



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

Research and Monitoring Unit

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Executive Summary

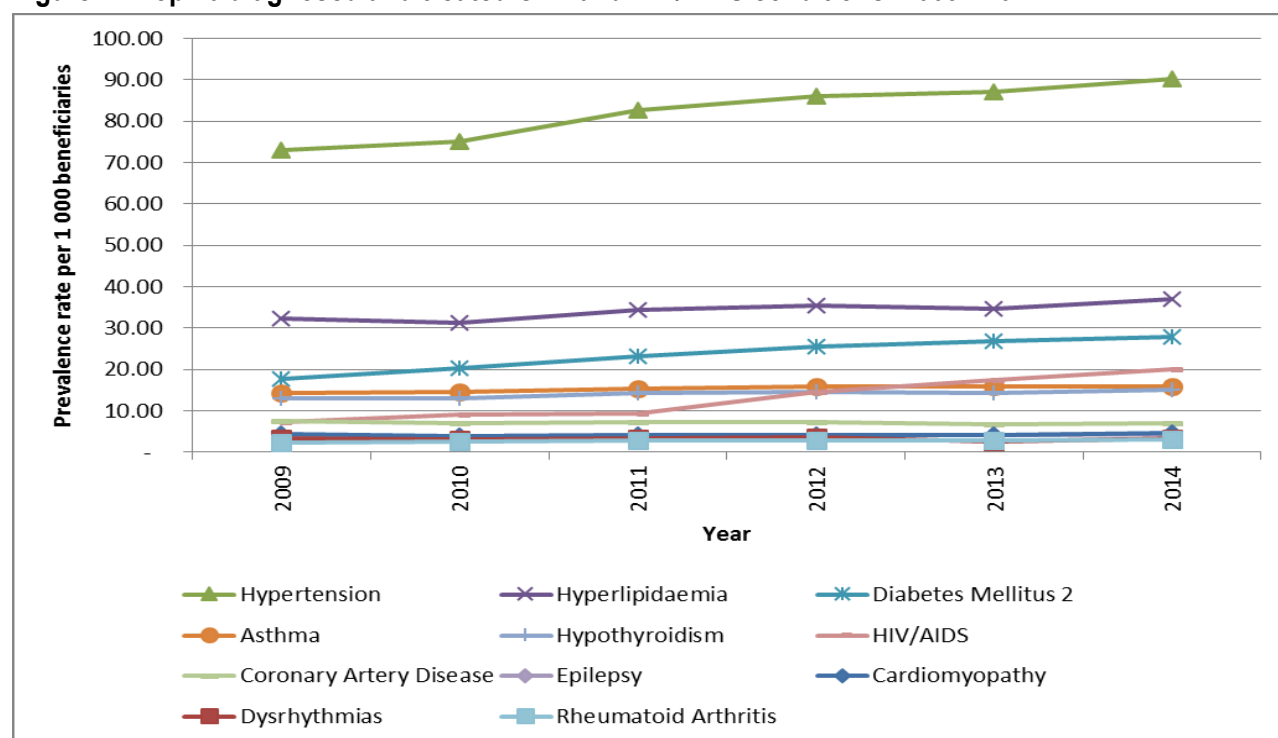
The Medical Schemes Act, 131 of 1998 makes it mandatory for medical schemes to cover costs for the diagnosis, treatment or care of a defined set of benefits or Prescribed Minimum Benefits (PMBs), regardless of the benefit option members have selected. PMBs include any medical condition which meets the 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 2009 and 2014. This study is an update of the *"Prevalence of chronic diseases in the population covered by medical schemes in South Africa"* published by CMS in January 2015.

The findings of this study indicate that in 2014, the upward trend in diagnosis and treatment of many conditions on the chronic disease list continued. The top 10 ranking of chronic conditions according to prevalence rates did not change significantly between 2013 and 2014.

The top 10 ranked CDL's and HIV/AIDS (chronic conditions with the highest prevalence rates) are hypertension, hyperlipidaemia, diabetes mellitus 2, asthma, hypothyroidism, HIV/AIDS, coronary artery disease, epilepsy, cardiomyopathy and dysrhythmias (Figure 1). Rheumatoid arthritis was replaced by dysrhythmias in the 2014 top 10 CDL rankings. The CDL's listed as top 10 ranking CDL's had prevalence rates of at least 3 per 1 000 beneficiaries in 2014.

Figure 1 : Top 10 diagnosed and treated CDL and HIV/AIDS conditions: 2009 - 2014



Hypertension, hyperlipidaemia and diabetes mellitus 2 continued to be the highest prevalent CDL's in medical schemes beneficiaries with the prevalence of more than 20 per 1 000 beneficiaries. HIV/AIDS retained the position as a fourth ranking CDL condition in medical scheme beneficiaries. Dysrhythmia moved three levels higher to replace rheumatoid arthritis in the top 10 prevalence ranking CDL's (Table 1). A detailed summary of the top 10 prevalence ranking CDL's (and HIV/AIDS) is given in Table 1.

Table 1: Prevalence of chronic conditions (Cases/1 000 beneficiaries), 2013 and 2014

Rank (2013)	Condition	Type	Prevalence			% Changes		Average growth rate (per year %)
			2009	2013	2014	2013 vs 2014	2009 vs 2014	
1 (1)	Hypertension (HYP)	Total	73.14	87.2	90.32	3.6	23.5	4.3
		Open	74.62	87.62	90.64	3.4	21.5	4.0
		Restricted	73.00	86.68	89.93	3.7	23.2	4.3
2 (2)	Hyperlipidaemia (HYL)	Total	32.27	34.78	36.97	6.3	14.6	2.8
		Open	33.30	39.64	41.83	5.5	25.6	4.7
		Restricted	29.55	28.87	30.91	7.1	4.6	0.9
3 (3)	Diabetes mellitus type 2 (DM2)	Total	17.77	26.91	27.80	3.3	56.5	9.4
		Open	17.47	24.14	24.41	1.1	39.8	6.9
		Restricted	20.86	30.28	32.03	5.8	53.5	8.9
4 (4)	HIV/AIDS (Receiving ARVs)	Total	7.20	17.41	20.13	15.6	179.6	22.8
		Open	6.76	10.24	12.78	24.8	89.0	13.6
		Restricted	9.82	26.12	29.28	12.1	198.3	24.4
5 (5)	Asthma (AST)	Total	14.31	15.79	15.89	0.7	11.1	2.1
		Open	14.43	16.02	15.87	-0.9	10.0	1.9
		Restricted	15.08	15.51	15.92	2.6	5.6	1.1
6 (6)	Hyperthyroidism (TDH)	Total	13.00	14.45	15.23	5.4	17.1	3.2
		Open	12.58	14.97	15.84	5.8	25.9	4.7
		Restricted	13.29	13.83	14.47	4.6	8.8	1.7
7 (7)	Ischaemic heart disease (IHD)	Total	7.65	6.87	6.99	1.7	-8.6	-1.8
		Open	8.48	7.78	7.99	2.8	-5.7	-1.2
		Restricted	5.98	5.77	5.73	-0.6	-4.0	-0.8
8 (9)	Cardiomyopathy (CMY & CHF)	Total	4.53	4.22	4.68	11.0	3.4	0.7
		Open	4.55	4.07	4.30	5.7	-5.5	-1.1
		Restricted	3.84	4.39	5.16	17.5	34.5	6.1
9 (8)	Epilepsy (EPL)	Total	3.85	4.26	4.32	1.4	12.2	2.3
		Open	3.98	4.47	4.45	-0.5	11.7	2.2
		Restricted	3.74	3.99	4.16	4.4	11.3	2.2
10 (13)	Dysrhythmias (DYS)	Total	3.29	2.48	3.31	33.6	0.7	0.1
		Open	3.89	3.15	3.85	22.3	-1.0	-0.2
		Restricted	2.14	1.68	2.64	57.2	23.2	4.3

**** Percentage changes may not add-up due to rounding**

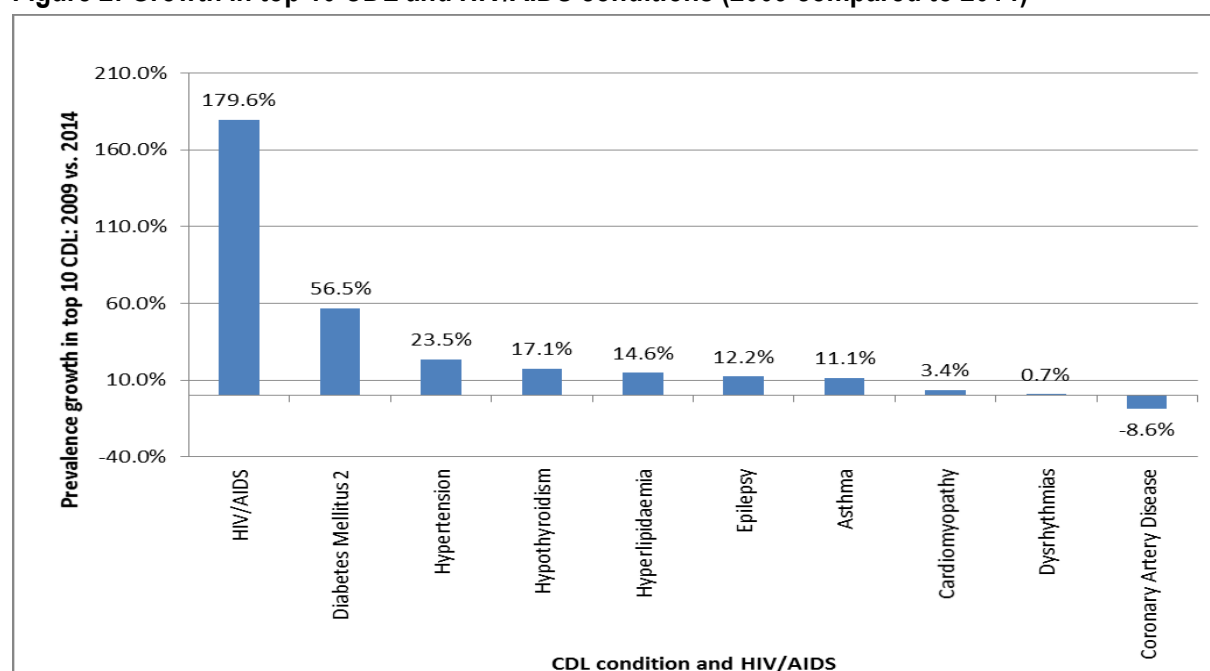
Table 1 and Figure 2 depict trends in the top 10 common conditions between 2009 and 2014. Hypertension retained its rank as the highest prevalent CDL in medical schemes beneficiaries with an overall prevalence rate of 90.32 per 1 000 beneficiaries in 2014. Hypertension prevalence increased by 3.6 % in 2014 as compared to 2013. Over the period between 2009 and 2014, hypertension prevalence increased by 23.5% resulting in the average annual growth rate of 4.3% per year for the period. The growth in hypertension prevalence has been consistent in open and restricted schemes for the period under review.

Hyperlipidaemia continued to be the 2nd ranked CDL in terms of prevalence with the prevalence rate increasing by 6.3% between 2013 and 2014. Between 2009 and 2014, the prevalence of hyperlipidaemia increased by 14.6% resulting in an average growth rate of 2.8% per year for the period under review.

Diabetes mellitus type 2 is still the 3rd ranked CDL in terms of prevalence. Between 2009 and 2014, prevalence of diabetes mellitus type 2 increased by 56.5% (from 17.77 to 27.80 per 1 000). This represents an average growth rate of 9.4% per year for the period between 2009 and 2014.

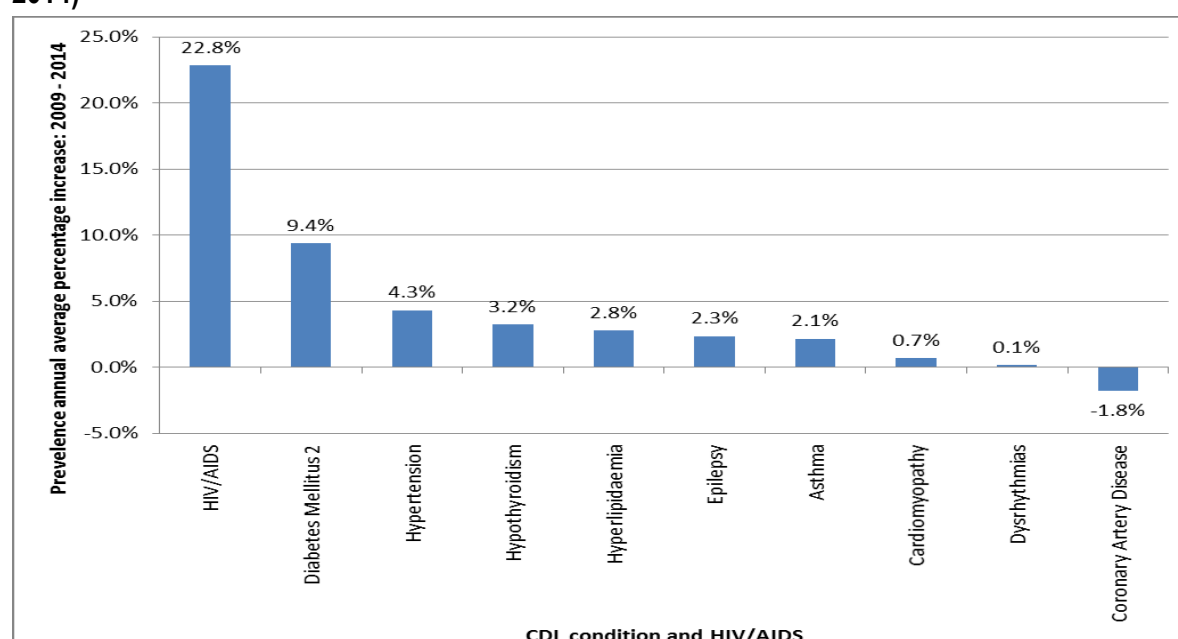
HIV/AIDS continued to be ranked the 4th chronic condition in terms of prevalence. Between 2009 and 2014, HIV/AIDS prevalence increased by about 179.6%. This resulted in the average growth rate of about 22.8% per year for the period under review. In 2014, HIV/AIDS prevalence increased by 15.6% as compared to 2013.

Figure 2: Growth in top 10 CDL and HIV/AIDS conditions (2009 compared to 2014)



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 2009 and 2014) are as summarised in Figure 3 below. According to Figure 3, HIV/AIDS has been the fastest increasing condition followed by diabetes mellitus type 2 with the average growth rate of these CDL's being above 9% per year. Other conditions, though increasing, had annual average growth rates that were below 9% per year.

Figure 3: Annual average growth rate (per year) in top 10 CDL and HIV/AIDS conditions (2009 to 2014)



The number of medical scheme beneficiaries who were diagnosed and treated for multiple CDL conditions continued with the upward trend in 2014. This will have a negative impact on the risk profiles of medical schemes. 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.

The upward trend in diagnosis and treatment of many chronic conditions on the CDL continued in 2014. Whilst this study is not yet in a position to isolate specific reasons for this increase in chronic diseases, the 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 and changes in care-seeking behaviour.

1 Introduction

The Medical Schemes Act, 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.

The recent study conducted by the CMS evaluated prevalence of CDL's and HIV/ADS in medical schemes as reported in the CMS Scheme Risk Measurement (SRM) database for the period 2008 to 2013 and was published in January 2015. The study was a follow up to the 2014 study which evaluated the CMS Scheme Risk Measurement database for the period 2007 to 2012.

In 2015/16 the CMS conducted a retrospective study of the CMS Scheme Risk Measurement database for the period 2009 to 2014. This report presents the results of the retrospective review of the trends in the prevalence of chronic diseases in the medical schemes industry from 2009 to 2014. This is a follow-up to the *"Prevalence of chronic diseases in the population covered by medical schemes in South Africa"* published by CMS in January 2015 (Council for Medical Schemes, 2015).

It should be noted that CDL and HIV/AIDS prevalence in this report is defined as SRM definition of prevalence. Thus, prevalence in this report is interpreted as prevalence of diagnosed and treated CDL conditions of medical scheme beneficiaries.

2 Methodology

2.1 Data sources

This study relied on the data that was submitted by medical schemes for purposes of the SRM. The SRM database contains aggregate prevalence data for more than 99% of all medical schemes' beneficiaries. 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 v8.1*" (Council for Medical Schemes, 2015) to identify each chronic disease case.

The purpose of the entry and verification criteria is to define the criteria, which must be met in the identification of beneficiaries with the risk factors used in the SRM (the criteria is 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 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 (Council for Medical Schemes, 2015).

2.2 Analytical approach

Prevalence in this report is calculated as an annual average prevalence based on the average annual beneficiaries. This methodology is similar to the methodology used in the 2015 report (covering the period 2008 to 2013). 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 v8.1*" (Council for Medical Schemes, 2015) 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 CDL's are included in the "NON" category. Hence, all CDL and HIV prevalence for the "Under 1" age band is zero.

All prevalence statistics in the report was 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 do not affect the validity of the reported statistics.

2.3 Sampling

Only data that was deemed to be of acceptable quality through the SRM data quality evaluation process was included in the analysis. The proportion of beneficiaries that was sampled was above 99% in 2014.

The chronic diseases that were analysed in this study are as given in Table 2 below with the acronyms used for each chronic disease.

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

¹ CHF was combined with CMY in the prevalence tables.

² Not a CDL condition.

3 Results

3.1 Scheme demographics

Demographics of beneficiaries of all medical schemes are shown in Table 3. The number of beneficiaries in all schemes increased by 0.4%, the average age increased from 31.9 to 32.1, and the pensioner ratio increased slightly from 7.1% in 2013 to 7.3% in 2014 (CMS Annual Report 2014/15).

The number of beneficiaries in restricted schemes decreased by -0.4% with the average age and pensioner ratio increasing by 0.7% and 1.7%, respectively. The number of beneficiaries in open schemes grew by 1.1% with the average age increasing by 0.3%, while the pensioner ratio increased slightly between 2013 and 2014 (CMS Annual Report 2015/16).

Table 3: Medical schemes demographics 2014 (all beneficiaries, Annual Statutory Returns)

Attribute	Restricted			Open			Total		
	2013	2014	% change	2013	2014	% change	2013	2014	% change
Lives	3 931 339	3 914 483	-0.4	4 846 909	4 899 975	1.1	8 778 303	8 814 458	0.4
Average age	30	30.2	0.7	33.5	33.6	0.3	31.8	32.1	0.9
Pensioner ratio (%)	5.8	5.9	1.7	8.2	8.5	3.7	7.1	7.3	2.8

Table 4: Medical schemes demographics 2014 (sampled data, SRM database)

Attribute	Restricted			Open			Total		
	Total	Sampled	% Proportion	Total	Sampled	% Proportion	Total	Sampled	% Proportion
Lives	3 914 483	3 894 030	99.5	4 899 975	4 899 975	100.0	8 814 458	8 794 005	99.8
Average age	30.2	30.2		33.6	33.6		32.1	32.1	
Pensioner ratio (%)	5.8	5.9		8.5	8.5		7.3	7.3	

3.2 CDL and HIV/AIDS prevalence per scheme type

The 2013 and 2014 average prevalence per 1 000 beneficiaries for the 26 CDL conditions in open and restricted schemes are depicted in Table 5 below. Cardiomyopathy (CMY) and cardiac heart failure (CHF) are reported together as per SRM Entry and Verification criteria.

