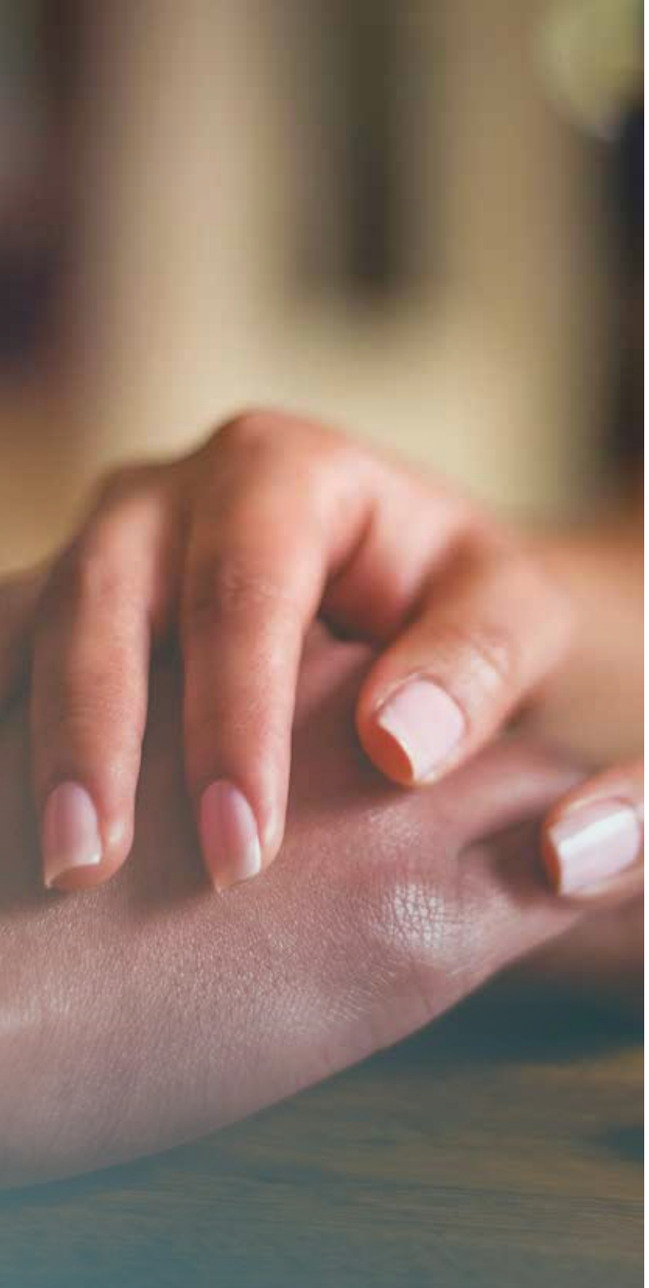
Discovery Health

Discovery Health Medical Scheme

HEALTHCARE CLAIMS TRACKER
A FOCUS ON ONCOLOGY CLAIMS

July 2018

For the period January 2017 – December 2017



INTRODUCTION

Cancer is one of the leading causes of death both globally and in South Africa. Worldwide, one in seven deaths is due to cancer; cancer causes more deaths than HIV and AIDS, tuberculosis and malaria combined.

This document highlights the key trends in cancer claims in the Discovery Health Medical Scheme (DHMS).

A note on incidence vs prevalence

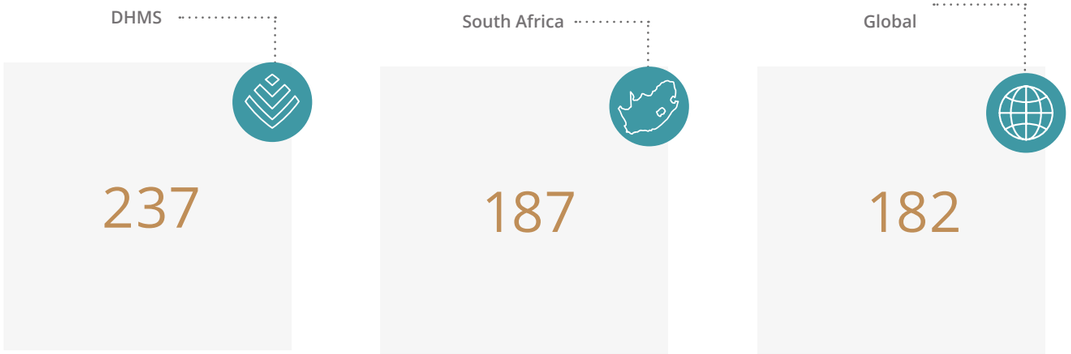
Throughout the document, ***prevalence*** is defined as the number of members who are enrolled on the Scheme's oncology benefit and are actively claiming from the benefit at a particular time during the year. This differs from the term ***incidence*** which refers to the number of members that are newly diagnosed with cancer during the year.

