QUALITY OF CARE IN MEDICAL SCHEMES

(for financial years 2014 and 2015)

RESEARCH & MONITORING

Prepared by:
Charlton Murove [Email: c.murove@medicalschemes.com]

Approved by:
Dr Anton de Villiers Research and Monitoring Unit, Council for Medical Schemes, Block A, Eco Glades 2 Office Park, 420 Witch-Hazel Avenue, Eco Park, Centurion, 0157 [email: a.devilliers@medicalschemes.com]

Publication date:
8 November 2016

EXECUTIVE SUMMARY

Background

The Research & Monitoring (R&M) unit of the Council for Medical Schemes (CMS) was tasked to determine the quality of healthcare in the medical schemes environment. The Regulations supporting the Medical Schemes Act, 1998 (Act 131 of 1998), require schemes to pay for Prescribed Minimum Benefits (PMB) in full. Managed care is included in the Regulations as a tool to ensure cost effective provision of healthcare. The CMS has noticed an increased tendency where more schemes are contracting with service providers as well as managed care organisations, to provide managed care services to medical scheme members.

In view of the above, it is important for all parties involved to ensure that the intended goals and objectives of managed care are met at all times. Managed care services should provide the proper quality of care, which in turn will ensure healthcare provision to be cost effective. In an attempt to determine the value of managed care and cost effectiveness of healthcare provision, the CMS is working on a project to assess the quality of care for the Chronic Disease List (CDL) conditions. This project will follow a multi-pronged approach, assisted by the managed care working group of the Industry Technical Advisory Panel (ITAP), an open forum were stakeholders are encouraged to participate.

Over the past few years, the bulk of medical schemes expenditure has been spent on in-hospital treatment, particularly private hospitalisation. In the 2015 financial year, 37.1% of the total benefits paid were for hospitalisation (The Council for Medical Schemes, 2016a). In order to reduce healthcare expenditure in the long term, it is vital to effectively control and manage the medical treatment for patients with CDL conditions. Already much attention has been given to the management of treatment for patients with CDL conditions through specific intervention programmes, e.g. disease management programmes. If the management of treatment for these patients is effective, the associated hospitalisation expenditure should decline at an increasing rate. The CMS hopes to expand the monitoring of quality of care to conditions which contribute to hospitalisation, but that are not part of the CDLs.

One objective of the project was to determine the minimum standard of care expected for members of medical schemes. As part of this process the ITAP task team had to determine the appropriate indicators to assist to measure if proper processes in disease management were being followed, i.e. the process indicators. In addition, outcome indicators were established for measuring the success of disease management programmes.

Purpose

The purpose of this report is to provide feedback on the quality of care provided by medical schemes as reported in the financial years 2014 and 2015. The CMS requested schemes to provide the number of unique beneficiaries who met the minimum standards of care as recommended by the ITAP. The CMS also some collected outcomes data, including all cause hospital admissions and readmission rates. The number of beneficiaries with co-morbidities was also collected.

This report also includes a comparison of benefit options for key process indicators per CDL condition discussed herein. The information is aimed at assisting medical schemes when contracting with managed care organisations.

Summary of Results

Processes

The coverage of beneficiaries registered on chronic programs was very low in a vast number of instances. For some of the conditions, the coverage ratios of the prescribed monitoring tests was as low as 5%.

Beneficiaries registered for the HIV chronic program had the highest coverage with about 60% of the patients receiving both viral load tests and CD4 tests. Drug coverage was also quite poor, for example, diabetic (DM1) patients receiving statins were as low as 10%. The highest coverage of drugs was for the Human Immunodeficiency Virus (HIV), with up to 67% of beneficiaries on Antiretroviral therapy (ARVs).

Outcomes

Hospitalisation rates varied across the different CDL conditions. The proportion of unique[1] beneficiaries hospitalised for more than a day was as high as 20% for Congestive Heart Failure (CHF) patients. Ischemic Heart Disease (IHD) and Chronic Renal Failure (CRF) had similar levels of hospitalisation, although on a lower level.

DM1 patients had the lowest hospitalisation for (in-patient > 24 hours), with rates at only 9.8% in 2015. The re-admission rates for HIV were the lowest, at 64.6%, compared to re-admission rates for CRF which were at 195.5%.

There is a significant number of beneficiaries with multiple chronic conditions, for instance 36.2% of IHD patients are hypertensive, while 13.8% are diabetic. Effective disease management should therefore provide proper coordination of care amongst providers.

[1] This identifies specific individuals who are beneficiaries of a medical scheme who meet set criteria.

Acronyms, Abbreviations and Definitions

	Chronic Disease List
AIDS	Acquired immune deficiency syndrome
AST	Asthma
BCE	Bronchiectasis
BPD	Bipolar Mood Disorder
CDL	Chronic Disease List
CHF	Congestive Heart Failure
CMS	Council for Medical Schemes
COP	Chronic Obstructive Pulmonary Disease
Council	Accounting Authority or the board of the Council for Medical Schemes
CRF	Chronic Renal Failure
DM1	Diabetes Mellitus Type 1
DM2	Diabetes Mellitus Type 2
HIV	Human Immunodeficiency Virus
HYP	Hypertension
IHD	Ischemic Heart Disease
ITAP	Industry Technical Advisory Panel
MCO	Managed Care Organisation
PMB	Prescribed Minimum Benefit
R&M	Research and Monitoring
SCZ	Schizophrenia
TB	Tuberculosis
TDH	Hypothyroidism
	Other
Coverage Ratio	Proportion of registered chronic patients receiving the appropriate care
Value of Managed Care	A measure of the benefit derived from managed care services compared to the cost of the service

Table of Contents

1 Introduction 7
1.1 Data challenges 8
1.2 Data used in the analysis 9
1.3 Definition of prevalence of chronic conditions 9
1.4 Comparison across benefit options 10
1.5 Visits of chronic beneficiaries to GPs and specialists 11
2 Human Immunodeficiency Virus 12
2.1 Process and outcome indicators 12
2.2 Coverage in 2014 and 2015 13
3 Diabetes Mellitus 14
3.1 Process indicators 14
3.2 Coverage in 2014 and 2015 (DM1) 15
3.5 Coverage in 2014 and 2015 (DM2) 16
4 Hypertension 17
4.1 Process and outcome indicators 17
4.2 Coverage in 2014 and 2015 18
5 Congestive Heart Failure 19
5.1 Process and outcome indicators 19
5.2 Coverage in 2014 and 2015 20
6 Ischemic Heart Disease 21
6.1 Process and outcome indicators 21
6.2 Coverage in 2014 and 2015 22
7 Chronic Renal Disease 23
7.1 Process and outcome indicators 23
7.2 Coverage in 2014 and 2015 24
8 Asthma 25
8.1 Process and outcome indicators 25
8.2 Coverage in 2014 and 2015 26
9 Chronic Obstructive Pulmonary Disease 27
9.1 Process and outcome indicators 27
9.2 Coverage in 2014 and 2015 28
10 Analysis of results 29
10.1 Hospitalisation 29
10.2 Co-morbidities 30
10.4 Effectiveness of disease management programme 31
10.5 Trends over time 31
10.6 Value of managed care 31
11 Conclusion and Recommendations 32
References 32
Annexure A: Benefit options contributing most to increasing industry coverage ratios 33
Annexure B: Benefit options contributing most to decreasing industry coverage ratios 39

List of Tables

Table 1: HIV Indicators 12
Table 2: HIV 13
Table 3: Diabetes Mellitus (1 and 2) indicators 14
Table 4: Diabetes Mellitus Type 1 15
Table 5: Diabetes Mellitus Type 2 16
Table 6: Hypertension Indicators 17
Table 7: Hypertension 18
Table 8: Congestive Heart Failure Indicators 19
Table 9: Congestive Heart Failure 20
Table 10: Ischemic Heart Disease Indicators 21
Table 11: Coronary Artery Disease 22
Table 12: Chronic Renal Disease Indicators 23
Table 13: Chronic Renal Disease 24
Table 14: Asthma Indicators 25
Table 15: Asthma 26
Table 16: Chronic Obstructive Pulmonary Disease Indicators 27
Table 17: Chronic Obstructive Pulmonary Disease 28
Table 18: CDL conditions and co-morbidities among chronic patients 30

List of Figures

Figure 1: Hospital admissions: In-patient < 24hrs 29
Figure 2: Hospital admissions: In-patient > 24hrs 30

1 Introduction

The Council for Medical Schemes (CMS) is interested in understanding the quality of care provided by medical schemes for members participating in managed care programmes. The ultimate objective is to measure the value of managed care. The value of managed care is a derived from both the level of the quality of care, and the cost of providing such care. This may be represented as follows:

$$Value = \frac{Quality\ of\ care}{Cost\ of\ managed\ care}$$

Where Quality of care could be the sum of the: process indicators (coverage ratios),
Outcomes, outputs and
Impact indicators such as patient experience

All three components of quality could be combined in an index, but the focus in this report is on the process indicators and the CMS is fully aware of the limitations of only measuring the process indicators, or what was done to the patients. Over time the CMS will put processes in place to measure all components of the function, including the actual cost of each managed care program per service.

The CMS has engaged the industry in an attempt to answer questions on the appropriate level of care, and to identify quality health outcome indicators. The main focus has been on chronic diseases, which are part of the Prescribed Minimum Benefits. In the past few years the industry engagement took place through the ITAP which discussed thirteen of the CDL conditions.

The thirteen chronic diseases that were discussed are:

- Human Immunodeficiency Virus (HIV);
- Diabetes Mellitus, both 1 and 2 (DM1 and DM2);
- Hypertension (HYP);
- Congestive Heart Failure (CHF);
- Ischemic Heart Disease (IHD);
- Asthma (AST);
- Chronic Obstructive Pulmonary Disease (COP);
- Chronic Renal Failure (CRF);
- Bronchiectasis (BCE)
- Hypothyroidism (TDH)
- Bipolar Mood Disorder (BPD); and
- Schizophrenia (SCZ)

ITAP identified minimum interventions and standards of care expected from Managed Care Organisations (MCO's) or schemes. From the minimum standards of care or interventions, process indicators were identified. These reflect the minimum standards of care that are suitable indicators to determine if patient management is effective. These indicators are specific to the CDL conditions. The CMS will monitor schemes to measure their compliance with the indicated minimum standards.

The indicators identified at ITAP are based on best practice on the management of chronic patients. The collection of data on the indicators is also an open forum and stakeholders are encouraged to participate in all these processes to ensure that there is a consistent view on what constitute best practice, as well as ensure that the data collection is as accurate as possible.

Process indicators may be defined as follows:

> "Process indicators assess what the provider did for the patient and how well it was done. Processes are a series of inter-related activities undertaken to achieve objectives. Process indicators measure the activities and tasks in patient episodes of care" (Mainz, 2003).

Outcome indicators have been defined as follows:

> "Outcomes are states of health or events that follow care, and that may be affected by health care. An ideal outcome indicator would capture the effect of care processes on the health and wellbeing of patients and populations" (Mainz, 2003).

This report mainly focuses on the process indicators and the limited outcome indicators of the disease management programmes (DMP) of the first nine of the thirteen conditions indicated above. Subsequent reports will include information on other conditions discussed at ITAP. The CMS will continue to report on the quality of care provided by medical schemes.