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

Chronic Disease Code	2014 industry rank (2013)	Restricted			Open			Total		
		2013	2014	% change	2013	2014	% change	2013	2014	% change
ADS	24 (24)	0.03	0.03	12.9%	0.07	0.07	5.9%	0.05	0.06	8.2%
AST	5 (5)	15.51	15.92	2.6%	16.02	15.87	-0.9%	15.79	15.89	0.7%
BCE	23 (23)	0.05	0.06	12.9%	0.06	0.07	14.9%	0.06	0.07	14.3%
BMD	12 (11)	2.23	2.54	14.2%	3.55	3.66	3.3%	2.95	3.17	7.2%
CMY & CHF	8 (9)	4.39	5.16	17.5%	4.07	4.30	5.7%	4.22	4.68	11.1%
COP	15 (15)	0.86	0.93	8.6%	1.55	1.59	2.9%	1.24	1.30	5.0%
CRF	17 (17)	0.35	0.44	26.8%	0.54	0.61	12.6%	0.45	0.53	17.8%
CSD	21 (21)	0.10	0.11	20.0%	0.24	0.27	12.2%	0.18	0.20	14.7%
DBI	25 (26)	0.01	0.02	78.6%	0.02	0.03	34.4%	0.02	0.02	49.4%
DM1	14 (14)	2.10	2.01	-4.4%	2.65	2.36	-11.0%	2.41	2.20	-8.3%
DM2	3 (3)	30.28	32.03	5.8%	24.14	24.41	1.1%	26.91	27.80	3.3%
DYS	10 (13)	1.68	2.64	57.4%	3.15	3.85	22.5%	2.48	3.31	33.4%
EPL	9 (8)	3.99	4.16	4.2%	4.47	4.45	-0.5%	4.26	4.32	1.5%
GLC	11 (12)	2.58	2.81	8.7%	3.23	3.49	8.1%	2.94	3.19	8.5%
HAE	26 (25)	0.00	0.00	0.0%	0.03	0.02	-5.0%	0.02	0.02	-0.3%
HYL	2 (2)	28.87	30.91	7.1%	39.64	41.83	5.5%	34.78	36.97	6.3%
HYP	1 (1)	86.68	89.93	3.7%	87.62	90.64	3.4%	87.20	90.32	3.6%
IBD	19 (19)	0.20	0.21	8.1%	0.42	0.44	5.3%	0.32	0.34	6.5%
IHD	7 (7)	5.77	5.73	-0.6%	7.78	7.99	2.7%	6.87	6.99	1.7%
MSS	22 (22)	0.08	0.10	18.1%	0.21	0.23	11.0%	0.15	0.17	13.3%
PAR	16 (16)	0.70	0.71	0.3%	0.86	0.92	6.4%	0.79	0.82	4.1%
RHA	13 (10)	3.08	3.22	4.6%	2.87	2.93	2.3%	2.96	3.06	3.3%
SCZ	18 (18)	0.43	0.46	6.9%	0.45	0.46	1.9%	0.44	0.46	4.1%
SLE	20 (20)	0.22	0.26	14.8%	0.31	0.34	9.1%	0.27	0.30	11.4%
TDH	6 (6)	13.83	14.47	4.6%	14.97	15.84	5.8%	14.45	15.23	5.4%
HIV	4 (4)	26.12	29.28	12.1%	10.24	12.78	24.8%	17.41	20.13	15.6%

**** Percentage changes may not add-up due to rounding**

The prevalence rank of many CDL conditions has remained unchanged between 2013 and 2014. The largest change in prevalence ranking was observed in rheumatoid arthritis (RHA) and dysrhythmias (DYS). RHA was replaced by DYS in the top 10 ranked CDL conditions in 2014. The other top 10 CDL conditions did not change significantly between 2013 and 2014.

Prevalence of CDL conditions is generally higher in open medical schemes as opposed to restricted medical schemes. Asthma (AST), cardiomyopathy (CMY), rheumatoid arthritis (RHA), diabetes mellitus type 2 (DM2) and HIV/AIDS were the only conditions out of the 26 CDL's whose prevalence rates were higher in restricted medical schemes. 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 are discussed in more detail in the next section.

3.3 CDL and HIV/AIDS prevalence by age and gender

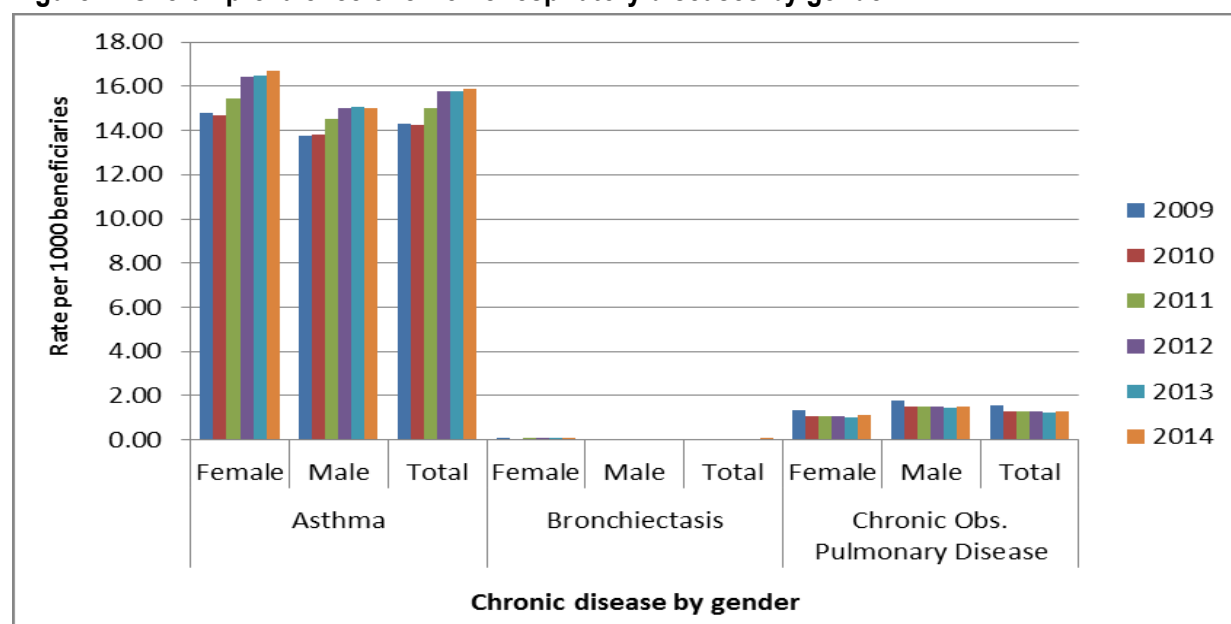
3.3.1 Chronic respiratory conditions

Figure 4 shows prevalence of treated chronic respiratory diseases in medical scheme beneficiaries by gender. The overall prevalence of asthma (AST) increased from 14.31 per 1 000 in 2009 to 15.89 per 1 000 in 2014. This represent an increase of 11.1% for the period between 2009 and 2014. AST rates were slightly higher in female beneficiaries as opposed to male beneficiaries.

The treated chronic obstructive pulmonary disease (COPD) prevalence rate decreased between 2009 and 2014. The overall prevalence for treated COPD decreased from 1.56 per 1 000 in 2009 to 1.29 per 1 000 in 2014. This represents a decrease of 16.8% for the period between 2009 and 2014. More male than female beneficiaries were treated for COPD. In 2014, about 1.51 per 1 000 males received COPD treatment while 1.11 per 1 000 females received treatment.

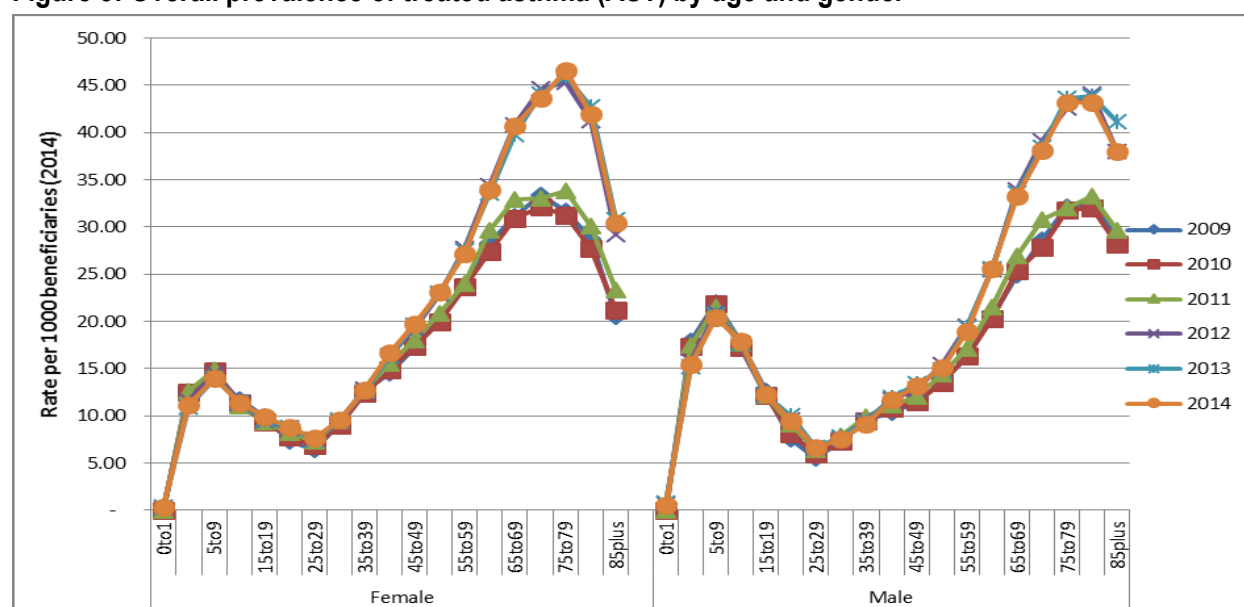
The overall prevalence of treated Bronchiectasis (BCE) has remained unchanged at about 0.1 per 1 000 between 2009 and 2014. There were no significant differences by gender.

Figure 4: Overall prevalence of chronic respiratory diseases by gender



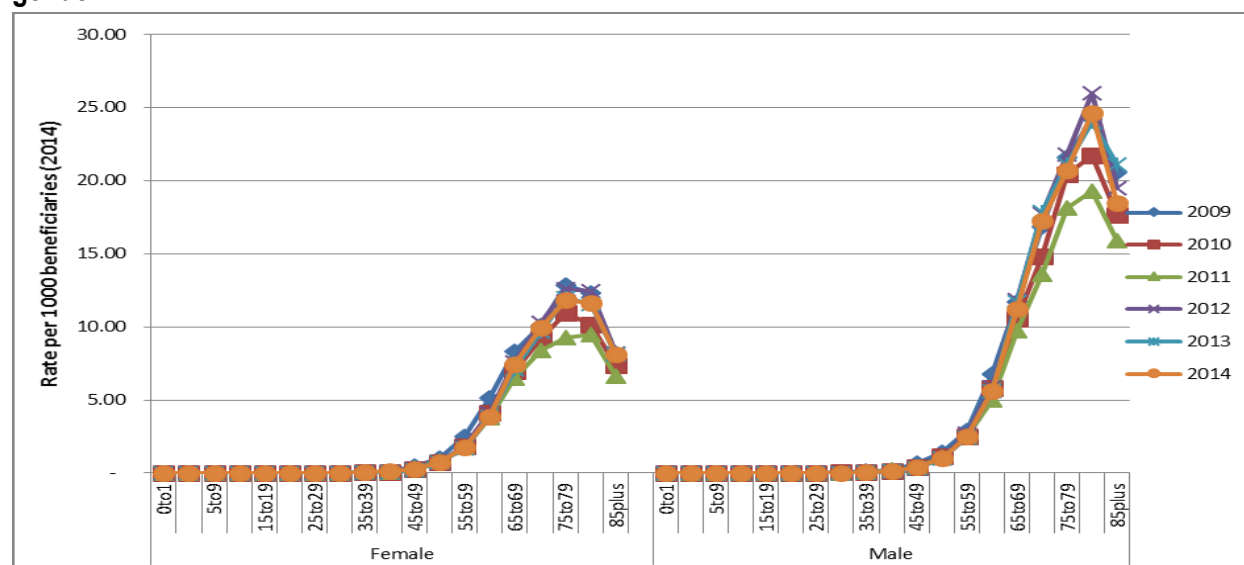
Treated AST prevalence by age as depicted in Figure 5, indicates that asthma is highly prevalent in older age groups. The prevalence rate for female and male beneficiaries older than 55 years has always been above 15 per 1 000 beneficiaries. The female and male beneficiaries between ages 5 to 9 years have the highest asthma prevalence in the age category below 30 years.

Figure 5: Overall prevalence of treated asthma (AST) by age and gender



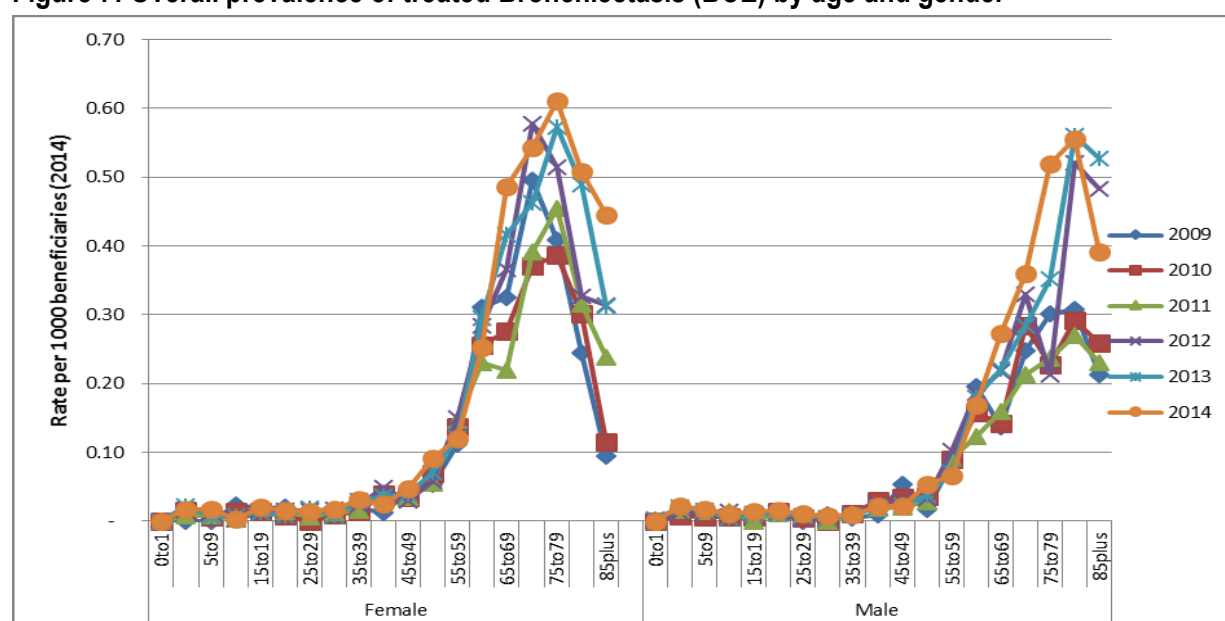
The prevalence of treated COPD has decreased across most age bands between 2009 and 2014. Fewer cases of COPD were reported in younger age groups (< 40 years). Treated COPD prevalence for the ages above 60 were all above 3 per 1 000.

Figure 6: Overall prevalence of treated chronic obs. pulmonary disease (COPD) by age and gender



Prevalence of treated BCE has remained unchanged at levels below 0.7 per 1 000 beneficiaries between 2009 and 2014 (Figure 7). BCE is a rare condition and resulted in volatile (not smoothed) graphs throughout the period under review.

Figure 7: Overall prevalence of treated Bronchiectasis (BCE) by age and gender



3.3.2 Cardiovascular conditions

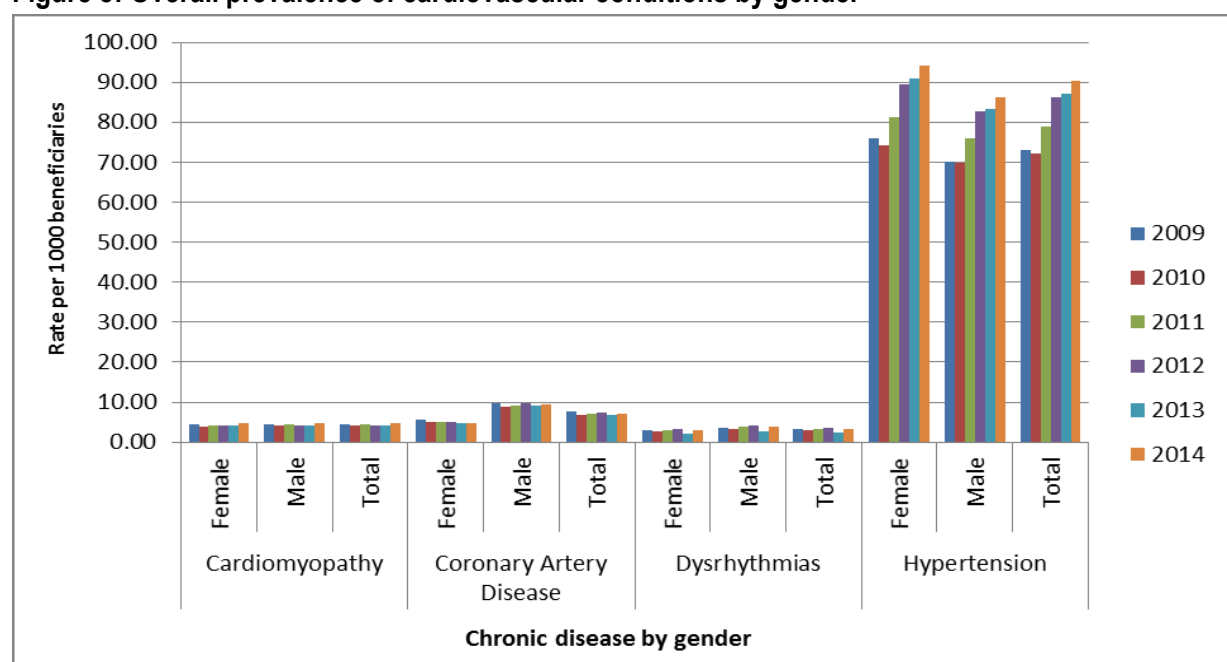
The overall prevalence of diagnosis and treatment of Cardiomyopathy (CMY) paid for by medical schemes increased slightly from 4.53 per 1 000 in 2009, to 4.68 per 1 000 in 2014. The differences by gender were not significant (Figure 8).

Nearly double the proportion of male medical schemes beneficiaries were diagnosed with coronary artery disease (IHD), compared to female beneficiaries. In 2009, treated coronary artery disease prevalence in males was 9.72 per 1 000 compared to 5.73 per 1 000 in females. The treated prevalence rates changed to 9.33 per 1 000 and 4.87 per 1 000 in 2014 for males and females respectively.

Few cases of dysrhythmias (DYS) were reported in medical schemes beneficiaries. The overall prevalence increased slightly from 3.29 in 2009 to 3.31 per 1 000 in 2014. Small differences were observed in the prevalence rates between female and male beneficiaries.