In order to compare the DHMS incidence rate with the South African population as well as the world, an ***age standardised incidence rate*** has been determined. This adjusts the incidence rate for the impact of age.

Global comparison

We have compared the cancer incidence rates for DHMS members against the South African and global populations, as reported by the World Health Organisation[1]. Since the latest WHO study is based on 2012 data, an age standardised incidence rate for DHMS has been calculated for 2012 in order to provide a fair comparison.

New cancer cases per 100 000 lives (2012 age-standardised incidence rates)

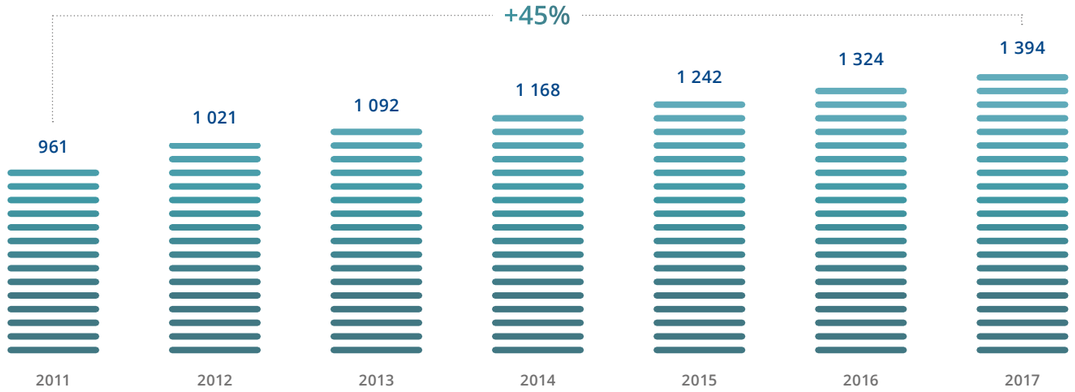


In 2012, DHMS had an age standardised incidence rate of 237 per 100 000 lives. This is significantly higher than the 187 new cases per 100 000 lives seen in South Africa as a whole and the 182 new cases per 100 000 lives seen across the world. Higher incidence rates amongst DHMS members is expected as people are more likely to join a medical scheme when they are encountering health problems, such as cancer. This higher incidence rate of cancer is thus a reflection of adverse selection in the open medical scheme environment. It is probably also a reflection of the increased levels of cancer screening and diagnosis in the private sector compared to the public health system.

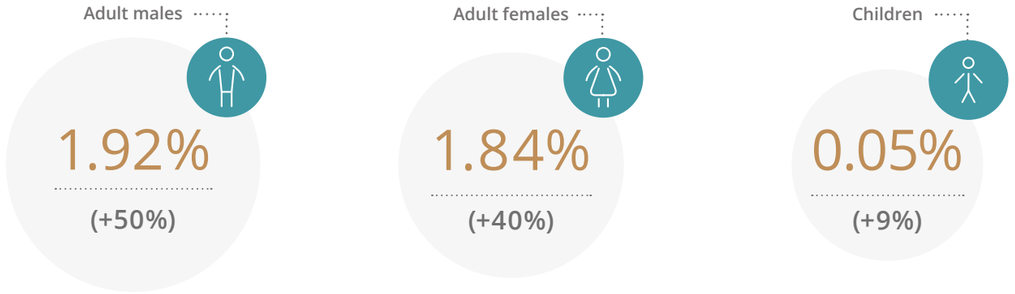
[1] World Health Organisation's research titled 'GLOBOCAN 2012: Estimated Cancer Incidence, Mortality and Prevalence Worldwide in 2012'
All figures as at 31 December 2017.
All figures quoted per 100 000 DHMS members. Data split by demographics is quoted per 100 000 relevant DHMS members e.g. for adult males, the figure is per 100 000 adult male DHMS members.

Overall prevalence

In 2017, 38 295 DHMS members actively received treatment for cancer. This equates to 1 394 members per 100 000 lives, equivalent to 1.39%. The overall prevalence has increased by 45% since 2011. This increase in prevalence is due to a combination of factors including ageing of the Scheme, adverse selection and the introduction of new treatments which extend for long durations.



