for, how many different practices the beneficiary visits and how many services the beneficiary used. The indicators are as follows:

- 42.1. The **medical practitioner usage** indicator aims to assess the extent to which members use general practitioners as an entry point to the healthcare system. Beneficiaries are grouped into four groups as follows:
 - 42.1.1. Those who have not seen a medical practitioner (either general practitioner or specialist);
 - 42.1.2. Those who have only seen general practitioners;
 - 42.1.3. Those who have visited both general practitioners and specialists; and
 - 42.1.4. Those who have only visited specialists.

² Reliable mortality data is not universally available in the industry and was thus not requested.

- 42.2. The **multiple medical practitioner** indicator describes whether beneficiaries consistently use one medical practitioner, or whether they change practitioners regularly. The indicator is 'Yes' if a beneficiary claims for more than two different practitioners within the same discipline in the same year.
- 42.3. The **pathology usage** indicator measures the number of pathology tests performed on a beneficiary in a given year. We also assessed, for those who claimed for pathology tests, the average number of tests claimed per beneficiary. The indicator is:
- 42.3.1. 'None' if there are no claims for pathology;
 - 42.3.2. 'Low' if a beneficiary claims for pathology, but for significantly fewer than average tests;
 - 42.3.3. 'Average' if the number of tests is similar to the average for those beneficiaries who claim; and
 - 42.3.4. 'High' if a beneficiary claims for significantly more pathology tests than the average.
- 42.4. We note that while this may imply that the average use is appropriate this is not assumed to be the case, it may be inappropriately too high or too low, but nonetheless the approach allows us to categorise all data in a similar way for analysis purposes.
- 42.5. The **radiology usage** indicator is created for the same reason and in the same way as the pathology usage indicator.

Summary Claims Information

43. In the beneficiary file claims are split between out-of-hospital and in-hospital claims. In-hospital claims are identified by using the first date for which a hospital claim is recorded – the day the beneficiary was hospitalised (claimed from one or more hospitals) and we assume that all claims incurred on the days a beneficiary was hospitalised relate to that hospitalisation and are classified as in-hospital claims. The claims are then grouped as follows:

- 43.1. **In-hospital claims** are summarised at an overall level, and the beneficiary file contains only the number of admissions (number of hospital claims with unique,

non-sequential dates) and the total in-hospital claims. In-hospital claims are analysed in detail using the Admissions file. (See below)

43.2. **Out-of-hospital claims** are grouped by discipline as follows:

43.2.1. Medicines, Consumables and Surgical items (any items where a NAPPI codes is claimed and all pharmacy claims);

43.2.2. General Practitioner;

43.2.3. Specialists, including anaesthesiologists to the extent there are out-of-hospital claims;

43.2.4. Pathologists;

43.2.5. Radiologists;

43.2.6. Auxiliary Services; and

43.2.7. Other.

43.3. **Out-of-hospital Prescribed Minimum Benefit (PMB)** diagnosis claims are also summarised in the beneficiary file. These are identified using the list of PMB ICD10 codes published by the CMS.

Admissions File

44. The admission file contains details about each hospital admission (as defined above), including details of the facility admitted to, the treating medical practitioners and the patient, as well as information about the diagnosis and procedure(s) performed.

Patient Information

45. A number of indicators are transferred from the beneficiary file outlined above to give insight into the demographic and clinical profiles of the patient. These are age, gender, medical scheme, medical scheme plan, the clinical profile indicator. Geographic location using enumerator areas and catchment areas will be added for later analyses.

Medical Practitioner Information

46. As part of the admission file, information about the medical practitioners who have treated the patient is also recorded. The fields are as follows:

Report 1 Claims data analysis – descriptive statistics

- 46.1. Treating discipline and medical practitioner, identified as the medical practitioner who has claimed the highest value over the duration of the admission, excluding anaesthesiologists;
- 46.2. Attending medical practitioners, up to a maximum of four, indicating which practices have claimed for that patient during the course of the admission;
- 46.3. Treating radiologist and pathologist, identified as the radiologist and pathologist with the highest value of claims for that patient during the admission.

Facility Information

47. The treating facility, as well as its geographic location, are also identified. To the extent that a patient is transferred from one facility to another, the facility where higher values are claimed will be identified as the treating facility. 'Facility' in this instance refers to psychiatric hospitals, general hospitals, provincial hospitals and day clinics, and excludes sub-acute facilities and rehabilitation centres.

Admission Information

48. Some information about the reason for and nature of the admission is also recorded as follows:
 - 48.1. Admission and discharge dates (the first and last dates of hospital claims for that admissions) as well as a "day admission flag" (a day admission is where the admission and discharge dates are the same);
 - 48.2. Admission type indicator; 'Maternity' if the hospital tariff codes indicate a maternity ward, 'Surgical' if a theatre claim is recorded, or else 'Medical';
 - 48.3. Number of days spent in day wards, general wards, high care ward, intensive care and maternity wards, as well as number of minutes spent in theatre;
 - 48.4. Diagnoses provided by the attending medical practitioners as well as the facilities separately, grouping using the CCS classification of ICD10 codes (to the extent multiple diagnosis groups are recorded the group with the highest claimed value is used);

Report 1 Claims data analysis – descriptive statistics

- 48.5. Procedure performed (if any), grouped using the medical practitioner tariff codes classified into the CCS procedure classification (again if there are multiple procedure groups the highest value group is used); and
- 48.6. Admission day (of the week).