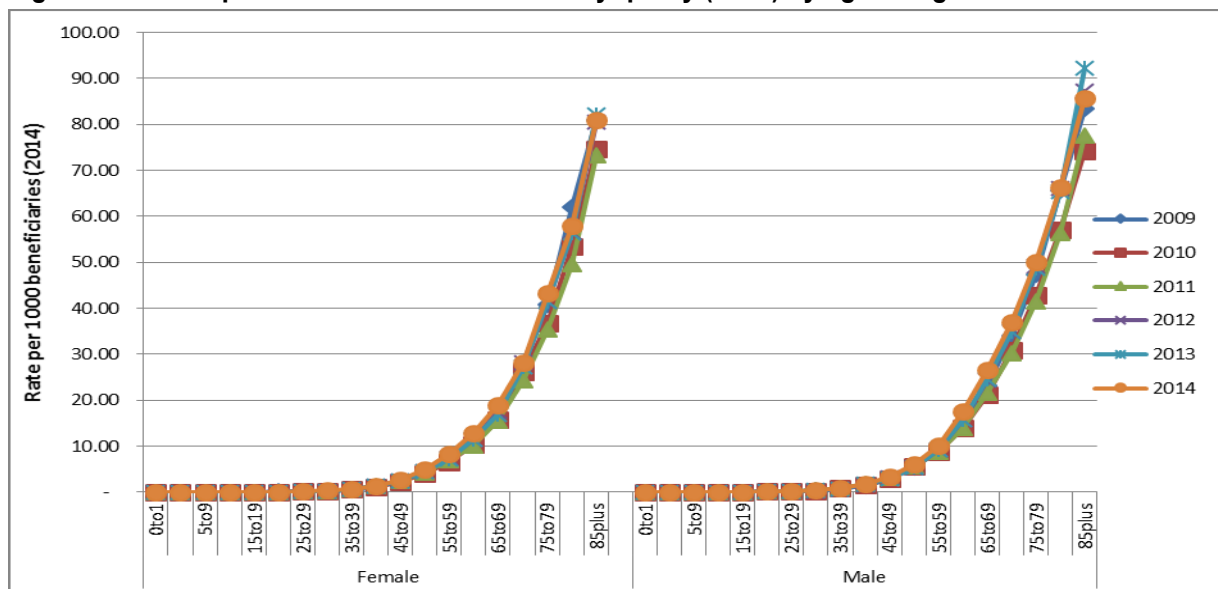
Hypertension (HYP) was the fastest increasing cardiovascular condition, increasing by 23.5% between 2009 and 2014 (from 73.14 to 90.32 per 1 000). In 2014, more female than male beneficiaries received treatment for hypertension (94.01 per 1 000 vs. 86.25 per 1 000 respectively).

Figure 8: Overall prevalence of cardiovascular conditions by gender



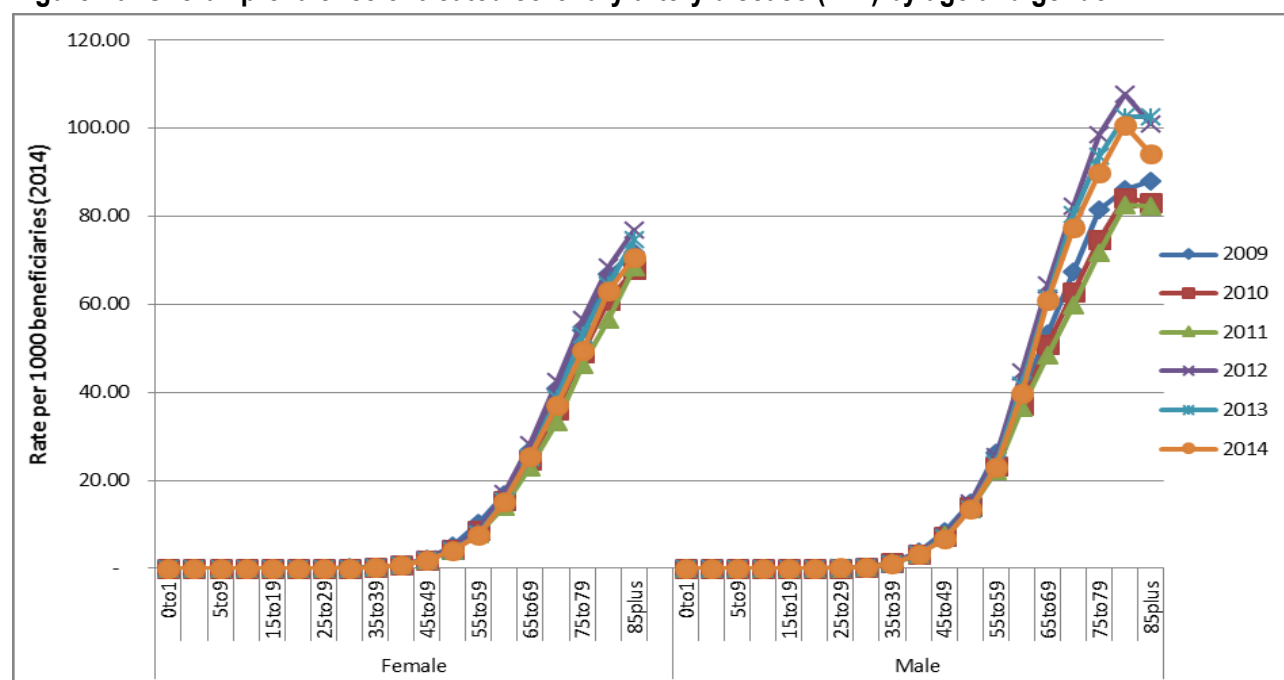
In Figure 9, the prevalence of treated CMY has shown increases across the majority of age bands between 2009 and 2014. Very few cases of CMY were reported in younger age groups (<40 years). Similar increases were observed in male and female beneficiaries.

Figure 9: Overall prevalence of treated cardiomyopathy (CMY) by age and gender



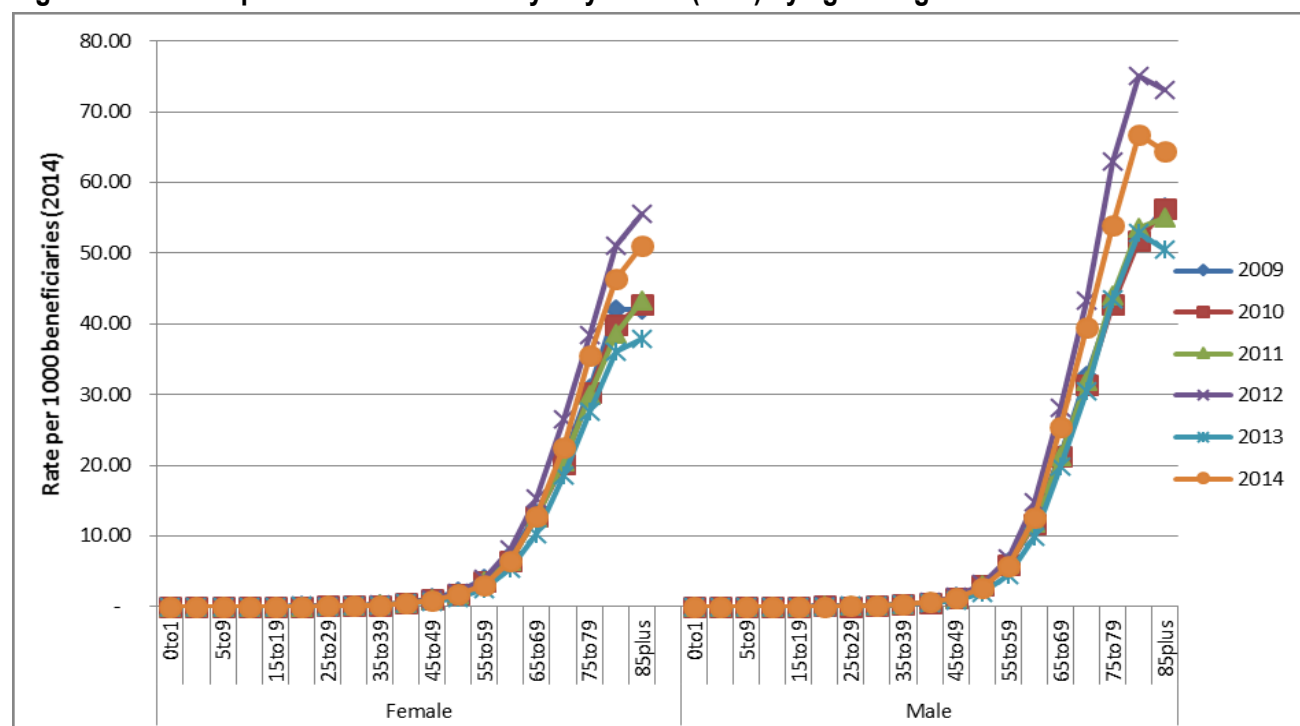
The prevalence of treated IHD among female beneficiaries has shown slight decreases across most of the age bands between 2009 and 2014. Very few cases of IHD were reported in younger age groups (<50 years). Male beneficiaries older than 50 years had higher IHD prevalence than female beneficiaries of the corresponding age group for the period under review (Figure 10).

Figure 10: Overall prevalence of treated coronary artery disease (IHD) by age and gender



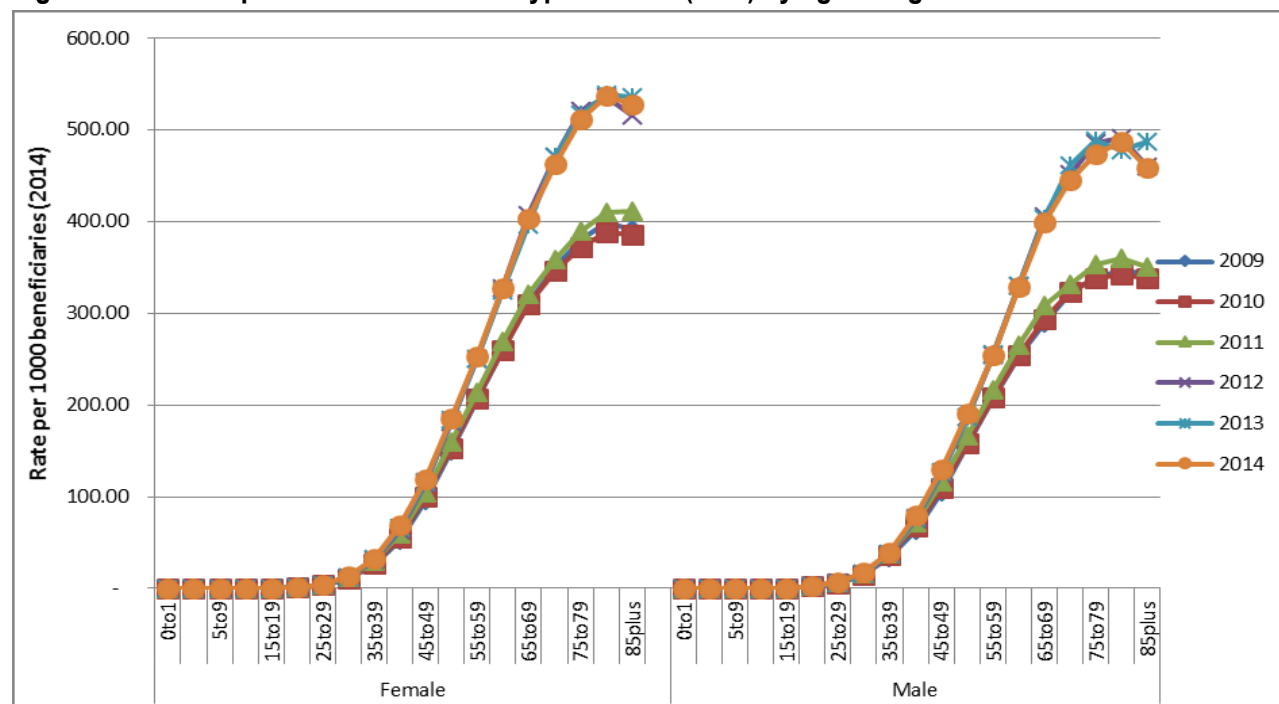
DYS is highly prevalent in older age groups (>40 years). The overall prevalence of DYS increased slightly from 3.29 in 2009 to 3.31 per 1000 in 2014. The overall prevalence of DYS for beneficiaries over the age of 25 years also increased from 2013 to 2014 (Figure 11).

Figure 11: Overall prevalence of treated dysrhythmias (DYS) by age and gender



The prevalence of treated HYP has shown a consistent increase across most age groups, as depicted in Figure 12. Female beneficiaries had a higher HYP prevalence rate. HYP prevalence was higher for the age groups above 45 years. Beneficiaries above the age of 55 have HYP prevalence rate that was above 200 per 1 000 beneficiaries (for both males and females). Females above 75 years had HYP prevalence above 500 and the trend decreased slightly in 2014 when compared to 2013. HYP retained its status as the CDL with the highest prevalence rate in the medical schemes industry.

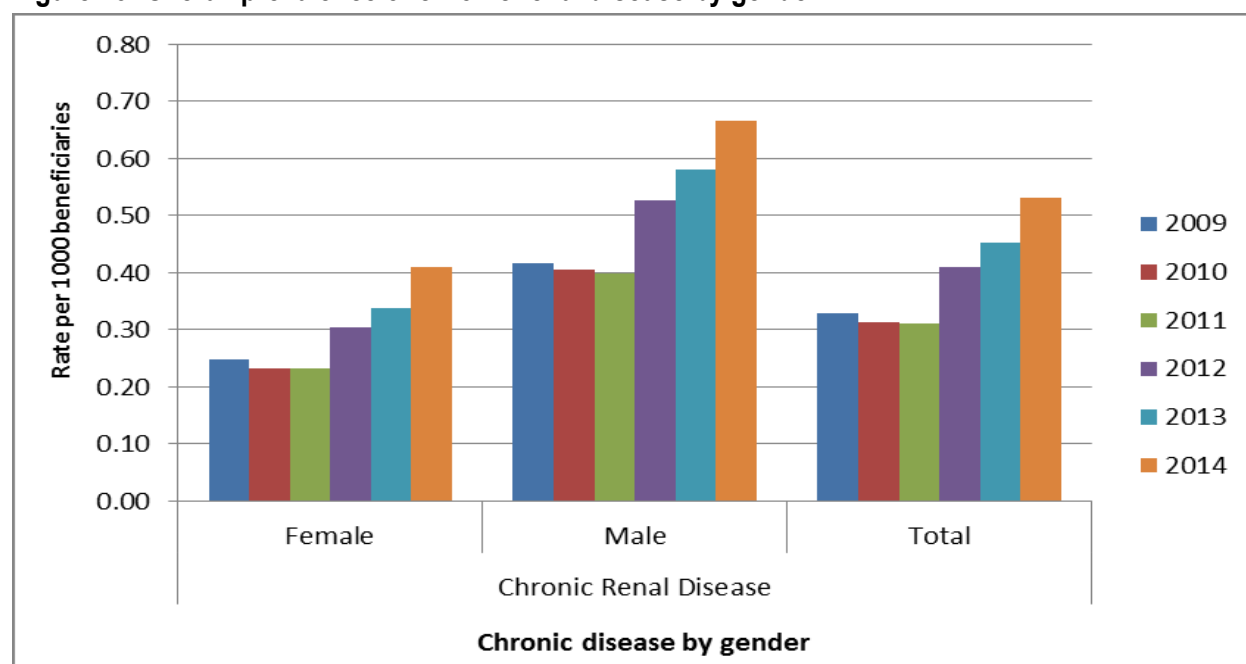
Figure 12: Overall prevalence of treated hypertension (HYP) by age and gender



3.3.3 Chronic renal disease

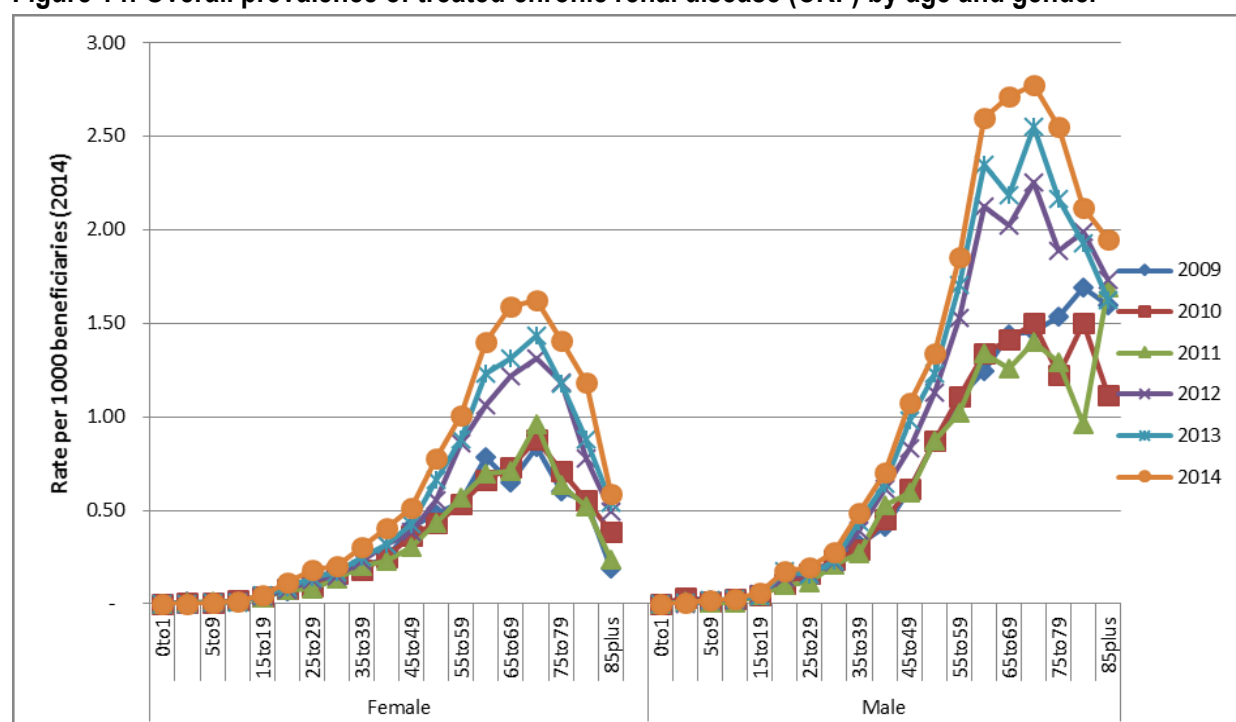
The overall prevalence of treated chronic renal disease (CRF) increased from 0.33 per 1 000 in 2009, to 0.53 per 1 000 in 2014. More male than female beneficiaries were treated for CRF. In 2014, the prevalence of CRF was 0.66 per 1 000 for males and 0.41 per 1 000 for females.

Figure 13: Overall prevalence of chronic renal disease by gender



The prevalence of treated CRF has increased in most age groups in 2014. Very few cases of CRF were observed in beneficiaries younger than the age of 20 years in the period under review (Figure 13 and 14).

