Prevalence of chronic diseases in the population covered by medical schemes in South Africa

Research and Monitoring Unit

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Executive summary

The Medical Schemes Act, No. 131 of 1998 makes it mandatory for medical schemes to cover costs for the diagnosis, treatment or care of a defined set of benefits or Prescribed Minimum Benefits (PMBs), regardless of the benefit option members have selected. PMBs include any medical condition which meets the definition of an emergency, a limited set of 270 medical conditions and 26 chronic conditions defined in the Chronic Disease List (CDL). CDL specifies medication and treatment for the chronic conditions that are covered as PMBs. This law ensures that beneficiaries with chronic conditions are not risk-rated.

The Council for Medical schemes (CMS) conducted a retrospective study of the CMS Scheme Risk Measurement (SRM) database to establish changes in the frequency of chronic diseases among beneficiaries of medical schemes between 2011 and 2017. This study is an update of the *Prevalence of chronic diseases in the population covered by medical schemes in South Africa* publication issued by CMS in May 2018.

This report analyses prevalence as defined in the SRM process using the Entry and Verification (E&V) criteria while Annexure A of this report analyses a more relaxed definition of prevalence (i.e. prevalence of conditions listed as CDLs, whether treated and registered on a program or not).

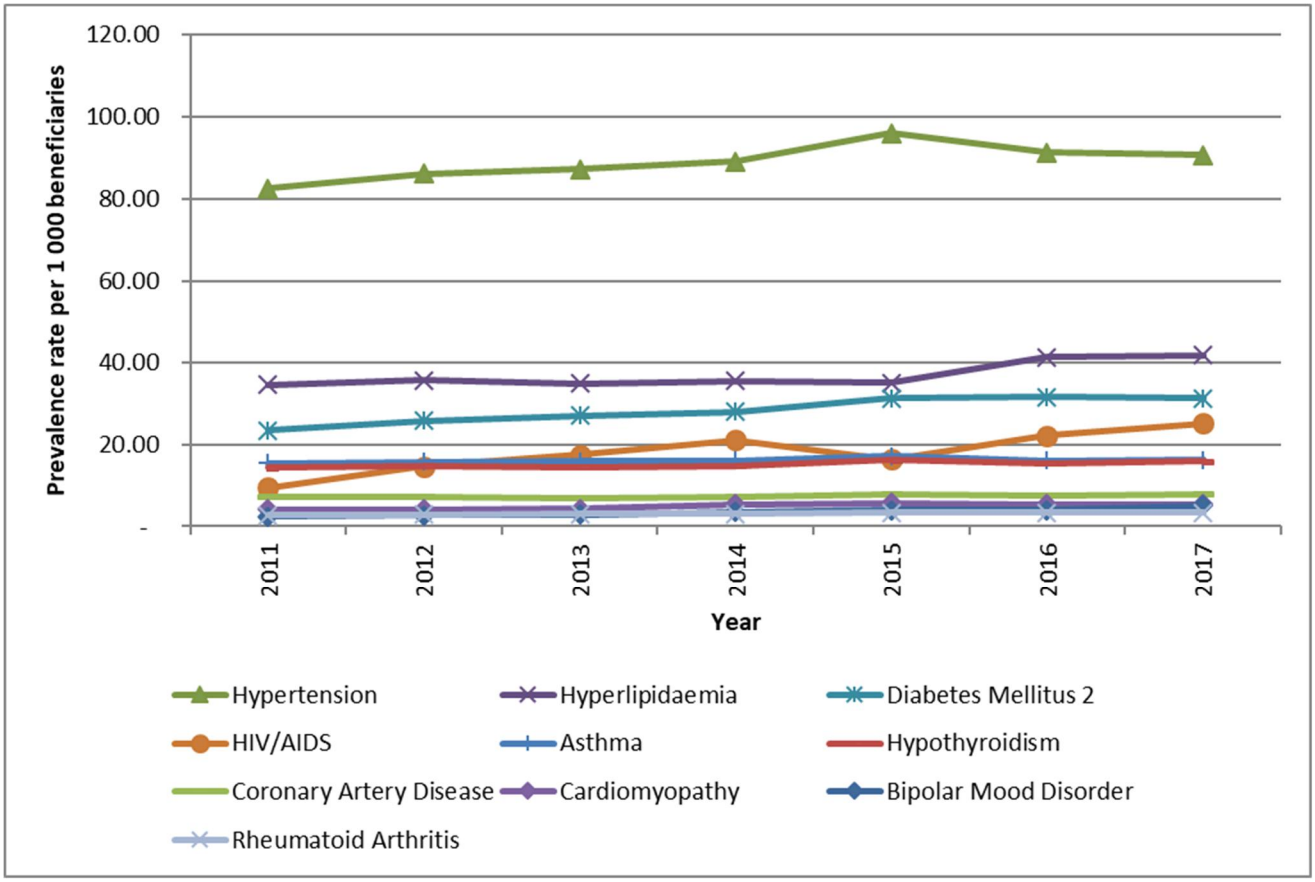
The findings of this study indicate that the upward trend in diagnosis and treatment of many conditions on the chronic disease list continued in 2017. The top 10 ranking of chronic conditions according to prevalence rates did not change significantly between 2016 and 2017. Cardiomyopathy (CMY) increased by 20.67% from 5.34 per 1 000 in 2016 to 6.45 per 1 000 in 2017. This increase can be attributed to certain schemes reporting increases of over 20%.

Three simultaneous conditions (CC3) increased to 18.06 per 1000 in 2017, up from only 13.64 per 1 000 beneficiaries in 2016, which constitutes an increase of 30%. The indicates significant deterioration in medical schemes risk profiles but might be due to data issues and the incorrect application of E&V criteria.

Total expenditure on PMBs constitutes 48% (R79.2 billion) of total risk benefits paid in 2017. The expenditure on CDLs make-up around 20% of the expenditure on PMBs. It is therefore important for schemes to make a concerted effort to register beneficiaries on the disease management programmes they provide.

The top 10 ranked CDLs and HIV/AIDS (chronic conditions with the highest prevalence rates) are hypertension, hyperlipidaemia, diabetes mellitus 2, HIV/AIDS, asthma, hypothyroidism, coronary artery disease, cardiomyopathy, epilepsy, and bipolar mood disorder (Figure 1). The CDLs listed as top 10 ranking CDLs had prevalence rates of at least 4 per 1 000 beneficiaries in 2017.

Figure 1: Top 10 diagnosed and treated CDL and HIV/AIDS conditions: 2011 - 2017



Hypertension, hyperlipidaemia and diabetes mellitus 2 continued to be the highest prevalent CDLs in medical schemes beneficiaries with the prevalence of more than 20 per 1 000 beneficiaries. HIV/AIDS remained in 4th position despite increasing by over 13%. A detailed summary of the top 10 prevalence ranking CDLs (and HIV/AIDS) is given in Table 1.

Table 1: Prevalence of treated chronic conditions (Cases/1 000 beneficiaries), 2016 and 2017

Rank (2016)	Condition	Type	Prevalence			% Changes		Average growth rate (per year %)
			2012	2016	2017	2016 vs 2017	2012vs 2017	2012 to 2016
1 (1)	HYP	Total	86.16	91.33	90.64	-0.75	5.20	1.02
		Open	86.92	88.54	90.62	2.34	4.25	0.84
		Restricted	85.30	94.92	90.68	-4.47	6.30	1.23
2 (2)	HYL	Total	35.58	41.22	41.63	0.99	17.00	3.19
		Open	40.50	42.37	44.23	4.39	9.22	1.78
		Restricted	30.03	39.74	38.34	-3.53	27.67	5.01
3 (3)	DM2	Total	25.66	31.54	31.28	-0.82	21.92	4.04
		Open	23.01	28.63	28.88	0.87	25.51	4.65
		Restricted	28.65	35.28	34.32	-2.71	19.81	3.68
4 (4)	HIV	Total	14.57	22.08	25.12	13.77	72.40	11.51
		Open	8.53	12.56	13.95	11.03	63.51	10.33
		Restricted	21.39	34.31	39.26	14.44	83.52	12.91
5 (5)	AST	Total	15.77	16.02	16.04	0.14	1.71	0.34
		Open	15.78	15.96	16.22	1.60	2.75	0.54
		Restricted	15.77	16.10	15.82	-1.71	0.37	0.07
6 (6)	TDH	Total	14.70	15.33	15.93	3.90	8.37	1.62
		Open	15.23	15.27	17.16	12.36	12.64	2.41
		Restricted	14.09	15.41	14.37	-6.74	1.97	0.39
7 (7)	IHD	Total	7.30	7.63	7.91	3.69	8.40	1.63
		Open	8.35	8.81	9.58	8.75	14.69	2.78
		Restricted	6.11	6.12	5.80	-5.23	-5.03	-1.03
8 (8)	CMY	Total	4.17	5.34	6.45	20.71	54.39	9.08
		Open	4.03	5.17	5.34	3.27	32.40	5.77
		Restricted	4.34	5.56	7.85	41.13	80.97	12.60
9 (9)	EPL	Total	4.24	4.45	4.49	0.98	6.07	1.18
		Open	4.44	4.51	4.61	2.12	3.75	0.74
		Restricted	4.01	4.39	4.35	-0.86	8.58	1.66
10 (10)	BMD	Total	2.76	3.98	4.18	5.13	51.41	8.65
		Open	3.27	4.74	5.04	6.40	54.39	9.07
		Restricted	2.19	3.01	3.10	2.87	41.08	7.13

Table 1 and Figure 2 depict trends in the top 10 common conditions between 2012 and 2016. Hypertension retained its rank as the highest prevalent CDL in medical schemes' beneficiaries with an overall prevalence rate of 90.64 per 1 000 beneficiaries in 2017. Hypertension prevalence decreased by 0.75% in 2017 as compared to 2016. This

is due to a decrease in over 20% for rates reported of by 24 medical schemes. During the period between 2012 and 2016, hypertension prevalence increased by 5.2% resulting in the average annual growth rate of 1.02% per year for the period. A decline in hypertension prevalence was observed in restricted schemes for the period under review.

Hyperlipidaemia remained the 2nd ranked CDL in terms of prevalence and increased by 0.99% between 2016 and 2017. Between 2012 and 2017, the prevalence of hyperlipidaemia increased by 17% resulting in an average growth rate of 3.19% per year for the period under review.

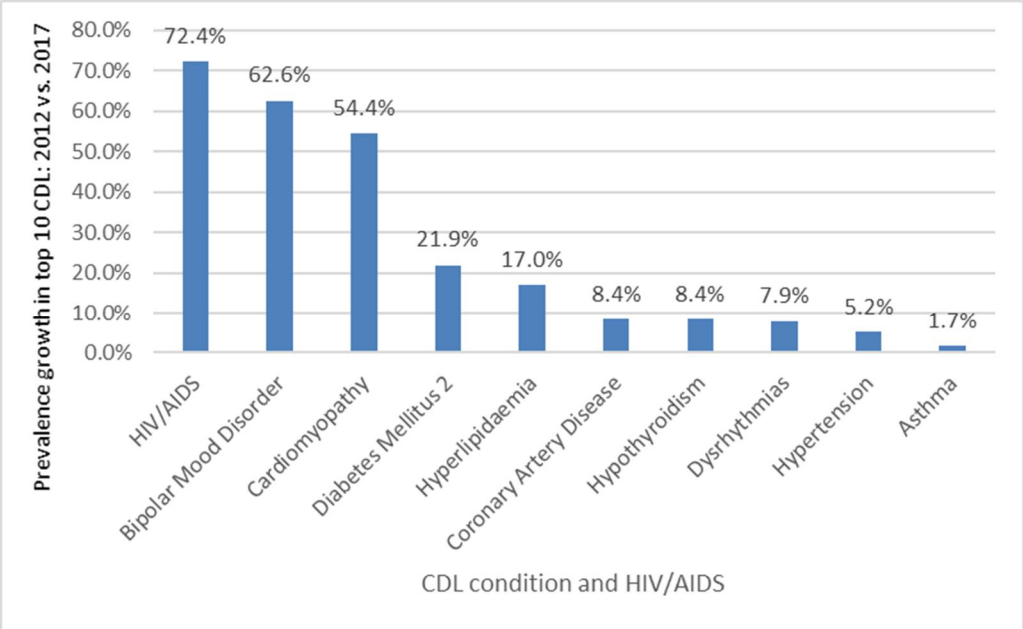
Diabetes mellitus type 2 is still the 3rd ranked CDL in terms of prevalence. Between 2012 and 2017, prevalence of diabetes mellitus type 2 increased by 27.67%. This represents an average growth rate of 5.01% per year for the period 5-year period.

HIV/AIDS ranked the 4th chronic condition in terms of prevalence. Between 2012 and 2017, treated HIV/AIDS prevalence increased by about 72.4%. This resulted in the average growth rate of about 11.51% per year for the period under review. The treated HIV/AIDS prevalence increased from 22.08 per 1 000 beneficiaries in 2016 to 25.12 per 1 000 beneficiaries in 2017.

Asthma (AST), hypothyroidism (TDH) and coronary artery disease (IHD) has increased slightly by 0.14%, 3.9% and 3.69% respectively, from 2016 to 2017.

CMY increased by 20.7% to 6.45 per 1 000 beneficiaries in 2017 from 5.34% in 2016. This can be ascribed to certain schemes reporting increases of over 20%.