Claim Information

49. As with the out-of-hospital claims in the beneficiary file, the admission file claims have been grouped by discipline (using the hospital tariff codes where necessary), as follows:

- 49.1. Hospital Ward Fees;
- 49.2. Hospital Theatre Fees;
- 49.3. Hospital Medicines, Consumables and Surgical Items;
- 49.4. Hospital ARM codes (any per diem or global fee arrangements, as identified by the medical scheme administrators);
- 49.5. Other Hospital claims;
- 49.6. General Practitioners;
- 49.7. Specialists;
- 49.8. Anaesthesiologist;
- 49.9. Pathologists;
- 49.10. Radiologists;
- 49.11. Auxiliary claims; and
- 49.12. Other.

50. In addition, PMB claims have been identified in two ways, firstly by the CMS diagnosis codes as outlined above and, secondly, by the PMB benefit indicator which the medical schemes were asked to provide.

Additional Methodological Considerations for Descriptive Statistics

51. When calculating the descriptive statistics, the following definitions were taken into account:

Report 1 Claims data analysis – descriptive statistics

- 51.1. When the report refers to members, it counts total members on any scheme in a given year, as opposed to the average exposed membership used in financial reporting. This will mean that the numbers reflected in our results will be higher than the numbers reported in the CMS annual reports.
- 51.2. Claim figures (or costs) are calculated using fees charged as opposed to benefits paid. Thus claim estimates will include claims rejected and paid out of pocket by beneficiaries as well as those paid from medical savings accounts. We note that true out of pocket expenditure will still be understated since claims not submitted to medical schemes and paid out of pocket will not be recorded.
- 51.3. 'Open' and 'Restricted' schemes are defined as in the CMS annual reports.
- 51.4. All calculated inflation figures are annualised, i.e. when an inflation figure from 2010 to 2014 is quoted as x%, it should be read as x% per year. This will be consistent throughout all of the reports produced as part of the expenditure analysis, and any exceptions will be noted accordingly.
- 51.5. Where claims figures are summarised by an analysis variable, the definition will correspond to those used in the sections above.

INDUSTRY TRENDS AND STATISTICS

Demographic Trends

52. The table below shows the demographic profile of the schemes for which data has been supplied to the HMI between 2010 and 2014:

Table 4 Demographic trends – all schemes

Year	Beneficiaries	Average Age	% Male
2010	7 783 718	31.26	47.37%
2011	8 068 616	31.38	47.37%
2012	8 842 029	32.01	47.16%
2013	9 209 614	32.29	47.18%
2014	9 211 943	32.49	47.06%
Change	18.35%	1.23	-0.31%

53. The table shows that:

- 53.1. The membership of this group of schemes has grown by 18.35% over the five year period. A significant proportion of this is because some schemes have only been able to supply data for later parts of the requested period, but there also is some genuine growth of the industry.³
- 53.2. The industry average age has increased by 1.23 years over the five-year period. This is similar to the figures reported in the CMS annual report, which shows a gradually increasing average age³.

54. The figures for open and restricted schemes are shown in the tables below:

³ Please see paragraph 51.1 for explanation of why CMS data differs slightly from these data. Further description of how these data vary from CMS data is presented in detail in appendices 1 and 2.

Table 5 Demographic trends - open schemes

Year	Beneficiaries	Average Age	% Male
2010	4 333 984	32.28	47.72%
2011	4 341 007	32.56	48.02%
2012	4 904 693	33.31	47.89%
2013	5 107 377	33.60	48.04%
2014	5 167 332	33.78	47.99%
Change	19.23%	1.50	0.27%

Table 6 Demographic trends – restricted schemes

Year	Beneficiaries	Average Age	% Male
2010	3 449 734	29.99	46.92%
2011	3 727 609	30.00	46.61%
2012	3 937 336	30.38	46.26%
2013	4 102 237	30.66	46.11%
2014	4 044 611	30.84	45.86%
Change	17.24%	0.85	-1.06%

55. The tables show that:

- 55.1. The open schemes constitute about 60% of the industry, with restricted schemes contributing the other 40%;
- 55.2. The number of lives analysed in open schemes have grown marginally more than restricted schemes over the period. This is most likely a reflection of the partial submission of data during the earlier period of the data request and the continuing amalgamation of smaller restricted schemes into open schemes, offsetting the effect of the Government Employees Medical Scheme (GEMS) which has grown substantially in the past 10 years;
- 55.3. The average age of lives analysed in the open schemes have aged more than the average age of lives analysed in the restricted schemes over the 5-year period, consistent with the hypothesis that GEMS has brought in previously uncovered younger members into the medical scheme system.

Overall Claims Trends

56. Table 7 below shows the overall cost trends for the schemes included in the dataset over the period. These are crude data with no adjustments for risk or case mix.