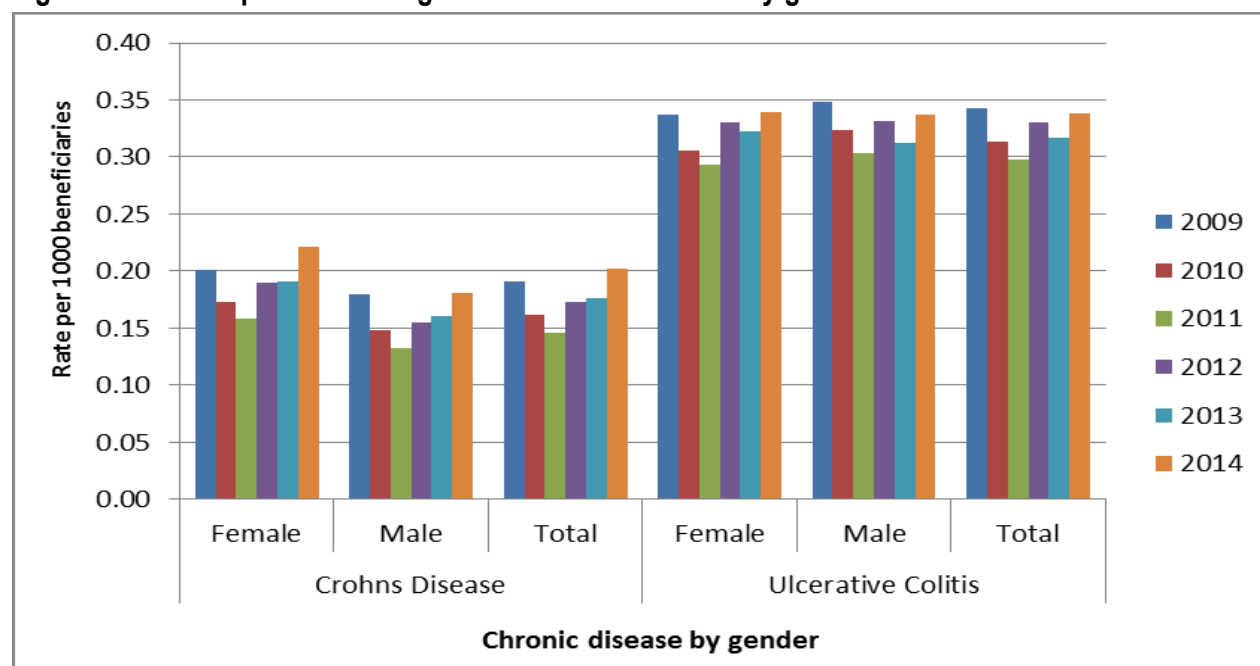
Figure 14: Overall prevalence of treated chronic renal disease (CRF) by age and gender



3.3.4 Gastrointestinal disorders

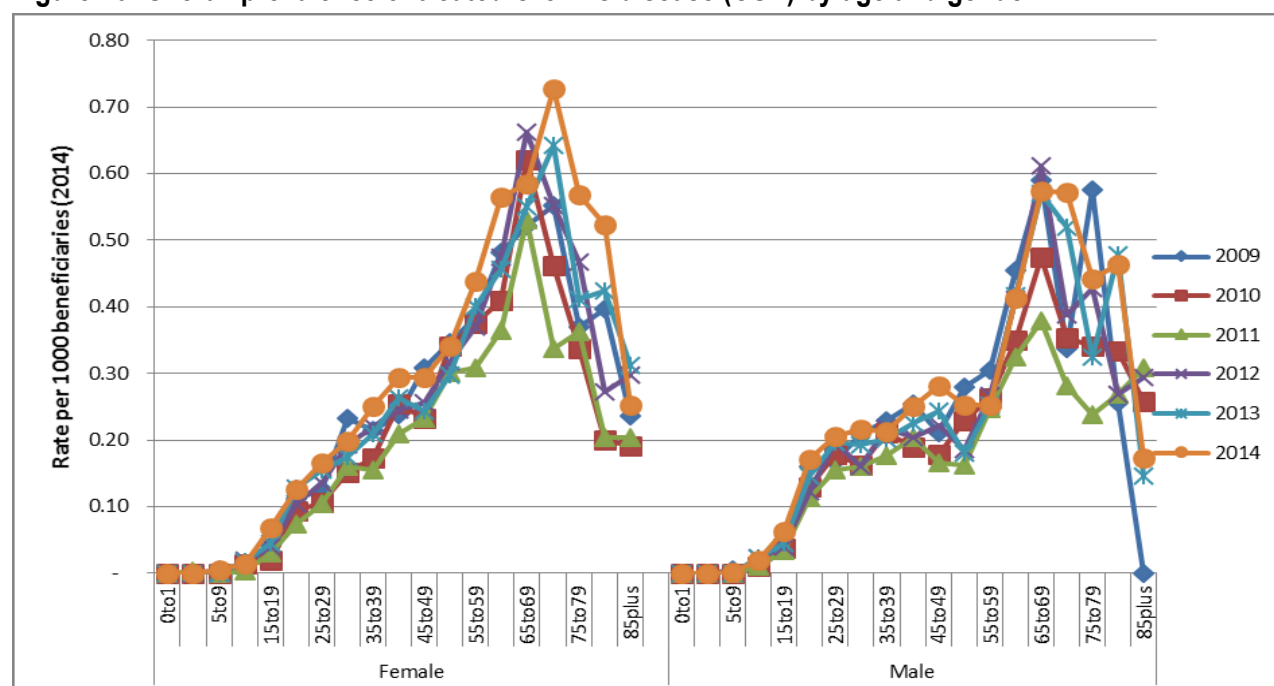
Few medical schemes' beneficiaries were treated for Crohn's disease (CSD) for the period between 2009 and 2014. The prevalence of treated CSD increased from 0.19 per 1 000 in 2009 to 0.20 per 1 000 in 2014. Ulcerative colitis (IBD) is also a relatively rare condition in medical scheme members. The IBD prevalence remained almost constant at 0.3 per 1000 (Figure 15).

Figure 15: Overall prevalence of gastrointestinal disorders by gender



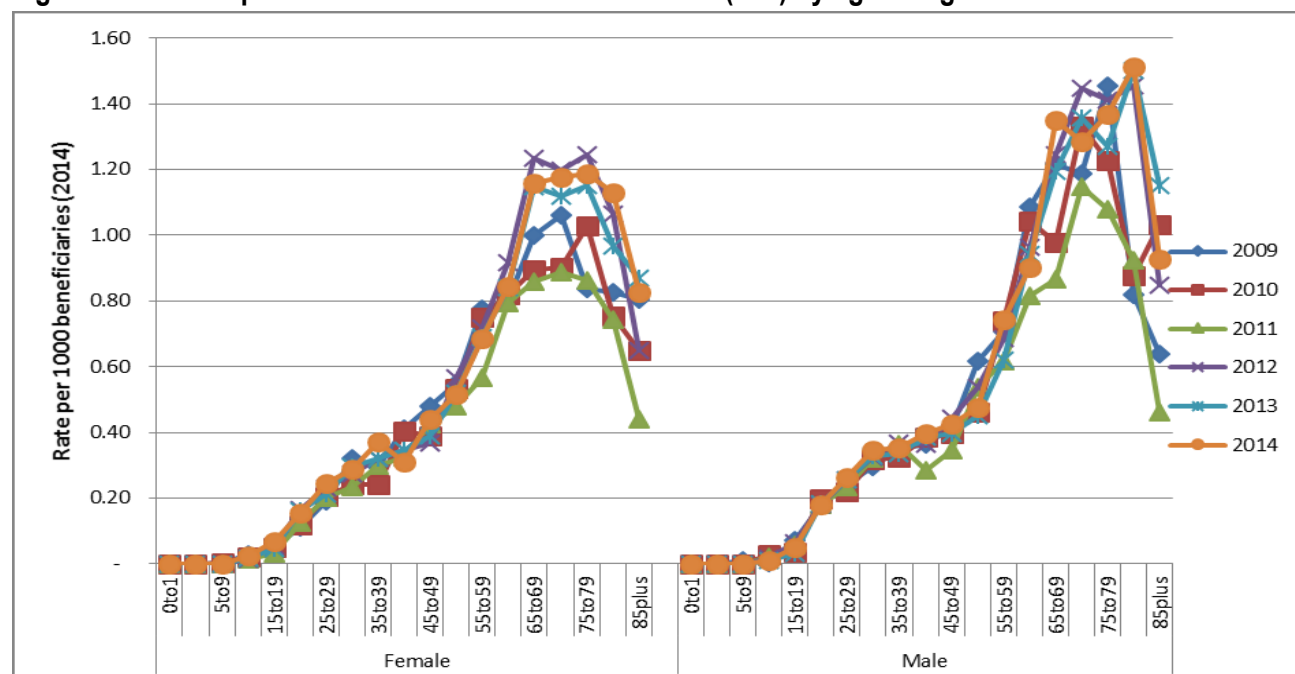
The prevalence of CSD for beneficiaries below the age of 20 years remained unchanged for the period between 2009 and 2014. As expected and displayed in Figure 16, very few cases of CSD were observed in child beneficiaries. CSD is a rare condition and resulted in volatile (not smoothed) graphs throughout the period under review.

Figure 16: Overall prevalence of treated Crohn's disease (CSD) by age and gender



The prevalence of IBD for beneficiaries below the age of 20 years remained slightly unchanged for the period between 2009 and 2014. Very few cases of IBD were observed in child beneficiaries (Figure 17).

Figure 17: Overall prevalence of treated ulcerative colitis (IBD) by age and gender

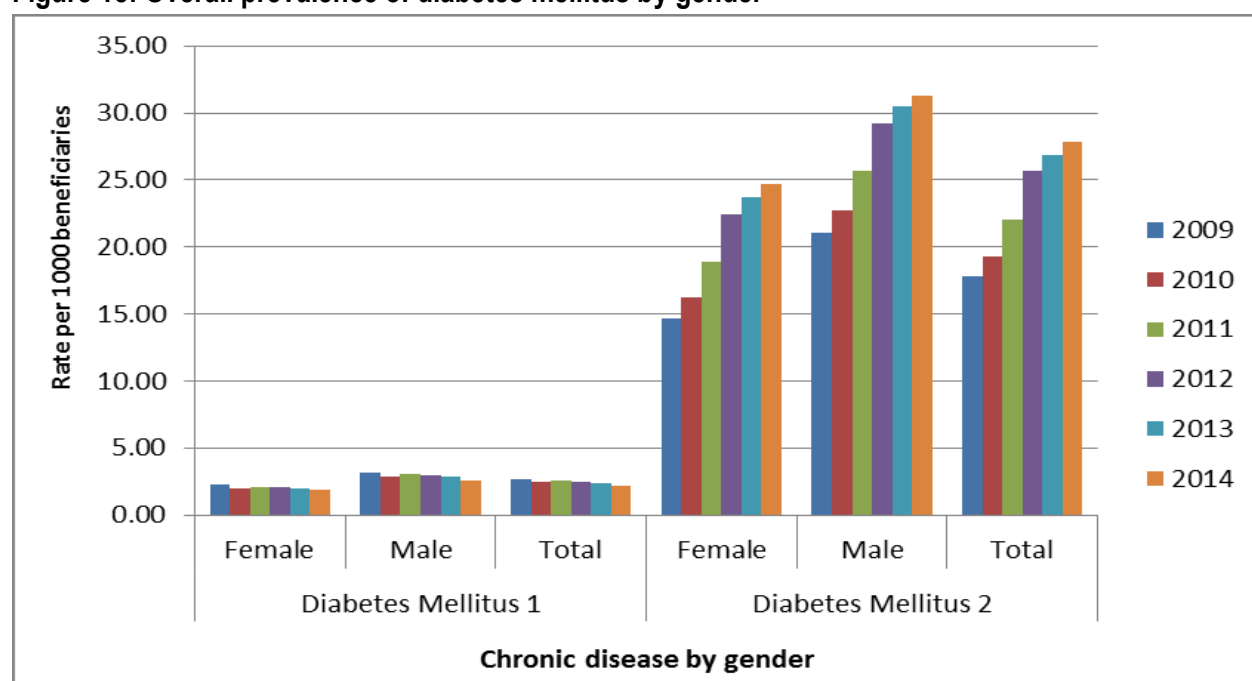


3.3.5 Diabetes mellitus

The overall prevalence of diabetes mellitus type 1 (DM1) in the medical schemes population decreased slightly from 2.69 per 1 000 in 2009 to about 2.20 per 1 000 in 2014, as shown in Figure 18. More male than female beneficiaries were diagnosed and treated for DM1 (2.59 per 1 000 vs. 1.85 per 1 000) in 2014.

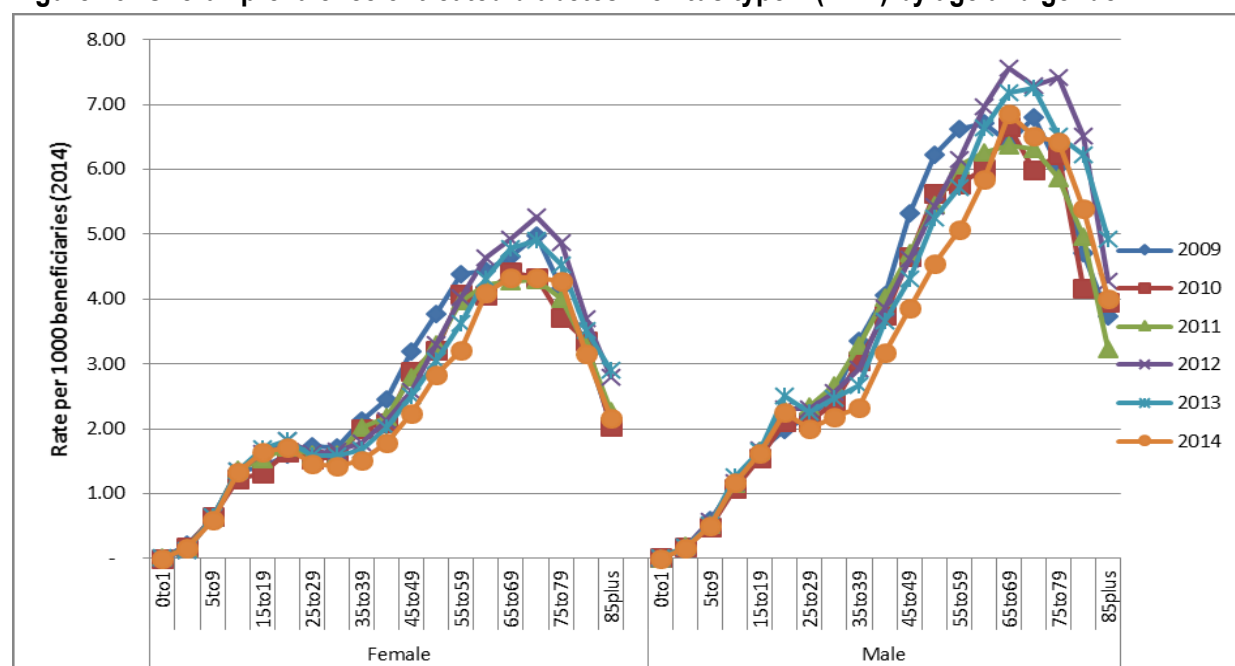
The overall prevalence of diabetes mellitus type 2 (DM2) has increased from 17.77 per 1 000 in 2009, to 27.80 per 1 000 in 2014. This represents an increase of 56.5%. More male than female beneficiaries were diagnosed and treated for DM2 (31.26 per 1 000 vs. 24.67 per 1 000) in 2014.

Figure 18: Overall prevalence of diabetes mellitus by gender



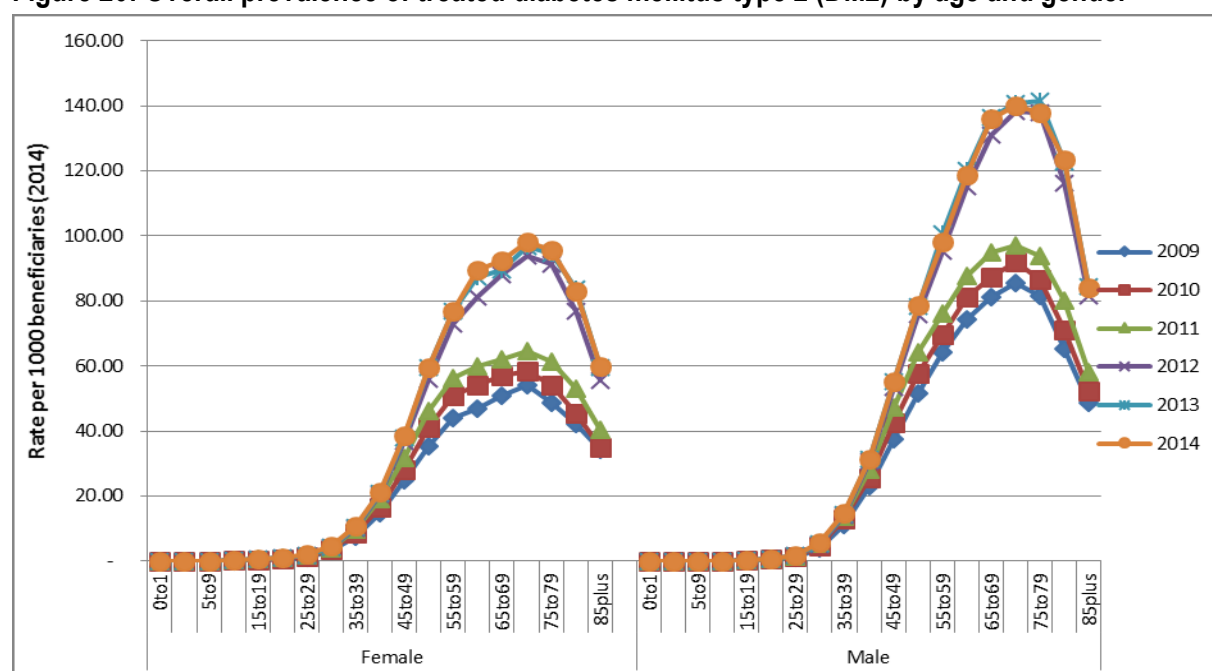
The prevalence of DM1 has not changed significantly between 2009 and 2014. Male beneficiaries above the age of 40 have a higher DM1 prevalence rate. Prevalence for DM1 in 2014 has decreased by about 8.3% (Figure 19).

Figure 19: Overall prevalence of treated diabetes mellitus type 1 (DM1) by age and gender



As expected, few cases of DM2 were observed in younger beneficiaries (< 30) as shown in Figure 20. DM2 prevalence increased by about 56.5% between 2009 and 2014. DM2 was highly prevalent in male beneficiaries above 40 years old. The high increases in DM2 in male beneficiaries are mainly at the age groups above 50 years. DM2 prevalence in female beneficiaries increased by about 67.9% between 2009 and 2014 (Figure 20).

Figure 20: Overall prevalence of treated diabetes mellitus type 2 (DM2) by age and gender

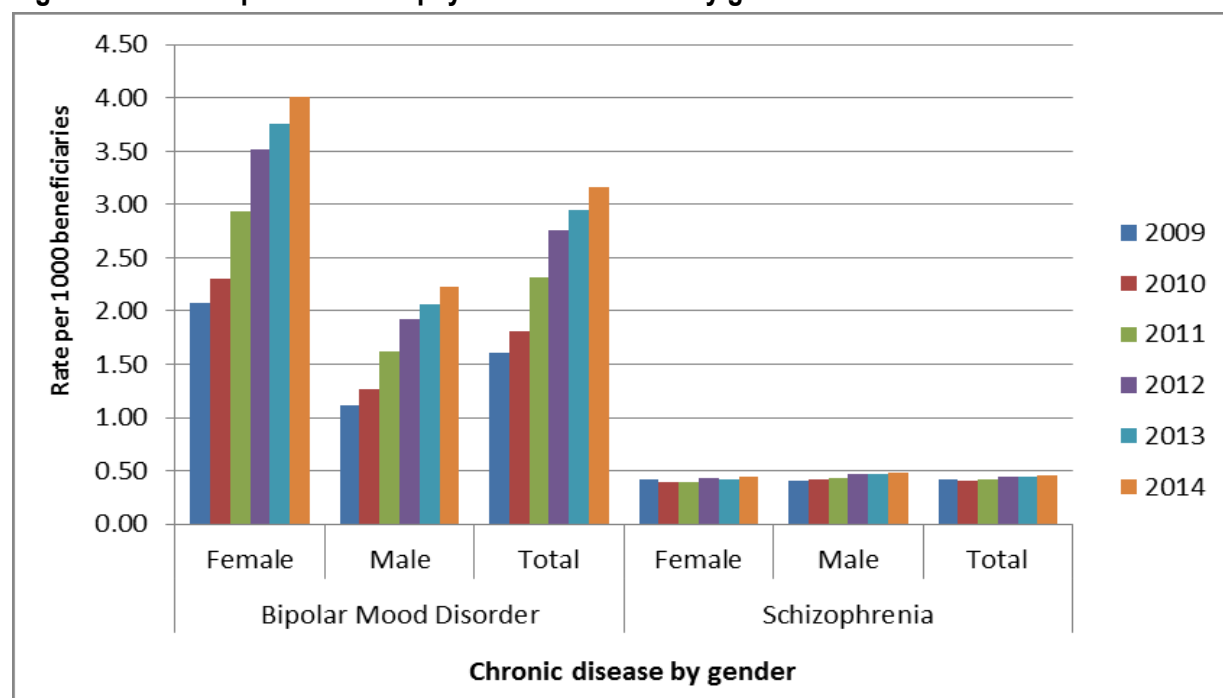


3.3.6 Psychiatric conditions

As displayed in Figure 21, the overall prevalence of treated bipolar mood disorder (BMD) increased by 96.3% between 2009 and 2014, from 1.61 to 3.17 per 1 000 beneficiaries. Females continued to have higher BMD prevalence rates as opposed to males. BMD was diagnosed and treated in 4.01 and 2.23 per 1 000 in female and male beneficiaries respectively in 2014.