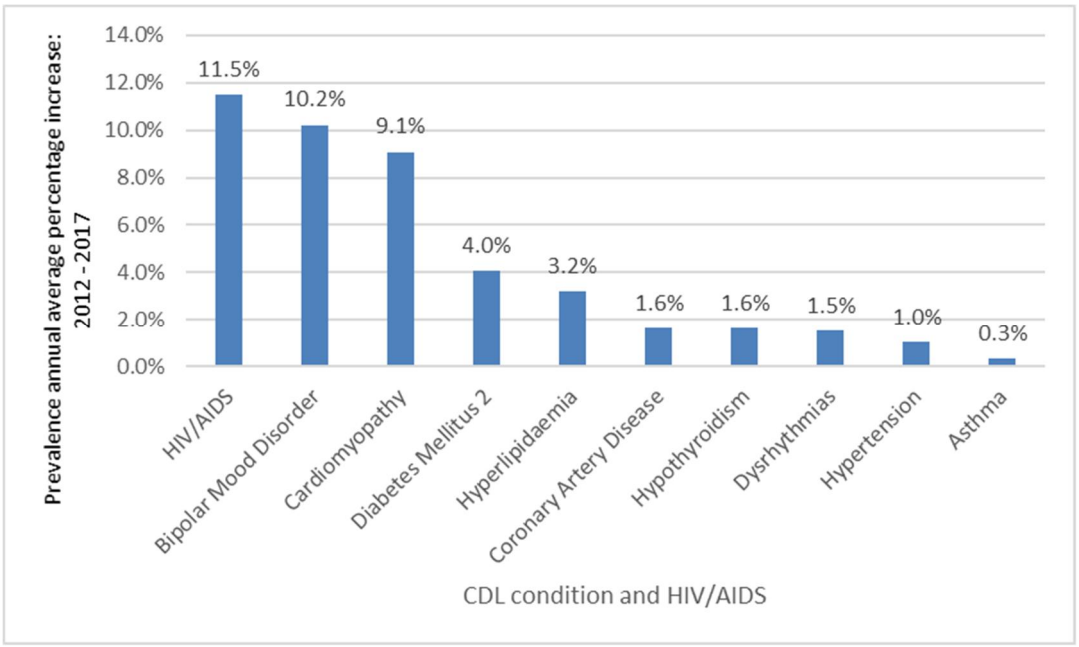
Figure 2: Growth in top 10 CDL and HIV/AIDS conditions (2012 compared to 2017)



Other CDL conditions had prevalence rates that are below 16 per 1 000 beneficiaries (as shown in Table 1). The average growth rates per year for the top 10 CDL conditions (for the period 2012 and 2017) are as summarised in Figure 3.

As can be seen in Figure 3, HIV/AIDS has been the fastest increasing condition followed by bipolar mood disorder with the average growth rate of these CDLs being above 10.2% per year and CMY with an average growth rate of 9.1% for the period under review. Other conditions, though increasing, had annual average growth rates that were below 5% per year.

Figure 3:Annual average growth rate (per year) in top 10 CDL and HIV/AIDS conditions (2012 - 2017)



The upward trend in the number of medical scheme beneficiaries who were diagnosed and treated for multiple CDL conditions continued in 2017, with CC3 reported with the largest increase of over 18%. This has a negative impact on the risk profiles of medical schemes and should be a concern for medical schemes.

Much of the upward trend could still be generally attributed to improved data management systems of medical schemes and administrators, the deteriorating disease profile and increased beneficiary awareness of entitlements, as well as changes in care-seeking behaviour.

Introduction

The Medical Schemes Act, No.131 of 1998 makes it mandatory for medical schemes to cover costs for the diagnosis, treatment or care of a defined set of benefits or Prescribed Minimum Benefits (PMBs), regardless of the benefit option members have selected. PMBs include any medical condition which meets the definition of an emergency, a limited set of 270 medical conditions and 26 chronic conditions defined in the Chronic Disease List (CDL). The CDL specifies medication and treatment for the chronic conditions that are covered as PMBs.

The recent study conducted by the CMS evaluated the prevalence of CDLs and HIV/ADS in medical schemes as reported in the CMS Scheme Risk Measurement (SRM) database for the period 2009 to 2014 and was published in December 2015 [47]. The study was a follow up to the 2014 study which evaluated the CMS Scheme Risk Measurement database for the period 2008 to 2013, with a further update published in 2017.

In 2016/17 the CMS conducted a retrospective study of the CMS Scheme Risk Measurement database for the period 2011 to 2016. The report presented the results of the retrospective review of the trends in the prevalence of chronic diseases in the medical schemes industry from 2011 to 2016. This is a follow-up to the *"Prevalence of chronic diseases in the population covered by medical schemes in South Africa* publication issued by the CMS in May 2018.

It should be noted that CDL and HIV/AIDS prevalence in prior reports as well as in this report, is defined in line with the SRM definition of prevalence as guided by the Entry and Verification (E&V) criteria. Thus, prevalence in these reports has been interpreted as prevalence of diagnosed and treated CDL conditions of medical scheme beneficiaries.

This report analyses prevalence as defined in the SRM process using the Entry and Verification (E&V) criteria, while Annexure A of this report analyses a more relaxed definition of prevalence (i.e. prevalence of conditions listed as CDLs whether treated and registered on a program or not). A data sheet with prevalence for each CDL condition by age band will be made available on the CMS website.

Literature review

1.1 Chronic respiratory conditions

Chronic respiratory diseases (CRDs) are among the leading causes of death worldwide. The prevalence of respiratory diseases is expected to rise in low- and middle-income countries because of increasing urbanisation, among other factors [1]. The most common chronic respiratory diseases in South Africa are asthma and chronic obstructive pulmonary disease [2].

Asthma is the major non-communicable disease globally. About 235 million people are affected by Asthma globally [3]. Studies suggest that an additional 100 million people may be living with asthma by 2025 [1]. Asthma is one of the most common childhood diseases [3, 4]. Most asthma-related deaths occur in low- and lower-middle income countries [3]. In South Africa, Asthma prevalence is estimated to be on the region of "5.1 - 7.1%" of the population [6]. Asthma is one of the commonest childhood diseases in South Africa as well [4].

Chronic obstructive pulmonary disease (COPD) is estimated to have caused about 3 million deaths globally in 2015 (that is, 5% of all deaths globally in 2015). COPD prevalence is estimated to likely increase in coming years due to higher smoking prevalence and aging populations in many countries [7].

The prevalence of bronchiectasis is unknown largely because the symptoms are variable, and the diagnosis is often not made easily. Cases of bronchiectasis are more common in women than men [8].

1.2 Cardiovascular conditions

Cardiovascular conditions (CVDs) are the number 1 cause of death globally. More people die annually from CVDs than from any other cause [9]. More than 17 million people die annually from cardiovascular disease [10]. Cardiovascular diseases that are covered in the CDL include cardiomyopathy (CMY), ischaemic heart disease (IHD), dysrhythmias (DYS) and hypertension (HYP).

A review of heart diseases in Africa shows that the cardiomyopathies continue to be important causes of morbidity and mortality in the population [11]. CMY is a relatively common condition in South Africa, and one of the major contributors to heart failure in Africa. The prevalence of heart failure across the world is unknown, but hospital-based studies indicate that CMY accounts for 20% of all heart failure admissions in African hospitals [12].

The epidemiology of ischaemic heart disease (IHD) in Sub-Saharan Africa (SSA) remains largely enigmatic. Major obstacles to the understanding of the condition include amongst others lack reliable health statistics [13]. Ischaemic heart disease continues to be rare in Africa [11]. Although IHD in Sub-Saharan Africa remains

relatively uncommon, its prevalence is predicted to rise due to the rising prevalence of risk factors, especially hypertension, diabetes, overweight and obesity, physical inactivity, increased tobacco use and dyslipidaemia [13].

High blood pressure / hypertension is a leading risk factor for cardiovascular diseases such as heart attacks and strokes, and it is treatable. It is estimated that the number of people in the world with hypertension is around 1.13 billion, nearly doubling since 1975 [14]. HYP is a highly prevalent condition in South Africa [14]. In South Africa, HYP is estimated to be affecting about 4.4 million people as estimated by the Statistics South Africa [15].

1.3 Chronic renal disease

About 10% of the population worldwide is affected by chronic kidney diseases. Access to affordable treatment remains a challenge globally [16]. In middle-income countries, renal replacement therapy remains unaffordable for the majority of patients [17]. Over 2 million people worldwide currently receive treatment with dialysis or a kidney transplant to stay alive, yet this number may only represent 10% of people who actually need treatment to live [16].

There is a lack of renal registries in majority of countries in Africa which means that there are no reliable statistics about the prevalence of chronic kidney disease and end stage renal disease in the majority of African countries [18]. Chronic kidney diseases are however estimated to affect as much as 15% of the South African population [19].

1.4 Gastrointestinal disorders

Gastrointestinal disorders covered as PMBs include inflammatory bowel diseases such as Crohn's disease and Ulcerative Colitis [12]. According to epidemiological investigations, the prevalence of Crohn's disease (CSD) in industrialized countries is higher than developing countries. However, in recent years the rate of CSD in industrialized countries has been stabilized while the number of patients with CSD is rising up in developing countries. The progression of CSD in developing countries is related to changes in people's lifestyle [20].

The predominant age range of patients with CSD is reported between 20 and 30; but it can happen at any age [20]. Data on the prevalence of gastrointestinal disorders (including inflammatory bowel diseases) in South Africa is scarce [12].

1.5 Diabetes mellitus

There are three main types of diabetes mellitus (DM), namely, Diabetes Mellitus Type 1 (DM1), Diabetes Mellitus Type 2 (DM2) and gestational diabetes (which may precede development of DM2). DM1 occurs most commonly in children and accounts for approximately 10% of all diabetes mellitus cases. DM2 diabetes accounts for about 90% of all diabetes cases, and many people who have this condition are undiagnosed. DM2 occurs most commonly in people over age 40 [12].

The number of people with diabetes has risen from 108 million in 1980 to 422 million in 2014. Diabetes prevalence has been rising more rapidly in middle- and low-income countries. Over the past decade, diabetes prevalence has risen faster in low- and middle-income countries than in high-income countries. About 25 million people in Africa region were affected by diabetes (as by 2014 data) [21]. The International Diabetes Federation show that the prevalence of adults with type 2 diabetes mellitus (DM) is highest in low and middle-income countries, with Sub-Saharan Africa and the Indian subcontinent being highlighted as two of the regions where this rise is expected to be the greatest [22].

1.6 Psychiatric conditions

Psychiatric health is an integral part of health and well-being as reflected in the constitution of the World Health Organisation. The WHO included mental health as part of the Sustainable Development Goals in 2015. The gap between the need for treatment and its provision is wide all over the world. In low- and middle-income countries, between 76% and 85% of people with mental disorders receive no treatment for their disorder [23].

The two psychiatric disorders, Bipolar Mood Disorder (BMD) and Schizophrenia (SCZ) form part of the 26 chronic diseases covered as PMBs in South Africa. The WHO estimates that about 60 million people are affected by bipolar effective disorder while around schizophrenia affects about 21 million people globally [23]. Epidemiological data on psychiatric conditions in South Africa is lacking and estimates are not easy to establish [24].

1.7 Neurological disorders

The two neurological disorders, Epilepsy (EPL) and multiple sclerosis (MSS) form part of the 26 chronic diseases covered as PMBs in South Africa.

Epilepsy is one of the most common neurological conditions globally, estimated to constitute 0.75% of the global burden of disease. Nearly 90% of this burden occurs in low- and middle- income countries. Epilepsy is estimated to affect 69 million individuals globally [25]. There are however few large, population-based studies of the prevalence and risk factors for epilepsy in southern Africa [26].

Multiple sclerosis (MSS) is the most common disabling neurological disorder of young adults around the world. It is typically diagnosed between the ages of 20 and 40, thus affecting individuals in their most productive years [27]. According to Atlas of MS, the estimated number of people with MSS increased from 2.1 million in 2008 to 2.3 million in 2013 [28].

The ratio of male to female individuals affected by MSS is 2:1 and has remained unchanged since 2008. According to Multiple Sclerosis International Federation (MSIF), MSS prevalence in South Africa is estimated to be at the region of '0 – 5' per 100 000 people [29].

1.8 Auto-immune conditions

Rheumatoid Arthritis (RHA) is a chronic systemic disease that affects the joints, connective tissues, muscle, tendons, and fibrous tissue. RHA tends to strike between the ages of 20 and 40, and is a chronic disabling condition often causing pain and deformity [30]. RHA is more prevalent in females than males and with increasing age [31].

Globally, RHA prevalence varies between 0.3% and 1% [30]. There is a lack of a formal meta–analysis on RHA prevalence rates in the Sub-Saharan African region due to limited data [31].

Systemic Lupus Erythematosus (SLE) is a multisystem autoimmune disease characterised by the formation of antinuclear antibodies [32]. SLE is primarily a disease of young women [33]. Females are affected by SLE far more than males (about 4 to12 females for every male). SLE tend to peak in the childbearing years for females [33]. The reported worldwide incidence and prevalence of SLE vary considerably; this variation is probably attributable to a variety of factors, including ethnic and geographic differences in the populations being studied, the definition of SLE applied, and the methods of case identification [34]. SLE incidence is estimated to be ranging from 2.0 to 7.6 per 100,000 with prevalence of 20 to 50 per 100,000. Approximately 15-20% of SLE occurs before the age of 19 years [32].

1.9 Addison's disease

Addison's disease (ADS) is a rare chronic disease leading to a deficient production of glucocorticoids, mineralocorticoids, and androgens in the adrenal cortex. ADS is a rare disease and epidemiological data are difficult to collect [35]. There is a paucity of information as to the epidemiology of ADS from the developing world [34]. Studies however, estimates South African prevalence of ADS to be 3.1 per million [36].

1.10 Diabetes insipidus

Diabetes Insipidus (DBI) is an uncommon condition in South Africa. The prevalence of DBI is unknown in South Africa [12].