Table 7 Overall cost trends – all schemes

Cost Trends - All Schemes	2011	2012	2013	2014
Total Cost Increase	13.03%	19.00%	13.75%	10.19%
Membership Growth	3.66%	9.59%	4.16%	0.03%
Cost Increase per beneficiary	9.04%	8.59%	9.21%	10.16%
Utilisation				
- Frequency (% claimers)	1.32%	0.13%	1.17%	1.11%
- Intensity (cost per claimer)	2.50%	2.70%	2.13%	2.68%
Price (CPI)	5.00%	5.60%	5.70%	6.10%

57. The table shows that, adjusted for membership, claim costs have increased by between 8.59% and 10.16% a year over the last five years. This compares to a CPI of between 5.0% and 6.1%. This would suggest that medical scheme claims inflation is at least 4% higher than CPI consistently. A contribution of around 1% to 4% margin comes from utilisation frequency, i.e. more lives claiming than before, while rest comes either from intensity (more services being used per claimer) or price increases above CPI. These trends will be explored further in later reports.

58. The tables for open and restricted schemes are shown respectively below, showing some differences by individual year, but similar trends at an overall level.

Table 8 Overall cost trends – open schemes

	2011	2012	2013	2014
Total Cost Increase	10.17%	19.79%	15.90%	11.11%
Membership Growth	0.16%	12.99%	4.13%	1.17%
Cost Increase per beneficiary	9.99%	6.02%	11.30%	9.82%
Utilisation				
- Frequency (% claimers)	0.71%	-0.56%	2.38%	0.47%
- Intensity (cost per claimer)	4.02%	0.96%	2.85%	3.02%
Price (CPI)	5.00%	5.60%	5.70%	6.10%

Table 9 Overall cost trends – restricted schemes

	2011	2012	2013	2014
Total Cost Increase	16.95%	17.98%	10.93%	8.92%
Membership Growth	8.05%	5.63%	4.19%	-1.40%
Cost Increase per beneficiary	8.23%	11.70%	6.74%	10.47%
Utilisation				
- Frequency (% claimers)	1.73%	1.20%	-0.21%	1.97%
- Intensity (cost per claimer)	1.33%	4.52%	0.94%	2.11%
Price (CPI)	5.00%	5.60%	5.70%	6.10%

Out-of-hospital Costs

59. The tables outlined above are repeated below considering only out-of-hospital costs. Again these figures have not been adjusted for risk profiles of the population.

Table 10 Out-of-hospital cost trends – all schemes

	2011	2012	2013	2014
Total Cost Increase	11.55%	15.33%	11.43%	9.36%
Membership Growth	3.66%	9.59%	4.16%	0.03%
Cost Increase per beneficiary	7.61%	5.25%	6.99%	9.33%
Utilisation				
- Frequency (% claimers)	1.42%	0.13%	1.21%	1.13%
- Intensity (cost per claimer)	1.05%	-0.46%	0.01%	1.90%
Price (CPI)	5.00%	5.60%	5.70%	6.10%

60. The table shows that the cost increase is smaller for out-of-hospital claims than the overall increase. This suggests a proportion shift in expenditure – more of the total spend is on in-hospital than out-of-hospital costs over time. The results by scheme type are again shown below, with similar trends (albeit with greater variability).

Table 11 Out-of-hospital costs trends – open schemes

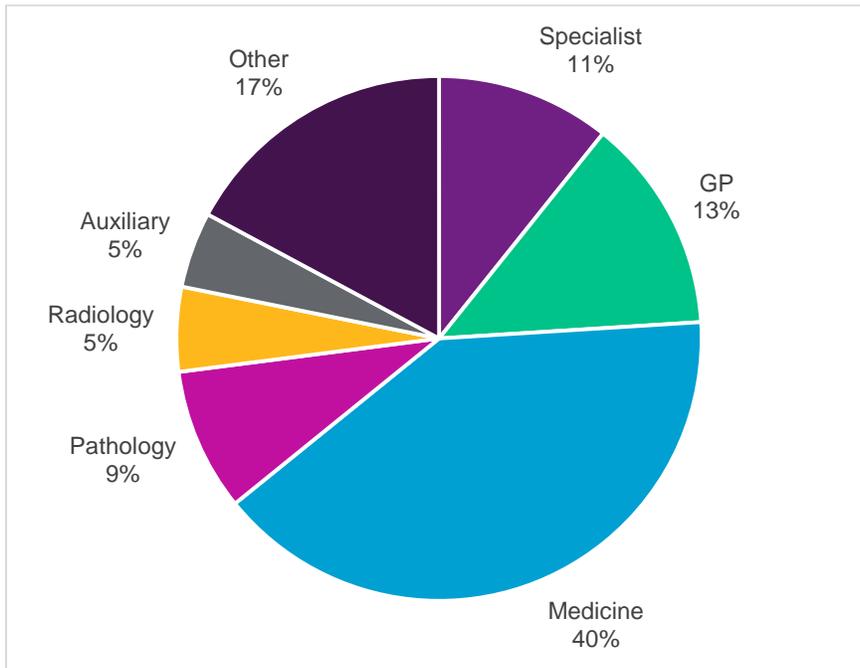
	2011	2012	2013	2014
Total Cost Increase	8.91%	15.24%	14.18%	9.72%
Membership Growth	0.16%	12.99%	4.13%	1.17%
Cost Increase per beneficiary	8.74%	1.99%	9.65%	8.45%
Utilisation				
- Frequency (%claimers)	0.82%	-0.56%	2.44%	0.49%
- Intensity (cost per claimer)	2.72%	-2.88%	1.26%	1.71%
Price (CPI)	5.00%	5.60%	5.70%	6.10%

Table 12 Out-of-hospital cost trends – restricted schemes

	2011	2012	2013	2014
Total Cost Increase	14.96%	15.45%	8.08%	8.89%
Membership Growth	8.05%	5.63%	4.19%	-1.40%
Cost Increase per beneficiary	6.39%	9.30%	3.73%	10.44%
Utilisation				
- Frequency (%claimers)	1.78%	1.21%	-0.19%	1.98%
- Intensity (cost per claimer)	-0.45%	2.27%	-1.68%	2.07%
Price (CPI)	5.00%	5.60%	5.70%	6.10%

61. The proportion of out-of-hospital expenditure by each of the categories defined above is shown in the graph below. It shows that, as expected, medicines (medicines category includes both acute and chronic medication claims) and medical practitioner services are the most prevalent categories, with auxiliary services and other claims forming a smaller proportion.