Prevalence by demographic category



(Increase from 2011 to 2017)

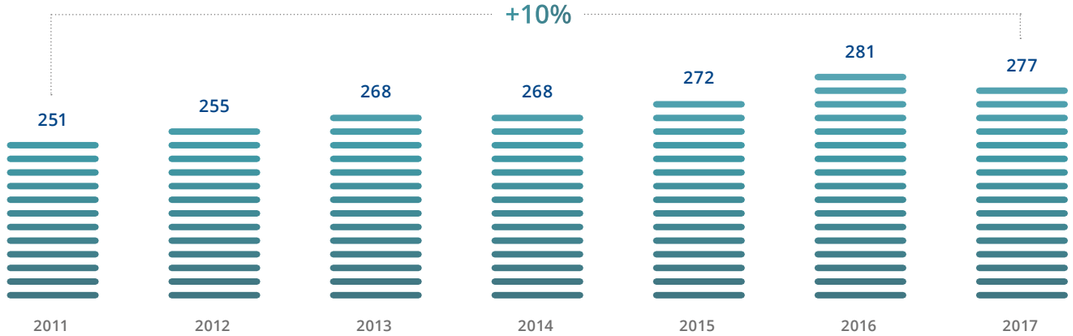
The number of adult males actively receiving treatment is increasing at a higher rate than adult females, with the overall levels in 2017 approximately 4% higher for adult males.

Children have experienced a much lower increase in cancer prevalence since 2011 than adult males and females.

All figures as at 31 December 2017.
All figures quoted per 100 000 DHMS members. Data split by demographics is quoted per 100 000 relevant DHMS members e.g. for adult males, the figure is per 100 000 adult male DHMS members.

Overall incidence

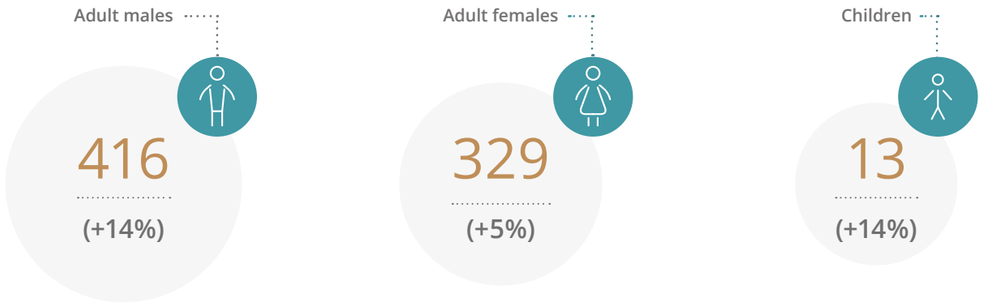
In 2017, 7 597 DHMS members were newly diagnosed with cancer. This equates to 277 members per 100 000 lives, equivalent to 0.3%. The cancer incidence per 100 000 lives has increased by 10% from 2011 to 2017. Similar trends have been seen in South Africa and globally.



The increase in new diagnoses over the period is due to an ageing membership. The average age of DHMS members has increased from 32.8 to 34.5 over the period, and the proportion of members aged 60 years or older increased from 11% to 14%. If one standardises the cancer incidence rates by age, the rates would have decreased marginally over the period from 237 new diagnoses per 100 000 lives to 231.

The 2012 incidence rate shown above differs from the 2012 incidence rate in the global comparison on page 4, as the latter has been standardised by age to allow a comparison between DHMS, South Africa and globally.

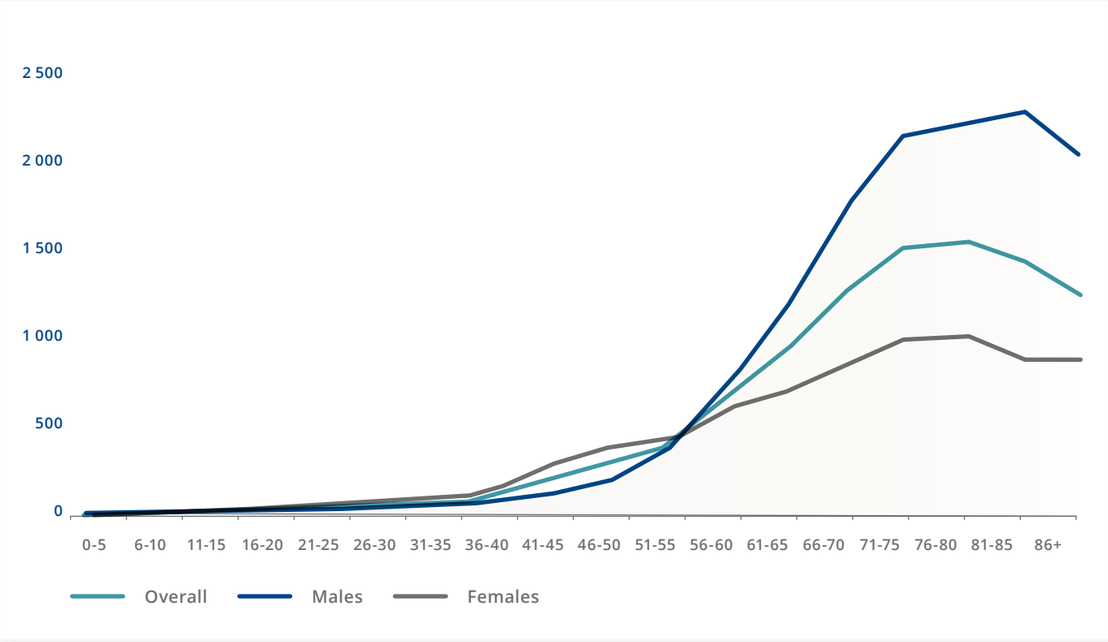
Incidence by demographic category



(Increase from 2011 to 2017)