1.11 Glaucoma

The global overall glaucoma prevalence was 3.54% in 2013 [37]. The number of people (aged 40–80 years) with glaucoma worldwide was estimated to be 64.3 million in 2013, this number is expected to increase to 76.0 million in 2020 and 111.8 million in 2040. The predicted increase in glaucoma prevalence is predicted to disproportionally affect people residing in Asia and Africa [38]. The worldwide prevalence of GLC is expected to increase as a result of the rapidly aging population [12].

1.12 Haemophilia

Haemophilia has greater prominence in males than in females [40]. About 1 in 10 000 people are born with haemophilia [39]. In South Africa, it is estimated that there are less than 0.1 per 1 000 infants with a major haemoglobinopathy [40].

1.13 Parkinson's

Parkinson's disease (PAR) is the most common neurological disease after Alzheimer's disease [12]. Generally, there have been few studies of Parkinson's disease conducted in Africa leading to concerns that Parkinson's disease (PAR) is under-studied in Sub-Saharan African [41]. Little is known about the epidemiology of PAR in South Africa [12].

1.14 Hypothyroidism

Thyroid dysfunction is one of the leading endocrine disorders globally [43]. Women are more affected by thyroid dysfunctions than men [44]. Hypothyroidism is more common in older women and increases with age [12]. The world-wide prevalence of hypothyroidism is estimated to be around 5% [42].

Methodology

1.15 Data sources

This study relied on the data that was submitted by medical schemes as part of annual statutory returns (ASR). Prior reports were based on data that was submitted voluntarily by the medical schemes for the purposes of SRM. The CMS incorporated the data that was previously submitted for SRM purposes into ASR system in 2015. The separate submission of data for SRM purposes was subsequently discontinued.

This report was compiled using the data that was submitted through the ASR system in 2018. The study relied on the data that was submitted as part A7 (scheme risk measurement data) and part C5 (CDL prevalence & registration on a chronic disease program) of the ASR system [48].

Two different methods are used to define prevalence; the first part (section 1 to section 5) defines prevalence using the SRM definition, while the second part (Annexure A) uses a more relaxed definition of prevalence which is a count of beneficiaries who have had at-least one claim for specified CDL condition during the year. The two definitions are explained in more detail in the sections below:

SRM prevalence definition

The first part (section 1 to section 5) of the report defines prevalence as diagnosed and treated prevalence as defined by the SRM process (this data was extracted from part A7 of the ASR system). Medical schemes use the rules set out in the *Guidelines for the Identification of Beneficiaries with Risk Factors in Accordance with the Entry and Verification Criteria v11.1* (Council for Medical Schemes, 2018) to identify each chronic disease case.

The purpose of the entry and verification criteria guideline is to define the criteria, which must be met in the identification of beneficiaries with the risk factors used in the SRM. These criteria are intended for this purpose only and not to be construed as limitations or expansions to PMBs in terms of the Medical Schemes Act.

The entry and verification criteria were developed with an emphasis on the verifiability of cases and is used to ensure that there is uniformity in the way that medical schemes identify SRM risk factors. The criteria basically indicate that prevalence refers to beneficiaries which are diagnosed and treated for a condition. These beneficiaries are registered on a program and there should be proof of payment from the risk pool.

Annexure A: prevalence definition

Annexure A of this report provides tables for a more relaxed definition of prevalence. This is the count of beneficiaries who have had at least one claim for a specified CDL condition during the year (this data is

extracted from table C5 of the ASR system). This data was collected for the first time for 2015 in 2016 and as a result the CMS will monitor the quality of the data as time progresses.

1.16 Analytical approach

Prevalence in this report is calculated as an annual average prevalence based on the number of beneficiaries at the end of the year. This methodology is similar to the methodology used in the 2015 report (covering the period 2009 to 2014). In the 2013 study covering the period 2006 to 2011, prevalence rates were calculated using prevalence for the month of June each year. The difference between these two approaches is not significant, but caution should be exercised when comparing the findings of the different reports.

The *Guidelines for the Identification of Beneficiaries with Risk Factors in Accordance with the Entry and Verification Criteria v11.1* (Council for Medical Schemes, 2018) was used as a guideline in analysing the results. According to these guidelines, the age band "Under 1" is not populated with CDL or HIV information, all beneficiaries under one with CDLs are included in the "NON" category. Hence, all CDL and HIV prevalence for the "Under 1" age band is zero. The treatment of beneficiaries in the age band "Under 1" was also applied to a relaxed prevalence definition as discussed in Annexure A of this report.

Section 4.4 of this report contains data on the multiple CDL conditions (or HIV/AIDS and one or more CDL conditions). These rates are calculated using modifiers. *Modifiers* refer to beneficiaries with more than one CDL condition. For the purposes of SRM, beneficiaries with two (CC2), three (CC3) or four (CC4) or more simultaneous CDL conditions are counted separately. The count of modifiers in each category is then used to calculate prevalence expressed per 1 000 beneficiaries. This calculation is only applicable to section 4.4 of this report.

The prevalence rates for rare CDL conditions such as MSS, HAE, DBI, etc. may appear volatile when depicted on a graph. This may be due to the fact that these conditions prevalence rates are low and as a result, small changes in the rate is most likely to cause volatility. The graphs of these conditions are to be interpreted with caution.

All prevalence statistics in the report were analysed at a two-digit level. There are instances where the reported percentage changes do not necessarily add up to the calculated prevalence movement. This discrepancy is mainly caused by rounding off and does not affect the validity of the reported statistics.

1.17 Sampling

Only data that was deemed to be of acceptable quality through the CMS ASR data quality evaluation process was included in the analysis. The proportion of beneficiaries whose data was sampled (or used) was about 99% for the 2016 data. The chronic diseases that were analysed in this study are as given in Table 2 below

with the acronyms used for each chronic disease. The following conditions were affected by exclusion of schemes problematic data: three simultaneous conditions (CC3).

Table 2: Chronic diseases in the Chronic Disease List

Chronic Disease Code	Full Description
ADS	Addison's Disease
AST	Asthma
BCE	Bronchiectasis
BMD	Bipolar Mood Disorder
CHF	Cardiac failure[1]
CMY	Cardiomyopathy
COPD	Chronic Obs. Pulmonary Disease
CRF	Chronic Renal Disease
CSD	Crohn's Disease
DBI	Diabetes Insipidus
DM1	Diabetes Mellitus 1
DM2	Diabetes Mellitus 2
DYS	Dysrhythmias
EPL	Epilepsy
GLC	Glaucoma
HAE	Haemophilia
HYL	Hyperlipidaemia
HYP	Hypertension
IBD	Ulcerative Colitis
IHD	Coronary Artery Disease
MSS	Multiple Sclerosis
PAR	Parkinson's Disease
RHA	Rheumatoid Arthritis
SCZ	Schizophrenia
SLE	Systemic Lupus Erythematosus
TDH	Hypothyroidism
HIV/AIDS	HIV/AIDS[2]
CC2	Two simultaneous conditions
CC3	Three simultaneous conditions
CC4	Four or more simultaneous conditions

[1] CHF was combined with CMY in the prevalence tables.

[2] Not a CDL condition.

Results

1.18 Scheme demographics

The demographic information of beneficiaries of all medical schemes are shown in Table 3. The number of beneficiaries in all schemes decreased by 0.07%, the average age increased from 32.5years to 33.2 years, and the pensioner ratio increased from 7.9% in 2015 to 8.4% in 2017.

The number of beneficiaries in restricted schemes increased by 0.34%. The number of beneficiaries in open schemes grew by 0.15% with the average age increased slightly to 34.9, while the pensioner ratio increased slightly between 2016 and 2017. The differences observed in the sampled population relates to SRM Count data issues. SRM prevalence data is analysed in this report.

Table 3:Medical schemes demographics 2017 (all beneficiaries, annual statutory returns)

Attribute	Restricted			Open			Total		
	2016	2017	% change	2016	2017	% change	2016	2017	% change
Lives	3 924 901	3 911 581	0.34	4 953 180	4 960 455	0.15	8 878 081	8 872 036	-0.07
Average age (years)	30.6	31.0		34.0	34.9		32.5	33.2	
Pensioner ratio	6.3%	6.5%		9.2%	10.0%		7.9%	8.4%	

Table 4: Medical schemes demographics 2017 (sampled data, SRM database)

Attribute	Restricted			Open			Total		
	Total	Sampled	Proportion	Total	Sampled	Proportion	Total	Sampled	Proportion
Lives	3 911 581	3 917 848	100.16%	4 960 455	4 587 865	92.9%	8 871 850	8 505 713	95.87%
Average age (Years)	31.0	30.3		33.8	33.8		33.2	32.2	
Pensioner ratio	6.5%	6.3%		8.8%	8.8%		7.9%	7.6%	

1.19 Treated CDL and HIV/AIDS prevalence per scheme type

The 2016 and 2017 average prevalence per 1 000 beneficiaries for the 26 CDL conditions in open and restricted schemes are presented in Table 5. Cardiomyopathy (CMY) and cardiac heart failure (CHF) are reported together as per SRM E&V criteria.

Table 5: Prevalence* per 1 000 beneficiaries for the treated 26 CDL conditions and HIV/AIDS

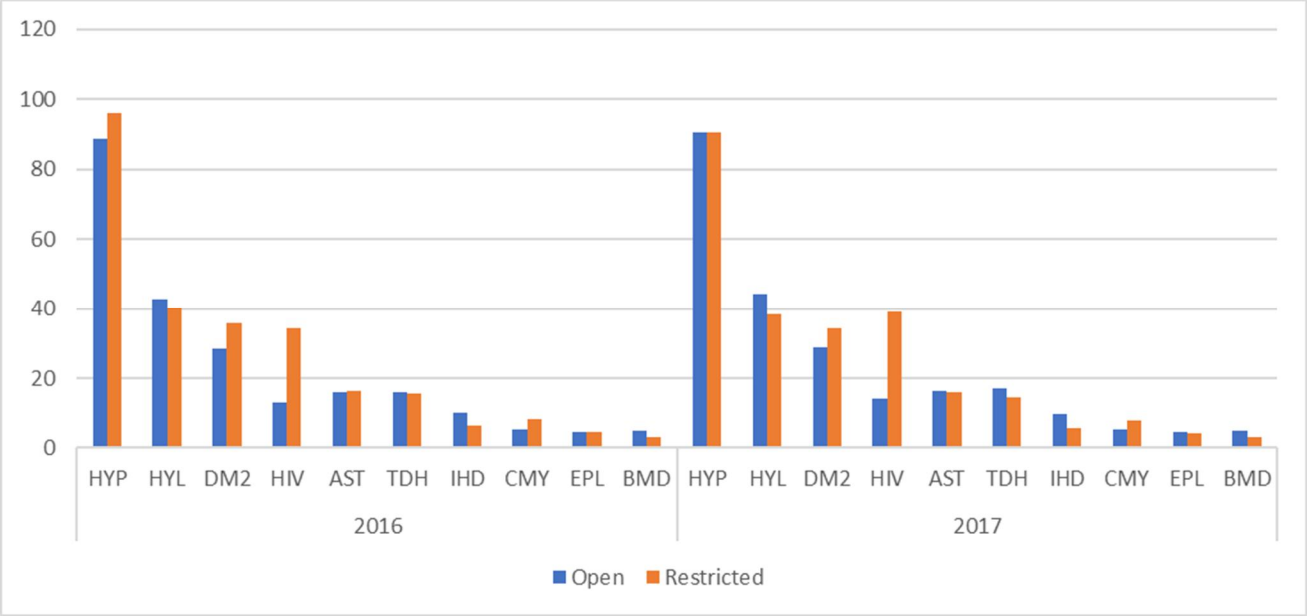
CDL Code	2017 Rank (2016)	Restricted			Open			Total		
		2016	2017	% change	2016	2017	% change	2016	2017	% change
ADS	24 (24)	0.04	0.04	0.29%	0.08	0.08	8.44%	0.06	0.07	5.76%
AST	5 (5)	16.10	15.82	-1.72%	15.96	16.22	1.58%	16.02	16.04	0.12%
BCE	23 (23)	0.07	0.28	307.60%	0.11	0.12	8.78%	0.09	0.19	108.57%
BMD	10 (10)	3.01	3.10	2.87%	4.74	5.04	6.34%	3.98	4.18	5.01%
CMY	8 (8)	5.56	7.85	41.15%	5.17	5.34	3.22%	5.34	6.45	20.67%
COP	15 (15)	0.76	2.17	184.36%	1.74	1.85	6.68%	1.31	1.99	52.11%
CRF	17 (17)	0.54	0.94	74.30%	0.61	0.81	32.57%	0.58	0.87	49.57%
CSD	21 (21)	0.13	0.14	5.69%	0.30	0.32	7.06%	0.23	0.24	6.41%
DBI	25 (25)	0.02	0.02	10.71%	0.03	0.03	5.11%	0.03	0.03	6.61%
DM1	14 (14)	2.58	2.22	-13.97%	2.16	2.07	-4.20%	2.34	2.13	-8.89%
DM2	3 (3)	35.28	34.32	-2.71%	28.63	28.88	0.85%	31.54	31.28	-0.83%
DYS	11 (11)	3.07	3.03	-1.42%	4.29	4.54	5.86%	3.76	3.87	3.10%
EPL	9 (9)	4.39	4.35	-0.75%	4.51	4.61	2.13%	4.45	4.49	0.87%
GLC	12 (12)	3.18	3.11	-2.34%	3.65	3.77	3.41%	3.45	3.48	1.02%
HAE	26 (26)	0.01	0.01	25.00%	0.03	0.03	9.21%	0.02	0.02	12.15%
HIV	4 (4)	34.31	39.26	14.42%	12.56	13.95	10.99%	22.08	25.12	13.76%
HYL	2 (2)	39.74	38.34	-3.53%	42.37	44.23	4.39%	41.22	41.63	0.99%
HYP	1 (1)	94.92	90.68	-4.46%	88.54	90.62	2.34%	91.33	90.64	-0.75%
IBD	19 (19)	0.25	0.29	15.92%	0.56	0.54	-4.35%	0.43	0.43	0.70%
IHD	7 (7)	6.12	5.80	-5.23%	8.81	9.58	8.78%	7.63	7.91	3.68%
MSS	22 (22)	0.14	0.14	0.96%	0.29	0.31	7.16%	0.22	0.23	5.19%
PAR	16 (16)	0.78	0.73	-6.22%	0.97	0.99	2.89%	0.88	0.88	-0.74%
RHA	13 (13)	3.60	3.40	-5.49%	3.14	3.26	3.75%	3.34	3.32	-0.59%
SCZ	18 (18)	0.50	0.48	-3.43%	0.47	0.53	13.25%	0.48	0.51	5.63%
SLE	20 (20)	0.31	0.33	7.47%	0.43	0.46	5.86%	0.38	0.40	6.31%
TDH	6 (6)	15.41	14.37	-6.75%	15.27	17.16	12.38%	15.33	15.93	3.89%

*Annualised

The prevalence rank of treated CDL conditions remained unchanged between 2016 and 2017, as well as the top 10 CDL conditions.