1.1 Data challenges

To measure outcomes, data is required. The CMS needs to put in place mechanisms of collecting standardised, good quality data from all stakeholders. Currently the CMS collects data through the Annual Statutory Returns (ASR). This data is collected from all schemes and is limited to what is available on medical schemes' administrator systems, based on the claims submitted. The ASR requirements were recently amended to align data submissions with some of the ITAP requirements. Over time the CMS would like to collect data also from MCO's, which will include almost all necessary data fields to improve quality of reporting.

This was the second time that the CMS received data on indicators described above. There has been a marked improvement in the quality of data submitted. The CMS expects the data quality to improve over time, as the industry gains more experience on the specified data reporting.

Not all indicators identified at ITAP were collected and reported on. The indicators collected were only limited to what was available at medical schemes. Clinical markers, such as the HbA1c in a diabetic patient would provide valuable insights on the management of the diabetic patient. The clinical test results were not available at scheme level, and therefore not collectable.

The data collected focused mainly on what was done for the patient, or coverage. Schemes had to provide data on the unique beneficiaries meeting the minimum standards of care. Data on the number of unique beneficiaries who had adverse outcomes was also collected. The data analysis therefore should inform the CMS how well the beneficiaries managed on the chronic programs were being managed, as well as the number of beneficiaries with adverse outcomes. The collected data was available at benefit option level.

There are several challenges in the data collection as a result data analysis was difficult. Some of the challenges are listed below:

- Members move between different benefit options and medical schemes. While this mostly occurs on 1 January, there are circumstances when beneficiaries change employment where this movement occurs during the year.

- Some benefit options are contracted to a MCO to manage diseases on behalf of the scheme. Some of these contracts do not provide for sufficient sharing of information between the MCO and the medical scheme. This means that while some interventions may have occurred, the scheme will not know to what extent these occurred, therefore some of the schemes data submissions to the CMS lacked this information. In such instances, schemes are encouraged to obtain the missing data from their MCOs.

- The process of drawing comparisons between options is complicated. The risk profiles for the different options vary, as a result, outcomes must take the different risk profiles into consideration. The comparison of process indicators is a straight forward process which measures what an MCO is doing in order to effectively manage chronic patients, rather than the results of such management. A proposal to compare benefit options has been set out.

- Disease progression occurs over a long time. More objective results would be obtained over a longer period of time of analysis. The data the CMS collected only covers one financial year.

- In the latest data submission, the CMS collected data on the cost of managed healthcare for each benefit option. This data was not of good quality. Information on the cost of managed healthcare will be incorporated in subsequent reports. This will help gravitate towards the ultimate objective of determining the value of managed care.

The data collected through the ASR has these and other weaknesses, but it does provide useful insights on the quality of care. While hospital admission data was collected as all cause hospitalisation, there is significant variation between hospitalisation rates for different conditions. This confirms the view that it is the chronic conditions that are the primary drivers of hospitalisation. All cause hospitalisation can therefore be used as an outcome indicator, even though it is not a perfect measure.

1.2 Data used in the analysis

The CMS recently changed the data submission system for the utilisation data. The transition to the new system included numerous consultation sessions with stakeholders. The definitions of data fields were updated so as to ensure more accurate and uniform submission of data. A workshop was conducted in the previous year to engage with the industry on the changes to data specification document (The Council for Medical Schemes, 2016b). More detailed information on the data collected is available on the data specification documents, which are available on the CMS website (The Council for Medical Schemes, 2015a).

1.3 Definition of prevalence of chronic conditions

In this report, the prevalence of chronic conditions was taken as the prevalence as defined by the schemes. Schemes were asked to provide the number of beneficiaries registered on chronic programmes. This definition is not as strict as the definition of prevalence in the prevalence reports (The Council for Medical Schemes, 2015b). The former definition is more in line with the objective of measuring the value of managed care.

1.4 Comparison across benefit options

In the absence of a benchmark to determine the performance of a benefit option on quality of care, we used an index calculated as a weighted deviation of each option from the industry average as a measure of performance.

This was considered most appropriate as it considers both the number of chronic beneficiaries under management, and the coverage ratios. Other statistical measures such as the Z-score proved inadequate as they place emphasis on the distribution of the coverage ratio and did not give consideration to the number of chronic beneficiaries being managed. Stakeholders are encouraged to engage with the CMS if they have alternative ways of comparing benefit options that are more appropriate.

When the weighted deviation is calculated, a positive value indicates that the benefit option is better than the industry average. The size of the deviation indicates how far the option is from the industry average. The deviation is weighted by the number of beneficiaries registered for the specific CDL condition on the benefit option.

The weighted deviation was calculates as follows:

$$Weighted\ deviation = \frac{Number\ \ chronic\ beneficiaries\ on\ the\ option}{Number\ of\ \ chronic\ beneficiaries\ on\ all\ options} * (Option\ CR - Industry\ CR)$$

Where: CR is the coverage ratio for a specific indicator
This deviation is calculated for each Indicator

Example

There are two benefit option with the following features;

Benefit option name	***Option A***	***Option B***
Number of beneficiaries with chronic condition X	*20 000*	*5 000*
Number of chronic beneficiaries receiving test Y	*5 000*	*4 000*
Coverage ratio	$\frac{5\ 000}{20\ 000}$ *= 25%*	$\frac{4\ 000}{5\ 000}$ *= 80%*

The coverage ratio for both options is calculated as:

$$\frac{5\ 000 + 4\ 000}{20\ 000 + 5\ 000} = 36\%$$

The weighted deviation for both Option A and Option B is calculated as:

Benefit option name	*Option A*	*Option B*
Weighted deviation	$\frac{20\,000}{25\,000} * (25\% - 36\%) =$ *-8.8%*	$\frac{5\,000}{25\,000} * (80\% - 36\%) =$ *8.8%*

The option with a coverage ratio higher than the industry average has a positive deviation, and the magnitude of the deviation represents how far off the option is from the industry average.

The weighted deviation from the industry average is meant to help trustees gauge how well they are doing compared to other benefit options. This should also assist the board of trustees as they negotiate terms with managed care organisations. The CMS hopes this will eventually lead to an improvement in the overall quality of care provided by medical schemes.

In this report we have listed the benefit options with the highest positive weighted deviation from the mean. These benefit options contributed in the most positive way to the industry coverage ratio.

We also listed 10 benefit options which had the highest negative weighted deviation from the mean. These options had the highest negative impact on the industry average coverage ratio, they brought the industry average down.

1.5 Visits of chronic beneficiaries to GPs and specialists

We have included the proportion of unique beneficiaries visiting GPs and specialists. The proportion of unique beneficiaries visiting GPs at least once is strongly correlated to the coverage ratios – this is expected. This suggests that the GPs are the provider mainly managing the chronic patients. The proportion visiting a GP at least once is just higher than the coverage ratios of process indicators for all chronic conditions.

The proportion of beneficiaries visiting a specialist at least once is lower compared to the proportion visiting a GP at least once for most chronic conditions except for CRF where these are similar. The visits to specialists are also positively correlated to the coverage ratios, though the proportion visiting specialists at least once is lower than some coverage ratios for some specific indicators.

2 Human Immunodeficiency Virus

The prevalence of HIV for medical scheme beneficiaries was 35.32 per 1 000 beneficiaries in 2015 up from 32.9 per 1 000 beneficiaries in 2014.

2.1 Process and outcome indicators

Table 1 below shows the indicators identified by ITAP. Some of the process indicators in this list also serves as outcome indicators.

	Table 1: HIV Indicators
Process indicators	
	No of unique beneficiaries with at least one ART treatment claim
	No of unique beneficiaries on the first line ART treatment regiment
	No of unique beneficiaries on the second line ART treatment regiment
	No of unique beneficiaries for whom CD4 count was conducted
	No of unique beneficiaries for whom Viral Load was conducted
Outcome Indicators	
	No of unique beneficiaries admitted to hospital at least once
	Mortality (all cause)
	No of unique beneficiaries on the third line treatment regiment

Hospitalisation data was collected in two ways – in-patient < 24 hrs and in-patient > 24 hrs. In-patient < 24 hrs are when a beneficiary's discharge date is the same as the admission date. In-patient > 24 hrs is when the discharge date is greater than the admission day.

There will be an overlap between these admissions as a beneficiary may be admitted on more than two occasions, with one admission as an in-patient < 24 hrs admission, and the other as an in-patient > 24 hrs.

Mortality data was not collected. Medical schemes data on exit of a beneficiary is not very accurate. It makes the completeness of mortality data very questionable as the records do not reflect if a beneficiary is deceased or they have left the scheme for any other reason.

Effective HIV management would entail monitoring of the patient. Such monitoring will require that the CD4 count and viral load test be carried out at least twice a year for each beneficiary.

Previously, effective management of patients also meant that the HIV patients were managed in such a way that the commencement of Anti-retroviral treatment (ART) is delayed. However, recent guidelines by the National Department of Health require that all HIV positive patients start ART upon diagnosis, irrespective of the CD4 count.

An effective HIV programme should ensure high compliance, and therefore a high portion of beneficiaries would be effectively controlled on the first line treatment regime once they start receiving ART. The first line regime is also cheaper than the subsequent regimens. The proportion of beneficiaries on the third line treatment regime is an outcome indicator.

Any effective disease management programme should be reflected through a decline in the number of hospital admissions. Hospitalisation is very expensive and avoiding hospitalisation through the provision of good quality of care to patients will help save healthcare costs for medical schemes in the long run.

2.2 Coverage in 2014 and 2015

Table 2 below summarises the coverage of HIV patients.

Table 2: HIV		
Financial Year	**2014**	**2015**
% of unique beneficiaries visiting a GP at least once	60,7%	66,5%
% of unique beneficiaries visiting a specialist at least once	22,7%	23,4%
Process indicators coverage ratios		
% of unique beneficiaries for whom CD4 count was taken	52,2%	57,8%
% of unique beneficiaries for whom Viral Load conducted	52,5%	58,4%
% of unique beneficiaries with at least one ART treatment claim	58,9%	65,7%
% of unique beneficiaries first line ART treatment regime*	48,0%	54,3%
% of unique beneficiaries second line ART treatment regime*	14,5%	14,8%
% of unique beneficiaries receiving INH prophylaxis	0,5%	0,6%
% of unique beneficiaries on TB treatment	1,1%	1,0%
Outcome indicators		
% of unique beneficiaries admitted - hospital admissions in-patient<24 hrs	7,1%	8,0%
% of unique beneficiaries admitted - Hospital admissions in-patient>24 hrs	15,1%	14,9%
Hospital Re-admissions** in-patient < 24 hrs	52,5%	55,8%
Hospital Re-admissions in-patient > 24 hrs	54,6%	64,9%

* These indicators should be treated with caution as the sum of these should be less than number of patient with at least one ART claim

** Hospital re-admission rates measure the extent to which beneficiaries are admitted more than once in any financial year. This was calculated as the total number of hospital admissions divided by the number of unique beneficiaries admitted at least once.

The level of monitoring of HIV patients is relatively high and it increased from 2014 to 2015. The number of unique beneficiaries undergoing CD4 counts increased from 52.2% to 57.8% an increase of 5.4% was also observed for viral load tests.