Figure 2 Out-of-hospital claims split by type of service for 2014



62. Table 13 shows for all schemes the overall change in the disease profile as well as the annual change over the 5-year period in the cost per beneficiary by each of the clinical profile disease flags over time.

Table 13 Out-of-hospital claims trends 2010-2014

Average Annual Increase	Lives	Specialist	GP	Meds	Pathology	Radiology	Auxiliary	Other	Total OH
Healthy ¹	-1.4%	9.91%	8.06%	7.98%	13.14%	10.71%	9.00%	4.96%	8.01%
Acute Respiratory	0.6%	5.82%	5.19%	5.62%	9.25%	8.48%	7.76%	2.08%	5.31%
Chronic Respiratory	-0.3%	6.17%	4.76%	5.15%	9.07%	8.38%	7.06%	4.12%	5.46%
Hypertension	0.7%	7.36%	5.60%	4.33%	10.86%	8.98%	6.78%	3.51%	5.39%
Infections	-0.4%	7.20%	5.69%	6.95%	9.49%	9.81%	9.61%	3.21%	6.45%
Psychiatric	0.2%	6.93%	4.15%	4.68%	7.51%	7.37%	6.25%	4.52%	5.19%
Diabetes	0.3%	8.15%	3.96%	4.15%	12.54%	9.28%	4.67%	2.73%	5.18%
HIV	0.4%	1.27%	5.08%	2.45%	7.21%	8.27%	13.43%	2.01%	3.86%
CNS Disorders	-0.1%	7.69%	5.47%	5.24%	10.08%	7.12%	7.19%	5.86%	6.20%
Back Problems	0.0%	5.61%	5.74%	4.47%	8.68%	5.50%	4.88%	1.17%	4.68%
Arthritis	0.0%	7.52%	5.62%	7.11%	9.15%	8.32%	6.21%	2.57%	6.43%
Cancer	0.1%	6.91%	6.86%	0.52%	9.42%	9.19%	7.05%	7.11%	4.02%
Heart Conditions	0.0%	8.64%	5.98%	3.76%	15.02%	7.65%	5.51%	5.05%	6.24%
Other Cardiovascular	-0.2%	12.12%	3.27%	7.06%	10.86%	13.56%	6.04%	6.75%	7.75%
Anaemia, Blood Disorders	0.0%	6.22%	4.32%	7.03%	9.98%	8.49%	6.38%	3.94%	6.80%
Renal Failure	0.0%	4.36%	7.50%	0.48%	5.83%	5.13%	1.03%	3.12%	3.70%
Congenital Conditions	0.0%	8.29%	2.30%	5.66%	6.50%	5.37%	13.70%	8.87%	6.89%
Coma, Brain Damage, Paralysis	0.0%	10.86%	2.09%	6.69%	20.39%	-2.04%	7.46%	14.61%	8.67%
All Lives	0.0%	9.07%	6.58%	6.83%	12.38%	10.12%	8.20%	4.56%	7.27%

This table shows that:

- 62.1. The out-of-hospital claims have increased annually by 7.27% per beneficiary per year;
- 62.2. The categories which show the highest annual increase are pathology (12.38%) and radiology (10.12%), followed by specialist services category (9.07%);

Report 1 Claims data analysis – descriptive statistics

62.3. The disease profile of the population analysed does not appear to have shifted markedly over time, although some of the chronic diseases (hypertension and HIV) show an increasing prevalence; and

62.4. The highest annual increases are for the so called ‘Healthy’ i.e. unassigned lives.

63. Table 14 shows the same trends, but illustrates beneficiaries by the medical practitioner usage variable (GPs only - one or more; specialists only - one or more; both GPs and specialist – one or more).

Table 14 Out-of-hospital claims trends 2010-2014

Annual Increase	Lives	Specialist	GP	Meds	Pathology	Radiology	Auxiliary	Other	Total OH
No medical Practitioners	-2.4%			7.81%	12.22%	12.17%	9.41%	5.78%	7.42%
GPs only									
- single	1.5%		5.72%	6.67%	11.73%	9.55%	8.13%	3.04%	6.05%
- multiple	0.1%		4.84%	6.94%	11.26%	12.00%	14.45%	2.51%	6.26%
Specialists only									
- single	0.0%	8.33%		5.43%	13.79%	9.99%	6.63%	5.39%	7.50%
- multiple	0.0%	19.47%		9.14%	12.31%	21.74%	8.30%	7.94%	13.38%
GPs and Specialists									
- single	0.7%	7.84%	6.01%	5.49%	10.95%	8.65%	5.78%	4.31%	6.45%
- multiple	0.0%	9.97%	5.78%	5.97%	10.92%	10.21%	9.47%	5.17%	7.39%
All Lives	0.0%	9.06%	6.58%	6.83%	12.38%	10.12%	8.20%	4.56%	7.27%

64. In addition to the points made with regard to disease profile (Table 13) this table illustrates that:

64.1. Those beneficiaries visiting only specialists show higher cost increases than the remaining beneficiaries, with the group visiting multiple specialists showing the highest increases of all, noting again that the figures in the table have not been adjusted for any changes in clinical or demographic risk profiles;

64.2. It is noted that fewer beneficiaries are falling into the “no medical practitioners” category. This implies that over time larger proportions of the population are being managed by and/or accessing the services of medical practitioners.