The prevalence of certain treated CDL conditions is slightly higher in restricted medical schemes as opposed to open medical schemes as depicted in figure 4 below. The prevalence rate for HIV/AIDS in restricted schemes is more than double the corresponding prevalence in open medical schemes (Table 5). Detailed changes in CDL conditions as well as HIV/AIDS are discussed in more detail in the next section.

Figure 4: Prevalence per 1 000 beneficiaries in open and restricted medical schemes



1.20 Treated CDL and HIV/AIDS prevalence by age and gender

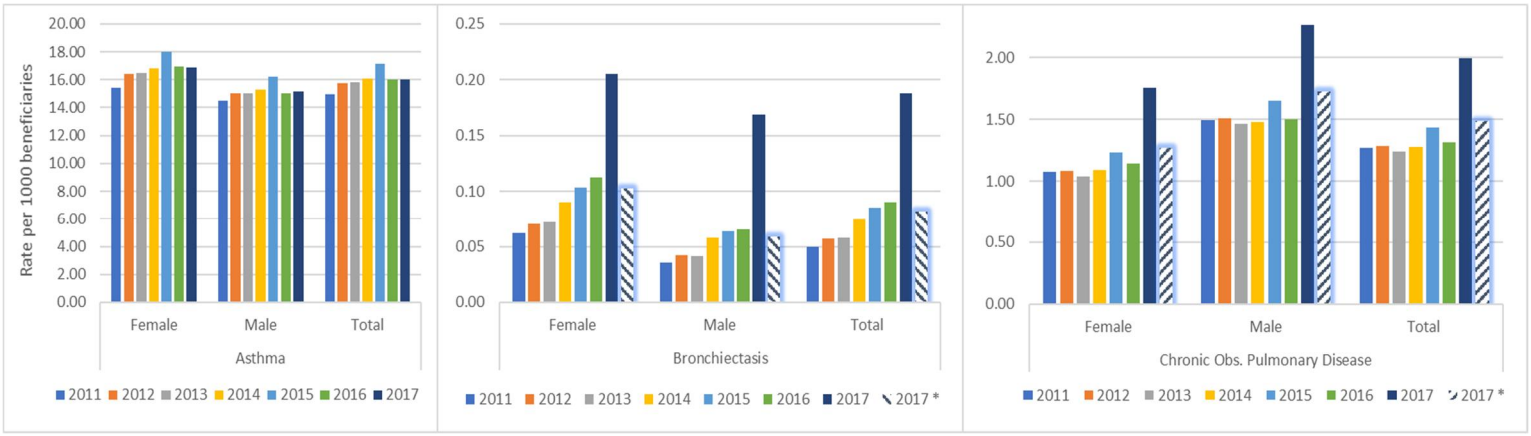
1.20.1 Chronic respiratory conditions

Figure 5 shows prevalence of treated chronic respiratory diseases in medical scheme beneficiaries by gender from 2011 to 2017. The prevalence of asthma (AST) has increased by 0.12% to 16.04 per 1 000 beneficiaries in 2017, compared to 16.02 per 1 000 in 2016, evident by the 1st section of figure 5 below.

The treated chronic obstructive pulmonary disease (COP) prevalence rate increased by over 50% from 1.31 per 1 000 in 2016 to 1.99 per 1 000 in 2017. This increase is attributed to 4 schemes (Impala Medical Plan, Imperial Group Medical Scheme, Lonmin Medical Scheme, Wooltru Healthcare Fund) that reported rates that increased by over 100%.

The overall prevalence of treated Bronchiectasis (BCE) has increased to 0.19 per 1 000 in 2017 compared to 0.09 per 1 000 in 2016. The rates reported for BCE and COP for 2017 is significantly different than the observed trend over the period under review (2011 to 2017), which are due to significant increases reported by South African Police Service Medical Scheme, Wooltru Healthcare Fund and SAMWUMED. When excluding schemes with extremely high increases, the rate for 2017 for BCE and COP decreases to 0.08 and 1.48, respectively.

Figure 5: SRM prevalence of chronic respiratory diseases by gender



** 2017 excluding schemes with possible bad data*

1.20.2 Cardiovascular conditions

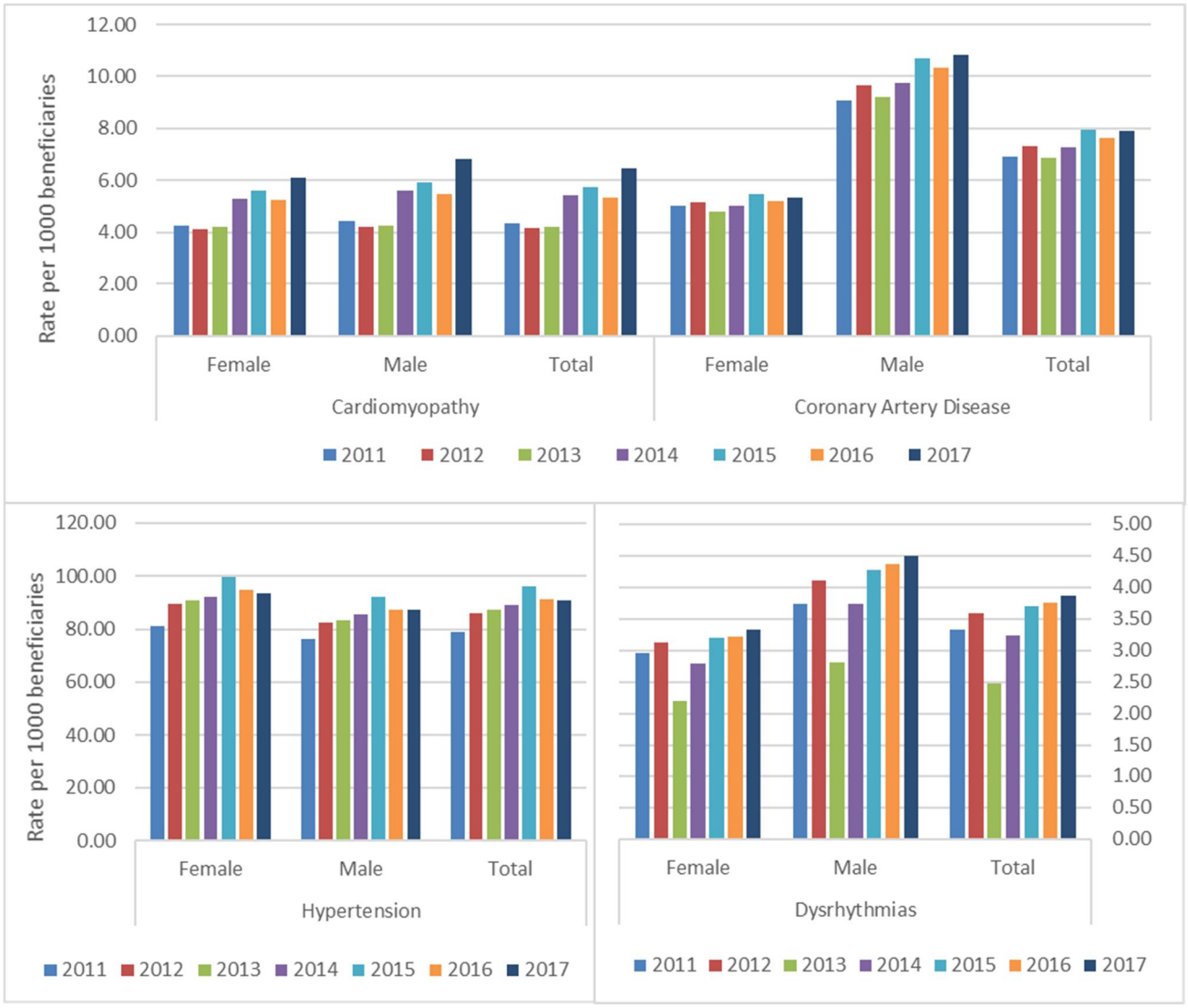
The prevalence of Cardiomyopathy (CMY) increased from 6.45 per 1 000 in 2017 from 5.34 per 1 000 in 2016. This increase can be attributed to certain schemes reporting increases of over 50% (Figure 6).

In 2017, 7.91 beneficiaries in every 1 000 were treated for coronary artery disease (IHD). This represents a slight decrease from the 7.63 per 1 000 beneficiaries treated in 2016. Many more males compared to females were treated for IHD at 10.82 and 5.32 per 1 000 beneficiaries.

Almost 4 per 1 000 beneficiaries were treated for Dysrhythmias (DYS) in 2017, having only increased by 3.10% from 3.76 in 2016 to 3.87 per 1 000 beneficiaries in 2017.

Hypertension (HYP) remained the most prevalent chronic condition among medical scheme beneficiaries, despite having decreased by 0.75%, from 91.33 per 1 000 in 2016 to 90.64 in 2017. HYP treated prevalence has declined for a second consecutive financial year.

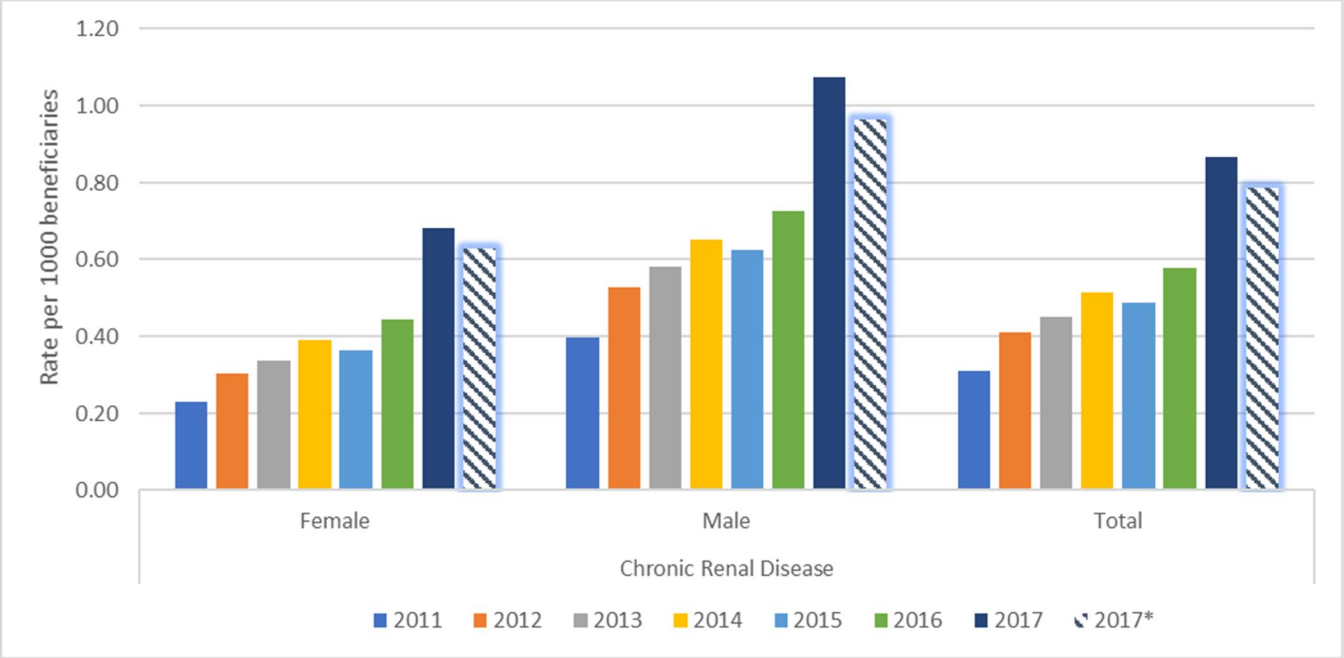
Figure 6: SRM prevalence of cardiovascular conditions by gender



1.20.3 Chronic renal disease

The prevalence of treated chronic renal disease (CRF) increased significantly by 49.57% from 0.58 per 1 000 in 2016 to 0.87 per 1 000 in 2017. This increase was observed due to 5 schemes (Transmed Medical Fund, Horizon Medical Scheme, Wooltru Healthcare Fund, Suremed Health, Sisonke Health Medical Scheme) reporting increases of over 100%. More male than female beneficiaries were treated for CRF for the period 2011 to 2017, depicted in Figure 7 below. When excluding schemes with extremely high increases the rate for 2017 increases to 0.79 per 1 000, which is 35.77% higher than the 2016 rate of 0.58 per 1 000.