There was a similar trend on the number of chronic beneficiaries on the first line treatment increasing from 48.0% to 54.3%. The number of beneficiaries on second line treatment was almost unchanged at 14.5% in 2014, and 14.8% in 2015.

Overall, in-patient > 24 hrs hospitalisation for HIV patients fell slightly from 15.1% in 2014 to14.9% in 2015. However, there was a 0.9% increase in in-patient < 24 admissions from 7.1% in 2014 to 8.0% in 2015.

3 Diabetes Mellitus

Diabetes mellitus is a metabolic disease in which the patient has high blood glucose (blood sugar), either because insulin production is inadequate, or because the body's cells do not respond properly to insulin, or both. If the levels of blood glucose is uncontrolled, it can lead to long term damage and dysfunction of various organs, especially eyes, kidneys, nerves, heart and blood vessels.

The prevalence of diabetes has been on the increase among medical scheme beneficiaries. In 2015 it was 12.5 for DM1 and 48.1 for DM2 per 1 000 beneficiaries. In 2014 the prevalence was 12.3 for DM1 and 45.0 for DM2 per 1 000 beneficiaries.

3.1 Process indicators

Table 3 below displays the indicators identified at ITAP.

	Table 3: Diabetes Mellitus (1 and 2) indicators
Process indicators	
	No of unique beneficiaries with at least one (1) Dietician consultation
	No of unique beneficiaries with at least one (1) Fundus Exam test
	No of unique beneficiaries with at least two (2) HbA1c tests
	No of unique beneficiaries with at least one (1) LDL / lipogram test
	No of unique beneficiaries with at least one (1) Creatinine / Albumin test
	No of unique beneficiaries with receiving Statins
Outcome Indicators	
	No of unique beneficiaries admitted - hospital admissions (all cause)
	Mortality (all cause)
	No of unique beneficiaries diagnosed with renal failure
	No of unique beneficiaries diagnosed with retinopathy
	No of unique beneficiaries receiving Amputations
	No of unique beneficiaries diagnosed with neuropathy

Hospitalisation data was collected in the same way as for HIV. Similarly, there will be an overlap between these admissions as a beneficiary may be admitted on more than two occasions with one incident as an in-patient < 24 hrs admission and the other as an in-patient > 24 hrs.

As in the case of HIV, mortality data was not collected through the latest data submission. The number of beneficiaries developing retinopathy, amputation and neuropathy was also not collected. The number of diabetic patients on renal dialysis was collected as an indicator of renal failure.

Effective diabetes management should entail monitoring of the level of blood glucose over a period of 3 months using HbA1c. Such monitoring will require that at least 2 HbA1c tests be conducted in a single year.

The other monitoring tests would be required as a way of assessing if the patient is not developing the conditions listed as outcome indicators. These are:

a) At least one dietician consultation annually – patients need assistance with the right diet so as to manage their condition.
b) At least one annual renal function assessment with Creatinine – this test checks if the patient is developing renal failure.
c) At least one annual eye exam (fundal examination) – this is an eye function test to check if the patient is not developing retinopathy.
d) At least one annual LDL/lipogram test – the amount of cholesterol in the blood giving an indication of how effective the diet is. It also helps asses the cardiovascular disease risk in a patient.
e) Urine dipstick or Microalbuminuria – measures amount of sugar, protein and creatinine in urine giving an indication of renal kidney function.

3.2 Coverage in 2014 and 2015 (DM1)

Table 4 below summarises the coverage of DM1 patients.

Table 4: Diabetes Mellitus Type 1		
Financial Year	**2014**	**2015**
% of unique beneficiaries visiting a GP at least once	19,7%	19,1%
% of unique beneficiaries visiting a specialist at least once	13,1%	12,6%
Process indicators coverage ratios		
% of unique beneficiaries receiving at least one (1) Urine protein / creatinine ratio test	12,6%	12,3%
% of unique beneficiaries receiving at least one (1) eye exam (Fundus examination) for the reporting period	2,0%	2,0%
% of unique beneficiaries receiving at least two (2) HBA1C tests	9,8%	9,7%
% of unique beneficiaries receiving at least one (1) total cholesterol test	7,7%	7,7%
% of unique beneficiaries on Pharmacological management	21,0%	20,4%
% of unique beneficiaries receiving Statins	10,4%	10,1%
Outcome indicators		
% of unique beneficiaries on Renal dialysis	0,5%	0,6%
% of unique beneficiaries admitted - hospital admissions in-patient<24 hrs	4,3%	4,1%
% of unique beneficiaries admitted - Hospital admissions in-patient>24 hrs	10,7%	9,7%
Hospital Re-admissions in-patient < 24 hrs	70,4%	66,1%
Hospital Re-admissions in-patient > 24 hrs	72,5%	84,1%

The level of monitoring of DM1 patients is relatively low and it decreased from 2014 to 2015. The number of unique beneficiaries receiving at least two HbA1c test counts reduced marginally from 9.8% to 9.7%. There were also modest decreases in the other tests conducted on beneficiaries.

In-patient < 24 hrs hospitalisations reduced slightly from 4.3% in 2014 to 4.1% in 2015. Similarly, the in-patient > 24 hrs hospital admissions reduced by 1.0% from 10.7% in 2014 to 9.7% in 2015.

The proportion of DM1 patients with renal failure increased slightly from 0.5% in 2014 to 0.6% in 2015.

3.5 Coverage in 2014 and 2015 (DM2)

Table 5 below summarises the coverage of DM2 patients.

Table 5: Diabetes Mellitus Type 2		
Financial Year	**2014**	**2015**
% of unique beneficiaries visiting a GP at least once	53,6%	53,9%
% of unique beneficiaries visiting a specialist at least once	26,6%	26,7%
Process indicators coverage ratios		
% of unique beneficiaries receiving at least one (1) urine protein / creatinine ratio test	31,3%	32,3%
% of unique beneficiaries receiving at least one (1) eye exam (fundus examination) for the reporting period	3,2%	3,4%
% of unique beneficiaries receiving at least two (2) HbA1c tests	25,7%	25,8%
% of unique beneficiaries receiving at least one (1) total cholesterol test	23,3%	23,8%
% of unique beneficiaries on pharmacological management	50,3%	51,7%
% of unique beneficiaries receiving Statins	27,4%	28,7%
Outcome indicators		
% of unique beneficiaries on renal dialysis	0,5%	0,5%
% of unique beneficiaries admitted - Hospital admissions in-patient < 24 hrs	9,1%	9,0%
% of unique beneficiaries admitted - Hospital admissions in-patient > 24 hrs	16,2%	15,3%
Hospital Re-admissions in-patient < 24 hrs	73,0%	73,0%
Hospital Re-admissions in-patient > 24 hrs	60,9%	74,5%

The level of monitoring of DM2 patients is low – though higher compared to DM1, it increased slightly from 2014 to 2015. The number of unique beneficiaries receiving at least two HbA1c test counts increased marginally from 25.7% to 25.8%. There were also modest increases in the other tests conducted on beneficiaries.

In-patient < 24 hrs hospitalisations reduced slightly from 9.1% in 2014 to 9.0% in 2015. Similarly, the in-patient > 24 hrs hospital admissions decreased by 0.9% from 16.2% in 2014 to 15.3% in 2015.

4 Hypertension

Hypertension is a chronic medical condition in which the blood pressure in the arteries is elevated. The increased blood pressure, if not controlled, could cause damage to the arteries, which in turn may lead to damage to the heart, brain and kidneys, among other effects.

This is the most prevalent condition of all the CDL conditions. The prevalence of HYP among medical scheme beneficiaries was 152.3 per 1 000 beneficiaries in 2015, up from 147 per 1 000 beneficiaries in 2014.

4.1 Process and outcome indicators

Table 6 below shows the indicators identified by ITAP.

	Table 6: Hypertension Indicators
Process indicators	
	No of unique beneficiaries with at least one (1) electrocardiogram test
	No of unique beneficiaries with at least one (1) Creatinine / eGFR test
	No of unique beneficiaries with at least one (1) total cholesterol test
Outcome Indicators	
	No of unique beneficiaries admitted - Hospital admissions (for stroke)
	No of unique beneficiaries diagnosed with Ischemic heart disease
	No of unique beneficiaries diagnosed with Chronic renal failure

The Creatinine test is used to check kidney function. Its purpose is to see if there is any damage to the kidneys. The total cholesterol test measures the amount of cholesterol in the blood. High cholesterol levels are associated with heart diseases. The rationale for this test is to check if hypertensive patients are not at risk of heart disease.

The electrocardiogram test is used to check if high blood pressure has damaged the patient's heart or blood vessels. Effective management of hypertension requires that this test be carried out at least once a year for each hypertensive patient.

4.2 Coverage in 2014 and 2015

Table 7 below summarises the coverage of Hypertension patients.

Table 7: Hypertension		
Financial Year	**2014**	**2015**
% of unique beneficiaries visiting a GP at least once	50,6%	50,9%
% of unique beneficiaries visiting a specialist at least once	23,6%	23,4%
Process indicators coverage ratios		
% of unique beneficiaries receiving at least one (1) electrocardiogram for left ventricular hypertrophy	11,2%	11,0%
% of unique beneficiaries receiving at least one (1) Creatinine / eGFR test	3,0%	3,3%
% of unique beneficiaries receiving at least one (1) total cholesterol test	21,3%	21,5%
% of unique beneficiaries on HYP medication	54,4%	55,5%
Outcome indicators		
Diagnosed with DM1 or DM2	15,6%	16,5%
% of unique beneficiaries admitted - hospital admissions in-patient<24 hrs	8,2%	8,1%
% of unique beneficiaries admitted - Hospital admissions in-patient>24 hrs	13,1%	12,3%
Hospital Re-admissions in-patient < 24 hrs	79,2%	81,0%
Hospital Re-admissions in-patient > 24 hrs	66,1%	80,9%

The coverage ratio for process indicators of hypertensive patients is relatively low. It has increased slightly for the total cholesterol test from 21.3% in 2014 to 21.5% in 2015. The electrocardiogram test coverage decreased by 0.2% to 11.0% in 2015. The number of unique beneficiaries receiving at least one Creatinine / eGFR test increased from 3.0% to 3.3%.

Hospitalisation was on the decrease, it reduced from 13.1% in 2014 to 12.3% in 2015 for in-patient > 24 hrs hospital admission. The in-patient > 24 hrs hospital admissions reduced by only 0.1% to 8.1% in 2015.

5 Congestive Heart Failure

Congestive heart failure, or heart failure, is a condition in which the heart is unable to adequately pump blood throughout the body and/or is unable to prevent blood from "backing up" into the lungs. This causes blood and fluids to back up in the body – particularly in the liver, lungs, hands, and feet. There are many causes of this condition, which include hypertension and ischemic heart disease.

The prevalence of CHF increased from 8.5 per 1 000 beneficiaries in 2014 to 8.8 per 1 000 beneficiaries in 2015 across medical scheme beneficiaries.

5.1 Process and outcome indicators

Table 8 below shows the indicators identified at ITAP.