Rates of new diagnosis of cancer are approximately 26% higher in men than in women, with rates of 416 per 100 000 lives for adult men and 329 per 100 000 lives for adult women. An increase in incidence has been seen across both genders and amongst children although females have seen a lower increase in incidence of 5% since 2011 compared to the increase of 14% seen in adult males and children.

Incidence by age band



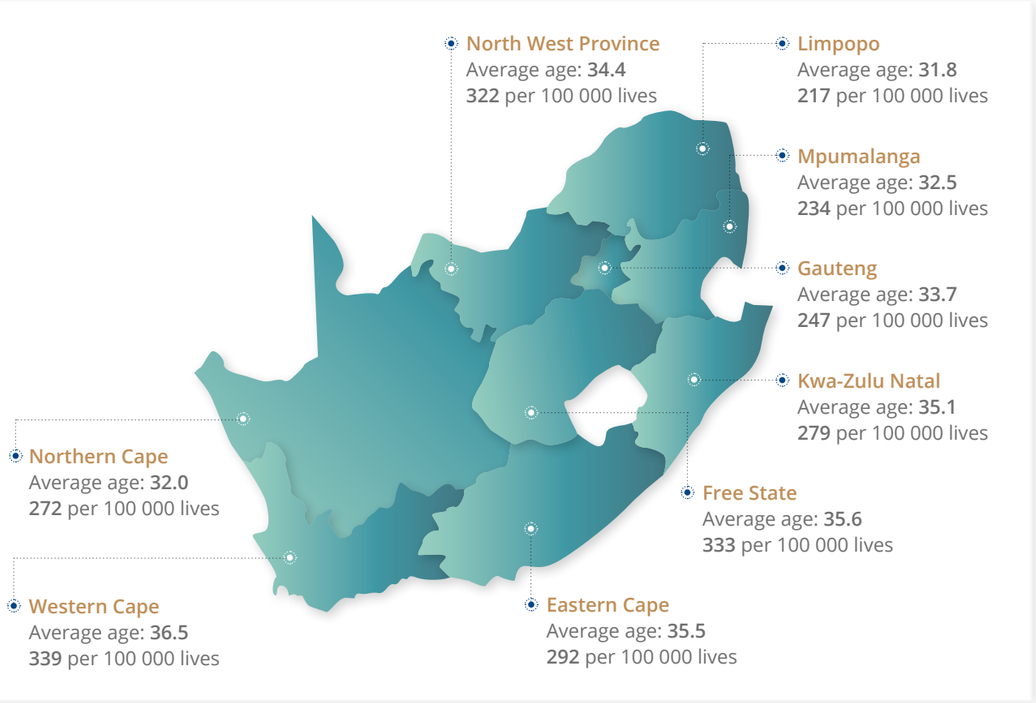
A higher number of cancer diagnoses is seen in older people, with the highest in the 76 – 80 year old age band.

Males experience a significantly higher number of new cancer diagnoses compared to females from 56 years of age and older.

Rates of new diagnosis of cancer are higher for females between the ages of 35 and 55 than males.

All figures as at 31 December 2017.

Incidence by region



The Western Cape and Free State experienced the highest cancer incidence rates in 2017 with 339 and 333 new diagnoses per 100 000 lives respectively. Such incidence rates are unsurprising given that the Western Cape has the oldest average age amongst DHMS members (36.5 years) and the Free State has the second oldest average age (35.6). Both provinces also have a high proportion of members aged 60 years or older (15.3% and 15.6% respectively).

Limpopo and Mpumalanga experienced the lowest cancer incidence rates in 2017, with 217 and 234 new diagnoses per 100 000 lives respectively. Both of these provinces have younger DHMS membership profiles with low average ages and low proportion of pensioners.