Figure 7: SRM prevalence of chronic renal disease by gender

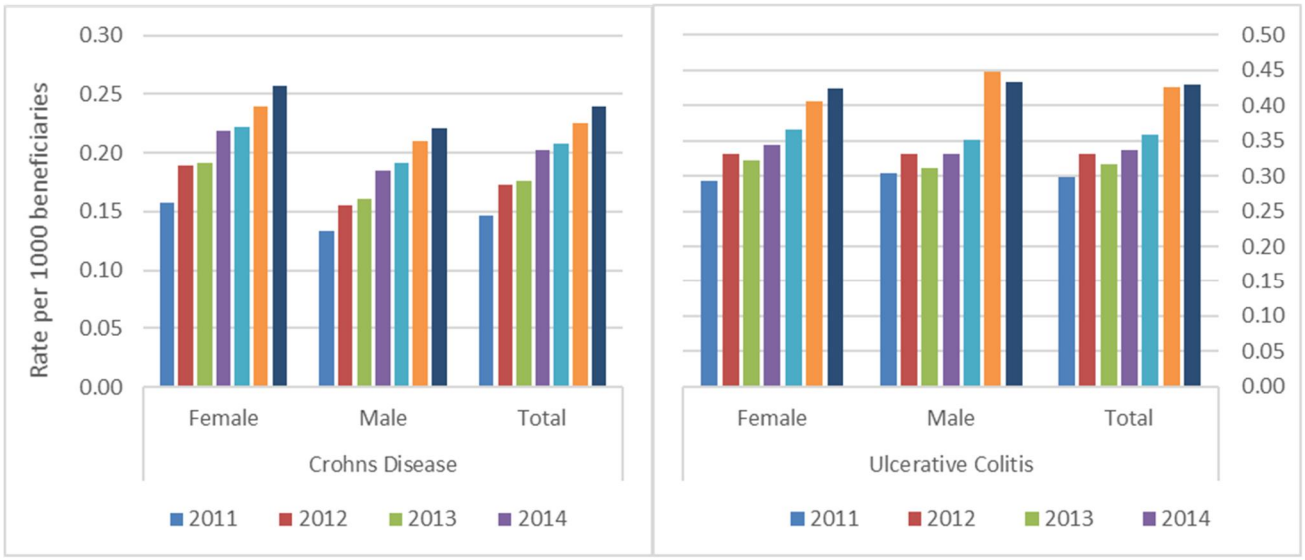


** 2017 excluding schemes with possible bad data*

1.20.4 Gastrointestinal disorders

Treated prevalence of Crohn's disease (CSD) has gradually increased over the period from 2011 to 2017, with an average increase of 8.59%. In 2017, 0.24 in every 1 000 beneficiaries were treated for CSD. Ulcerative Colitis (IBD), prevalence remained unchanged at 0.43 per 1 000 beneficiaries in 2017. Figure 8 contrasts these two gastrointestinal disorders.

Figure 8:SRM prevalence of gastrointestinal disorders by gender



**IBD data for 2014 and 2015 restated.*

1.20.5 Diabetes mellitus

Treated prevalence for diabetes mellitus type 1 (DM1) decreased slightly in 2017 from 2.34 per 1 000 in 2016 to 2.13 per 1 000 in 2017. This translates into a 2.86% decrease on average from 2011 rates of 2.54 per 1 000 beneficiaries. The prevalence of DM1 remains higher among males at 2.54 per 1 000 when compared to females at 1.77 per 1 000, as depicted in Figure 9.

The prevalence of diabetes mellitus type 2 (DM2) has increased on average with 5.98% between 2011 and 2017 but has decreases slightly between 2016 and 2017 by 0.83%. In 2017, 31.28 beneficiaries per 1 000 was treated for DM2, with a higher prevalence observed among male beneficiaries at 35.10 per 1 000.

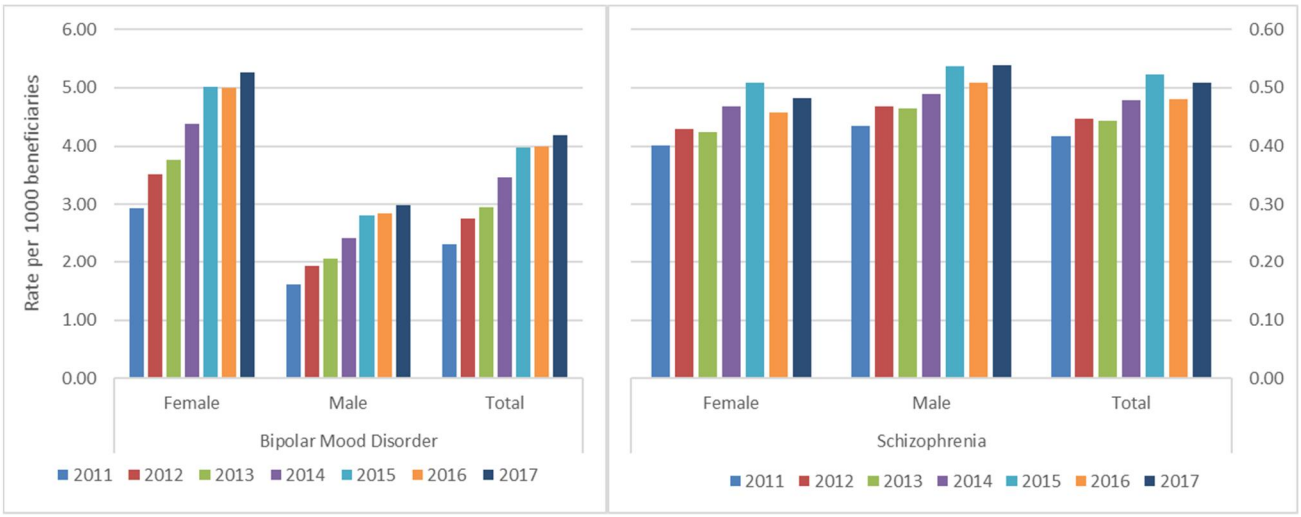
Figure 9: SRM prevalence of diabetes mellitus by gender

1.20.6 Psychiatric conditions

The increase in the prevalence of treated bipolar mood disorder (BMD) slowed considerably between 2015 and 2016 but has regained momentum in 2017 with an increase of 5.01% to a rate of 4.18 per 1 000 beneficiaries.

The prevalence of schizophrenia (SCZ) has remained under 1 per 1 000 between 2011 and 2017. Similar rates were observed in both males and females (Figure 10).

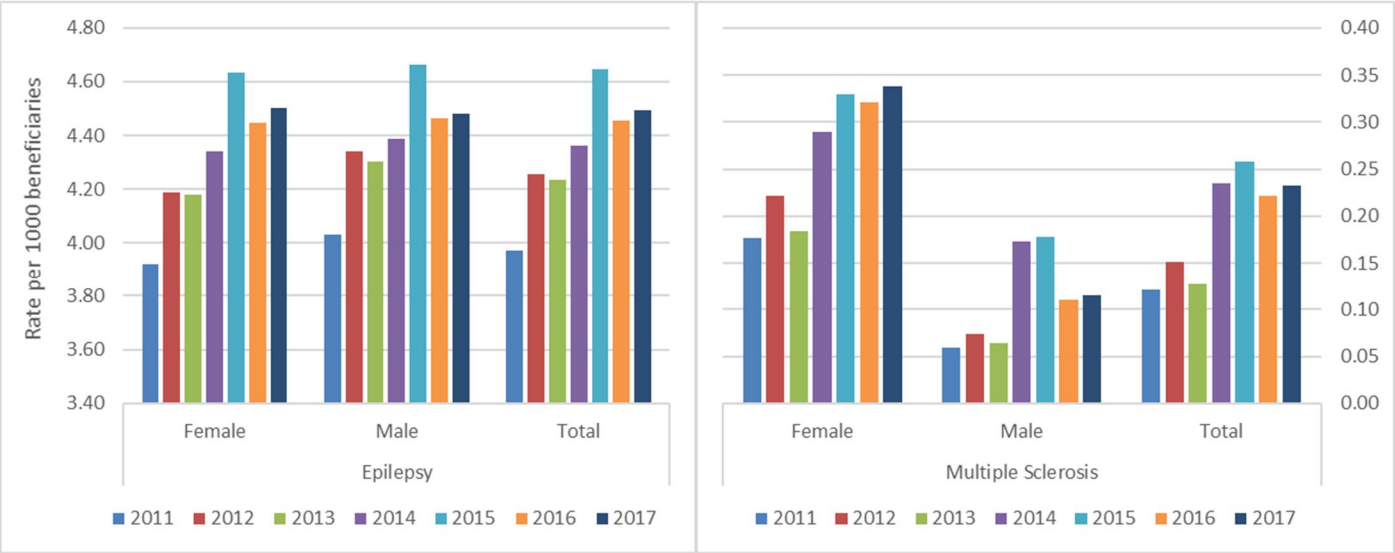
Figure 10: SRM prevalence of psychiatric disorders by gender



1.20.7 Neurological disorders

The treated prevalence for neurological disorders increased between 2016 and 2017. Beneficiaries treated for epilepsy (EPL) increased from 4.45 per 1 000 in 2016 to 4.49 per 1 000 in 2017. Beneficiaries treated for multiple sclerosis (MSS) increased by 5.19% from 0.22 per 1 000 in 2016 to 0.23 per 1 000. Figure 11 highlights the differences in prevalence observed for these conditions.

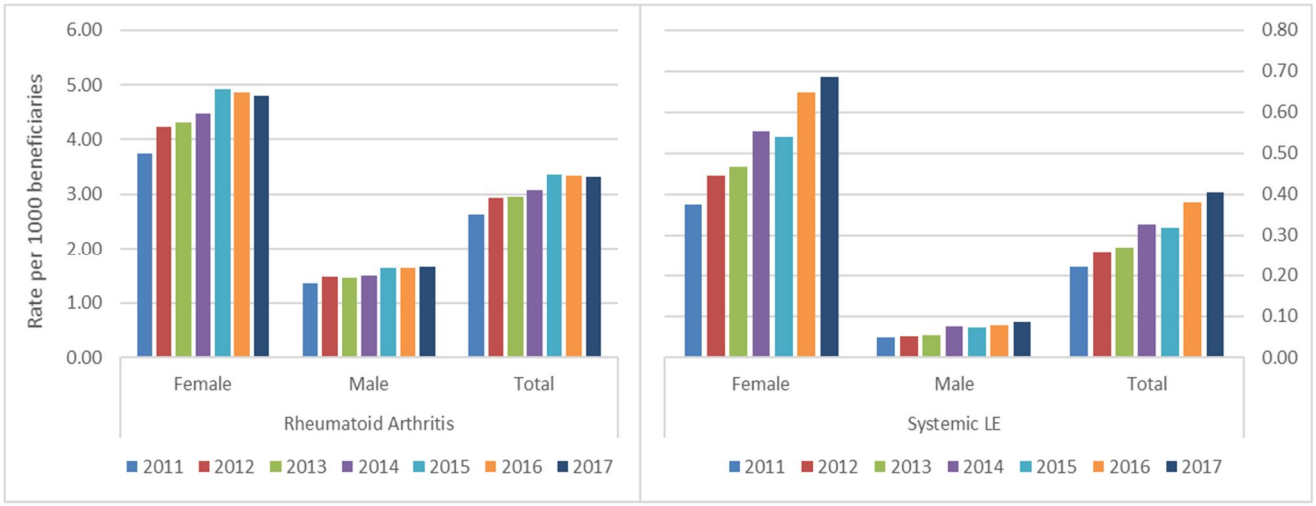
Figure 11: SRM prevalence of neurological disorders by gender



1.20.8 Auto-immune conditions

Rheumatoid arthritis (RHA) treated prevalence decreased slightly between 2016 and 2017 from 3.34 to 3.32 per 1 000, with many more females treated for the condition at 4.81 per 1 000 compared to 1.65 per 1 000 male beneficiaries. Treated prevalence of systemic lupus erythematosus (SLE) increased from 0.38 to 0.40 per 1 000 between 2016 and 2017. Prevalence of SLE is higher among females at 0.69 compared to 0.09 per 1 000 for males.