The prevalence of schizophrenia (SCZ) has remained under 0.5 per 1 000 between 2009 and 2014. Similar rates were observed in both males and females (Figure 21).

Figure 21: Overall prevalence of psychiatric disorders by gender



Few beneficiaries under the age of 14 years were treated for BMD (Figure 22). BMD prevalence was higher in female beneficiaries aged between 35 and 60 years (the prevalence rate was above 5 per 1 000). BMD prevalence in male beneficiaries was lower than the corresponding rate in female beneficiaries. Male beneficiaries in the age group 40-44 years continued to have the highest prevalence rate in the male category.

Figure 22: Overall prevalence of treated bipolar mood disorder (BMD) by age and gender

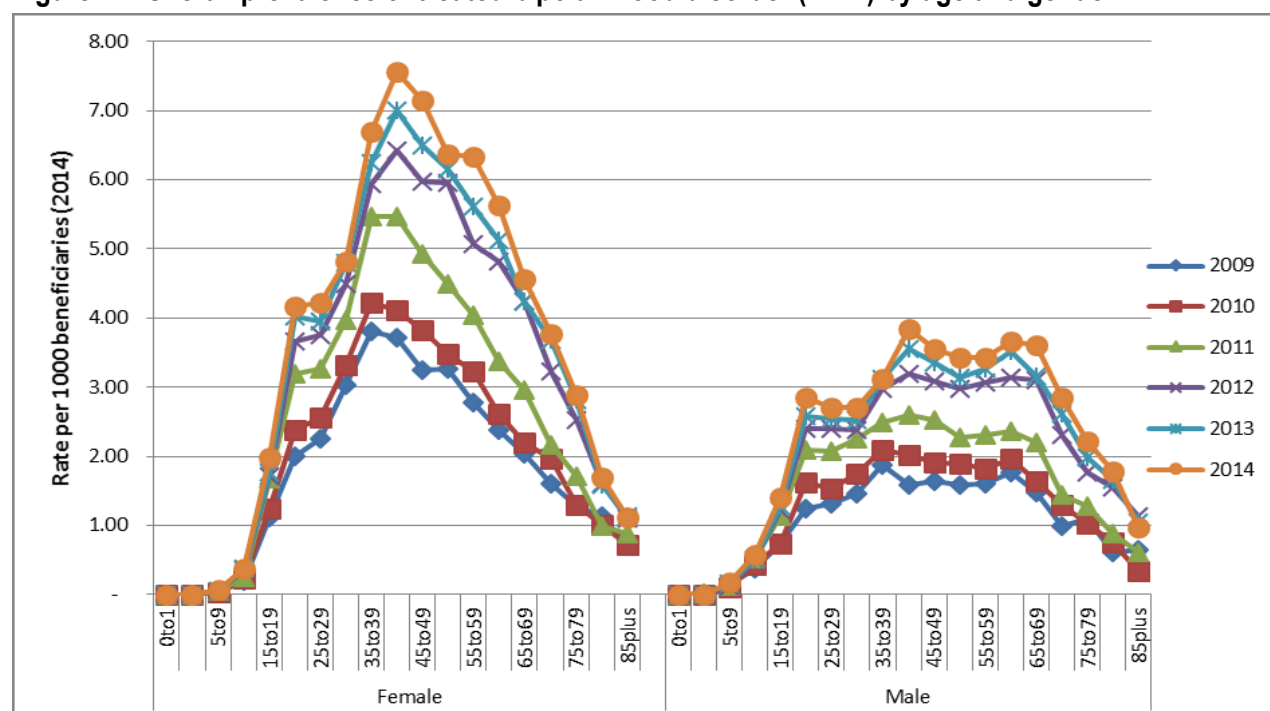
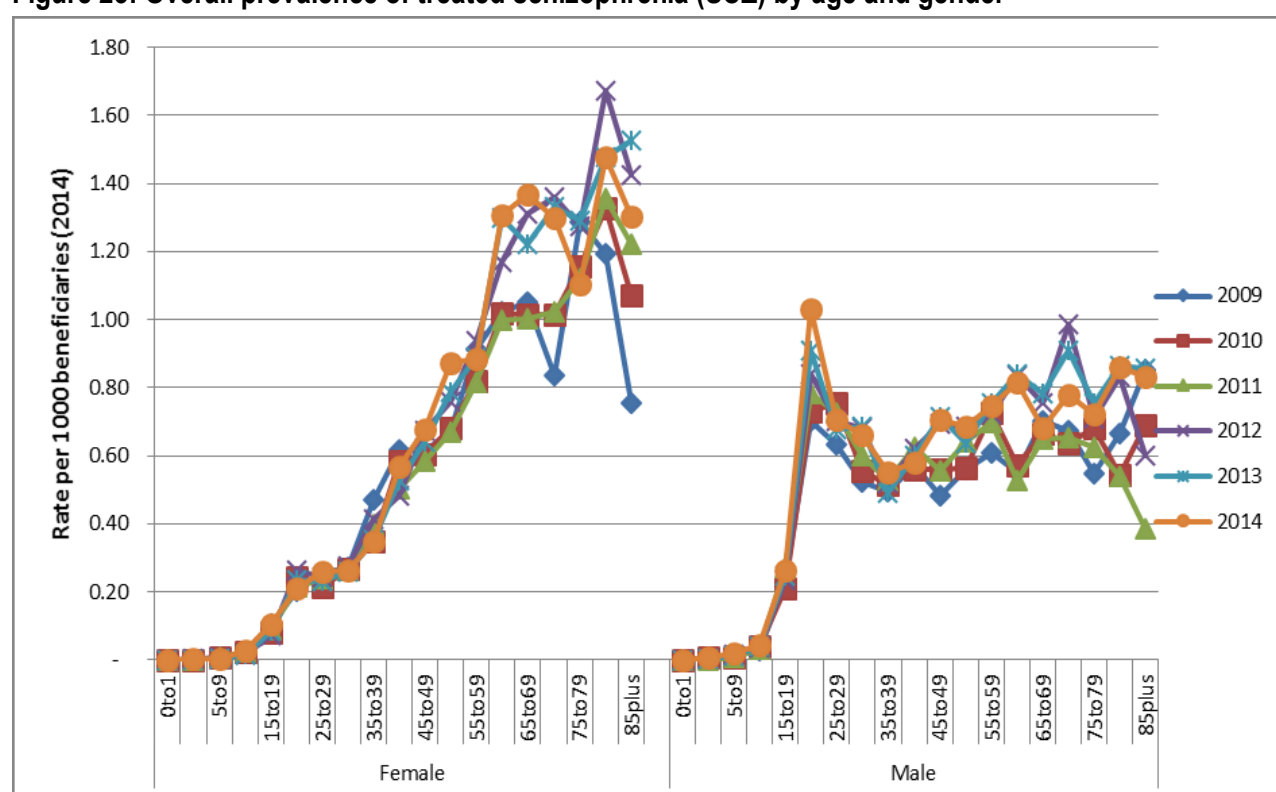


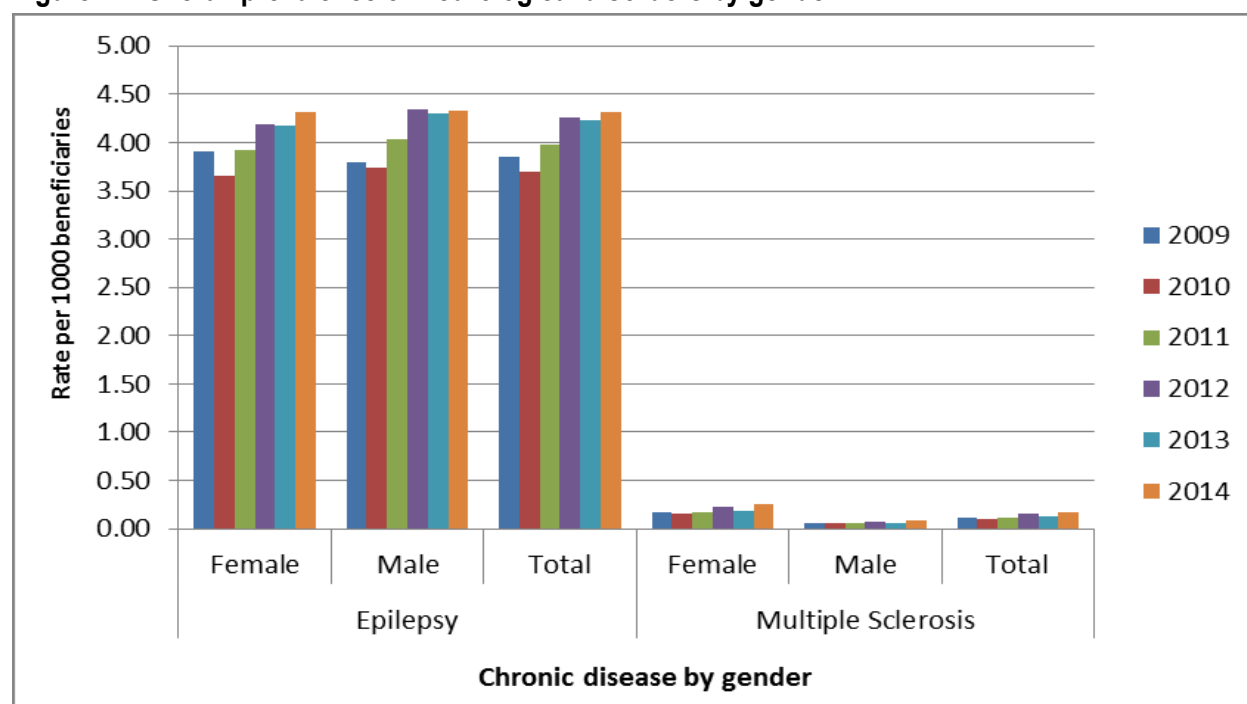
Figure 23: Overall prevalence of treated schizophrenia (SCZ) by age and gender



3.3.7 Neurological disorders

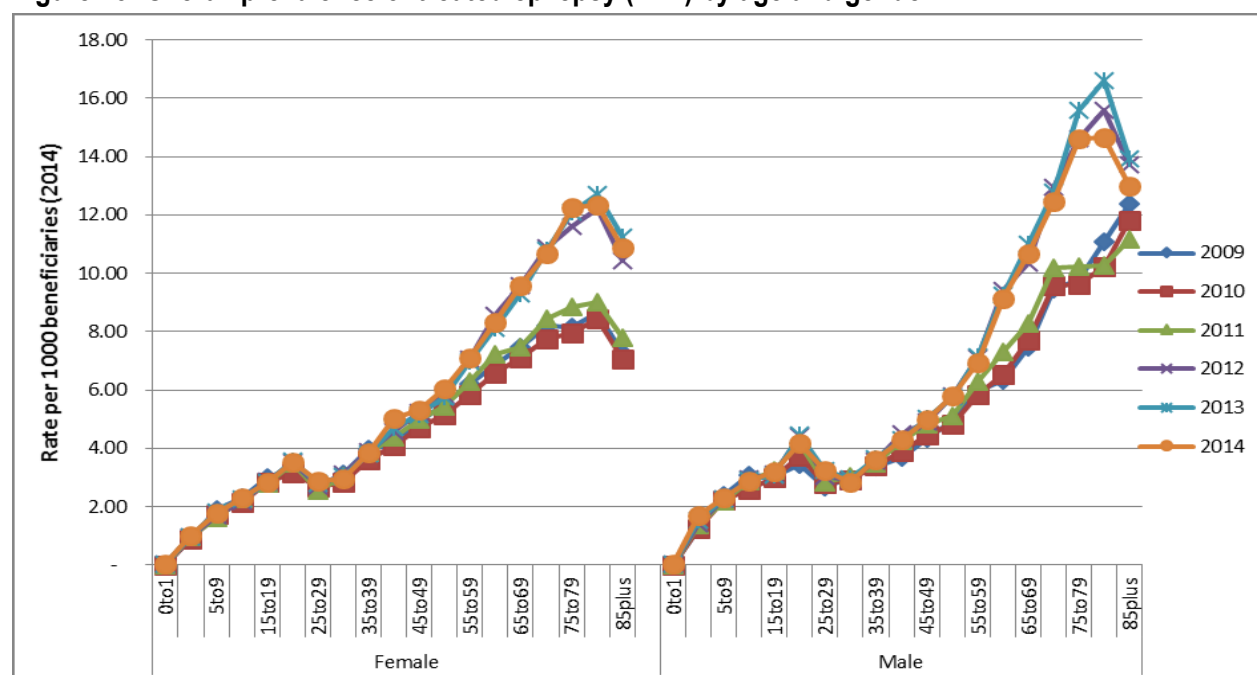
The overall prevalence of treated epilepsy (EPL) increased by 12.3% from 3.85 per 1 000 in 2009, to 4.32 per 1 000 beneficiaries in 2014 (Figure 24). Very few beneficiaries, below 0.3 per 1 000, were treated for multiple sclerosis (MSS) during the period between 2009 and 2014.

Figure 24: Overall prevalence of Neurological disorders by gender



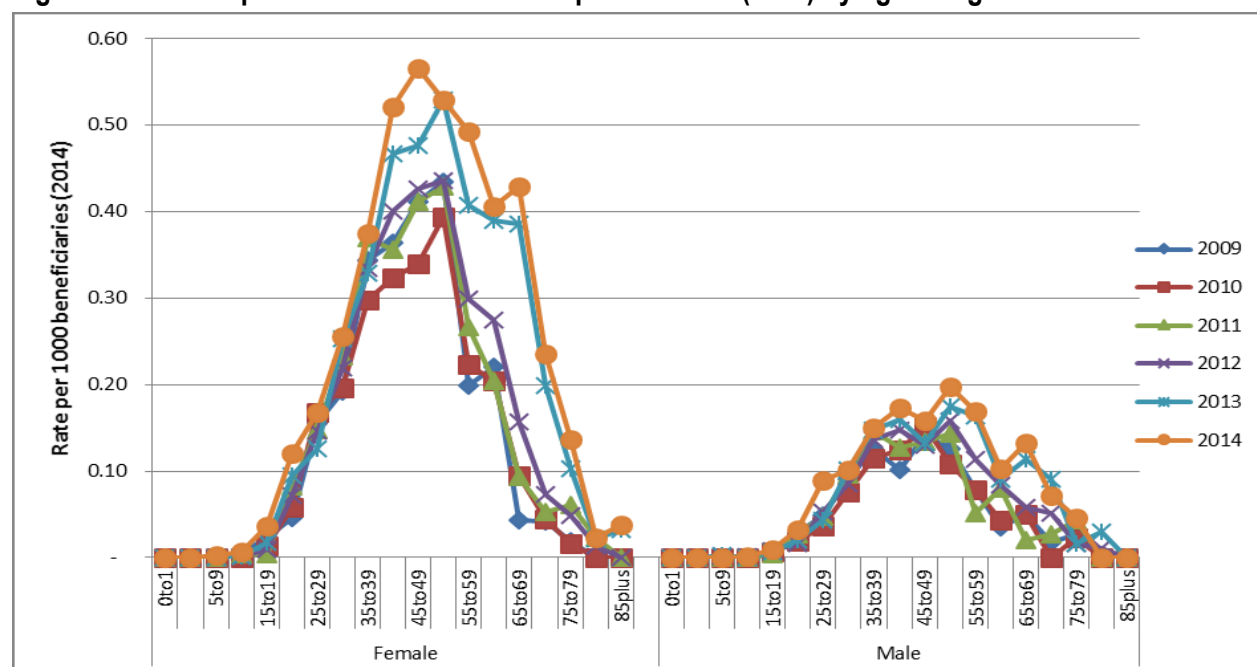
The prevalence of treated epilepsy continued to be strongly correlated with age. A strong correlation may be seen for all age groups between 0 to 75 years (Figure 25).

Figure 25: Overall prevalence of treated epilepsy (EPL) by age and gender



MSS was rarely seen in both the very young and older age groups, and mostly affected women between 40 and 55 years, as shown in Figure 26.

Figure 26: Overall prevalence of treated multiple sclerosis (MSS) by age and gender

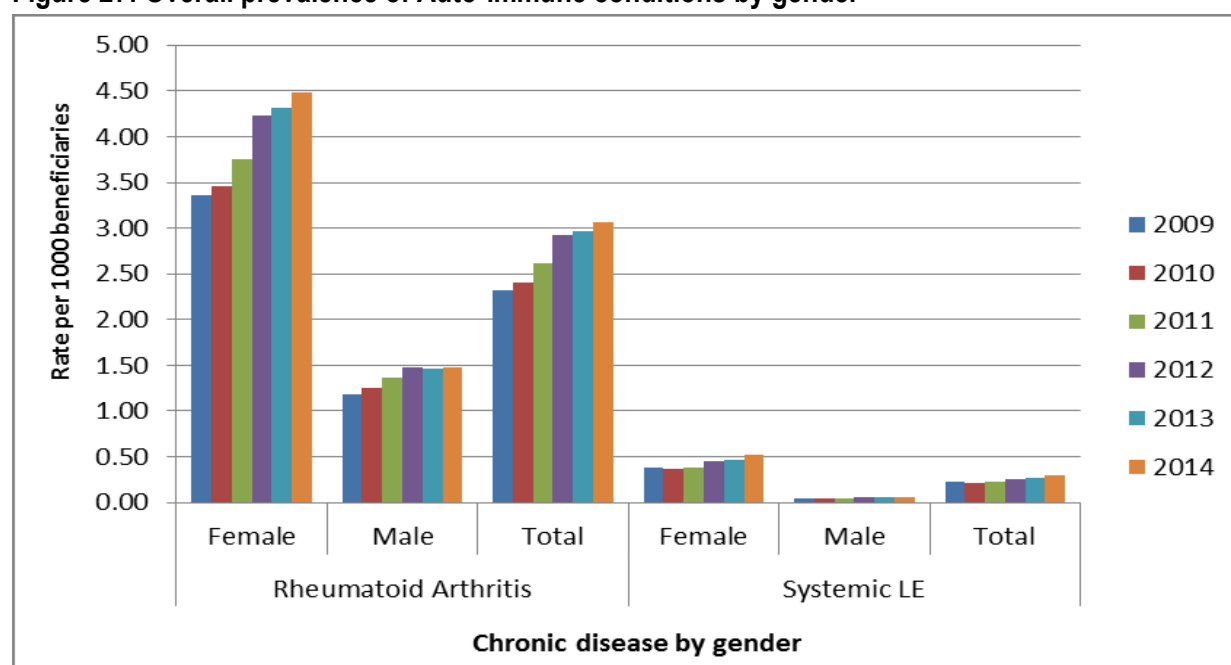


3.3.8 Auto-immune Conditions

The overall prevalence of treated rheumatoid arthritis (RHA) increased from 2.31 per 1 000 in 2009, to 3.06 per 1 000 in 2014. More female than male beneficiaries were treated for rheumatoid arthritis. RHA prevalence in females beneficiaries increased from 3.36 to 4.49 per 1 000 compared to a change of 1.18 to 1.48 per 1 000 in males between 2009 and 2014 respectively (Figure 27).