Adjusting the incidence rate for the impact of age, the Western Cape and Free State still experienced high levels of new cancer diagnoses in 2017 (253 and 249 new diagnoses per 100 000 lives respectively). These levels were however below those of the North West Province (272 per 100 000 lives) and the Northern Cape (267 per 100 000 lives), after adjusting for their younger membership. Limpopo has the lowest levels of new cancer diagnoses after adjusting for the impact of age (212 per 100 000 lives), followed by the Eastern Cape and Gauteng (225 and 227 new diagnoses per 100 000 lives respectively). One potential explanation for the difference in age-standardised incidence rates across provinces is access to oncology centres and specialists, with relatively greater access per 100 000 lives in regions such as the Western Cape and Free State compared to regions such as Limpopo and the Eastern Cape.

Global comparison of top 3 cancer types by incidence

The top cancers in terms of incidence differs from the South African and global trends seen in the World Cancer Report[1]. This is consistent with differences in the Human Development Index (HDI). Populations with higher HDI rankings are likely to experience a reduction in infection-related cancers (e.g. cancer of the cervix and stomach cancer), however this decline is outweighed by an increasing burden of cancers more associated with reproductive, dietary and hormonal risk factors.

Males

DHMS	South Africa	Global
1. Prostate cancer	1. Prostate cancer	1. Lung cancer
2. Colorectal cancer	2. Lung cancer	2. Prostate cancer
3. Lung cancer	3. Colorectal cancer	3. Colorectal cancer

Within DHMS, prostate cancer had the highest incidence for males in 2017, followed by colorectal cancer and lung cancer. In South Africa, prostate cancer has the highest incidence amongst males, followed by lung cancer. Globally, lung cancer is seen to have the highest incidence for males followed by prostate and colorectal respectively.

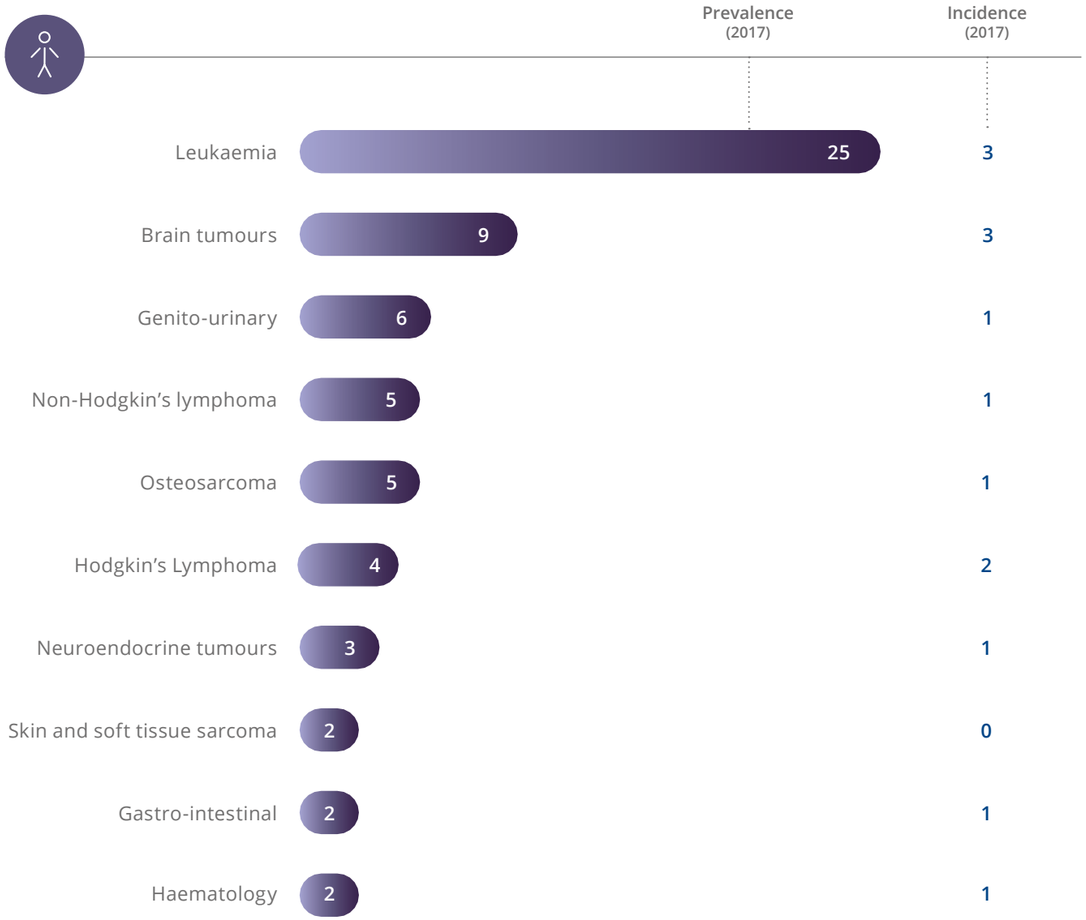
Females

DHMS	South Africa	Global
1. Breast cancer	1. Breast cancer	1. Breast cancer
2. Colorectal cancer	2. Cervical and uterine cancer	2. Colorectal cancer
3. Lung cancer	3. Lung cancer	3. Lung cancer

The top two cancers by incidence for females in 2017 in DHMS is consistent with global trends with breast cancer being the highest and colorectal cancer being the second highest. In South Africa, breast cancer has the highest incidence amongst females, followed by cancer of the cervix.