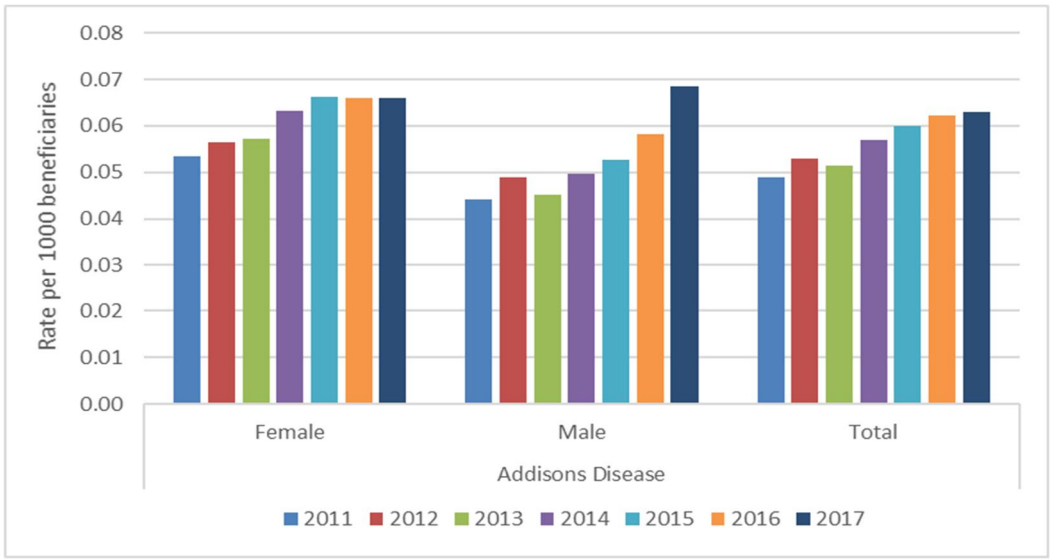
Figure 12: SRM prevalence of auto-immune conditions by gender



1.20.9 Addison's disease

Prevalence of beneficiaries treated for Addison's disease (ADS) remained consistently below 0.07 per 1 000 between 2011 and 2017, with a larger increase (17.6%) noted in the rate for male beneficiaries treated for the condition. (Figure 13)

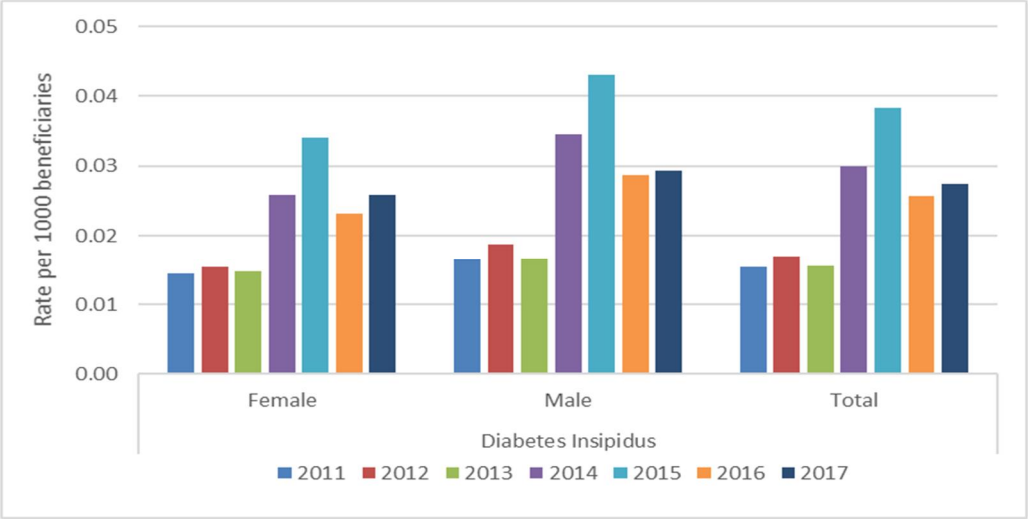
Figure 13: SRM prevalence of Addison's disease by gender



1.20.10 Diabetes insipidus

The prevalence of diabetes insipidus (DBI) is rare among medical scheme beneficiaries and has not changed significantly from 2011 to 2017. In 2017, 0.03 per 1 000 beneficiaries were treated for DBI compared to 0.02 per 1 000 in 2011. (Figure 14).

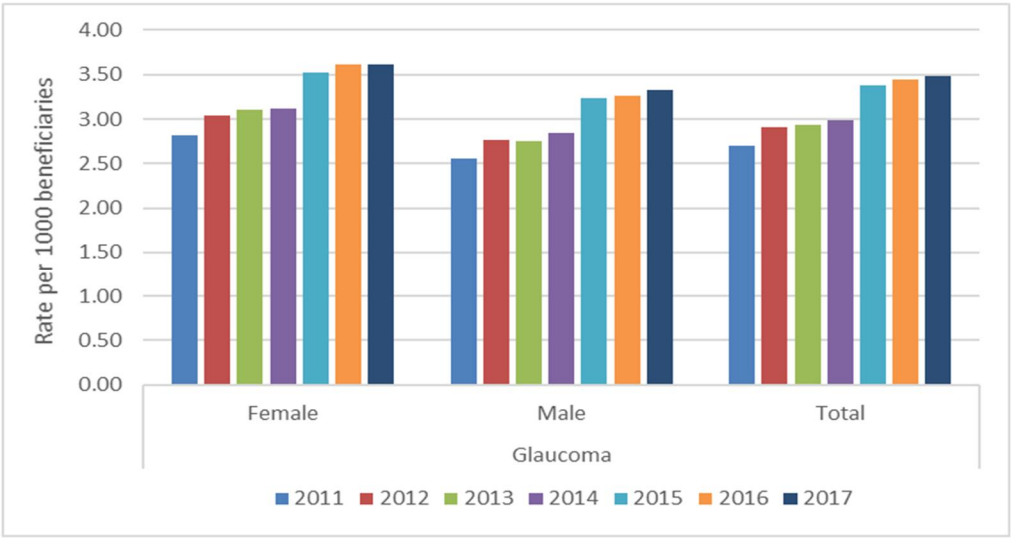
Figure 14: SRM prevalence of diabetes insipidus by gender



1.20.11 Glaucoma

The prevalence of glaucoma (GLC) increased from 2.69 per 1 000 in 2011, to 3.48 per 1 000 in 2017. The prevalence among males and females show no significant differences, with females reported at 3.62 per 1 000 compared to males at 3.33 per 1 000. (Figure 15).

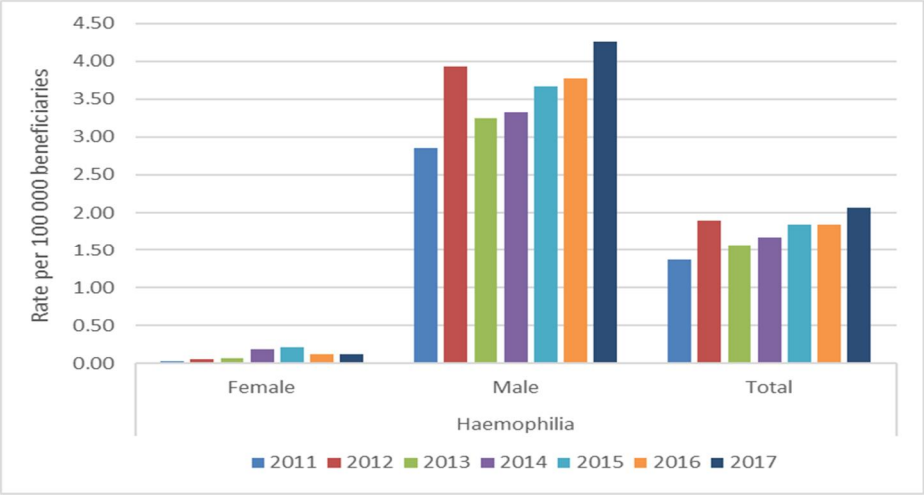
Figure 15: SRM prevalence of glaucoma by gender



1.20.12 Haemophilia

The prevalence for haemophilia (HAE) is very rare among medical scheme beneficiaries with 1.50 per 100 000 in 2011 to 2.07 per 100 000 in 2017. The prevalence in male beneficiaries was 4.26 per 100 000 in 2017, with 0.12 per 100 000 for females, as depicted in Figure 16.

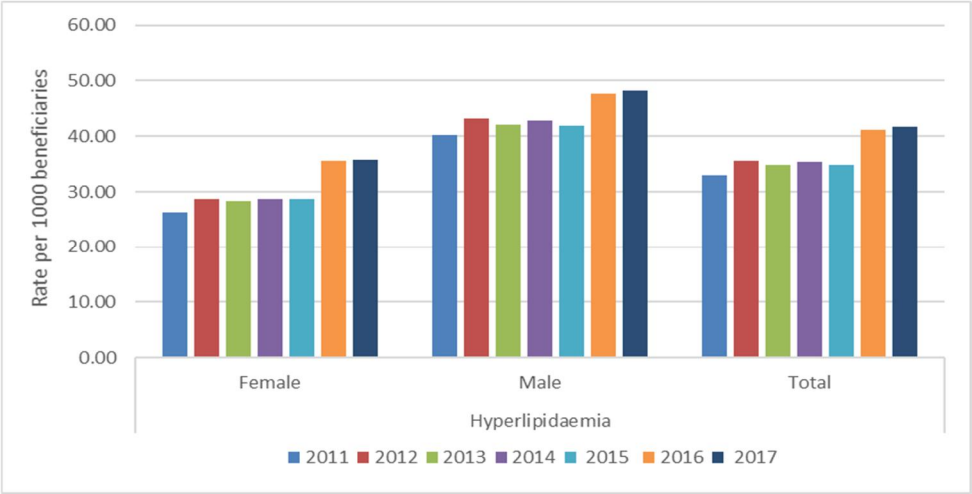
Figure 16: SRM prevalence of haemophilia by gender



1.20.13 Hyperlipidaemia

The prevalence of treated hyperlipidaemia (HYL) increased by 3.98% on average between 2011 and 2017. With a considerable increase of over 18% between 2016 and 2017. This increase is attributable to 5 schemes reporting increases of over 20% from 2016 to 2017. Many more male beneficiaries were treated for HYL at 48.16 per 1 000, compared to females at 35.81 per 1 000.

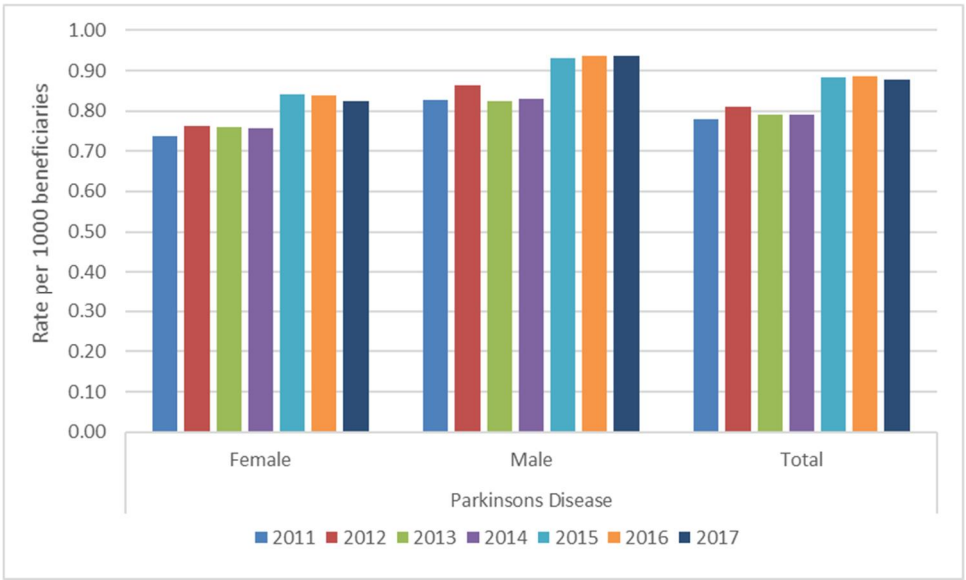
Figure 17: SRM prevalence of hyperlipidaemia by gender



1.20.14 Parkinson's disease

Treated prevalence of Parkinson's disease (PAR) remained unchanged at 0.88 per 1 000 beneficiaries between 2015 and 2017, with slight difference between the reported rates for males and females at 0.94 and 0.83 per 1 000, respectively (Figure 18).

Figure 18: SRM prevalence of Parkinson's disease by gender

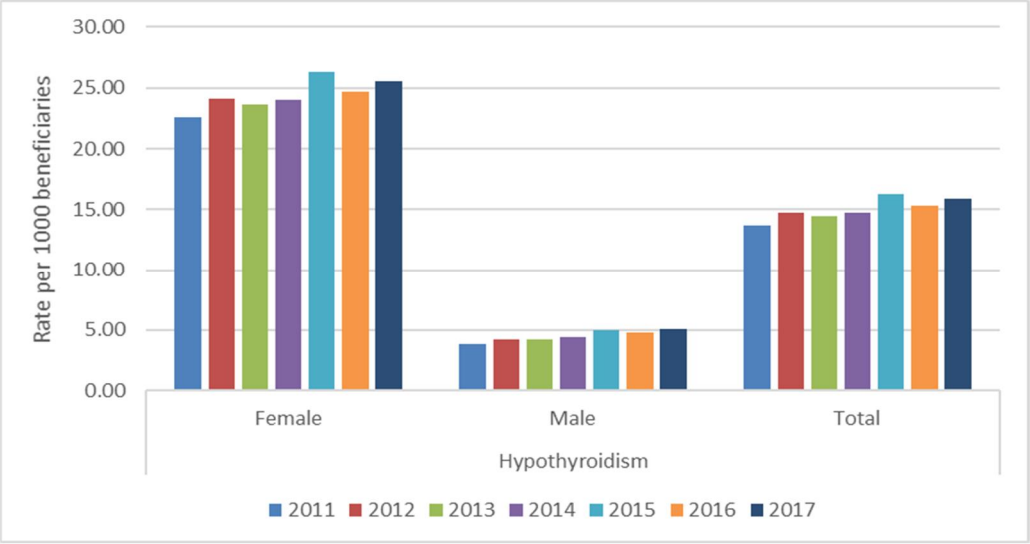


1.20.15 Hypothyroidism

The prevalence of treated hypothyroidism (THD) has increased by 2.57% on average over the period 2011 to 2017. In 2017 15.93 per 1 000 beneficiaries were treated for THD which increased from 15.33 per 1 000

treated in 2016. Many more females are treated for THD at 25.59 per 1 000 compared to male beneficiaries at 5.08 per 1 000, as highlighted by Figure 19.