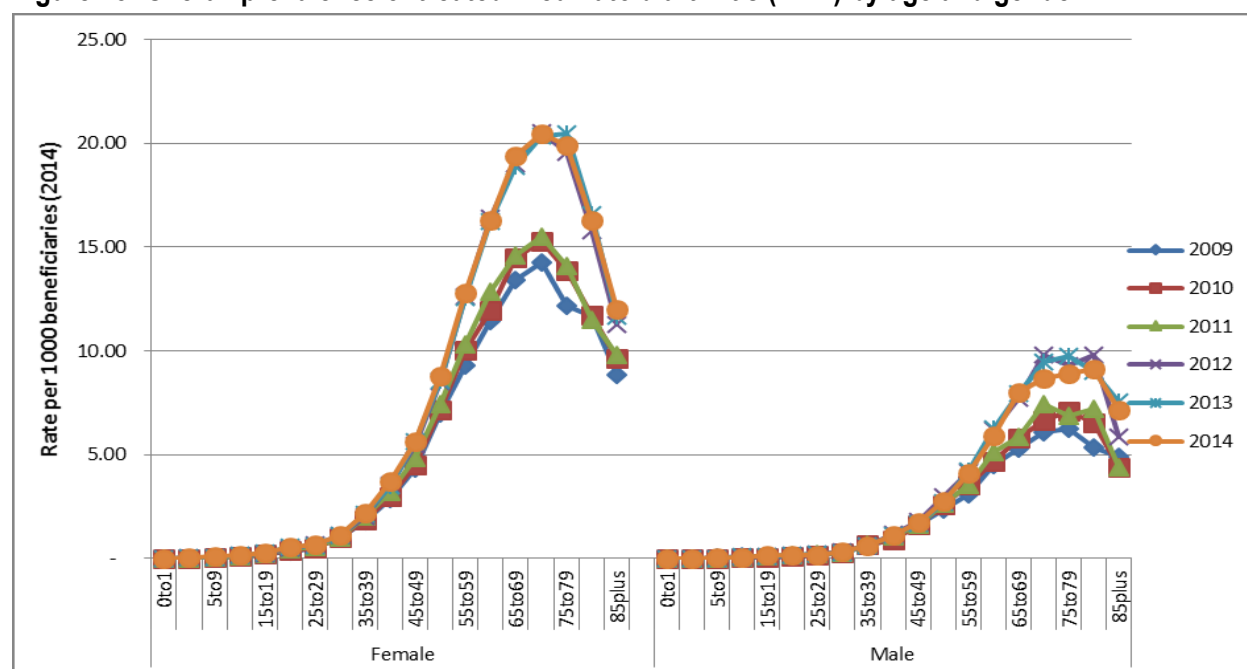
The overall prevalence of treated systemic lupus erythematosus (SLE) increased from 0.22 to 0.30 per 1 000 for all the age groups between 2009 and 2014. In 2014, eight times more women than men were diagnosed and treated for SLE.

Figure 27: Overall prevalence of Auto-immune conditions by gender



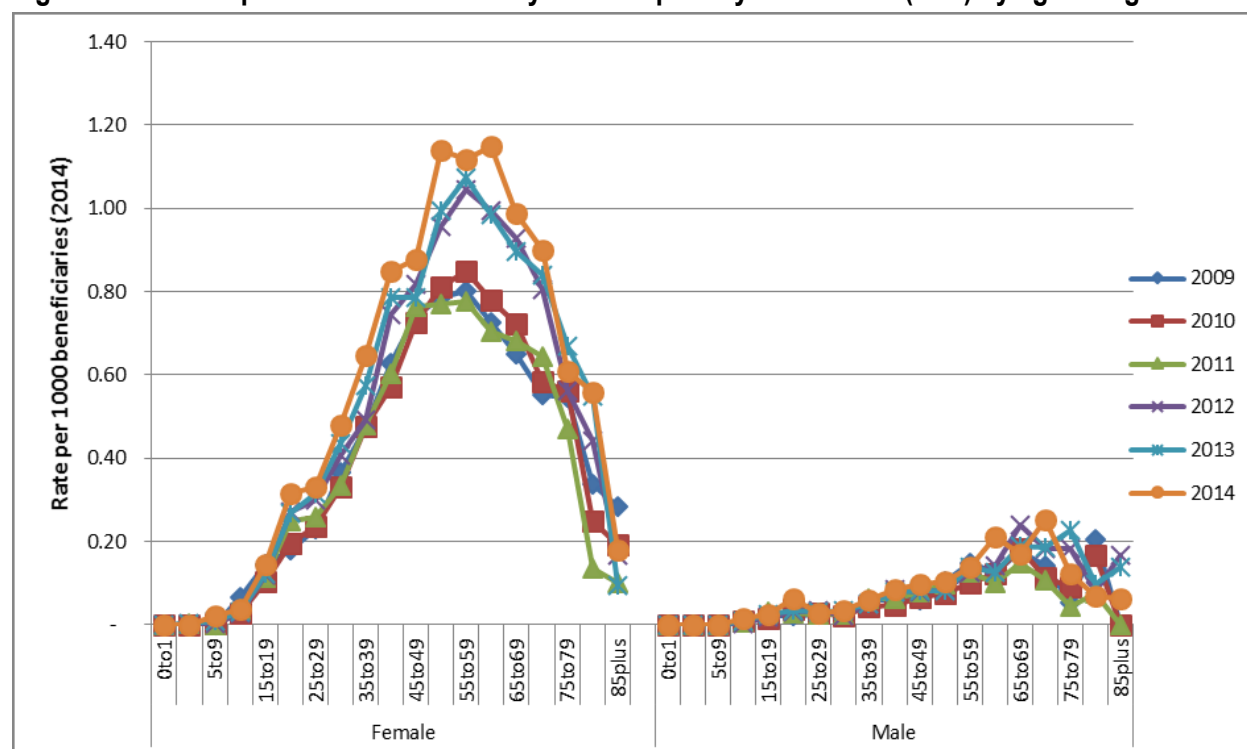
The prevalence of RHA was higher for females older than 40 years. A similar trend was seen in male beneficiaries whose RHA prevalence was also higher in beneficiaries older than 40 years (Figure 28).

Figure 28: Overall prevalence of treated rheumatoid arthritis (RHA) by age and gender



As shown in Figure 29, SLE prevalence was higher for females in the age groups between 50 and 74 years.

Figure 29: Overall prevalence of treated systemic lupus erythematosus (SLE) by age and gender



3.3.9 Addison's disease

The overall prevalence of Addison's disease (ADS) in medical schemes' beneficiaries averaged 0.05 per 1 000 between 2009 and 2014. ADS was atypically more common in the 40 years and older age groups in both male and female beneficiaries (refer to Figures 30 & 31).

Figure 30: Overall prevalence of Addison's disease by gender

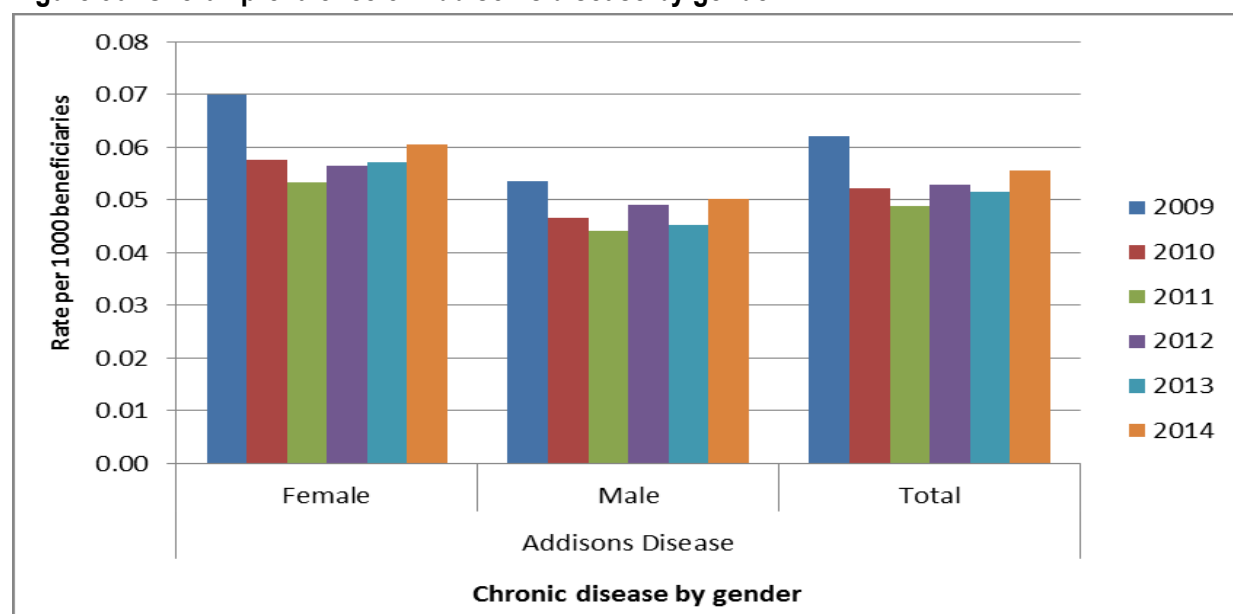
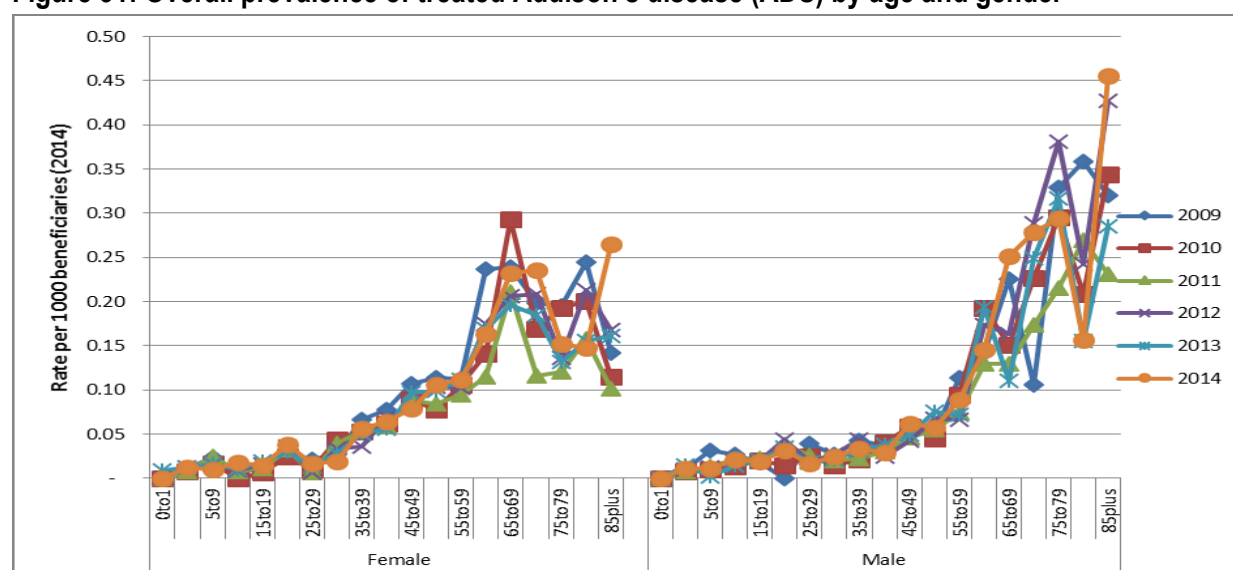


Figure 31: Overall prevalence of treated Addison's disease (ADS) by age and gender



3.3.10 Diabetes Insipidus

The overall prevalence of diabetes insipidus (DBI) in the medical schemes' beneficiaries was 0.02 per 1 000 in 2014 (Figure 32). There was no significant age or gender-related differences, see Figure 33, in the prevalence of DBI. DBI is a rare condition and resulted in volatile (not smoothed) graphs throughout the period under review.

Figure 32: Overall prevalence of Diabetes Insipidus by gender

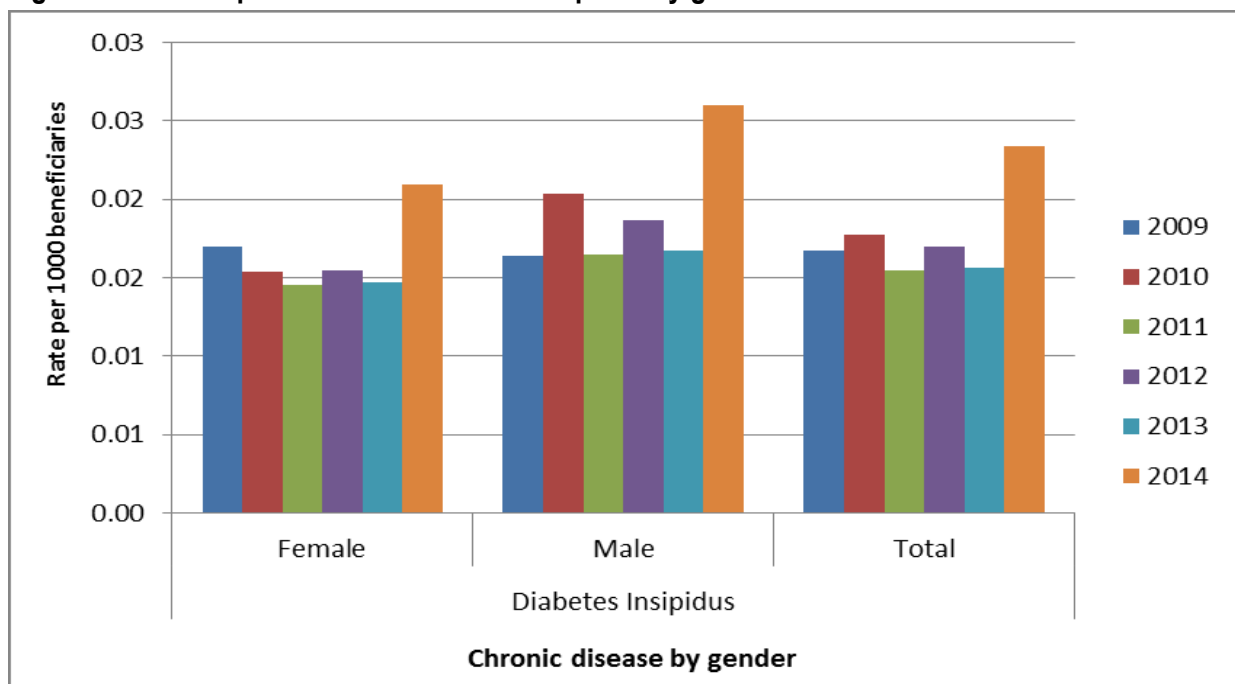
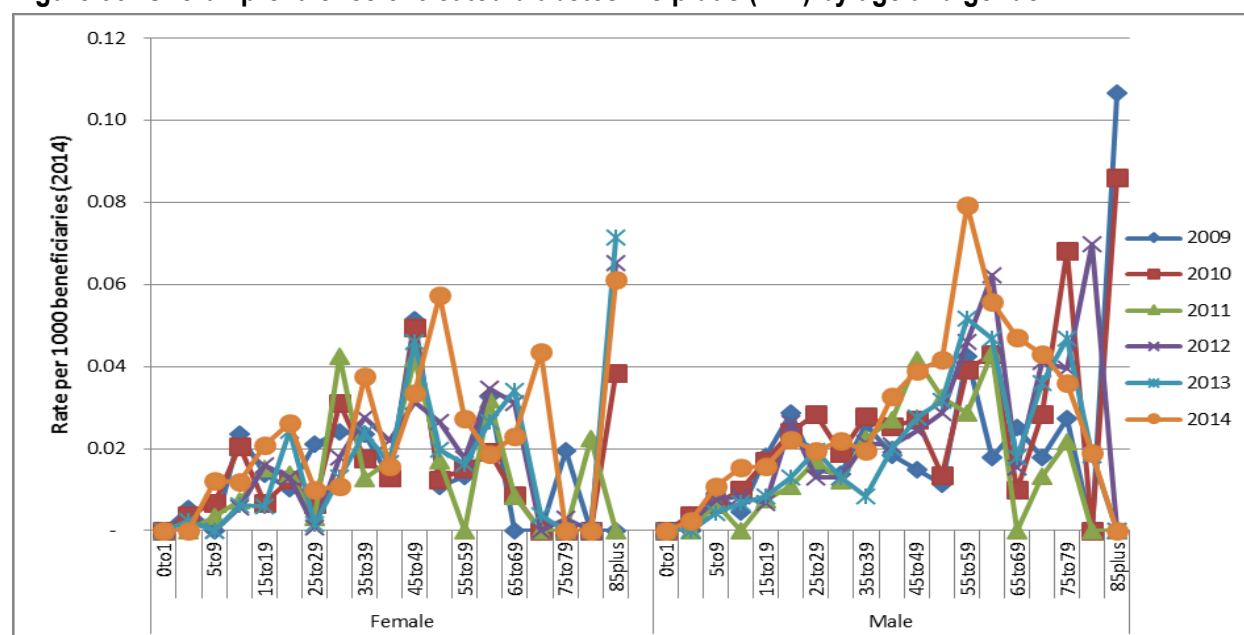


Figure 33: Overall prevalence of treated diabetes insipidus (DBI) by age and gender



3.3.11 Glaucoma

The overall prevalence of glaucoma (GLC) increased from 2.46 per 1 000 in 2009, to 3.19 per 1 000 in 2014. There was no significant gender related difference (Figure 34). GLC in medical schemes beneficiaries was more common in the 40 years and older age group, as can be seen in Figure 35