[1] World Health Organisation's research titled 'GLOBOCAN 2012: Estimated Cancer Incidence, Mortality and Prevalence Worldwide in 2012'
All figures as at 31 December 2017.

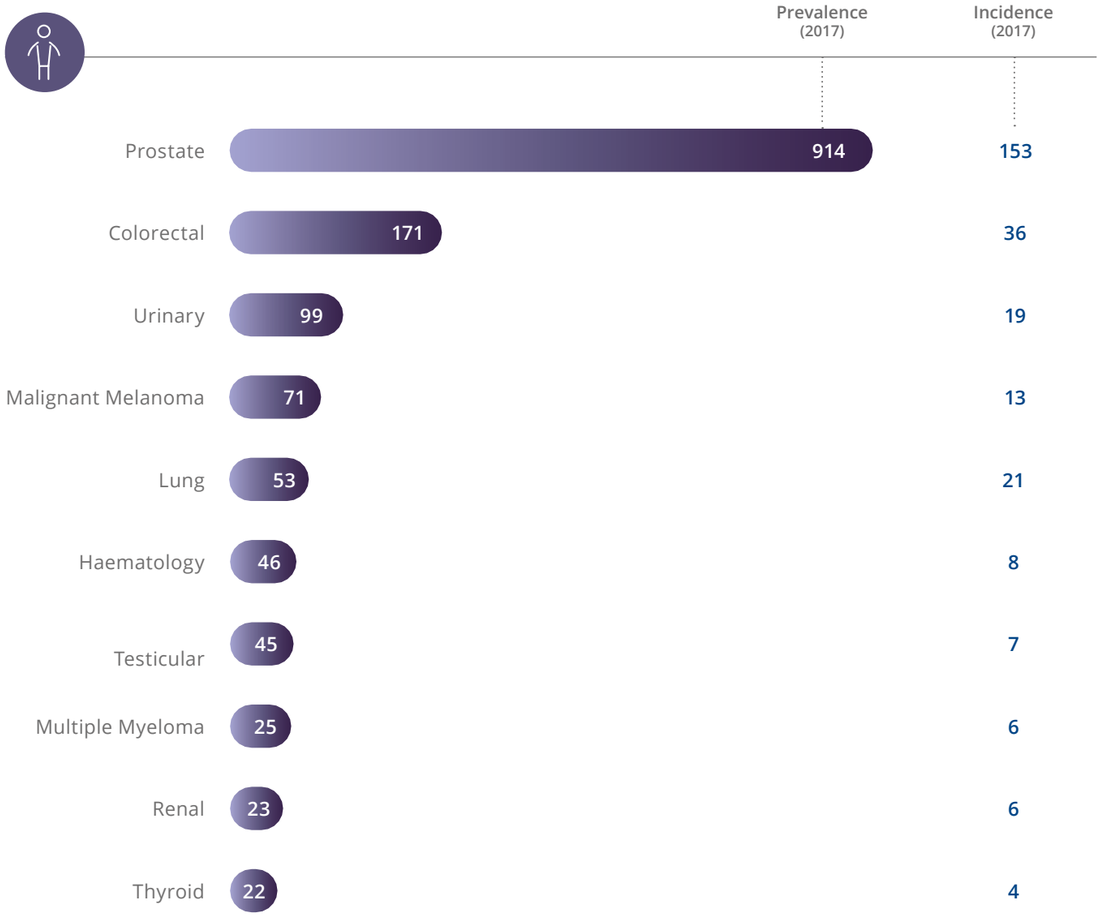
Top 10 cancer types by prevalence – children