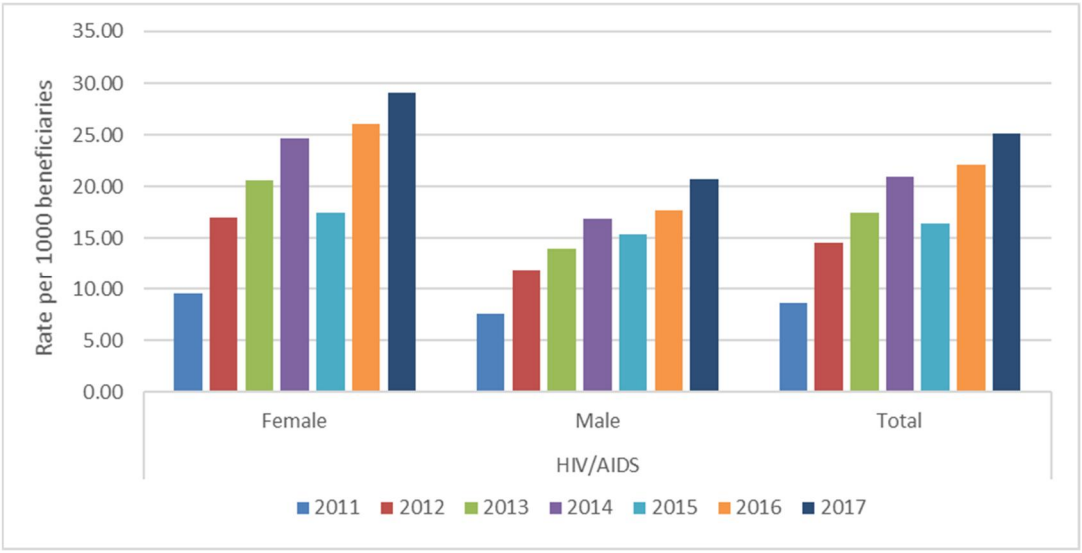
Figure 19: SRM prevalence of hypothyroidism by gender



1.20.16 HIV/AIDS

The prevalence of treated HIV/AIDS increased by 13.76% between 2016 and 2017. The overall prevalence of treated HIV/AIDS increased on average by 19.52% over the period 2011 to 2017. Slightly more females were treated for HIV/AIDS at 29.01 per 1 0000 compared to 20.75 per 1 000 male beneficiaries. (Figure 20).

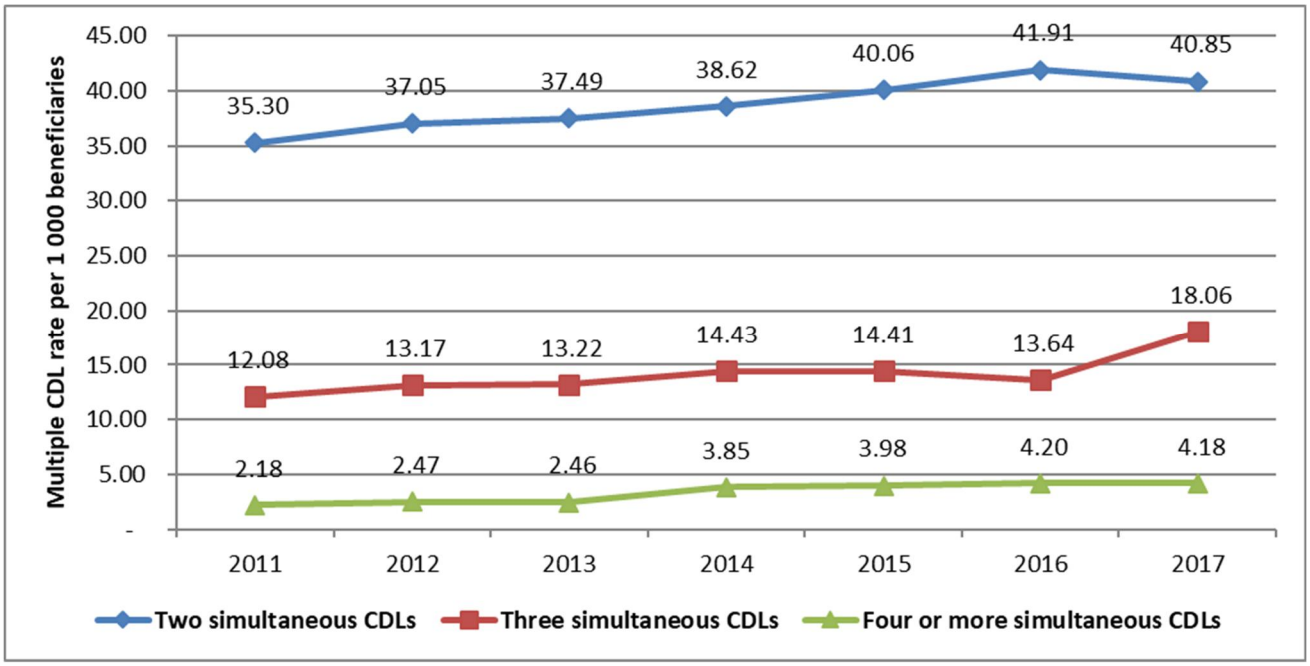
Figure 20: SRM prevalence of HIV/AIDS by gender



1.21 Multiple CDL conditions: 2011 - 2017

In 2017 almost 41 in every 1 000 beneficiaries were treated for 2 simultaneous chronic conditions (CC2), over 18 were treated for 3 simultaneous chronic conditions (CC3) and over 4 in every 1 000 beneficiaries were treated for four or more simultaneous chronic conditions (CC4). This relates to decrease of 2.5% and 0.6% for CC2 and CC4, respectively. The 30% increase observed for CC3 is attributable to most schemes reporting increases in the prevalence of CC3 of over 20%. These increases could be due to a deteriorating risk profiles of medical scheme or could be attributed to incorrect application of E&V criteria.

Figure 21: Multiple CDL conditions: 2011 - 2017



1.22 Comparisons between SRM prevalence and general prevalence (a relaxed definition)[3]

This section gives a high-level comparison between the SRM prevalence rates and general prevalence rates (calculated using a more relaxed definition of prevalence).

[3] Refer to Annexure A of this report for more detailed definition and results of general prevalence

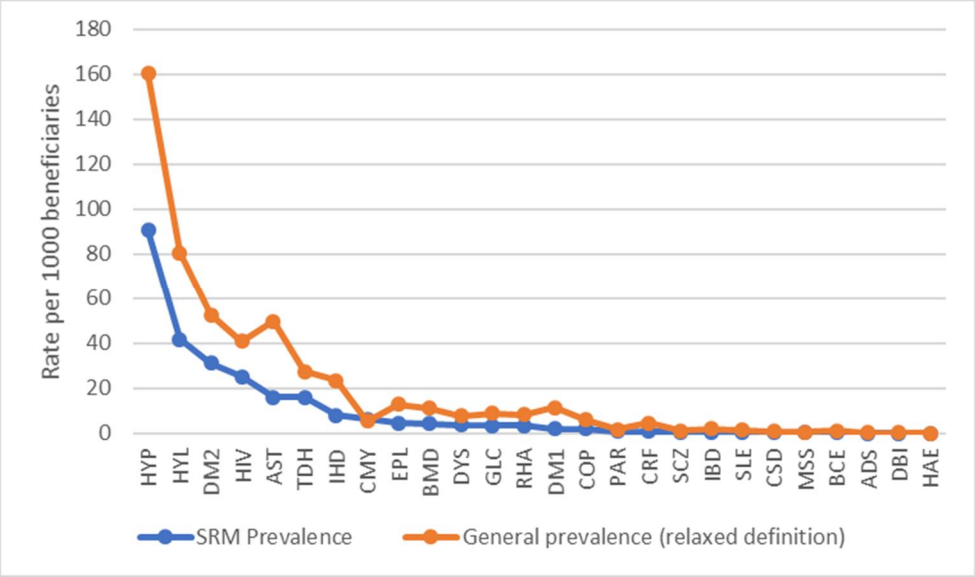
Table 6: Comparisons between SRM prevalence and general prevalence (relaxed definition)

CDL Code	SRM Prevalence			General prevalence (relaxed definition)			Difference between SRM and General prevalence	
	2016	2017	% change	2016***	2017	% change	2016	2017
ADS	0.06	0.07	5.76%	0.17	0.18	4.74%	0.11	0.11
AST	16.02	16.04	0.12%	49.03	49.81	1.59%	33.01	33.77
BCE	0.09	0.19	108.57%	1.09	1.02	-6.41%	1.00	0.83
BMD	3.98	4.18	5.01%	10.98	11.16	1.67%	6.99	6.98
CMY	5.34	6.45	20.67%	5.94	5.50	-7.37%	0.60	-0.94
COP	1.31	1.99	52.11%	5.68	5.91	4.09%	4.36	3.91
CRF	0.58	0.87	49.57%	4.68	4.60	-1.77%	4.10	3.73
CSD	0.23	0.24	6.41%	0.80	0.82	2.79%	0.57	0.58
DBI	0.03	0.03	6.61%	0.26	0.22	-15.13%	0.24	0.20
DM1	2.34	2.13	-8.89%	12.41	11.32	-8.78%	10.07	9.19
DM2	31.54	31.28	-0.83%	50.14	52.60	4.90%	18.60	21.32
DYS	3.76	3.87	3.10%	7.11	7.67	7.83%	3.35	3.79
EPL	4.45	4.49	0.87%	13.33	12.80	-4.03%	8.88	8.30
GLC	3.45	3.48	1.02%	8.51	8.89	4.46%	5.07	5.41
HAE	0.02	0.02	12.15%	0.08	0.05	-30.67%	0.06	0.03
HIV	22.08	25.12	13.76%	40.54	41.03	1.23%	18.45	15.91
HYL	41.22	41.63	0.99%	75.87	80.73	6.41%	34.65	39.10
HYP	91.33	90.64	-0.75%	156.92	160.26	2.13%	65.59	69.62
IBD	0.43	0.43	0.70%	2.08	2.11	1.26%	1.66	1.68
IHD	7.63	7.91	3.68%	22.60	23.46	3.82%	14.97	15.55
MSS	0.22	0.23	5.19%	0.55	0.54	-2.46%	0.33	0.30
PAR	0.88	0.88	-0.74%	1.55	1.60	3.07%	0.66	0.72
RHA	3.34	3.32	-0.59%	8.14	8.34	2.50%	4.80	5.02
SCZ	0.48	0.51	5.63%	1.24	1.23	-0.53%	0.76	0.72
SLE	0.38	0.40	6.31%	1.28	1.31	2.13%	0.90	0.90
TDH	15.33	15.93	3.89%	25.84	27.48	6.34%	10.51	11.55

****2016 restated.*

Table 6 show the comparison between the SRM prevalence rates and the general prevalence rate. The results are further depicted in Figure 22. As expected, the general prevalence rates are higher than the SRM prevalence rates. With the largest differences between HYP, HY, DM2, HIV, AST, TDH and IHD. There was a noticeable difference between SRM prevalence for AST than beneficiaries that had at least one claim during for AST during 2017.

Figure 22: Comparisons between SRM prevalence and general prevalence (relaxed definition)



Discussion

The upward trend in diagnosis and treatment of many conditions on the chronic disease list continued in 2017. The top 10 rankings of the prevalence of CDLs and HIV/AIDS according to prevalence rates did not change between 2016 and 2017.

The top 10 ranked CDLs and HIV/AIDS (chronic conditions with the highest prevalent rates) are hypertension, hyperlipidaemia, diabetes mellitus 2, HIV/AIDS, asthma, hypothyroidism, coronary artery disease, cardiomyopathy epilepsy, and bipolar mood disorder. The CDLs listed as top 10 ranking CDLs had prevalence rates of over 4 per 1 000 beneficiaries in 2017.

The upward trend in the number of medical scheme beneficiaries who were diagnosed and treated for multiple CDL conditions continued in 2017. The significant increase in CC3, might have a negative impact on the risk profiles of medical schemes.

The study revealed a higher prevalence rate for male than female beneficiaries for the following CDLs:

- Hyperlipidaemia
- Haemophilia
- Diabetes mellitus
- Chronic renal disease

In contrast to the above CDLs, there was a high prevalence rate of female than male beneficiaries in the following CDLs:

- Hypothyroidism
- Auto-immune conditions
- HIV/AIDS

Another noteworthy feature of the data was that significantly prevalence of psychiatric in female beneficiaries was nearly twice than in male beneficiaries. There is comprehensive literature depicting that, women are more likely than men to report an illness, mainly on conditions such as mental disorder and HIV/AIDS. These findings are important for the benefit design process and for ensuring that there is adequate access to benefits. DMP should also employ initiatives and strategies to have better insights in instances where there are low prevalence rates as it relates to socioeconomic factors and low health-seeking behaviour by beneficiaries. A significant increase in the prevalence of Chronic renal disease in 2017 compared to respective years is a worrying one.

The upward trend in diagnosis and treatment of many chronic conditions on the CDL could still be generally attributed to improved data management systems of medical schemes and administrators, the deteriorating disease profile, increased beneficiary awareness of entitlements, and changes in care-seeking behaviour. The deterioration in risk profiles should be a concern for medical schemes; and schemes should ensure that value for money is attained from the managed care programmes. Schemes are encouraged to improve on the coordination of the provision of care for patients, including the improvement of the quality of process indicator data submitted through the annual statutory return (ASR) which is used to calculate coverage ratios.

Annexure A: (CDL conditions & HIV/AIDS prevalence: a more relaxed definition)

The first part (section 1 to section 5) of the report defined prevalence as diagnosed and treated prevalence as defined by the SRM process (this data was extracted from part A7 of the ASR system). Medical schemes use the rules set out in the *Guidelines for the Identification of Beneficiaries with Risk Factors in Accordance with the Entry and Verification Criteria v11.1* (Council for Medical Schemes, 2018) to identify each chronic disease case.