	Table 8: Congestive Heart Failure Indicators
Process indicators	
	No of unique beneficiaries with at least one (1) electrocardiogram
	No of unique beneficiaries on Angiotensin Converting Enzyme / Angiotensin Receptor Blocker
	No of unique beneficiaries on Spironolactone (MRA)
	No of unique beneficiaries who had a flu vaccine
Outcome Indicators	
	No of unique beneficiaries admitted - Hospital admissions (all cause)
	No of unique beneficiaries admitted - Hospital re-admissions (all cause)
	Mortality (all cause)

The electrocardiogram test is used to check if high blood pressure has damaged the patient's heart or blood vessels. Spironolactone (MRA) and Angiotensin Converting Enzyme / Angiotensin Receptor Blocker are drugs used to treat CHF patients.

CHF patients are at a higher risk due to complications that may arise from influenza. It is therefore important that they receive a flu vaccine at least once a year.

5.2 Coverage in 2014 and 2015

In table 9 below, a summary of the coverage of CHF patients is displayed.

Table 9: Congestive Heart Failure		
Financial Year	**2014**	**2015**
% of unique beneficiaries visiting a GP at least once	35,9%	37,2%
% of unique beneficiaries visiting a specialist at least once	27,5%	28,1%
Process indicators coverage ratios		
% of unique beneficiaries receiving at least one (1) electrocardiogram	19,0%	19,2%
% of unique beneficiaries receiving at least one (1) flu vaccine	6,2%	7,3%
% of unique beneficiaries receiving at least one (1) renal function test (urine analysis, serum electrolytes)	26,7%	27,8%
% of unique beneficiaries on CHF medication	44,1%	44,5%
Outcome indicators		
% of unique beneficiaries admitted - hospital admissions in-patient<24 hrs	8,7%	8,7%
% of unique beneficiaries admitted - Hospital admissions in-patient>24 hrs	19,8%	20,1%
Hospital Re-admissions in-patient < 24 hrs	61,2%	63,2%
Hospital Re-admissions in-patient > 24 hrs	106,2%	125,6%

The coverage ratios for CHF has increased from 2014 to 2015. The number of unique beneficiaries receiving at least one electrocardiogram increased marginally from 19.0% to 19.2% in 2015. The coverage ratios for the flu vaccine and the renal function tests increased by at least 1%.

The coverage ratio of the flu vaccine is very low – 7.3% in 2015. There could be several reasons for this which include poor member compliance or missing data as members maybe paying for this over the counter.

Hospitalisation was relatively unchanged increasing by 0.3%, from 19.8% in 2014 to 20.1% in 2015 for in-patient > 24 hrs hospital admissions. The in-patient < 24 hrs hospital admissions were 8.7% for both 2014 and 2015.

6 Ischemic Heart Disease

Ischemic heart disease (IHD) is a narrowing of the small blood vessels that supply blood and oxygen to the heart. IHD is also called coronary artery disease. The narrowing of these arteries may in some severe cases lead to heart attacks.

The prevalence of IHD increased from 22.6 per 1 000 beneficiaries in 2014 to 23.2 per 1 000 beneficiaries in 2015 across medical scheme beneficiaries.

6.1 Process and outcome indicators

Table10 below shows the process indicators identified at ITAP.

	Table 10: Ischemic Heart Disease Indicators
Process indicators	
	No of unique beneficiaries with at least one (1) fasting glucose test
	No of unique beneficiaries with at least one (1) HbA1c test
	No of unique beneficiaries on statins
	No of Unique beneficiaries with at least one (1) LDL/Lipogram test
	No of unique beneficiaries on aspirin
Outcome Indicators	
	No of unique beneficiaries admitted - Hospital admissions (all cause)
	No of unique beneficiaries admitted - Hospital re-admissions (all cause)
	Mortality (all cause)

IHD patients need to be treated with statins and aspirin. Aspirin, prevents blood clots from forming in the patient's arteries. This reduces the chances of a heart attack or stroke episode

The fasting glucose test is used to monitor the blood sugar level in patients. Higher levels of fasting glucose increase the risk of IHD.

6.2 Coverage in 2014 and 2015

Table 11 below summarises the coverage of IHD patients.

Table 11: Coronary Artery Disease		
Financial Year	**2014**	**2015**
% of unique beneficiaries visiting a GP at least once	29,0%	30,1%
% of unique beneficiaries visiting a specialist at least once	25,3%	26,4%
Process indicators coverage ratios		
% of unique beneficiaries receiving at least one (1) LDL / lipogram test	15,9%	16,3%
% of unique beneficiaries receiving at least one (1) electrocardiogram	21,3%	22,0%
% of unique beneficiaries receiving at least one (1) DM screening test	21,4%	22,0%
% of unique beneficiaries on aspirin	5,2%	5,3%
% of unique beneficiaries on statins	29,8%	31,1%
Outcome indicators		
% of unique beneficiaries being treated for diabetes	12,3%	12,9%
% of unique beneficiaries being treated for hypertension	33,8%	34,8%
% of unique beneficiaries admitted - hospital admissions in-patient<24 hrs	7,4%	7,6%
% of unique beneficiaries admitted - Hospital admissions in-patient>24 hrs	16,1%	16,2%
Hospital Re-admissions in-patient < 24 hrs	61,9%	64,7%
Hospital Re-admissions in-patient > 24 hrs	87,0%	102,8%

The level of monitoring of IHD patients was almost unchanged from 2014 to 2015. DM screening test coverage increased from 21.4% in 2014 to 22.0% in 2015. The proportion of unique beneficiaries receiving the lipogram test and the electrocardiogram increased by 0.4% and 0.7% respectively.

The number of patients on aspirin is very low – less than 10%. Minimum standards of effective care require that IHD patients be on aspirin medication. The PMB treatment algorithms state that all patients should be given aspirin unless contraindicated.

Hospitalisation was increased slightly, increasing from 7.4% in 2014 to 7.6% in 2015 for in-patient < 24 hrs hospital admissions. The in-patient > 24 hrs hospital admissions increased by only 0.1% from 16.1% in 2014 to 16.2% in 2015.

7 Chronic Renal Disease

Chronic Renal Disease is a condition characterised by gradual weakening of kidney function. The poor kidney function leads to high levels of waste in the blood of the patient. The loss in kidney function often results in patient developing other chronic conditions.

The prevalence of CRF increased from 4.2 per 1 000 beneficiaries in 2014 to 4.5 per 1 000 beneficiaries in 2015 across medical scheme beneficiaries.

7.1 Process and outcome indicators

Table 8 below shows the indicators identified at ITAP.

	Table 12: Chronic Renal Disease Indicators
Process indicators	
	No of unique beneficiaries with at least one (1) urine protein / creatinine ratio test
	No of unique beneficiaries with at least one 1 renal sonar
	No of unique beneficiaries with at least one (1) total cholesterol test
	No of unique beneficiaries with at least one (1) Hb test
	No of unique beneficiaries who are on pharmacological management
Outcome Indicators	
	No of unique beneficiaries admitted - Hospital admissions (all cause)
	No of unique beneficiaries receiving - Renal dialysis
	No of unique beneficiaries receiving Renal transplants
	No of unique beneficiaries admitted - Hospital re-admissions (all cause)
	Mortality (all cause)

The Creatinine test is used to check kidney function. Its purpose is to determine the extent of any damage to the kidneys. The total cholesterol test measures the amount of cholesterol in the blood. High cholesterol levels are associated with heart diseases. The rational of this test is to check if CRF patients are not at risk of heart disease.

The renal sonar helps assess the “size, location, and shape of the kidneys and related structures, such as the ureters and bladder. Ultrasound can detect cysts, tumors, abscesses, obstructions, fluid collection, and infection within or around the kidneys” (John Hopkin Medicine Health Library, 2016). The renal sonar must be carried out at least once a year on all CRF patients. The test to assess the level of haemoglobin must be carried out at least once a year. Lower levels of haemoglobin are associated with poor kidney function.

7.2 Coverage in 2014 and 2015

Table 13: Chronic Renal Disease		
Financial Year	**2014**	**2015**
% of unique beneficiaries visiting a GP at least once	16,5%	17,0%
% of unique beneficiaries visiting a specialist at least once	16,6%	17,0%
Process indicators coverage ratios		
% of unique beneficiaries receiving at least one (1) urine protein / creatinine ratio test	12,4%	13,4%
% of unique beneficiaries receiving at least one (1) Hb test	14,0%	14,5%
% of unique beneficiaries receiving at least one (1) total cholesterol test	11,1%	12,0%
% of unique beneficiaries receiving at least one (1) renal sonar	0,2%	0,2%
% of unique beneficiaries on pharmacological management	4,9%	5,1%
Outcome indicators:		
% of unique beneficiaries receiving dialysis	10,4%	11,2%
% of unique beneficiaries receiving renal transplants	0,3%	0,4%
% of unique beneficiaries admitted - hospital admissions in-patient<24 hrs	7,5%	7,6%
% of unique beneficiaries admitted - Hospital admissions in-patient>24 hrs	18,5%	17,8%
Hospital Re-admissions in-patient < 24 hrs	94,3%	96,4%
Hospital Re-admissions in-patient > 24 hrs	157,7%	195,5%

The coverage ratios of CRF patients increased on all process indicators. The proportion of CRF patients receiving the creatinine test increased from 12.4% in 2014 to 13.4% in 2015. The proportion of unique beneficiaries receiving the total cholesterol test and the Hb test increased by 0.9% and 0.5% respectively.

Hospitalisation increased slightly from 7.5% in 2014 to 7.6% in 2015 for in-patient < 24 hrs hospital admissions. While, the in-patient > 24 hrs hospital admissions decreased by 0.7% from 18.5% in 2014 to 17.8% in 2015.

8 Asthma

Asthma is a lung disease that inflames and narrows the airways. This causes recurring periods of chest tightness, wheezing, sometimes coughing and shortness of breath (National Institutes of Health, 2016).

The prevalence of Asthma decreased from 44.4 per 1 000 beneficiaries in 2014 to 43.0 per 1 000 beneficiaries in 2015 across medical scheme beneficiaries.

8.1 Process and outcome indicators

Table 8 below shows the indicators identified at ITAP.

	Table 14: Asthma Indicators
Process indicators	
	No of unique beneficiaries with at least one (1) lung function test
	No of unique beneficiaries who had a flu vaccine
Outcome Indicators	
	No of unique beneficiaries receiving not more than 10 inhaled corticosteroid inhalers
	No of unique beneficiaries receiving more than 10 inhaled corticosteroid inhalers
	No of unique beneficiaries receiving not more than 10 long acting beta agonists inhalers
	No of unique beneficiaries receiving more than 10 long acting beta agonists inhalers
	No of unique beneficiaries receiving not more than 10 oral corticosteroid
	No of unique beneficiaries receiving more than 10 oral corticosteroid
	No of unique beneficiaries receiving not more than 10 short acting beta agonists inhalers
	No of unique beneficiaries receiving more than 10 short acting beta agonists inhalers
	No of unique beneficiaries admitted - Hospital admissions in-patient < 24 hrs
	No of unique beneficiaries admitted - Hospital admissions in-patient > 24 hrs
	Mortality (all cause)

The lung function test must be conducted at least once a year for all asthma patients. This test assesses the amount of air breathed in and out of a patient's lung, it assess how well the lungs are functioning and if the treatment option is optimal.

A flu vaccine should be administered to all asthma patients at least once every year. This is important as evidence suggests that flu vaccine reduces the effects of Asthma.

The outcomes listed above include the intensity of treatment. A lot of scripts indicate the severity of the condition.