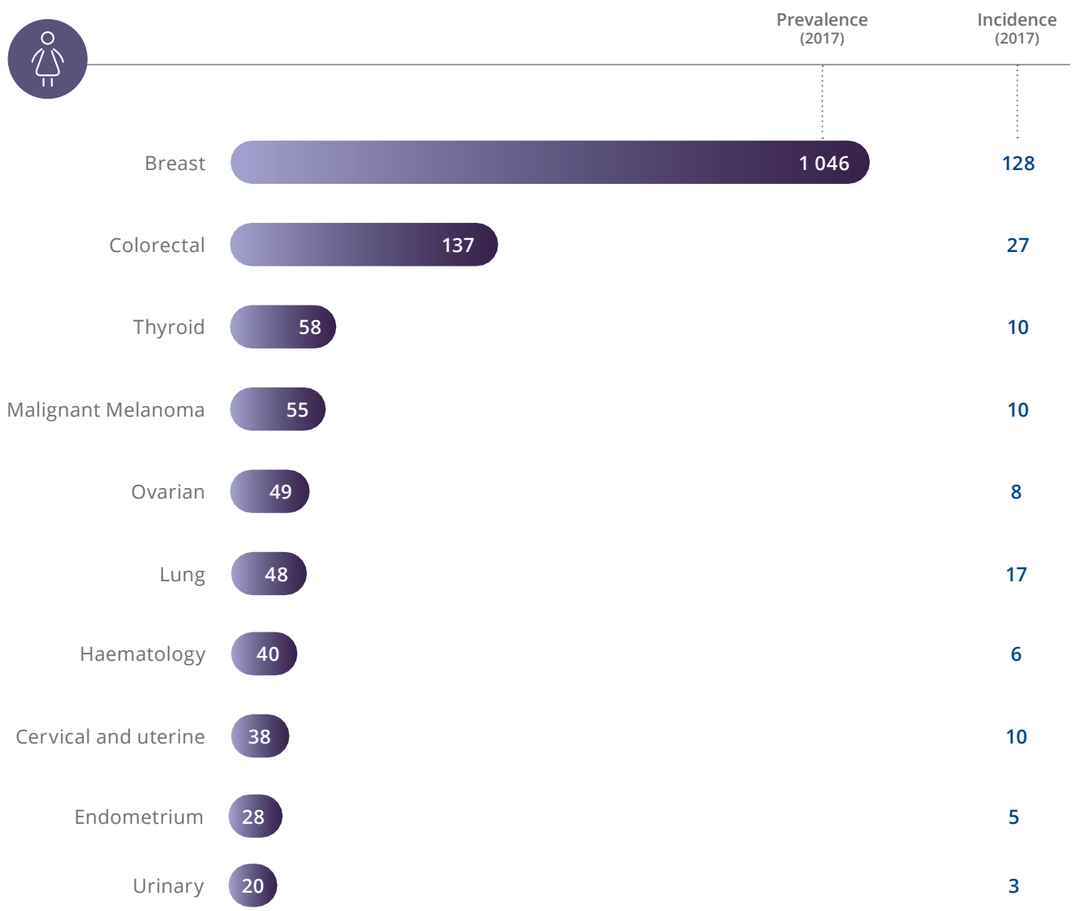
The top 10 cancers among children differ greatly from that of the adults with Leukaemia and brain tumours two of the leading types.

Prevalence refers to the number of children actively claiming for oncology treatment per 100 000 children on the Scheme (2017).
Incidence refers to the number of children with a new diagnosis of cancer per 100 000 children on the Scheme (2017).

Top 10 cancer types by prevalence – adult males



Top 10 cancer types by prevalence – adult females



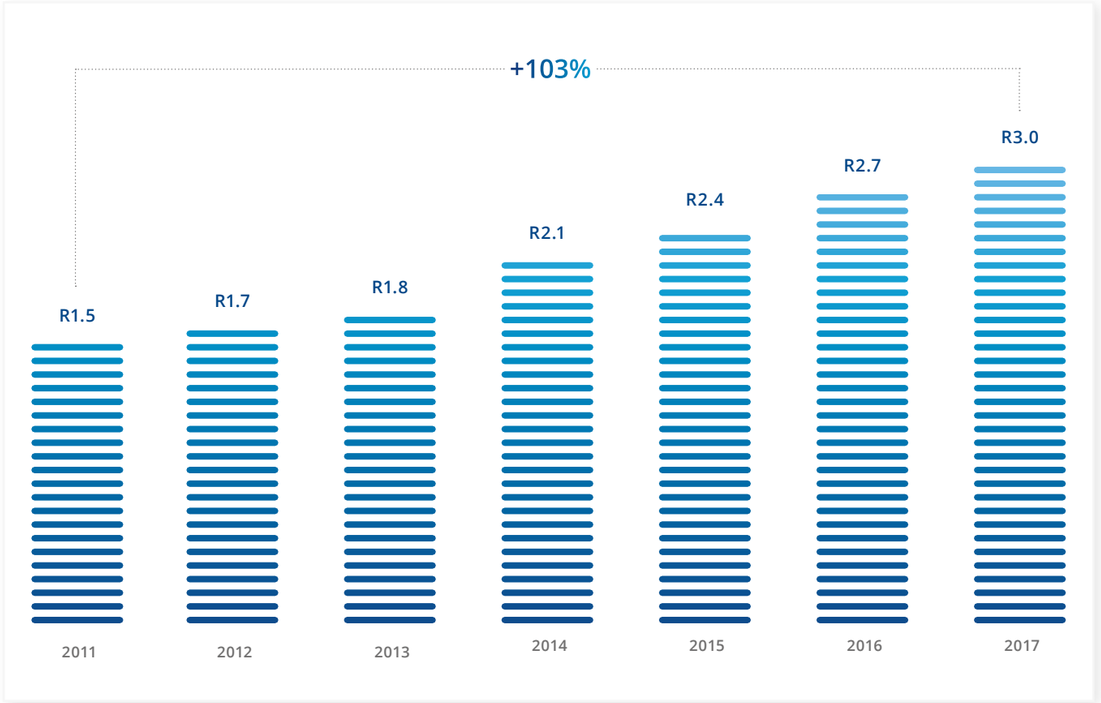
The most prevalent cancer in males is prostate cancer and in females is breast cancer. The second most prevalent across males and females is colorectal cancer. These types of cancer represent 58% of all types of cancers amongst adult men, and 65% amongst adult women.