Figure 34: Overall prevalence of Glaucoma by gender

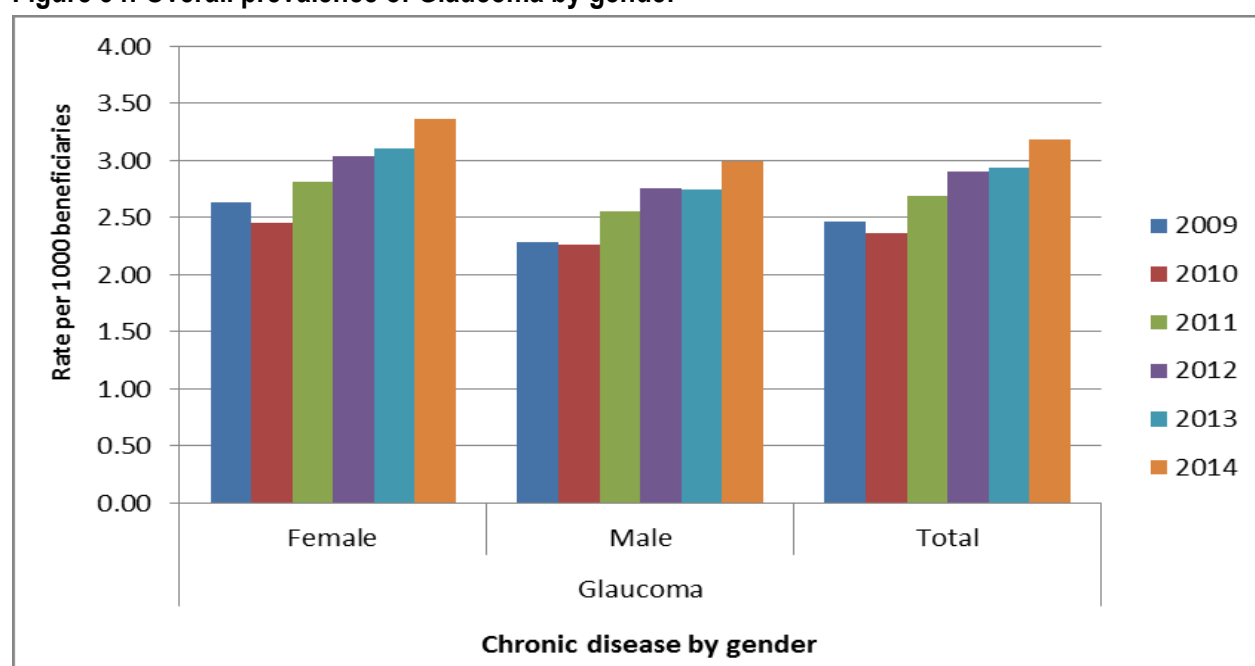
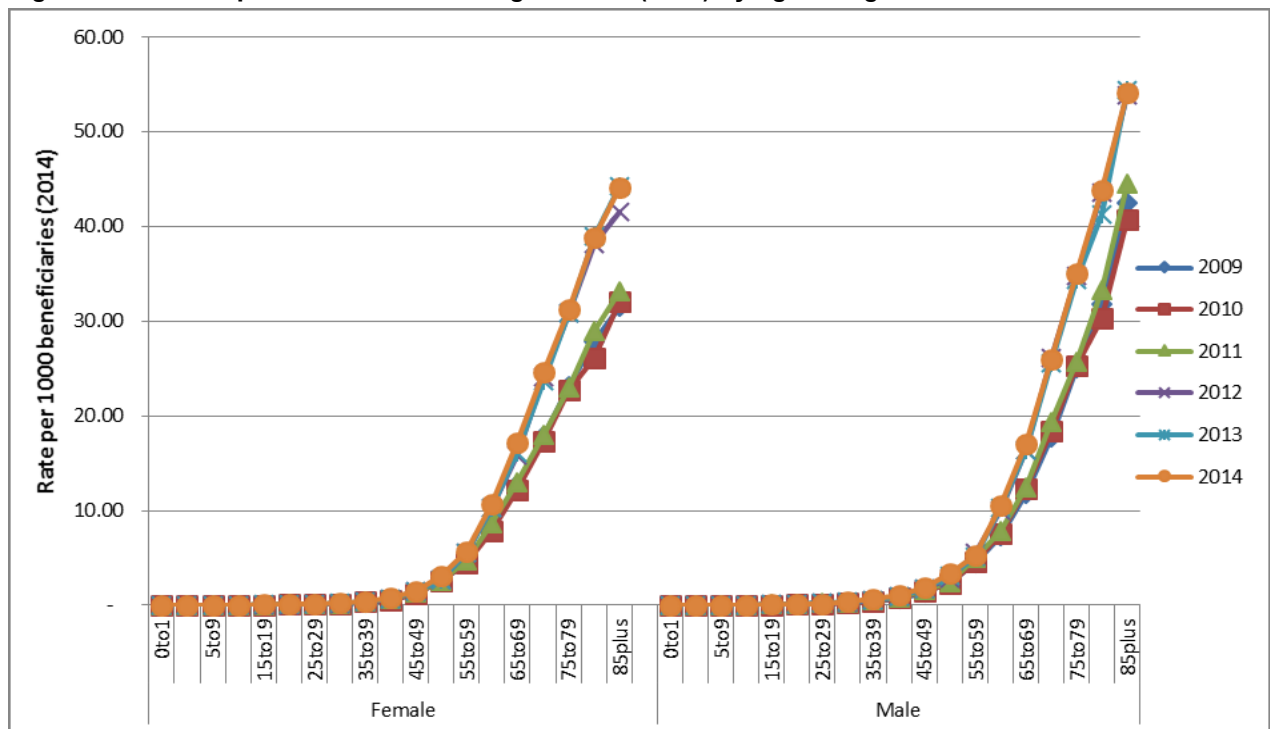


Figure 35: Overall prevalence of treated glaucoma (GLC) by age and gender



3.3.12 Haemophilia

The overall prevalence for haemophilia (HAE) decreased from 1.59 per 100 000 in 2009 to 1.56 per 100 000 in 2014. The overall prevalence in male beneficiaries was 3.20 per 100 000 in 2014 (Figures 36 & 37). Virtually all cases in the 2014 sample were males. Haemophilia is a rare condition, however it is amongst the most expensive CDL conditions to treat.

Figure 36: Overall prevalence of Haemophilia by gender

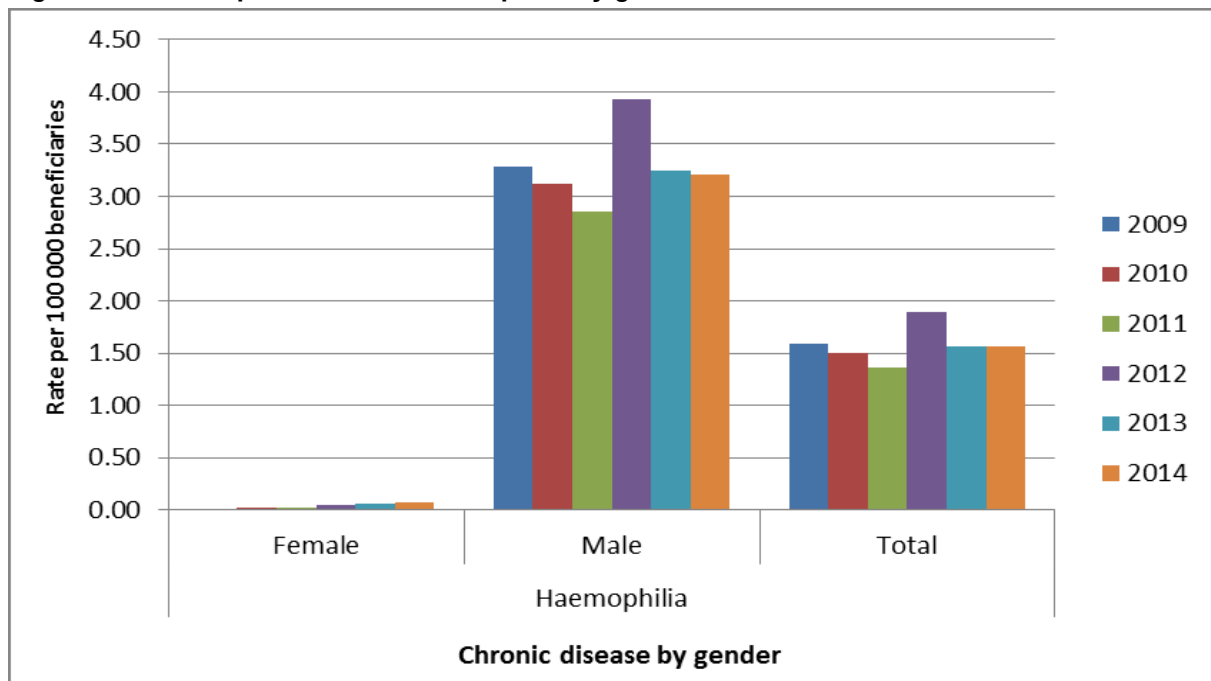
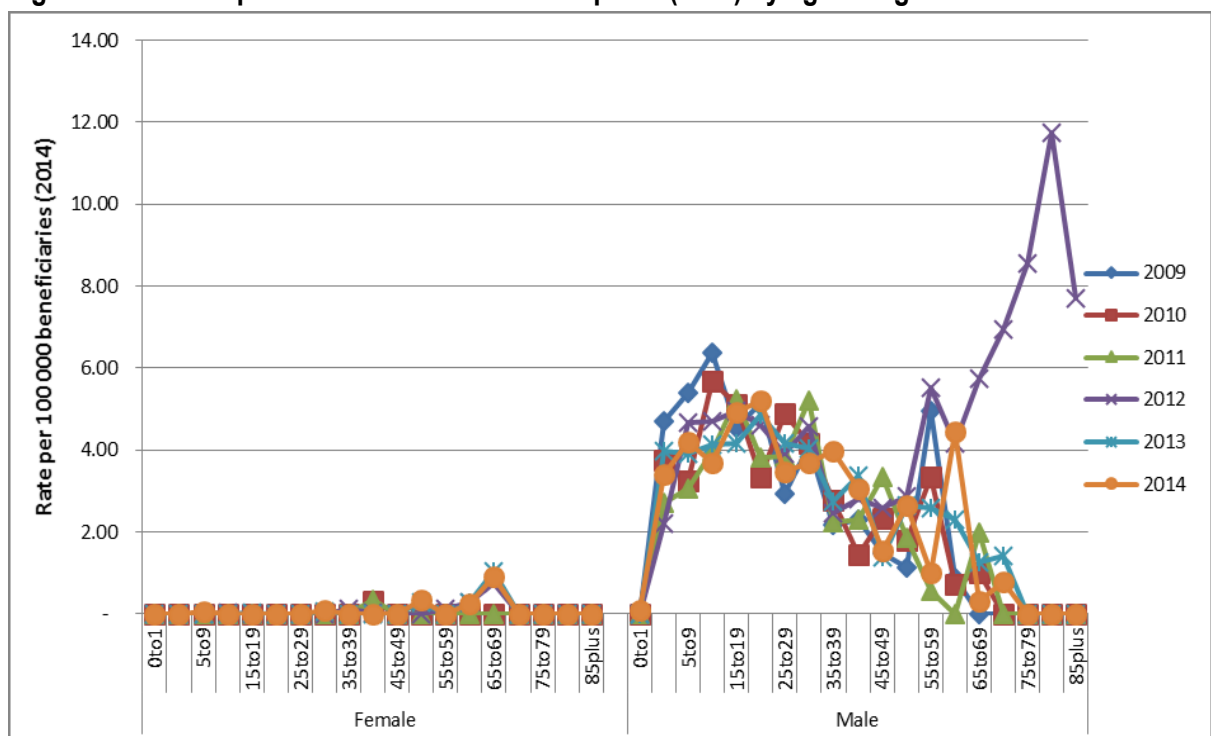


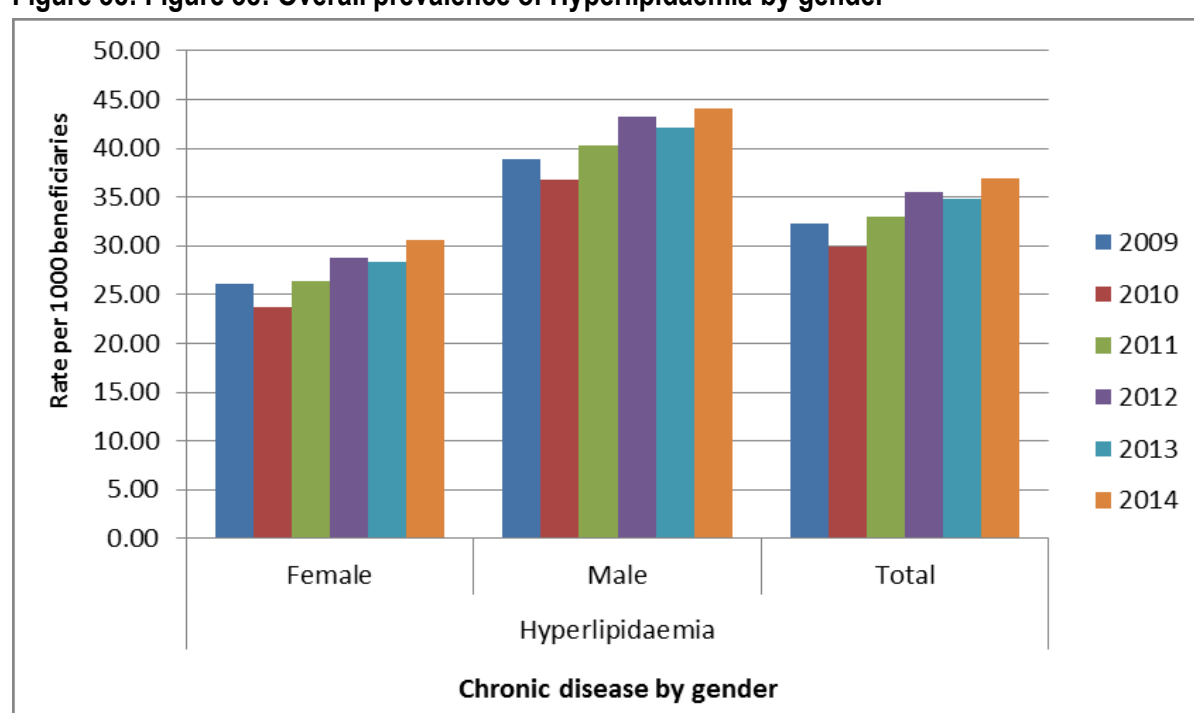
Figure 37: Overall prevalence of treated haemophilia (HAE) by age and gender



3.3.13 Hyperlipidaemia

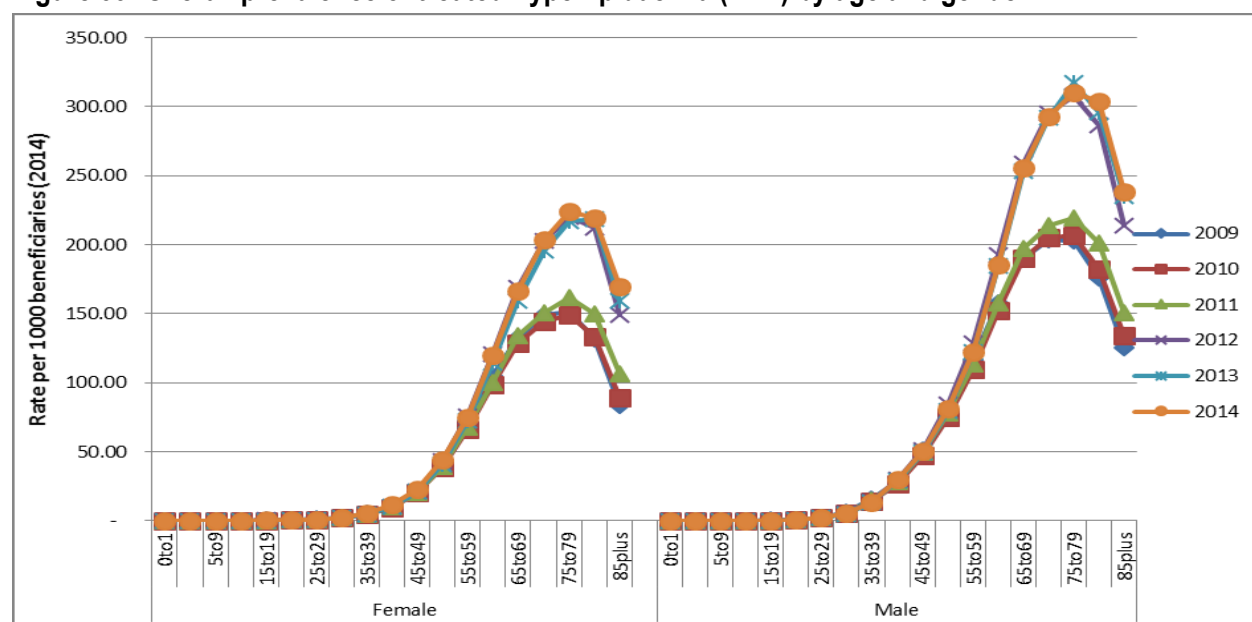
A steady increase (about 14.6%) in the overall prevalence of treated hyperlipidaemia (HYL) was noted between 2009 and 2014. HYL prevalence increased from 32.27 per 1 000 in 2009 to 36.97 per 1 000 in 2014. More male than female beneficiaries continued to be diagnosed and treated for the HYL. In male beneficiaries, prevalence increased from 38.86 to 44.03 per 1 000 between 2009 and 2014; an increase from 26.11 to 30.56 per 1 000 was seen in female beneficiaries during the same period. The overall prevalence of HYL increased by 6.3% between 2013 and 2014, with the decreases occurring in both males and females (Figure 38).

Figure 38: Overall prevalence of Hyperlipidaemia by gender



HYL prevalence for male and female beneficiaries is higher in the age groups above 50 years. Male beneficiaries above 65 years continued to have the highest HYL prevalence rate (Figure 39).

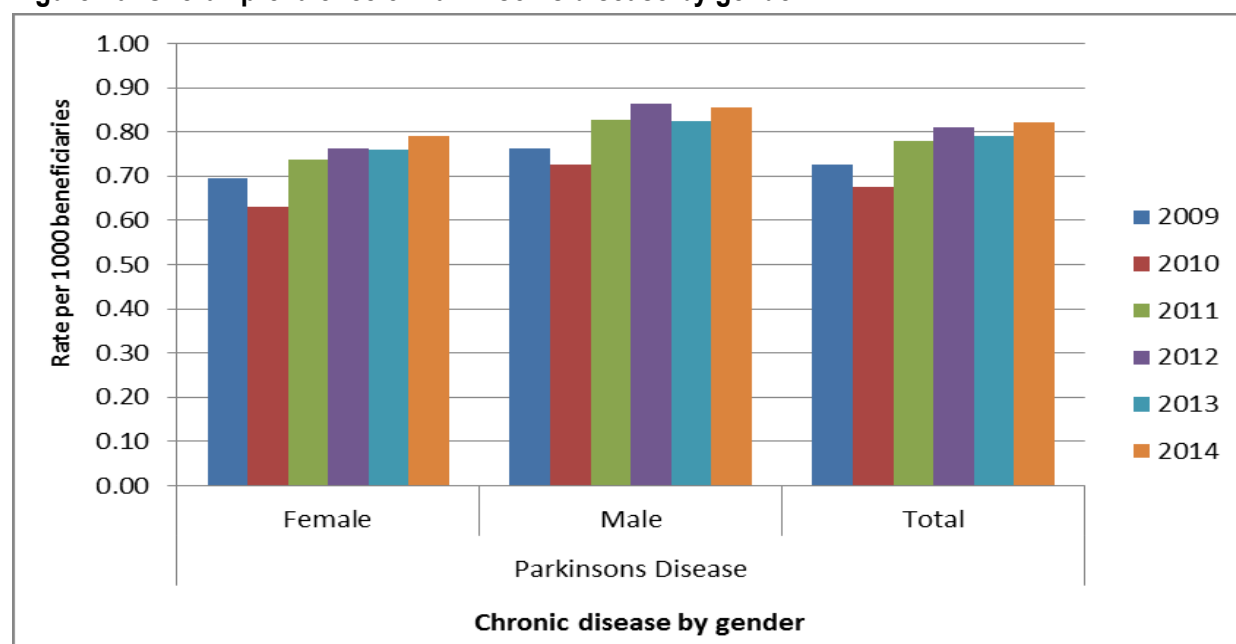
Figure 39: Overall prevalence of treated hyperlipidaemia (HYL) by age and gender



3.3.14 Parkinson's disease

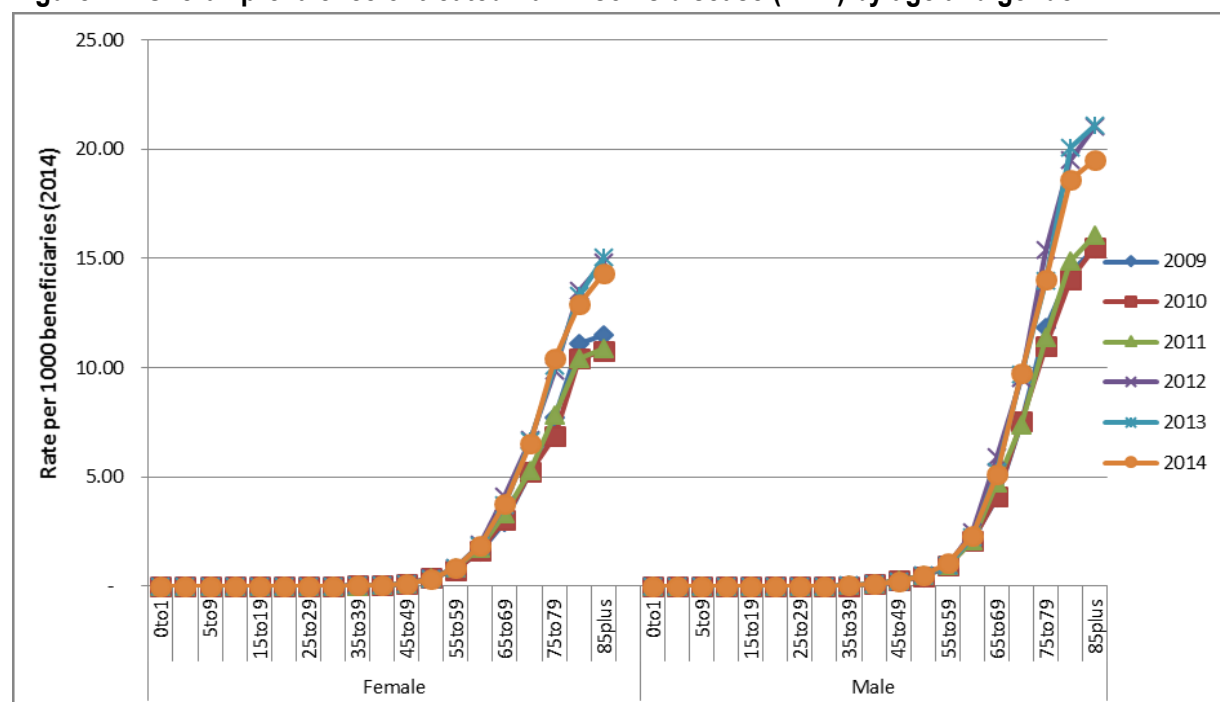
It is evident in Figure 40 that the overall prevalence of Parkinson's disease (PAR) increased from 0.73 to 0.82 per 1 000 between 2009 and 2014.