Asthma is treated as a step-wise approach hence the use of more than one group of drugs is indicative of the severity of asthma. The use of more than one inhaler of a short acting beta agonist as monotherapy is also indicative of uncontrolled asthma.

8.2 Coverage in 2014 and 2015

Table 15: Asthma		
Financial Year	**2014**	**2015**
% of unique beneficiaries visiting a GP at least once	37,4%	39,0%
% of unique beneficiaries visiting a specialist at least once	19,1%	19,5%
Process indicators coverage ratios		
% of unique beneficiaries receiving at least one (1) flu vaccine	3,9%	4,6%
% of unique beneficiaries receiving at least one (1) lung function test	5,2%	5,2%
Outcome indicators		
% of unique beneficiaries receiving not more than 10 inhaled corticosteroid inhalers	13,0%	12,5%
% of unique beneficiaries receiving more than 10 inhaled corticosteroid inhalers	2,2%	2,1%
% of unique beneficiaries receiving not more than 10 long acting beta agonists inhalers	19,4%	20,2%
% of unique beneficiaries receiving more than 10 long acting beta agonists inhalers	6,6%	6,8%
% of unique beneficiaries receiving not more than 10 oral corticosteroid	6,2%	6,5%
% of unique beneficiaries receiving more than 10 oral corticosteroid	0,5%	0,5%
% of unique beneficiaries receiving not more than 10 short acting beta agonists inhalers	20,0%	20,3%
% of unique beneficiaries receiving more than 10 short acting beta agonists inhalers	4,7%	4,8%
% of unique beneficiaries admitted - hospital admissions in-patient<24 hrs	7,0%	7,1%
% of unique beneficiaries admitted - Hospital admissions in-patient>24 hrs	11,1%	10,9%
Hospital Re-admissions in-patient < 24 hrs	41,0%	41,8%
Hospital Re-admissions in-patient > 24 hrs	65,0%	73,6%

The coverage ratios of AST patients increased on all process indicators. The proportion of AST patients receiving the lung function test was 5.2%, unchanged from 2014 to 2015. The proportion of unique beneficiaries receiving flu vaccine increased by 0.7% to 4.6% in 2015.

Hospitalisation increased slightly from 7.0% in 2014 to 7.1% in 2015 for in-patient < 24 hrs hospital admissions. While, the in-patient > 24 hrs hospital admissions decreased marginally by 0.2% from 11.1% in 2014 to 10.9% in 2015.

9 Chronic Obstructive Pulmonary Disease

COP is a condition which progressively makes it difficult for the patient to breathe. It is caused by a number of factors which include smoking, air pollution, long term exposure to chemical fumes or exposure to lung irritants.

The prevalence of COP decreased slightly to 5.8 per 1 000 beneficiaries in 2015 from 5.9 per 1 000 beneficiaries in 2014 across medical scheme beneficiaries.

9.1 Process and outcome indicators

Table 8 below shows the indicators identified at ITAP.

	Table 16: Chronic Obstructive Pulmonary Disease Indicators
Process indicators	
	No of unique beneficiaries with at least one (1) lung function test
	No of unique beneficiaries who had a flu vaccine
Outcome Indicators	
	No of unique beneficiaries receiving not more than 10 inhaled corticosteroid inhalers
	No of unique beneficiaries receiving more than 10 inhaled corticosteroid inhalers
	No of unique beneficiaries receiving not more than 10 long acting beta agonists inhalers
	No of unique beneficiaries receiving more than 10 long acting beta agonists inhalers
	No of unique beneficiaries receiving not more than 10 oral corticosteroid
	No of unique beneficiaries receiving more than 10 oral corticosteroid
	No of unique beneficiaries receiving not more than 10 short acting beta agonists inhalers
	No of unique beneficiaries receiving more than 10 short acting beta agonists inhalers
	No of unique beneficiaries admitted - Hospital admissions in-patient < 24 hrs
	No of unique beneficiaries admitted - Hospital admissions in-patient > 24 hrs
	Mortality (all cause)

The lung function test must be conducted at least once a year for all COP patients. This test assesses the amount of air breathed in and out of a patient's lung, it assess how well the lungs are functioning.

A flu vaccine should be administered to all COP patients at least once every year. This is important as evidence suggests that flu vaccine reduces the effects of COP.

The outcomes listed above include the intensity of treatment. A lot of scripts indicate the severity of the condition.

9.2 Coverage in 2014 and 2015

Table 17: Chronic Obstructive Pulmonary Disease		
Financial Year	**2014**	**2015**
% of unique beneficiaries visiting a GP at least once	20,6%	22,5%
% of unique beneficiaries visiting a specialist at least once	15,4%	16,6%
Process indicators coverage ratios		
% of unique beneficiaries receiving at least one (1) Flu vaccine	5,2%	6,2%
% of unique beneficiaries receiving at least one (1) lung function test	10,5%	11,2%
Outcome indicators		
% of unique beneficiaries receiving not more than 10 inhaled corticosteroid inhalers	7,3%	7,2%
% of unique beneficiaries receiving more than 10 inhaled corticosteroid inhalers	1,8%	1,9%
% of unique beneficiaries receiving not more than 10 long acting beta agonists inhalers	13,0%	13,6%
% of unique beneficiaries receiving more than 10 long acting beta agonists inhalers	6,7%	7,3%
% of unique beneficiaries receiving not more than 10 oral corticosteroid	2,4%	2,6%
% of unique beneficiaries receiving more than 10 oral corticosteroid	0,4%	0,4%
% of unique beneficiaries receiving not more than 10 short acting beta agonists inhalers	11,6%	12,0%
% of unique beneficiaries receiving more than 10 short acting beta agonists inhalers	4,7%	4,7%
% of unique beneficiaries being treated for diabetes	4,9%	5,3%
% of unique beneficiaries being treated for hypercholesterolemia	10,1%	11,2%
% of unique beneficiaries being treated for hypertension	18,3%	19,8%
% of unique beneficiaries receiving home oxygen	2,3%	2,5%
% of unique beneficiaries admitted - hospital admissions in-patient<24 hrs	5,3%	5,4%
% of unique beneficiaries admitted - Hospital admissions in-patient>24 hrs	13,4%	13,6%
Hospital Re-admissions in-patient < 24 hrs	60,9%	57,2%
Hospital Re-admissions in-patient > 24 hrs	79,5%	89,3%

The coverage ratios of COP patients increased on all process indicators. The proportion of COP patients receiving the lung function test increased marginally from 10.5% in 2014 to 11.2% in 2015. The proportion of unique beneficiaries receiving flu vaccine increased by 1.0% to 6.2% in 2015.

A large proportion of the COP patients were also on treatment for hypertension – 19.8% in 2015. In the same period 2.5% of them were receiving home oxygen.

Hospitalisation was increased slightly from 5.3% in 2014 to 5.4% in 2015 for in-patient < 24 hrs hospital admissions. Similarly, the in-patient > 24 hrs hospital admissions increased marginally by 0.2% from 13.4% in 2014 to 13.6% in 2015.

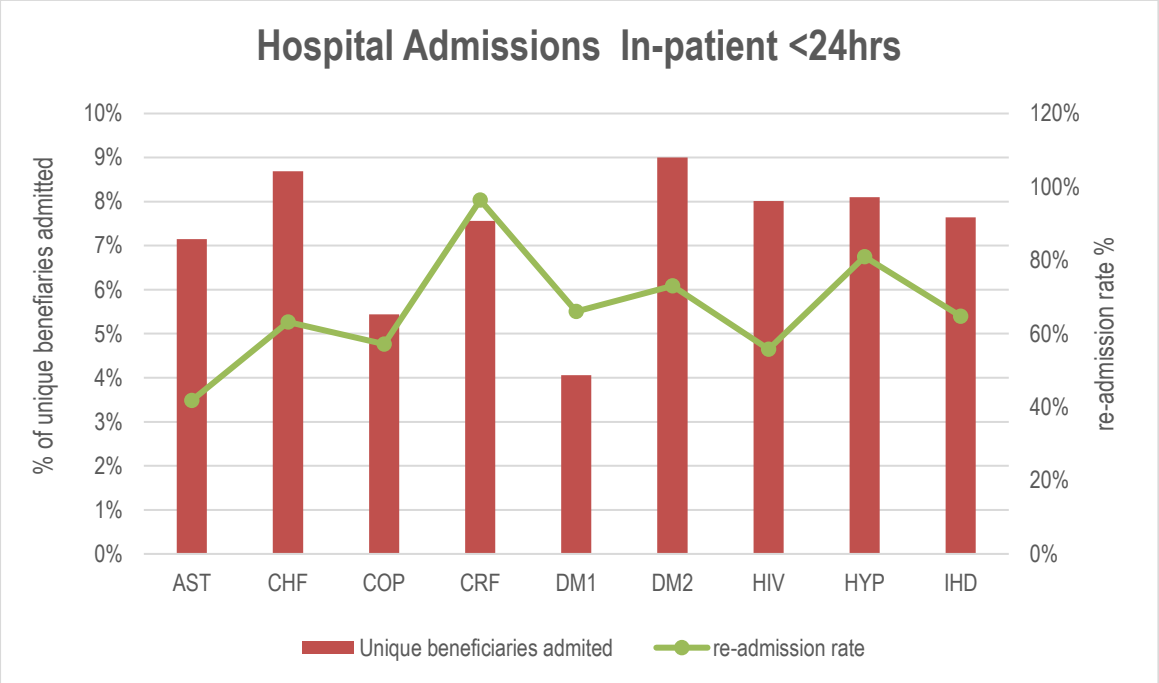
10 Analysis of results

In the following section the CMS will analyse the hospitalisation of all the CDL conditions discussed in this document. Co-occurring CDL conditions will also be discussed.

10.1 Hospitalisation

Effective disease management should limit the amount of hospitalisation. Figure1 and 2 below show the rates of admissions for unique beneficiaries and the rate of re-admissions across all the conditions discussed:

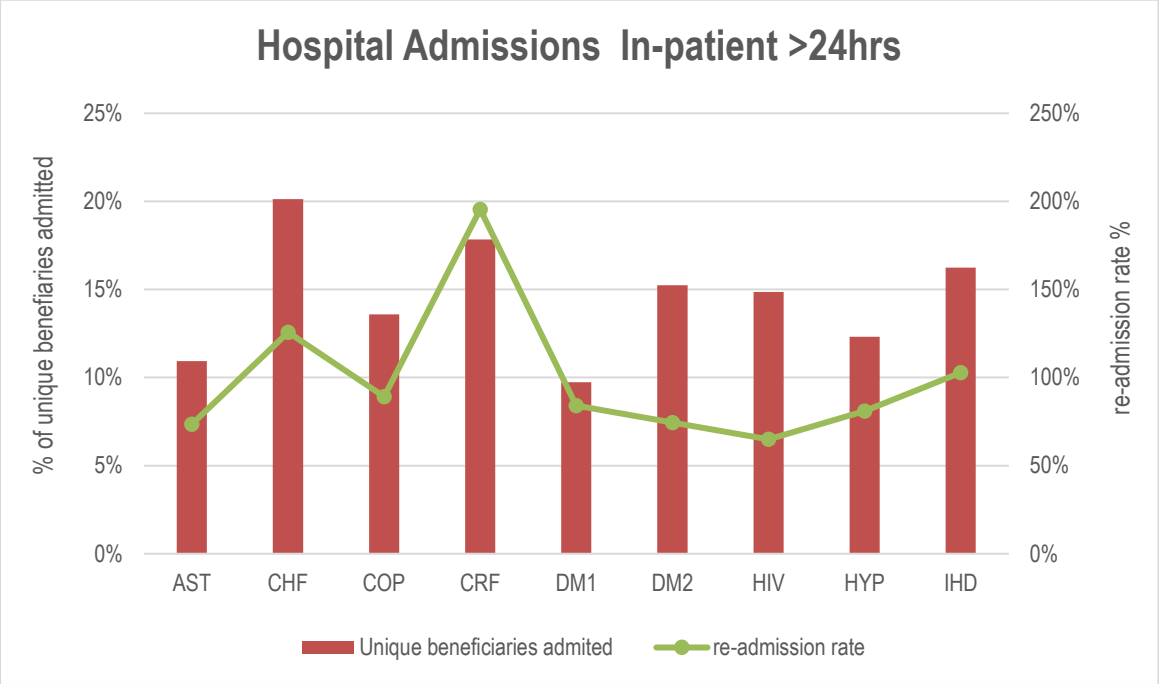
Figure 1: Hospital admissions: In-patient < 24hrs



There is significant variation of hospital admission rates by CDL condition. DM1 had the lowest proportion of beneficiaries admitted at least once while DM2 had the highest proportion.