In-hospital costs

65. The tables outlined in the previous sub-section are repeated below but now present in-hospital costs. Again these figures have not been adjusted for risk profiles of the population changing over time.

Table 15 In-hospital cost trends – all schemes

IH Cost Trends - All Schemes	2011	2012	2013	2014
Total Cost Increase	14.30%	22.07%	15.58%	10.82%
Membership Growth	3.66%	9.59%	4.16%	0.03%
Cost Increase per beneficiary	10.27%	11.40%	10.97%	10.79%
Utilisation				
- Frequency (% claimers)	1.91%	1.97%	2.50%	2.37%
- Intensity (cost per claimer)	3.05%	3.45%	2.42%	2.01%
Price (CPI)	5.00%	5.60%	5.70%	6.10%

66. Table 15 shows that the cost increase is higher for in-hospital claims than the overall increase, with increases over 10% in all the years covered. This again suggests a proportional change towards in-hospital care over time. The results by scheme type are shown below, with similar trends (albeit with greater variability).

Table 16 In-hospital cost trends – open schemes

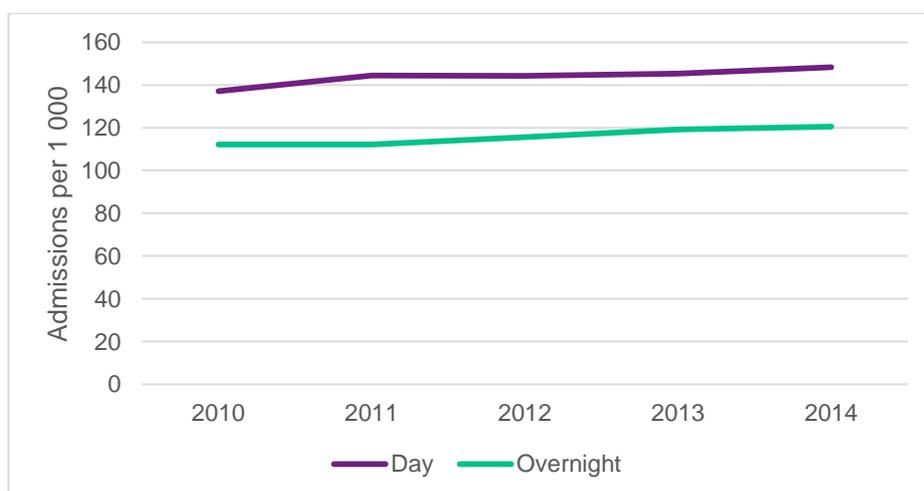
	2011	2012	2013	2014
Total Cost Increase	11.20%	23.45%	17.19%	12.13%
Membership Growth	0.16%	12.99%	4.13%	1.17%
Cost Increase per beneficiary	11.02%	9.26%	12.54%	10.83%
Utilisation				
- Frequency (% claimers)	1.54%	0.52%	3.92%	2.19%
- Intensity (cost per claimer)	4.13%	2.93%	2.46%	2.22%
Price (CPI)	5.00%	5.60%	5.70%	6.10%

Table 17 In-hospital cost trends – restricted schemes

	2011	2012	2013	2014
Total Cost Increase	18.77%	20.22%	13.36%	8.94%
Membership Growth	8.05%	5.63%	4.19%	-1.40%
Cost Increase per beneficiary	9.92%	13.81%	8.80%	10.49%
Utilisation				
- Frequency (% claimers)	2.39%	3.76%	0.79%	2.60%
- Intensity (cost per claimer)	2.24%	3.87%	2.13%	1.51%
Price (CPI)	5.00%	5.60%	5.70%	6.10%