Figure 40: Overall prevalence of Parkinson's disease by gender



PAR prevalence was higher among beneficiaries older than 65 years in both males and females. PAR prevalence for beneficiaries younger than 50 years continued at levels below 5 per 1 000 beneficiaries (Figure 41).

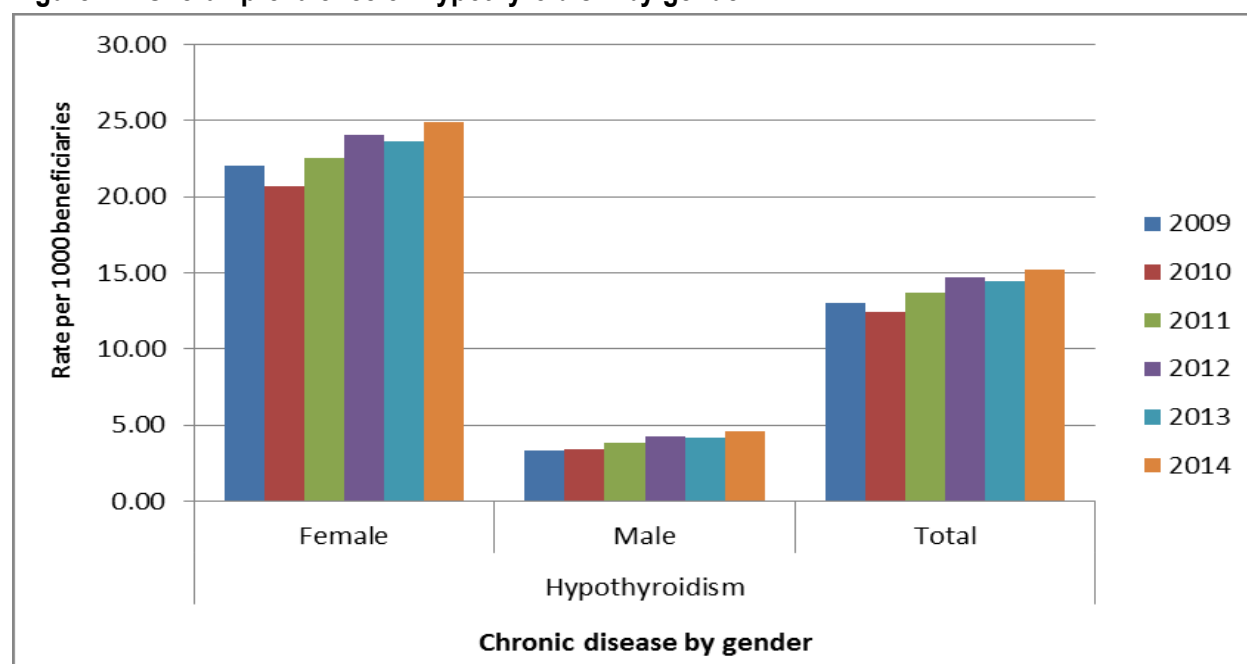
Figure 41: Overall prevalence of treated Parkinson's disease (PAR) by age and gender



3.3.15 Hypothyroidism

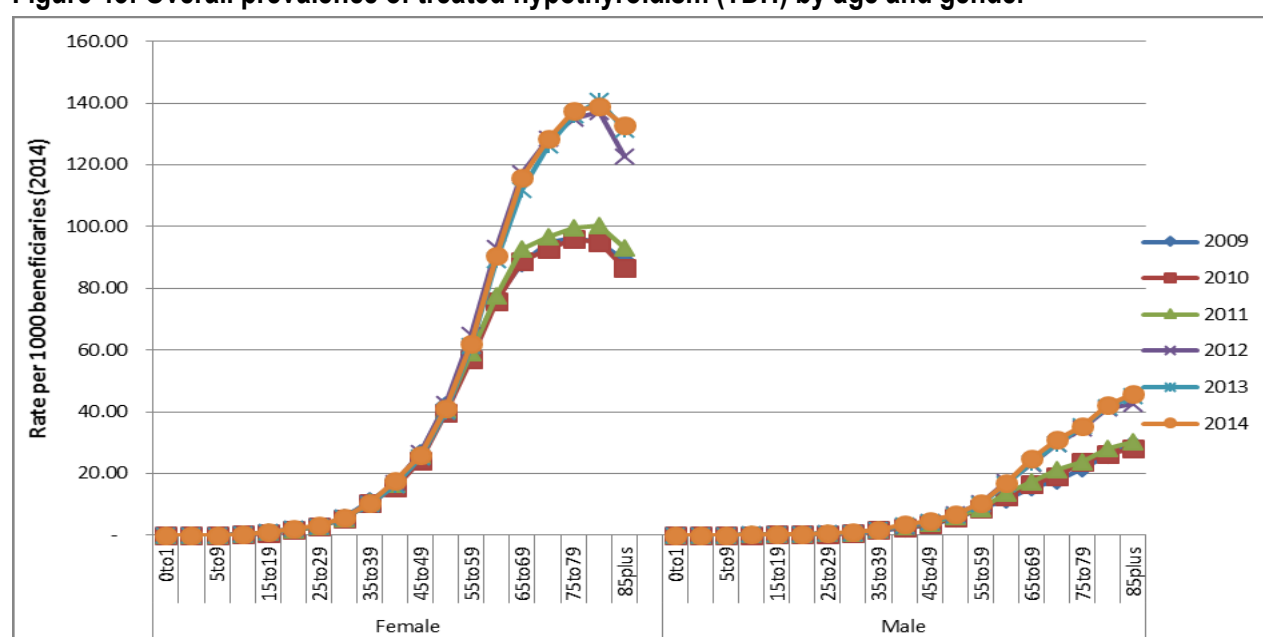
Over five times more female than male beneficiaries were diagnosed and treated for hypothyroidism (TDH) between 2009 and 2014. The overall TDH prevalence increased from 13.00 to 15.23 per 1 000 beneficiaries between 2009 and 2014. TDH prevalence increased by 12.9% in female beneficiaries, from 22.04 per 1 000 in 2009, to 24.89 per 1 000 in 2014. TDH prevalence increased by 37.0% in male beneficiaries, from 3.33 per 1 000 in 2009, to 4.56 per 1 000 in 2014 (Figure 42).

Figure 42: Overall prevalence of Hypothyroidism by gender



TDH was mostly prevalent in female beneficiaries older than 40 years. Male TDH prevalence was lower than that of females. TDH prevalence in males was higher in beneficiaries older than 50 years (Figure 43).

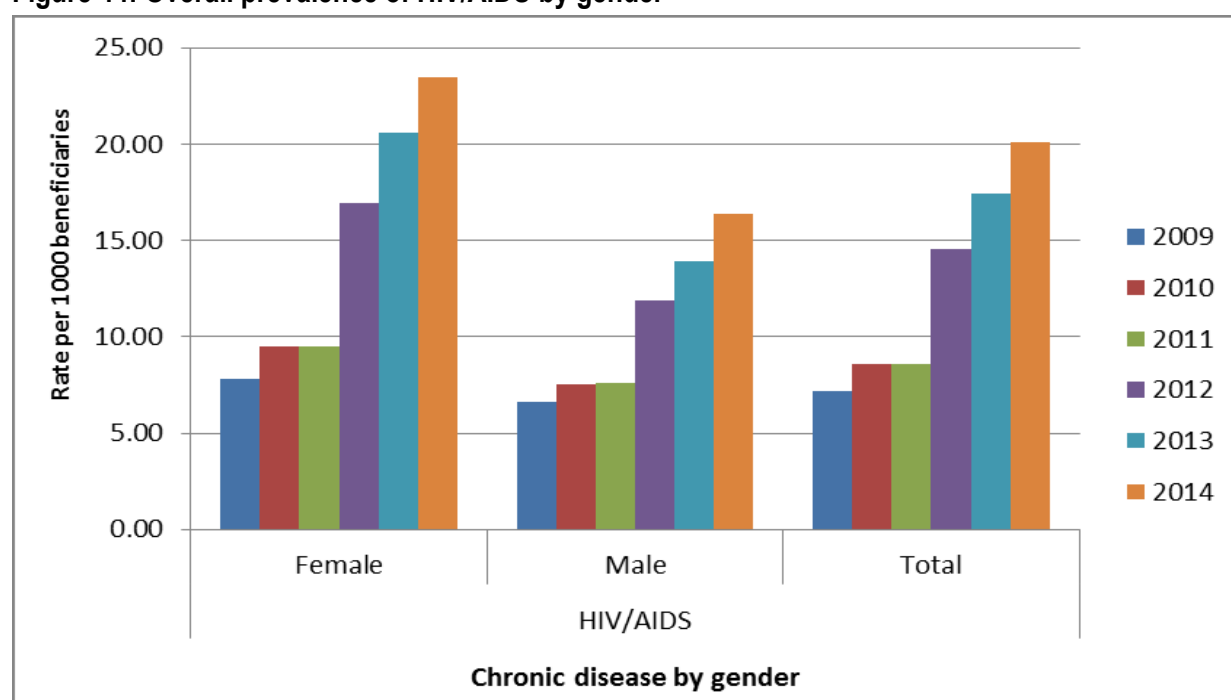
Figure 43: Overall prevalence of treated hypothyroidism (TDH) by age and gender



3.3.16 HIV/AIDS

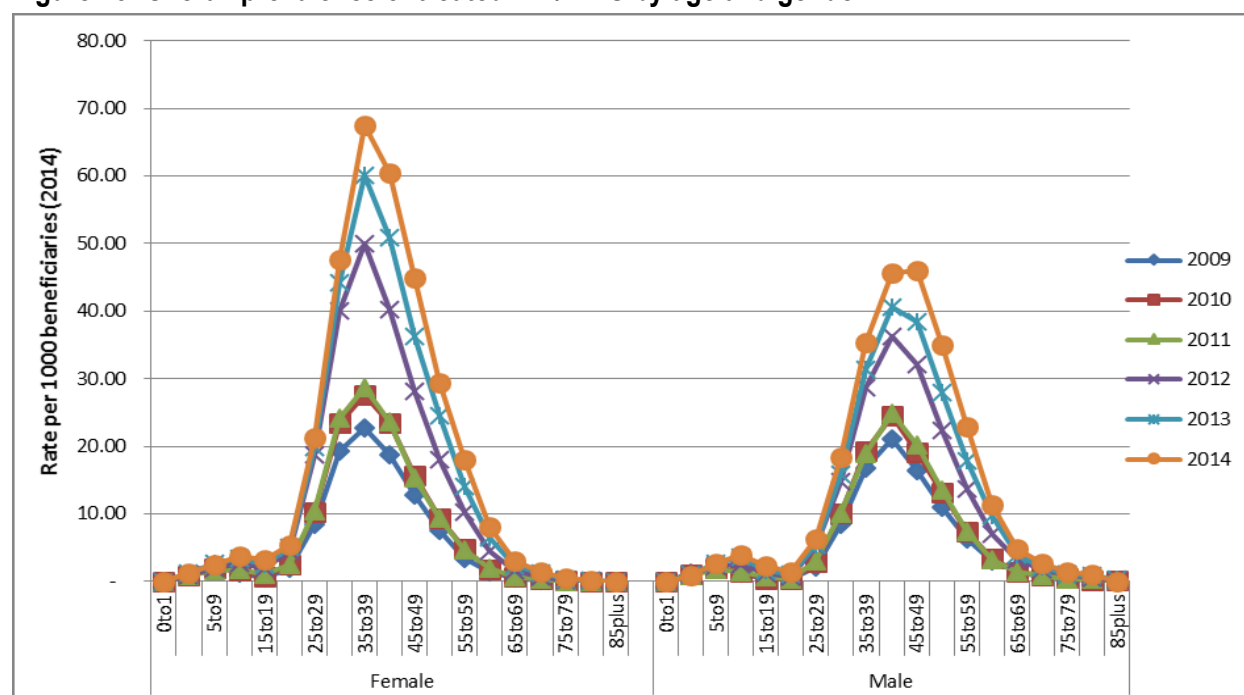
The prevalence of treated HIV/AIDS in medical schemes' beneficiaries increased by 179.6% over the period between 2009 and 2014 (from 7.20 per 1 000 to 20.13 per 1 000 beneficiaries). In 2014, HIV/AIDS prevalence was higher in female beneficiaries (23.49 per 1 000) compared to male beneficiaries (16.41 per 1 000). HIV/AIDS prevalence for male beneficiaries increased at a faster rate than that of female beneficiaries with the annual changes between 2013 and 2014, being 17.8% and 14.2% respectively (see Figure 44).

Figure 44: Overall prevalence of HIV/AIDS by gender



Female beneficiaries had higher HIV/AIDS prevalence rates compared to male beneficiaries. HIV/AIDS prevalence in female beneficiaries was high in the age bands between 25 and 54 years. Female beneficiaries in the age band 35 to 39 years had the highest HIV/AIDS prevalence rate in the medical schemes industry. A similar trend was observed in male beneficiaries. Male beneficiaries in the age band 45 to 49 years had the highest HIV/AIDS prevalence rate in the male category (Figure 45).

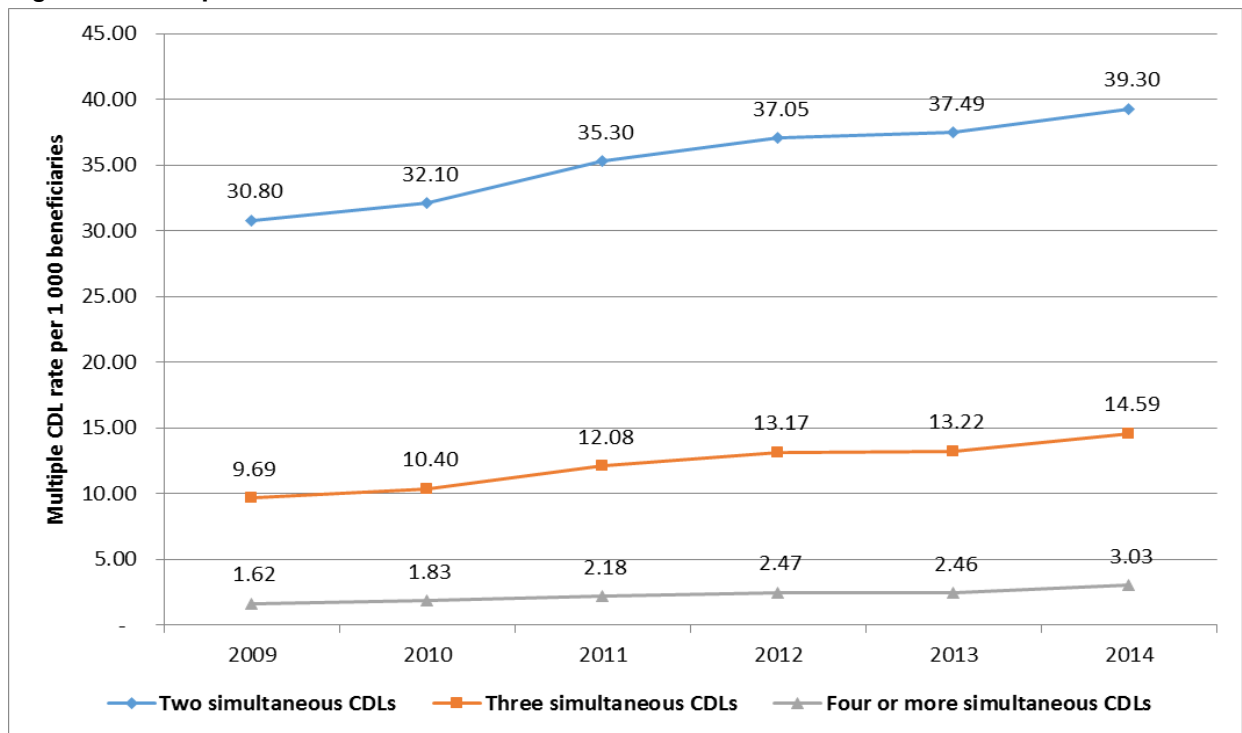
Figure 45: Overall prevalence of treated HIV/AIDS by age and gender



3.4 Multiple CDL conditions: 2009 - 2014

A number of medical scheme beneficiaries were diagnosed and treated for multiple CDL conditions. Beneficiaries diagnosed with two CDL conditions increased by 27.6% from 30.80 in 2009 to 39.30 per 1 000 beneficiaries in 2014. The prevalence of three simultaneous CDL conditions in beneficiaries on medical schemes increased by 50.7% from 9.69 to 14.59 per 1 000 beneficiaries between 2009 and 2014. A number of beneficiaries with four or more CDL conditions increased by 87.0% from 1.62 in 2009 to 3.03 per 1 000 beneficiaries in 2014. Figure 46 depicts trends in the prevalence of multiple conditions for the period between 2009 and 2014.

Figure 46: Multiple CDL conditions: 2009 - 2014



4 Discussion

The upward trend in diagnosis and treatment of many conditions on the chronic disease list continued in 2014. The top 10 rankings of prevalence of CDL's and HIV/AIDS according to prevalence rates did not change significantly between 2013 and 2014.

The top 10 ranked CDL's and HIV/AIDS (chronic conditions with the highest prevalent rates) are still hypertension, hyperlipidaemia, diabetes mellitus 2, asthma, hypothyroidism, HIV/AIDS, coronary artery disease, epilepsy, cardiomyopathy and dysrhythmias (replacing rheumatoid arthritis). The CDL's listed as top 10 ranking CDL's had prevalence rates of at least 3 per 1 000 beneficiaries in 2014.

The number of medical scheme beneficiaries who were diagnosed and treated for multiple CDL conditions continued with the upward trend in 2014. This might have a negative impact on the risk profiles of medical schemes. The deterioration in risk profiles should be a concern for medical schemes.

Whilst the upward trend in diagnosis and treatment of many chronic conditions on the CDL continued in 2014, this study is not yet in a position to isolate specific reasons for this increase in chronic diseases; the trend 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.

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