This section of the report (Annexure A) defines prevalence in a more relaxed manner without entirely being guided by the E&V criteria. Prevalence is defined as the count of beneficiaries who have had at-least one claim for a specified CDL condition during the year (this data is extracted from table C5 of the ASR system). This data was collected for the first time in 2015 and as a result the CMS will monitor the quality of the data as time progresses. A more detailed analysis of this data will be provided in the up-coming studies once enough data is available (to conduct data quality tests using trend). This annexure only provides summary tables of the data at a high level.

1.23 CDL and HIV/AIDS prevalence per scheme type

Table 7: Average prevalence per 1 000 beneficiaries for the 26 CDL conditions and HIV/AIDS

CDL Code	2017 Rank (2015)	Restricted			Open			Aggregated		
		2016	2017	% change	2016	2017	% change	2016	2017	% change
ADS	25 (25)	0.12	0.12	1.12%	0.22	0.22	-0.22%	0.17	0.17	-0.26%
AST	4 (4)	48.89	45.86	-6.21%	49.14	49.68	1.11%	49.03	47.98	-2.14%
BCE	21 (21)	1.73	1.74	1.01%	0.59	0.63	5.42%	1.09	1.12	3.15%
BMD	11 (11)	8.82	8.33	-5.50%	12.66	12.44	-1.73%	10.98	10.61	-3.35%
CMY & CHF	8 (8)	17.93	16.52	-7.83%	12.43	13.02	4.70%	14.84	14.58	-1.74%
COP	15 (15)	5.37	5.49	2.06%	5.91	6.48	9.59%	5.68	6.03	6.33%
CRF	16 (16)	5.56	5.08	-8.69%	3.99	3.99	0.01%	4.68	4.48	-4.33%
CSD	22 (22)	0.56	0.55	-2.01%	0.98	1.00	1.96%	0.80	0.80	0.31%
DBI	24 (24)	0.27	0.27	-0.61%	0.25	0.26	0.46%	0.26	0.26	0.02%
DM1	10 (10)	12.80	12.54	-2.07%	12.11	11.62	-4.02%	12.41	12.03	-3.08%
DM2	3 (3)	56.60	57.21	1.07%	45.12	47.50	5.27%	50.14	51.82	3.35%
DYS	14 (14)	5.70	5.60	-1.68%	8.21	8.54	4.07%	7.11	7.23	1.73%
EPL	9 (9)	12.80	11.83	-7.55%	13.75	12.98	-5.62%	13.33	12.47	-6.49%
GLC	12 (12)	8.00	7.93	-0.80%	8.91	9.25	3.81%	8.51	8.66	1.80%
HAE	26 (26)	0.05	0.04	-14.52%	0.10	0.09	-14.68%	0.08	0.07	-15.04%
HIV	5 (5)	59.59	58.79	-1.33%	25.71	25.40	-1.21%	40.54	40.27	-0.65%
HYL	2 (2)	70.86	69.71	-1.62%	79.77	86.00	7.81%	75.87	78.74	3.79%
HYP	1 (1)	161.33	160.21	-0.70%	153.49	160.95	4.86%	156.92	160.62	2.36%
IBD	17 (17)	1.85	1.84	-0.56%	2.26	2.35	4.11%	2.08	2.13	2.10%
IHD	7 (7)	19.14	18.77	-1.93%	25.29	27.45	8.53%	22.60	23.58	4.36%
MSS	23 (23)	0.36	0.34	-5.96%	0.70	0.69	-1.68%	0.55	0.53	-3.40%

CDL Code	2017 Rank (2015)	Restricted			Open			Aggregated		
		2016	2017	% change	2016	2017	% change	2016	2017	% change
PAR	18 (18)	1.42	1.40	-1.85%	1.64	1.73	5.23%	1.55	1.58	2.21%
RHA	13 (13)	8.99	8.84	-1.66%	7.48	7.64	2.17%	8.14	8.17	0.43%
SCZ	20 (20)	1.38	1.31	-5.67%	1.12	1.14	1.39%	1.24	1.21	-1.96%
SLE	19 (19)	1.09	1.03	-6.07%	1.43	1.39	-2.88%	1.28	1.23	-4.28%
TDH	6 (6)	22.84	22.26	-2.55%	28.17	30.80	9.31%	25.84	26.99	4.47%

*Percentage changes may not add-up due to rounding. **Note: the table above is not SRM prevalence.*

1.24 CDL and HIV/AIDS prevalence by gender

Table 8: Average prevalence per 1 000 beneficiaries for the 26 CDL conditions and HIV/AIDS by gender

CDL Code	2017 Rank (2016)	Female			Male			Total		
		2016	2017	% change	2016	2017	% change	2016	2017	% change
ADS	25 (25)	0.21	0.20	-1.72%	0.14	0.14	2.24%	0.17	0.17	-0.26%
AST	4 (3)	50.70	50.06	-1.26%	47.16	45.66	-3.19%	49.03	47.98	-2.14%
BCE	21 (21)	1.18	1.22	3.36%	0.99	1.02	2.88%	1.09	1.12	3.15%
BMD	11 (11)	13.57	13.19	-2.79%	8.08	7.73	-4.38%	10.98	10.61	-3.35%
CMY & CHF	8 (8)	14.55	14.31	-1.67%	15.16	14.88	-1.83%	14.84	14.58	-1.74%
COP	15 (15)	5.12	5.41	5.72%	6.30	6.73	6.89%	5.68	6.03	6.33%
CRF	16 (16)	4.63	4.48	-3.40%	4.73	4.48	-5.36%	4.68	4.48	-4.33%
CSD	22 (22)	0.87	0.88	0.27%	0.71	0.72	0.35%	0.80	0.80	0.31%
DBI	24 (24)	0.25	0.25	0.43%	0.28	0.27	-0.40%	0.26	0.26	0.02%
DM1	10 (10)	11.61	11.18	-3.75%	13.30	12.98	-2.43%	12.41	12.03	-3.08%
DM2	3 (4)	46.50	47.91	3.03%	54.22	56.19	3.64%	50.14	51.82	3.35%
DYS	14 (14)	6.36	6.52	2.59%	7.95	8.03	0.96%	7.11	7.23	1.73%
EPL	9 (9)	13.25	12.58	-5.11%	13.42	12.34	-8.02%	13.33	12.47	-6.49%
GLC	12 (12)	8.96	9.12	1.76%	8.01	8.16	1.85%	8.51	8.66	1.80%
HAE	26 (26)	0.02	0.02	19.17%	0.15	0.12	-18.93%	0.08	0.07	-15.04%
HIV	5 (5)	47.89	47.43	-0.95%	32.31	32.27	-0.15%	40.54	40.27	-0.65%
HYL	2 (2)	67.99	70.59	3.83%	84.69	87.86	3.75%	75.87	78.74	3.79%
HYP	1 (1)	163.03	166.60	2.19%	150.08	153.93	2.56%	156.92	160.62	2.36%
IBD	17 (17)	2.26	2.30	2.00%	1.89	1.93	2.24%	2.08	2.13	2.10%
IHD	7 (7)	16.94	17.74	4.74%	28.93	30.12	4.10%	22.60	23.58	4.36%
MSS	23 (23)	0.77	0.75	-3.02%	0.30	0.29	-4.45%	0.55	0.53	-3.40%
PAR	18 (18)	1.51	1.53	1.33%	1.59	1.64	3.16%	1.55	1.58	2.21%
RHA	13 (13)	11.41	11.45	0.36%	4.48	4.51	0.67%	8.14	8.17	0.43%
SCZ	20 (19)	1.14	1.15	0.78%	1.34	1.28	-4.57%	1.24	1.21	-1.96%
SLE	19 (20)	2.14	2.04	-4.63%	0.32	0.32	-1.58%	1.28	1.23	-4.28%
TDH	6 (6)	41.21	43.01	4.36%	8.64	9.08	5.10%	25.84	26.99	4.47%

*Percentage changes may not add-up due to rounding. ** Note: the table above is not SRM prevalence.*

1.25 CDL and HIV/AIDS prevalence by age

Table 9: Average prevalence per 1 000 beneficiaries for the 26 CDL conditions and HIV/AIDS by age

CDL	1-4 years	5-9 years	10-14 years	15-19 years	20-24 years	25-29 years	30-34 years	35-39 years	40-44 years	45-49 years	50-54 years	55-59 years	60-64 years	65-69 years	70-74 years	75-79 years	80-84 years	85 years+
ADS	0.01	0.04	0.04	0.07	0.10	0.11	0.10	0.15	0.20	0.23	0.30	0.33	0.42	0.54	0.55	0.65	0.65	0.52
AST	63.81	63.15	54.48	41.82	39.86	29.65	31.30	34.93	39.42	44.29	48.76	55.59	66.90	77.28	85.49	91.80	93.82	83.49
BCE	0.61	0.35	0.37	0.61	0.66	0.59	0.86	1.07	1.50	1.60	1.59	1.67	1.96	2.75	3.30	4.18	4.07	3.41
BMD	0.09	0.51	2.09	8.22	16.59	14.11	14.50	15.74	17.24	16.80	15.19	14.52	13.82	12.25	11.15	8.70	7.46	6.34
CHF	0.29	0.16	0.19	0.46	0.66	1.02	1.55	2.39	4.04	6.60	10.71	17.31	26.39	37.53	55.65	80.50	114.42	166.61
CMY	0.11	0.10	0.12	0.29	0.46	0.70	1.24	2.10	3.96	6.76	10.27	12.64	16.74	22.14	28.75	35.59	44.99	53.43
COP	0.75	0.51	0.34	0.38	0.49	0.65	0.89	1.26	2.13	3.46	6.66	11.82	20.01	30.96	45.00	54.99	62.89	59.12
CRF	0.34	0.38	0.54	1.24	2.29	2.63	2.91	3.69	4.34	5.55	7.02	8.92	11.39	14.09	17.35	20.57	23.38	27.43
CSD	0.11	0.09	0.13	0.31	0.67	0.83	0.84	0.92	1.11	1.14	1.13	1.41	1.68	1.86	2.07	1.80	1.71	1.38
DBI	0.03	0.04	0.06	0.06	0.10	0.11	0.15	0.21	0.33	0.41	0.66	0.69	0.79	0.69	0.64	0.57	0.48	0.31
DM1	0.47	1.01	2.09	3.09	4.72	5.13	6.30	8.57	11.93	17.74	25.75	32.22	37.89	39.55	39.15	36.53	31.96	22.01
DM2	0.51	0.67	1.37	2.81	5.42	7.90	14.83	29.21	52.35	84.98	125.67	158.10	182.74	186.45	189.48	186.76	172.25	137.67
DYS	0.09	0.21	0.36	0.87	1.13	1.10	1.28	1.70	2.49	3.87	5.98	10.34	19.37	33.67	53.83	76.10	100.78	116.84
EPL	8.43	8.46	9.14	11.65	13.70	10.39	9.77	10.73	12.80	13.56	14.83	16.40	19.25	22.35	25.46	30.27	32.80	33.51
GLC	0.20	0.37	0.63	1.01	1.48	1.67	2.15	3.12	4.63	7.29	11.41	17.06	27.26	40.80	52.47	65.98	79.90	96.15
HAE	0.05	0.19	0.07	0.06	0.07	0.06	0.04	0.07	0.05	0.04	0.05	0.06	0.06	0.07	0.04	0.06	0.04	0.06
HIV	1.93	3.92	7.18	8.66	14.24	36.07	70.02	99.99	102.00	87.08	65.33	42.76	21.85	9.30	4.14	2.45	1.06	0.56
HYL	0.13	0.32	0.87	2.24	5.92	9.88	17.42	32.70	60.29	97.65	148.94	211.92	294.28	359.77	409.77	429.51	433.42	375.24
HYP	1.26	1.27	2.03	5.82	15.17	29.79	56.43	100.66	163.45	245.75	341.00	427.79	520.37	584.59	653.35	712.91	769.71	823.29
IBD	0.40	0.33	0.45	0.85	1.67	1.98	2.35	2.62	2.84	2.87	3.02	3.49	4.21	4.81	5.46	5.33	5.10	4.92
IHD	0.16	0.14	0.37	1.45	2.43	3.60	5.09	7.85	13.42	21.23	34.10	52.08	79.82	112.35	146.98	176.15	203.95	215.18
MSS	0.01	0.01	0.05	0.13	0.33	0.48	0.58	0.77	1.03	0.92	0.99	1.08	1.01	0.99	0.72	0.58	0.58	0.15
PAR	0.01	0.01	0.02	0.03	0.06	0.07	0.07	0.12	0.19	0.40	0.79	1.69	3.69	7.48	14.08	21.99	29.24	31.55
RHA	0.26	0.35	0.92	1.44	1.93	2.47	3.46	5.18	8.16	11.55	16.47	21.05	25.92	30.43	32.42	34.10	31.91	26.99
SCZ	0.02	0.05	0.15	0.96	1.98	1.40	1.32	1.37	1.39	1.65	1.80	1.95	2.02	2.43	2.51	2.71	2.57	2.99
SLE	0.01	0.04	0.14	0.40	0.86	1.00	1.19	1.53	2.01	2.11	2.25	2.50	2.72	2.71	2.51	1.87	1.47	0.65
TDH	0.27	0.42	1.07	2.71	6.52	7.93	10.70	15.48	23.53	32.28	44.71	62.15	88.67	112.80	130.85	142.27	157.76	172.05

*** Note the age-band "under 1" is not populated with CDL / HIV information. All beneficiaries "Under 1" are included in the "Non CDL" category.*

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