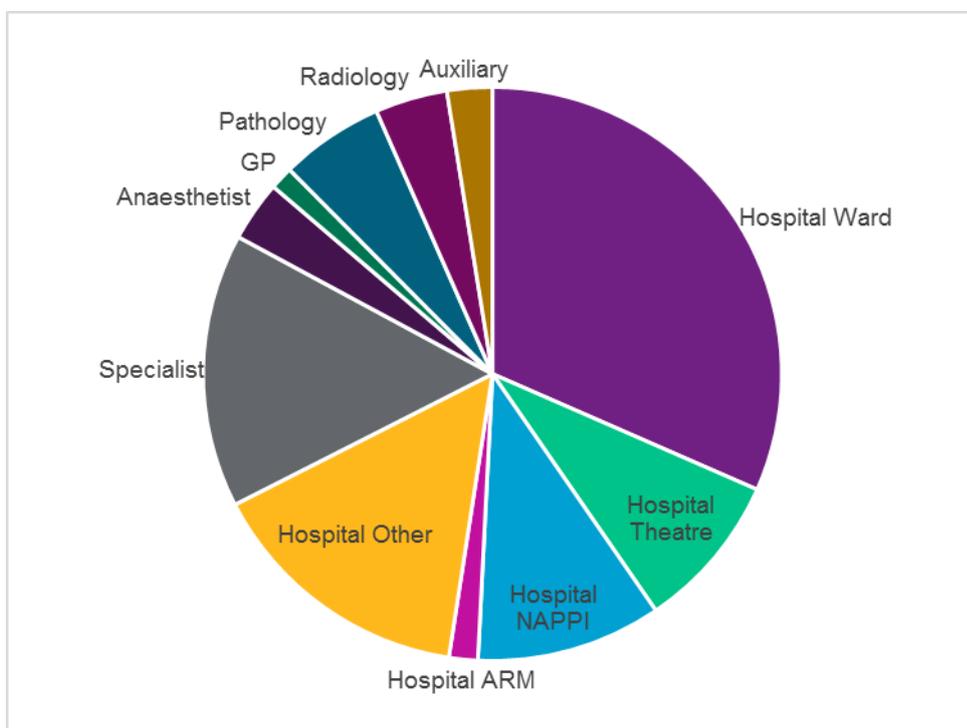
67. All of the tables show increased utilisation frequency for in-hospital services i.e. more beneficiaries being admitted over time. Figure 3, below, shows the trends in admission rates (per 1 000 lives) over time. Again these figures have not been adjusted for risk profile.

Figure 3 Admissions per 1000 lives – all schemes 2010-2014



- 68. The graph shows constantly increasing admission rates over time, consistent with the results outlined in the overall analysis presented in the various tables. The trend appears to be across both day admissions and overnight stay admissions, suggesting a systemic shift towards in-hospital care. The trend will be analysed further and results reported on in later reports.
- 69. Figure 4 shows claims split across various expenditure categories for all overnight stay admissions in 2014.

Figure 4 Overnight admissions claims split 2014



- 70. The next set of tables shows the most common treating disciplines, diagnoses and procedures for overnight admissions. These data describe admissions profile only. Detailed analysis and various correlations will be addressed in later reports. Table 18 illustrates the top ten specialist disciplines admitting patients overnight.

Table 18 Top ten admitting disciplines 2010-2014

Discipline Name	% of Admissions				
	2010	2011	2012	2013	2014
Physicians	16.95%	17.53%	18.26%	19.31%	19.73%
Gynaecologists	14.60%	14.22%	14.01%	13.61%	13.43%
Surgeons	12.65%	12.82%	12.90%	12.93%	12.97%
General Practitioners	13.20%	12.90%	12.68%	12.23%	11.82%
Paediatricians	11.27%	11.08%	10.66%	10.81%	10.74%
Orthopaedic Surgeons	9.02%	9.15%	9.29%	9.32%	9.50%
Psychiatrists	4.05%	4.08%	4.13%	4.16%	4.16%
Urologists	3.64%	3.83%	3.88%	3.81%	3.92%
Otorhinolaryngologists	2.41%	2.62%	2.48%	2.23%	2.19%
Cardiologists	2.18%	2.13%	2.18%	2.14%	2.12%
Other disciplines combined	10.02%	9.64%	9.53%	9.45%	9.41%

71. The table illustrates, what would be expected, that generalist disciplines as well as gynaecologists, are the most common admitting practitioners. Table 19 illustrates the most common diagnoses for which patients are being admitted overnight. The admission diagnoses are derived from ICD diagnosis codes provided by the treating practitioner.

Table 19 Admitting diagnosis 2010-2014

Diagnosis	% of Admissions				
	2010	2011	2012	2013	2014
Trauma	7.36%	7.08%	7.37%	9.09%	9.97%
Uncomplicated Maternity	6.56%	7.13%	7.81%	8.10%	8.28%
Non-Specific	7.28%	7.63%	8.16%	8.17%	8.03%
Pneumonia	6.23%	6.86%	7.33%	7.56%	7.85%
Heart Conditions	5.36%	5.94%	6.15%	6.55%	6.44%
Psychiatric	4.48%	4.96%	5.81%	6.19%	6.29%
Complicated Maternity	4.25%	4.64%	5.18%	5.46%	5.59%
Cancer	3.94%	4.40%	4.91%	5.30%	5.57%
Bronchitis	3.31%	3.64%	3.97%	4.20%	4.46%
Chronic Respiratory	3.08%	3.48%	3.65%	3.95%	3.99%
Other diagnoses combined	48.16%	44.23%	39.66%	35.42%	33.53%

72. As would be expected, maternity, trauma and respiratory conditions are very prevalent. The high proportion of non-specific diagnoses is noted. Possible explanations include that the ICD10 coding is not as accurate and/or as detailed as it should be, or that detail is being lost during one or more of the various stages of claims submission and processing.

73. The final table, table 20, describes the most common procedures performed by the treating practitioners. The procedures were identified from the tariff code submitted by

Report 1 Claims data analysis – descriptive statistics

the treating practitioner. In the instances where only hospital visits were claimed without an accompanying procedure/intervention the event was classified as “No Procedure”.

74. Non-specific procedures represent a group of relatively trivial and/or diagnostic procedures, for example intravenous infusion and venepuncture.