CRF had the highest re-admission rates (96%) and the number of unique beneficiaries admitted at least once was relatively low at 7.65%. The CRF re-admission rate may be attributed to frequent renal dialysis admissions – this is actually a good indicator of care if that is the case.

Figure 2: Hospital admissions: In-patient > 24hrs



The rates for admissions for in-patient > 24 hrs are higher compared to the former admission type. The re-admission rates are also higher. CRF has the highest re-admission rate which is almost 200%. The condition also has the second highest proportion of unique beneficiaries being admitted at least once.

About 20% of CHF patients were admitted at least once during 2015 – more than double the proportion of DM1 patients admitted at least once.

10.2 Co-morbidities

Co-occurring chronic conditions make disease management expensive and more complicated to manage. Effective management of diseases should be reducing the chances of a chronic patient developing other co-morbidities. This is an important indicator to monitor from time to time as it is an indicator of the quality of care, as well as an important risk factor. Table 18 shows the co-occurring conditions in the 2015 financial year:

Table 18: CDL conditions and co-morbidities among chronic patients

	Hypertension	Hyper-cholesterolemia	Tuberculosis	Diabetes Mellitus	Renal failure
Hypertension				16,5%	
Chronic Obstructive Pulmonary Disease	19,8%	11,2%		5,3%	
HIV			1,0%		
Diabetes Mellitus 1					0,6%
Diabetes Mellitus 2					0,5%
Ischemic Heart Disease	34,8%			12,9%	

*The blank cells in table 18 do not reflect that there are no beneficiaries with two corresponding conditions, this reflects that the data on such co-occurring conditions was not collected.

A significant portion of IHD patients also have Hypertension - 36.9% while 17.5% of Hypertensive patients are diabetic.

10.4 Effectiveness of disease management programmes

The effectiveness of disease management programmes can best be analysed by comparing process and outcome indicators for benefit options contracted to MCOs and those which are not. Risk adjustment would be necessary when considering outcomes. Benefit options have different risk pools which will ultimately affect outcomes. The process indicators would not be affected by the risk pool – a small adjustment may be effected on the results, to allow for member movement.

10.5 Trends over time

Measuring outcome indicators should be an ongoing process. The quality of data should improve with time, consequently the CMS results and data analysis will improve. It is also vital to monitor the trends over time. This may help identify problems early - when outcomes deteriorate the CMS needs to know the reasons. Monitoring trends over time will help monitor progress in terms of achieving the intended objectives mentioned earlier.

10.6 Value of managed care

The CMS will engage stakeholders with a view to improve data submissions on the costs of managed health care. Part of the recommendations will be for medical schemes and managed care organisations unbundle costs of managed care arrangements where multiple chronic conditions are under one contract. This will enable a more objective calculation of the value of managed care.

11 Conclusion and Recommendations

The quality of care in medical schemes should improve over time. Improving quality of care should improve the quality of life for the beneficiaries and hopefully also reduce a significant proportion of downstream costs. Good quality of care should manage patients in such a way that there are no complications which may and require expensive health interventions.

The CMS encourages schemes to be more proactive in the monitoring of the quality of care provided to their patients. The CMS will continue reporting the results of quality assessments. The ITAP process will also continue and the CMS will expand the list of indicators in the Annual Statutory Return data specification. More work will also be carried out regarding the evaluation of the outcomes data, and to unpack the managed care fees paid to MCOs.

The Board of Trustees are encouraged to scrutinise the medical schemes' contract with managed care organisations to help determine whether the schemes are getting value for money from the managed care organisations. The Annexures contain information on some of the benefit options that are at the extremes in terms of coverage ratios. The Board of Trustees may use the same approach to assess themselves against the performance other benefit options. The Annual Report provides a comprehensive list of coverage ratios all indicators for each benefit option.

Schemes are encouraged to improve on the coordination of the provision of care for patients, including the quality of the indicator data. A significant portion of co-occurring CDL conditions have been noted, and it is important that the care provided for these patients should be well coordinated. Where data challenges still exist with third parties, schemes are encouraged to put in place mechanisms for receiving accurate data for reporting to the CMS. Stakeholders are also encouraged to engage with the list of codes per managed care indicator published in the Annual Statutory Return data specification document, or Circular 15 of 2016, and to inform the office if the list of codes is not complete.

References

John Hopkin Medicine Health Library (2016) *How do the kidneys work ?* Available at: http://www.hopkinsmedicine.org/healthlibrary/test_procedures/urology/kidney_ultrasound_92,p07709/.

Mainz, J. A. N. (2003) 'Defining and classifying clinical indicators for quality improvement', *International Journal for Quality in Health Care*, 15(6), pp. 523–530.

National Institutes of Health (2016) *What is Asthma?* Available at: http://www.nhlbi.nih.gov/health/health-topics/topics/asthma#.

The Council for Medical Schemes (2015a) *Circular15Of2016.pdf*. Available at: www.medicalschemes.com.

The Council for Medical Schemes (2015b) *Prevalence of chronic diseases in the population covered by medical aid schemes in South Africa Research and Monitoring Unit*. Available at: www.medicalschemes.com.

The Council for Medical Schemes (2016a) *Council for Medical Schemes Annual Report 2015/16*. Available at: /http://www.medicalschemes.com/.

The Council for Medical Schemes (2016b) *Healthcare Utilisation Annual Statutory Return*.

Annexure A: Benefit options contributing most to increasing industry coverage ratios

HIV

CD4 count conducted			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Government Employees Medical Scheme	Emerald	75,3%	6,434%
South African Police Service Medical Scheme	Higher Plan	78,9%	1,828%
Government Employees Medical Scheme	Ruby	71,6%	0,464%
South African Police Service Medical Scheme	Lower Plan	72,4%	0,246%
Sizwe Medical Fund	Sizwe Primary	72,6%	0,157%
Bankmed	Bankmed Comprehensive	76,4%	0,120%
Government Employees Medical Scheme	Onyx	75,1%	0,118%
Transmed Medical Fund	State Plus Own Choice	76,1%	0,105%
Witbank Coalfields Medical Aid Scheme	Yebomed	98,5%	0,103%
Government Employees Medical Scheme	Beryl	66,1%	0,084%

Viral Load conducted			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Government Employees Medical Scheme	Emerald	74,6%	5,930%
South African Police Service Medical Scheme	Higher Plan	78,1%	1,700%
Government Employees Medical Scheme	Ruby	71,1%	0,424%
South African Police Service Medical Scheme	Lower Plan	71,7%	0,222%
Sizwe Medical Fund	Sizwe Primary	72,0%	0,143%
Bankmed	Bankmed Comprehensive	76,0%	0,113%
Government Employees Medical Scheme	Onyx	74,8%	0,112%
Transmed Medical Fund	State Plus Own Choice	75,5%	0,098%
Momentum Health	Incentive	92,0%	0,082%
Witbank Coalfields Medical Aid Scheme	Yebomed	86,5%	0,071%

DM1

Urine Protein / Creatinine Ratio Test			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Discovery Health Medical Scheme	Classic Comprehensive	18,0%	0,419%
South African Police Service Medical Scheme	Higher Plan	17,7%	0,356%
Discovery Health Medical Scheme	Coastal Saver	17,2%	0,260%
Discovery Health Medical Scheme	Keycare Plus	17,1%	0,205%
Bankmed	Bankmed Comprehensive	26,0%	0,196%
Netcare Medical Scheme	Netcare Savings Option	36,1%	0,098%
Discovery Health Medical Scheme	Coastal Core	17,1%	0,088%
La-Health Medical Scheme	La Active	20,0%	0,084%
Discovery Health Medical Scheme	Classic Saver	13,6%	0,071%
La-Health Medical Scheme	La Core	28,8%	0,053%

Two (2) Or More HBA1C Tests			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
South African Police Service Medical Scheme	Higher Plan	16,2%	0,424%
Bankmed	Bankmed Comprehensive	24,3%	0,209%
Government Employees Medical Scheme	Emerald	10,4%	0,162%
Medihelp	Dimension Prime 3	86,5%	0,144%
Momentum Health	Incentive	61,9%	0,138%
Keyhealth	Gold	69,4%	0,106%
Medihelp	Dimension Elite	90,9%	0,097%
Momentum Health	Custom	54,6%	0,084%
Motohealth Care	Classic	65,3%	0,061%
Profmed	Pro Secure	73,5%	0,059%

DM2

Urine Protein / Creatinine Ratio Test			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Government Employees Medical Scheme	Emerald	47,3%	3,531%
South African Police Service Medical Scheme	Higher Plan	51,8%	1,200%
Government Employees Medical Scheme	Onyx	55,4%	0,690%
Bankmed	Bankmed Comprehensive	55,9%	0,344%
Momentum Health	Incentive	60,0%	0,205%
Medihelp	Dimension Elite	98,4%	0,187%
Medihelp	Dimension Prime 3	77,9%	0,152%
Government Employees Medical Scheme	Ruby	38,3%	0,116%
Liberty Medical Scheme	Complete Standard	47,7%	0,113%
Transmed Medical Fund	State Plus Own Choice	41,6%	0,105%

Two (2) Or More HBA1C Tests			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Government Employees Medical Scheme	Emerald	43,5%	4,170%
South African Police Service Medical Scheme	Higher Plan	46,3%	1,261%
Government Employees Medical Scheme	Onyx	48,1%	0,668%
Bankmed	Bankmed Comprehensive	51,6%	0,376%
Keyhealth	Gold	55,7%	0,268%
Momentum Health	Incentive	55,6%	0,220%
Government Employees Medical Scheme	Ruby	36,6%	0,212%
Medihelp	Dimension Elite	91,3%	0,185%
Transmed Medical Fund	State Plus Own Choice	41,2%	0,176%
Medihelp	Dimension Prime 3	77,6%	0,173%