Table 20 Top ten procedure claims 2010-2014

Procedure	% of Admissions				
	2010	2011	2012	2013	2014
No Procedure	28.36%	30.77%	34.10%	37.28%	39.60%
Non-Specific	11.07%	11.95%	13.04%	13.25%	12.54%
Caesarean Section	6.57%	6.90%	7.56%	7.68%	7.76%
ICU Care	4.80%	5.10%	5.64%	6.17%	6.27%
Psychiatric	4.54%	4.99%	5.55%	5.94%	6.06%
Normal Delivery	2.68%	2.80%	2.87%	2.86%	2.76%
Upper GI Endoscopy	2.14%	2.38%	2.60%	2.65%	2.70%
Joint Replacements	1.61%	1.79%	1.95%	2.05%	2.19%
Colonoscopy	1.43%	1.85%	2.07%	2.00%	2.09%
Fractures/Dislocations	1.22%	1.36%	1.51%	1.61%	1.69%
Other procedures combined	35.58%	30.11%	23.12%	18.53%	16.34%

75. Thus description of procedures is as would be expected. The high proportion of “other” procedures again suggests issues to do with coding or recording of codes.

76. Further analyses building on these data will be published in due course.

Appendix A – Member data comparison

Scheme Name	2010	2011	2012	2013	2014
AECI Medical Aid Society	100%	100%	100%	102%	100%
Afrisam SA Medical Scheme	42%				
Altron Medical Aid Scheme	100%	100%	100%	100%	
Anglo Medical Scheme	321%	322%	322%	311%	100%
Anglovaal Group Medical Scheme	100%	100%	100%	100%	100%
Bankmed	97%	98%	98%	98%	98%
Barloworld Medical Scheme	100%	100%	100%	100%	100%
Bestmed Medical Scheme	129%	128%	128%	124%	122%
BMW Employees Medical Aid Society					100%
Bonitas Medical Fund	100%	100%	100%	100%	100%
BP Medical Aid Society	98%	99%	99%	99%	98%
Chartered Accountants (SA) Medical Aid Fund	100%	100%	100%	100%	100%
Cape Medical Plan	100%	100%	100%	98%	99%
De Beers Benefit Society	99%	100%	101%	101%	101%
Discovery Health Medical Scheme	100%	100%	100%	100%	100%
Edcon Medical Aid Scheme	100%	100%			
Engen Medical Benefit Fund	99%	99%	99%	99%	98%
Fedhealth Medical Scheme	99%	99%	99%	99%	99%
Fishing Industry Medical Scheme	93%	96%	97%	98%	98%
Food Workers Medical Benefit Fund	98%	106%	103%	103%	105%
Government Employees Medical Scheme	100%	100%	99%	100%	100%
Glencore Medical Scheme					101%
Golden Arrow Employees' Medical Benefit Fund	99%	99%	99%	100%	100%
Horizon Medical Scheme	100%	100%	100%	100%	100%
IBM (SA) Medical Scheme	101%	101%	102%	52%	
Impala Medical Plan			57%	55%	52%
Imperial Group Medical Scheme	98%	99%	100%	100%	100%
KeyHealth				100%	100%
LA-Health Medical Scheme	99%	99%	99%	99%	99%
Libcare Medical Scheme	100%	100%	101%	100%	100%
Liberty Medical Scheme	99%	99%	99%	99%	100%
Lonmin Medical Scheme	101%	103%	100%	100%	100%
Malcor Medical Scheme					
MBMed Medical Aid Fund	100%	100%	100%	100%	101%
Medihelp			100%	100%	100%

Report 1 Claims data analysis – descriptive statistics

Scheme Name	2010	2011	2012	2013	2014
Medipos Medical Scheme	98%	98%	99%	99%	99%
Medshield Medical Scheme	137%	100%	100%	100%	100%
Metropolitan Medical Scheme	93%	93%	94%	96%	94%
Momentum Health	103%	95%	96%	96%	97%
Motohealth Care	95%	95%	96%	97%	99%
Naspers Medical Fund	41%	101%	100%	100%	100%
Nedgroup Medical Aid Scheme	99%	100%	100%	100%	100%
Netcare Medical Scheme	99%	100%	100%	102%	100%
Old Mutual Staff Medical Aid Fund	99%	100%	100%	100%	100%
PG Group Medical Scheme	100%	100%			
Pick n Pay Medical Scheme	99%	99%	99%	100%	100%
South African Police Service Medical Scheme	96%	96%	97%	97%	97%
Profmed				93%	93%
Quantum Medical Aid Society	100%	100%	100%	100%	100%
Rand Water Medical Scheme	99%	98%	98%	98%	98%
Remedi Medical Aid Scheme	100%	100%	100%	100%	100%
Resolution Health Medical Scheme			113%	100%	101%
Retail Medical Scheme	102%	101%	102%	101%	101%
South African Breweries Medical Aid Scheme	98%	98%	99%	99%	100%
SABC Medical Aid Scheme	100%	100%	100%	100%	100%
SAMWUMED	40%	40%	41%	43%	44%
Sasolmed	100%	100%	100%	100%	101%
Sedmed			100%		100%
Selfmed Medical Scheme			398%	419%	447%
Spectramed			102%	103%	103%
TFG Medical Aid Scheme			100%	100%	100%
Thebemed	91%	103%	105%	108%	108%
Transmed Medical Fund	98%	98%	98%	97%	97%
Tsogo Sun Group Medical Scheme	100%	100%	100%	100%	100%
Umed	58%				
Umvuzo Health Medical Scheme	94%	97%	99%	100%	102%
University of Kwa-Zulu Natal Medical Scheme	100%	99%	99%	99%	99%
Witbank Coalfields Medical Aid Scheme		70%	72%	72%	72%
University of the Witwatersrand Staff Medical Aid	100%	100%	100%	100%	100%
Wooltru Healthcare Fund	98%	98%	99%	99%	99%