HYP

One Or More (1) Electrocardiogram			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Government Employees Medical Scheme	Emerald	13,2%	0,410%
Government Employees Medical Scheme	Onyx	22,7%	0,364%
South African Police Service Medical Scheme	Higher Plan	16,9%	0,297%
Bankmed	Bankmed Comprehensive	25,2%	0,212%
Medihelp	Dimension Elite	34,7%	0,138%
Keyhealth	Gold	23,4%	0,118%
Medihelp	Dimension Prime 3	28,0%	0,106%
Momentum Health	Incentive	21,7%	0,079%
Medihelp	Medihelp Plus	43,8%	0,055%
Transmed Medical Fund	Guardian	17,4%	0,054%

One (1) Or More Total Cholesterol Test			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Government Employees Medical Scheme	Emerald	29,8%	1,527%
South African Police Service Medical Scheme	Higher Plan	35,3%	0,691%
Government Employees Medical Scheme	Onyx	37,7%	0,499%
Bankmed	Bankmed Comprehensive	45,5%	0,357%
Medihelp	Dimension Elite	58,1%	0,212%
Keyhealth	Gold	42,2%	0,197%
Medihelp	Dimension Prime 3	52,8%	0,196%
Momentum Health	Incentive	41,0%	0,144%
Transmed Medical Fund	State Plus Own Choice	32,3%	0,121%
Bankmed	Bankmed Traditional	43,1%	0,093%

CHF

One Or More (1) Electrocardiogram			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Government Employees Medical Scheme	Onyx	23,7%	0,298%
Motohealth Care	Classic	25,7%	0,210%
Keyhealth	Gold	40,6%	0,203%
Bankmed	Bankmed Comprehensive	31,3%	0,200%
Momentum Health	Incentive	42,3%	0,200%
Motohealth Care	Optimum	34,6%	0,137%
Momentum Health	Extender	50,2%	0,104%
Liberty Medical Scheme	Complete Standard	33,6%	0,086%
Liberty Medical Scheme	Complete Plus	46,3%	0,080%
Keyhealth	Platinum	45,1%	0,078%

Flu Vaccine			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Government Employees Medical Scheme	Onyx	14,0%	0,435%
Momentum Health	Incentive	27,3%	0,173%
Transmed Medical Fund	Guardian	13,1%	0,147%
Bankmed	Bankmed Comprehensive	14,4%	0,117%
Medihelp	Dimension Elite	44,9%	0,091%
Motohealth Care	Classic	10,1%	0,089%
Momentum Health	Extender	31,7%	0,082%
Medihelp	Dimension Prime 3	46,3%	0,068%
Transmed Medical Fund	State Plus Own Choice	12,0%	0,062%
Discovery Health Medical Scheme	Classic Comprehensive	7,8%	0,051%

IHD

One Or More (1) Electrocardiogram			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Medihelp	Dimension Elite	95,7%	0,344%
Medihelp	Dimension Prime 3	92,4%	0,289%
Keyhealth	Gold	49,1%	0,278%
Bankmed	Bankmed Comprehensive	36,4%	0,261%
Momentum Health	Incentive	46,0%	0,231%
South African Police Service Medical Scheme	Higher Plan	26,4%	0,208%
Liberty Medical Scheme	Complete Standard	42,4%	0,120%
Momentum Health	Extender	53,8%	0,108%
Motohealth Care	Classic	39,4%	0,099%
Medihelp	Dimension Prime 2	81,4%	0,097%

One (1) Or More Total Cholesterol Test			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
South African Police Service Medical Scheme	Higher Plan	31,1%	0,686%
Bankmed	Bankmed Comprehensive	38,2%	0,396%
Medihelp	Dimension Elite	77,4%	0,285%
Government Employees Medical Scheme	Onyx	22,1%	0,232%
Medihelp	Dimension Prime 3	66,2%	0,205%
Transmed Medical Fund	State Plus Own Choice	31,2%	0,187%
Government Employees Medical Scheme	Emerald	17,7%	0,172%
Keyhealth	Gold	33,0%	0,171%
Momentum Health	Incentive	30,2%	0,133%
Transmed Medical Fund	Guardian	24,8%	0,131%

CRF

Urine Protein / Creatinine Ratio Test			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Government Employees Medical Scheme	Emerald	27,0%	3,181%
South African Police Service Medical Scheme	Higher Plan	24,8%	0,737%
Government Employees Medical Scheme	Onyx	28,8%	0,464%
Bankmed	Bankmed Comprehensive	28,6%	0,198%
Netcare Medical Scheme	Netcare Savings Option	50,7%	0,196%
Government Employees Medical Scheme	Ruby	21,0%	0,155%
Transmed Medical Fund	Private Network Saver	42,7%	0,091%
Bankmed	Bankmed Plus	41,0%	0,073%
Bankmed	Bankmed Traditional	30,5%	0,072%
Government Employees Medical Scheme	Beryl	22,9%	0,055%

One (1) Or More Total Cholesterol Test			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Government Employees Medical Scheme	Emerald	15,7%	0,873%
South African Police Service Medical Scheme	Higher Plan	16,3%	0,284%
Government Employees Medical Scheme	Onyx	18,6%	0,199%
Momentum Health	Incentive	45,5%	0,131%
Bankmed	Bankmed Comprehensive	19,8%	0,102%
Liberty Medical Scheme	Complete Standard	40,7%	0,089%
Momentum Health	Custom	41,7%	0,072%
Discovery Health Medical Scheme	Classic Comprehensive	12,9%	0,070%
Keyhealth	Gold	40,2%	0,069%
Discovery Health Medical Scheme	Executive	18,5%	0,058%

AST

Flu Vaccine			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Government Employees Medical Scheme	Onyx	15,6%	0,235%
South African Police Service Medical Scheme	Higher Plan	6,9%	0,157%
Bankmed	Bankmed Comprehensive	10,9%	0,110%
Discovery Health Medical Scheme	Classic Comprehensive	5,8%	0,088%
Medihelp	Dimension Elite	53,0%	0,081%
Momentum Health	Incentive	19,5%	0,077%
Community Medical Aid Scheme	Standard	100,0%	0,067%
Transmed Medical Fund	Guardian	18,9%	0,050%
Community Medical Aid Scheme	Deluxe	100,0%	0,046%
Medihelp	Dimension Prime 3	25,2%	0,045%

One (1) Or More Lung Function Test			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Discovery Health Medical Scheme	Classic Comprehensive	7,5%	0,162%
Government Employees Medical Scheme	Onyx	9,9%	0,100%
Bankmed	Bankmed Comprehensive	9,6%	0,075%
Netcare Medical Scheme	Netcare Savings Option	13,5%	0,042%
Chartered Accountants Medical Aid Fund	Double Plus Benefit Option	18,5%	0,041%
Medihelp	Dimension Elite	26,2%	0,035%
Momentum Health	Incentive	10,7%	0,028%
Momentum Health	Extender	18,4%	0,027%
Bankmed	Bankmed Plus	17,2%	0,027%
Keyhealth	Gold	11,8%	0,026%

COP

Flu Vaccine			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Government Employees Medical Scheme	Onyx	12,4%	0,292%
Bankmed	Bankmed Comprehensive	15,5%	0,206%
Keyhealth	Gold	22,9%	0,118%
Momentum Health	Incentive	31,2%	0,112%
Medihelp	Dimension Elite	41,7%	0,096%
Discovery Health Medical Scheme	Classic Comprehensive	7,1%	0,086%
Liberty Medical Scheme	Complete Standard	18,7%	0,079%
Liberty Medical Scheme	Complete Plus	22,8%	0,065%
Transmed Medical Fund	Guardian	11,1%	0,063%
Bankmed	Bankmed Plus	19,3%	0,062%

One (1) Or More Lung Function Test			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Bankmed	Bankmed Comprehensive	19,7%	0,190%
Government Employees Medical Scheme	Onyx	14,8%	0,173%
Keyhealth	Gold	30,4%	0,135%
Netcare Medical Scheme	Netcare Savings Option	28,1%	0,103%
Medihelp	Dimension Elite	44,6%	0,090%
Momentum Health	Incentive	28,6%	0,078%
Keyhealth	Platinum	36,6%	0,066%
Momentum Health	Extender	45,5%	0,066%
Medihelp	Dimension Prime 3	45,1%	0,060%
Liberty Medical Scheme	Complete Plus	26,2%	0,059%

Annexure B: Benefit options contributing most to decreasing industry coverage ratios

HIV

CD4 count conducted			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Bestmed Medical Scheme	Pace1	0,0%	-0,313%
Bonitas Medical Fund	Bonsave	11,0%	-0,314%
Medshield Medical Scheme	Medivalue	3,3%	-0,349%
Discovery Health Medical Scheme	Classic Saver	45,7%	-0,378%
Bonitas Medical Fund	Boncap	5,9%	-0,406%
Platinum Health	Platcomprehensive	0,0%	-0,412%
Sasolmed	Sasolmed	4,7%	-0,492%
Medshield Medical Scheme	Mediplus	8,3%	-0,682%
Bonitas Medical Fund	Primary	12,2%	-1,065%
Bonitas Medical Fund	Standard	11,7%	-2,638%

Viral Load conducted			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Discovery Health Medical Scheme	Essential Saver	41,7%	-0,261%
Bonitas Medical Fund	Bonsave	17,1%	-0,277%
Bestmed Medical Scheme	Pace1	0,0%	-0,316%
Medshield Medical Scheme	Medivalue	4,9%	-0,343%
Sasolmed	Sasolmed	17,2%	-0,382%
Bonitas Medical Fund	Boncap	7,8%	-0,396%
Discovery Health Medical Scheme	Classic Saver	45,3%	-0,409%
Medshield Medical Scheme	Mediplus	11,1%	-0,652%
Bonitas Medical Fund	Primary	18,9%	-0,925%
Bonitas Medical Fund	Standard	21,0%	-2,145%

DM1

Urine Protein / Creatinine Ratio Test			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Medshield Medical Scheme	Medibonus	0,0%	-0,049%
Bonitas Medical Fund	Boncap	0,2%	-0,053%
Bonitas Medical Fund	Bonsave	0,7%	-0,058%
Fedhealth Medical Scheme	Maxima Standard	0,6%	-0,076%
Sasolmed	Sasolmed	0,0%	-0,088%
Bonitas Medical Fund	Bonclassic	0,1%	-0,112%
Medshield Medical Scheme	Mediplus	0,3%	-0,117%
Bonitas Medical Fund	Primary	0,1%	-0,156%
Government Employees Medical Scheme	Emerald	11,3%	-0,225%
Bonitas Medical Fund	Standard	0,1%	-0,677%

Two (2) Or More HBA1C Tests			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Discovery Health Medical Scheme	Coastal Core	5,6%	-0,078%
Bonitas Medical Fund	Bonclassic	0,3%	-0,087%
Medshield Medical Scheme	Mediplus	0,2%	-0,093%
Discovery Health Medical Scheme	Classic Priority	5,8%	-0,106%
Discovery Health Medical Scheme	Coastal Saver	7,7%	-0,111%
Bonitas Medical Fund	Primary	0,1%	-0,124%
Discovery Health Medical Scheme	Keycare Plus	6,7%	-0,129%
Discovery Health Medical Scheme	Classic Saver	5,4%	-0,230%
Discovery Health Medical Scheme	Classic Comprehensive	6,1%	-0,270%
Bonitas Medical Fund	Standard	0,1%	-0,536%

DM2

Urine Protein / Creatinine Ratio Test			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Sasolmed	Sasolmed	0,2%	-0,228%
Platinum Health	Platcomprehensive	0,0%	-0,237%
Discovery Health Medical Scheme	Coastal Saver	26,7%	-0,252%
Bonitas Medical Fund	Bonclassic	1,0%	-0,260%
Medshield Medical Scheme	Mediplus	1,9%	-0,271%
Keyhealth	Gold	2,0%	-0,271%
Bonitas Medical Fund	Primary	1,9%	-0,399%
Discovery Health Medical Scheme	Classic Comprehensive	24,5%	-0,404%
Discovery Health Medical Scheme	Classic Saver	22,3%	-0,427%
Bonitas Medical Fund	Standard	1,4%	-1,611%

Two (2) Or More HBA1C Tests			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Medshield Medical Scheme	Mediplus	0,6%	-0,224%
Discovery Health Medical Scheme	Essential Saver	5,9%	-0,244%
Discovery Health Medical Scheme	Coastal Core	6,3%	-0,286%
Bonitas Medical Fund	Primary	0,4%	-0,333%
Discovery Health Medical Scheme	Classic Priority	7,0%	-0,439%
Discovery Health Medical Scheme	Keycare Plus	10,4%	-0,540%
Discovery Health Medical Scheme	Coastal Saver	8,0%	-0,793%
Discovery Health Medical Scheme	Classic Saver	6,9%	-0,806%
Discovery Health Medical Scheme	Classic Comprehensive	7,1%	-0,962%
Bonitas Medical Fund	Standard	0,2%	-1,328%

HYP

One Or More (1) Electrocardiogram			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Fedhealth Medical Scheme	Maxima Standard	0,3%	-0,081%
Discovery Health Medical Scheme	Essential Saver	5,2%	-0,084%
Medshield Medical Scheme	Mediplus	0,4%	-0,089%
Discovery Health Medical Scheme	Classic Priority	7,9%	-0,093%
Sasolmed	Sasolmed	0,2%	-0,093%
Discovery Health Medical Scheme	Keycare Plus	8,1%	-0,094%
Discovery Health Medical Scheme	Coastal Saver	8,1%	-0,126%
Bonitas Medical Fund	Primary	0,3%	-0,127%
Discovery Health Medical Scheme	Classic Saver	6,9%	-0,213%
Bonitas Medical Fund	Standard	0,4%	-0,464%

One (1) Or More Total Cholesterol Test			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Discovery Health Medical Scheme	Coastal Core	12,0%	-0,146%
Medshield Medical Scheme	Mediplus	2,4%	-0,160%
Discovery Health Medical Scheme	Essential Saver	10,5%	-0,160%
Sasolmed	Sasolmed	0,6%	-0,181%
Discovery Health Medical Scheme	Classic Priority	15,1%	-0,196%
Discovery Health Medical Scheme	Coastal Saver	16,6%	-0,211%
Bonitas Medical Fund	Primary	1,9%	-0,233%
Discovery Health Medical Scheme	Classic Comprehensive	16,7%	-0,318%
Discovery Health Medical Scheme	Classic Saver	13,2%	-0,435%
Bonitas Medical Fund	Standard	2,5%	-0,832%

CHF

One Or More (1) Electrocardiogram			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Transmed Medical Fund	Guardian	15,4%	-0,095%
Discovery Health Medical Scheme	Coastal Core	14,2%	-0,104%
Discovery Health Medical Scheme	Essential Comprehensive	13,0%	-0,108%
Discovery Health Medical Scheme	Classic Core	11,7%	-0,109%
Discovery Health Medical Scheme	Essential Saver	12,8%	-0,120%
Sizwe Medical Fund	Sizwe Affordable	0,8%	-0,127%
Discovery Health Medical Scheme	Coastal Saver	15,4%	-0,159%
Discovery Health Medical Scheme	Classic Comprehensive	17,2%	-0,197%
Discovery Health Medical Scheme	Keycare Plus	14,3%	-0,234%
Discovery Health Medical Scheme	Classic Saver	14,5%	-0,271%

Flu Vaccine			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Discovery Health Medical Scheme	Coastal Core	5,7%	-0,034%
La-Health Medical Scheme	La Active	2,8%	-0,040%
Sizwe Medical Fund	Sizwe Affordable	0,4%	-0,048%
Discovery Health Medical Scheme	Classic Core	3,7%	-0,053%
Discovery Health Medical Scheme	Essential Saver	4,0%	-0,062%
Government Employees Medical Scheme	Ruby	1,1%	-0,093%
Discovery Health Medical Scheme	Coastal Saver	4,5%	-0,118%
Discovery Health Medical Scheme	Keycare Plus	4,1%	-0,155%
Discovery Health Medical Scheme	Classic Saver	4,5%	-0,165%
Government Employees Medical Scheme	Emerald	3,2%	-0,819%

IHD

One Or More (1) Electrocardiogram			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Discovery Health Medical Scheme	Essential Saver	14,3%	-0,110%
Sizwe Medical Fund	Sizwe Affordable	3,0%	-0,126%
Discovery Health Medical Scheme	Coastal Core	17,1%	-0,130%
Discovery Health Medical Scheme	Coastal Saver	19,1%	-0,154%
Discovery Health Medical Scheme	Keycare Plus	17,2%	-0,160%
Discovery Health Medical Scheme	Classic Priority	17,7%	-0,163%
Bonitas Medical Fund	Standard	14,5%	-0,256%
Discovery Health Medical Scheme	Classic Comprehensive	19,0%	-0,297%
Discovery Health Medical Scheme	Classic Saver	15,8%	-0,365%
Government Employees Medical Scheme	Emerald	17,0%	-0,607%

One (1) Or More Total Cholesterol Test			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Bonitas Medical Fund	Bonclassic	0,3%	-0,116%
Medshield Medical Scheme	Mediplus	0,3%	-0,119%
Fedhealth Medical Scheme	Maxima Standard	0,7%	-0,119%
Discovery Health Medical Scheme	Coastal Core	11,8%	-0,123%
Discovery Health Medical Scheme	Coastal Saver	13,8%	-0,133%
Discovery Health Medical Scheme	Keycare Plus	10,3%	-0,202%
Discovery Health Medical Scheme	Classic Priority	10,9%	-0,207%
Discovery Health Medical Scheme	Classic Saver	9,4%	-0,409%
Discovery Health Medical Scheme	Classic Comprehensive	11,8%	-0,456%
Bonitas Medical Fund	Standard	0,4%	-0,544%

CRF

Urine Protein / Creatinine Ratio Test			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Sasolmed	Sasolmed	0,0%	-0,118%
Discovery Health Medical Scheme	Coastal Core	4,8%	-0,127%
Bonitas Medical Fund	Primary	1,6%	-0,168%
Discovery Health Medical Scheme	Essential Saver	3,1%	-0,170%
Discovery Health Medical Scheme	Classic Priority	4,0%	-0,246%
Discovery Health Medical Scheme	Coastal Saver	5,1%	-0,334%
Discovery Health Medical Scheme	Classic Saver	3,8%	-0,469%
Discovery Health Medical Scheme	Keycare Plus	2,6%	-0,480%
Bonitas Medical Fund	Standard	2,5%	-0,575%
Discovery Health Medical Scheme	Classic Comprehensive	5,1%	-0,630%

One (1) Or More Total Cholesterol Test			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Bonitas Medical Fund	Boncap	0,0%	-0,077%
Fedhealth Medical Scheme	Maxima Standard	0,0%	-0,081%
Bonitas Medical Fund	Bonclassic	0,4%	-0,082%
Sasolmed	Sasolmed	0,0%	-0,105%
Discovery Health Medical Scheme	Coastal Saver	9,2%	-0,110%
Discovery Health Medical Scheme	Classic Saver	9,6%	-0,117%
Medshield Medical Scheme	Mediplus	0,0%	-0,121%
Bonitas Medical Fund	Primary	0,2%	-0,168%
Discovery Health Medical Scheme	Keycare Plus	8,1%	-0,169%
Bonitas Medical Fund	Standard	0,3%	-0,614%

AST

Flu Vaccine			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Medshield Medical Scheme	Mediplus	0,0%	-0,031%
Sasolmed	Sasolmed	0,2%	-0,031%
Discovery Health Medical Scheme	Essential Saver	2,2%	-0,036%
Bonitas Medical Fund	Primary	0,1%	-0,050%
Government Employees Medical Scheme	Ruby	1,2%	-0,052%
Discovery Health Medical Scheme	Classic Saver	2,8%	-0,106%
Discovery Health Medical Scheme	Coastal Saver	2,6%	-0,117%
Discovery Health Medical Scheme	Keycare Plus	1,6%	-0,144%
Bonitas Medical Fund	Standard	0,2%	-0,151%
Government Employees Medical Scheme	Emerald	3,0%	-0,343%

one (1) or more lung function test			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Bonitas Medical Fund	Primary	2,9%	-0,026%
Discovery Health Medical Scheme	Coastal Core	3,5%	-0,027%
Discovery Health Medical Scheme	Essential Saver	3,5%	-0,027%
South African Police Service Medical Scheme	Lower Plan	1,8%	-0,037%
Government Employees Medical Scheme	Ruby	2,8%	-0,037%
South African Police Service Medical Scheme	Higher Plan	4,6%	-0,044%
Discovery Health Medical Scheme	Classic Saver	4,0%	-0,076%
Discovery Health Medical Scheme	Coastal Saver	3,3%	-0,110%
Discovery Health Medical Scheme	Keycare Plus	2,5%	-0,131%
Government Employees Medical Scheme	Emerald	4,2%	-0,232%

COP

Flu Vaccine			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Medshield Medical Scheme	Mediplus	0,0%	-0,055%
Sizwe Medical Fund	Sizwe Affordable	0,9%	-0,058%
Bonitas Medical Fund	Primary	0,0%	-0,060%
Fedhealth Medical Scheme	Maxima Standard	0,4%	-0,064%
Sasolmed	Sasolmed	0,4%	-0,064%
Discovery Health Medical Scheme	Coastal Saver	4,2%	-0,068%
Discovery Health Medical Scheme	Classic Saver	4,7%	-0,081%
Discovery Health Medical Scheme	Keycare Plus	3,1%	-0,106%
Government Employees Medical Scheme	Emerald	4,8%	-0,171%
Bonitas Medical Fund	Standard	0,3%	-0,272%

One (1) Or More Lung Function Test			
Scheme Name	***Option Name***	**Coverage Ratio**	**Deviation (Weighted %)**
Sizwe Medical Fund	Sizwe Full Benefit	2,7%	-0,061%
Government Employees Medical Scheme	Emerald	10,7%	-0,062%
Discovery Health Medical Scheme	Coastal Saver	9,3%	-0,065%
Transmed Medical Fund	Guardian	6,2%	-0,065%
Discovery Health Medical Scheme	Classic Saver	9,9%	-0,069%
South African Police Service Medical Scheme	Higher Plan	9,5%	-0,074%
Bonitas Medical Fund	Boncap	1,1%	-0,086%
Sizwe Medical Fund	Sizwe Affordable	1,6%	-0,104%
Bonitas Medical Fund	Standard	8,5%	-0,123%
Discovery Health Medical Scheme	Keycare Plus	6,7%	-0,154%