Appendix B: Claims Data Comparison

Scheme Name	2010	2011	2012	2013	2014
AECI Medical Aid Society	91%	94%	94%	89%	91%
Afrisam SA Medical Scheme	102%				
Altron Medical Aid Scheme	96%	102%	92%	98%	
Anglo Medical Scheme	233%	230%	233%	222%	94%
Anglovaal Group Medical Scheme	99%	100%	99%	101%	98%
Bankmed	94%	95%	94%	90%	90%
Barloworld Medical Scheme	98%	99%	98%	100%	97%
Bestmed Medical Scheme	94%	95%	96%	95%	95%
BMW Employees Medical Aid Society					100%
Bonitas Medical Fund	85%	85%	84%	91%	91%
BP Medical Aid Society	95%	94%	95%	96%	97%
Chartered Accountants (SA) Medical Aid Fund	111%	109%	109%	107%	108%
Cape Medical Plan	100%	99%	100%	100%	100%
De Beers Benefit Society	109%	109%	107%	108%	107%
Discovery Health Medical Scheme	100%	101%	100%	100%	99%
Edcon Medical Aid Scheme	98%	101%			
Engen Medical Benefit Fund	96%	96%	95%	96%	96%
Fedhealth Medical Scheme	99%	99%	99%	99%	99%
Fishing Industry Medical Scheme	87%	86%	81%	88%	87%
Food Workers Medical Benefit Fund	7%	46%	47%	68%	75%
Government Employees Medical Scheme	99%	100%	100%	100%	100%
Glencore Medical Scheme					99%
Golden Arrow Employees' Medical Benefit Fund	94%	91%	97%	99%	94%
Horizon Medical Scheme		83%	79%	80%	81%
IBM (SA) Medical Scheme	101%	100%	101%	102%	0%
Impala Medical Plan			47%	47%	46%
Imperial Group Medical Scheme	97%	97%	97%	99%	97%
KeyHealth				98%	98%
LA-Health Medical Scheme	99%	100%	100%	101%	99%
Libcare Medical Scheme	99%	100%	101%	100%	99%
Liberty Medical Scheme	90%	87%	90%	92%	91%
Lonmin Medical Scheme	51%	46%	53%	53%	57%
Malcor Medical Scheme					
MBMed Medical Aid Fund	92%	92%	93%	92%	92%
Medihelp			91%	93%	91%

Scheme Name	2010	2011	2012	2013	2014
Medipos Medical Scheme	99%	95%	96%	98%	98%
Medshield Medical Scheme	137%	99%	100%	100%	99%
Metropolitan Medical Scheme	96%	97%	97%	97%	97%
Momentum Health	98%	95%	96%	94%	94%
Motohealth Care	91%	93%	92%	92%	91%
Naspers Medical Fund	36%	100%	101%	95%	101%
Nedgroup Medical Aid Scheme	89%	84%	83%	85%	86%
Netcare Medical Scheme	99%	101%	98%	100%	99%
Old Mutual Staff Medical Aid Fund	99%	98%	98%	98%	98%
PG Group Medical Scheme	90%	87%			
Pick n Pay Medical Scheme	91%	93%	90%	92%	91%
South African Police Service Medical Scheme	93%	95%	94%	95%	94%
Profmed				94%	96%
Quantum Medical Aid Society	96%	99%	99%	96%	101%
Rand Water Medical Scheme	95%	96%	96%	99%	99%
Remedi Medical Aid Scheme	97%	96%	96%	96%	95%
Resolution Health Medical Scheme		95%	97%	97%	100%
Retail Medical Scheme	100%	100%	101%	99%	101%
South African Breweries Medical Aid Scheme	100%	100%	99%	98%	100%
SABC Medical Aid Scheme	98%	99%	98%	98%	97%
SAMWUMED	59%	57%	59%	60%	61%
Sasolmed	98%	99%	99%	100%	99%
Sedmed			96%		99%
Selfmed Medical Scheme			87%	88%	98%
Spectramed			111%	114%	117%
Suremed Health	65%	61%	61%	38%	41%
TFG Medical Aid Scheme			101%	100%	100%
Thebemed	91%	94%	91%	89%	93%
Transmed Medical Fund	91%	92%	92%	92%	92%
Tsogo Sun Group Medical Scheme	101%	98%	100%	100%	98%
Umed	75%				
Umvuzo Health Medical Scheme	62%	65%	71%	72%	73%
University of Kwa-Zulu Natal Medical Scheme	99%	100%	99%	100%	101%

Report 1 Claims data analysis – descriptive statistics

Witbank Coalfields Medical Aid Scheme	33%	63%	62%	63%
University of the Witwatersrand Staff Medical Aid	100%	97%	98%	97%
Wooltru Healthcare Fund	91%	92%	92%	93%