Prevalence refers to the number of adult males, or adult females, actively claiming for oncology treatment per 100 000 adult males or females on the Scheme (2017).
Incidence refers to the number of adult males or adult females with a new diagnosis of cancer per 100 000 adult males or females on the Scheme (2017).

All figures as at 31 December 2017.

All of the oncology cost figures referred to in the following section include costs paid by the Scheme from the oncology benefit as well as costs related to hospital claims for the management of cancer.

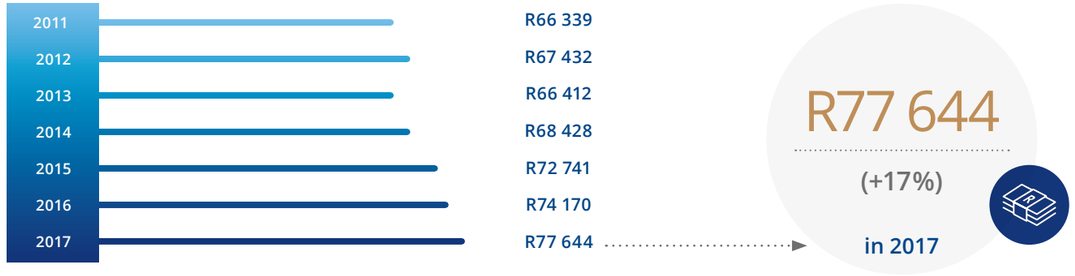
Total cost (in R'billions)



The total cost paid by the Scheme for oncology-related treatment has increased by 103% from 2011 to 2017, with a total of R3.0 billion in 2017. The increase is made up of a combination of factors including an increased prevalence of cancer as well as an increase in cost of cancer treatment, partly due to the introduction of new high-cost treatments.

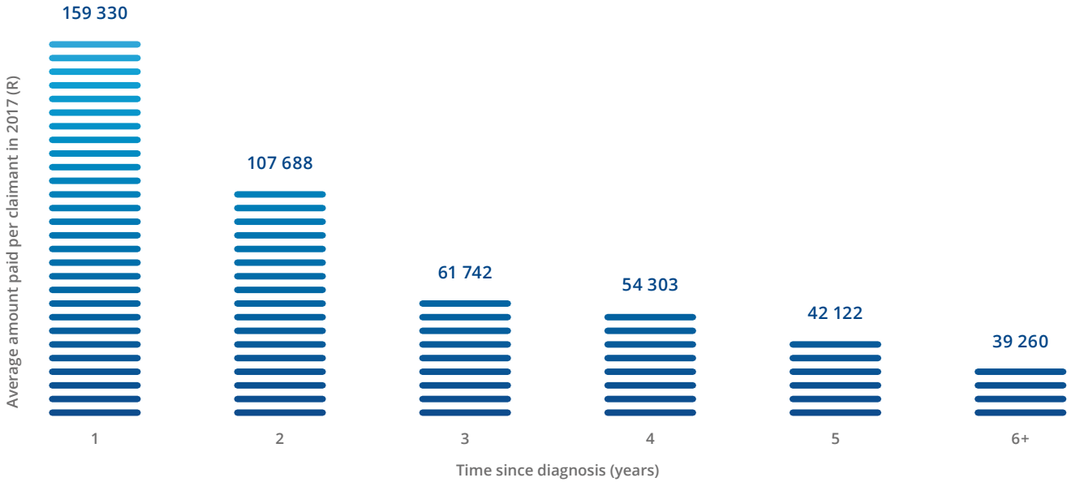
All figures as at 31 December 2017.

Average cost per cancer case



The average oncology cost per actively claiming member has increased by 17% since 2011 to a total of R77 644 per oncology claimant for 2017.

Cost by duration

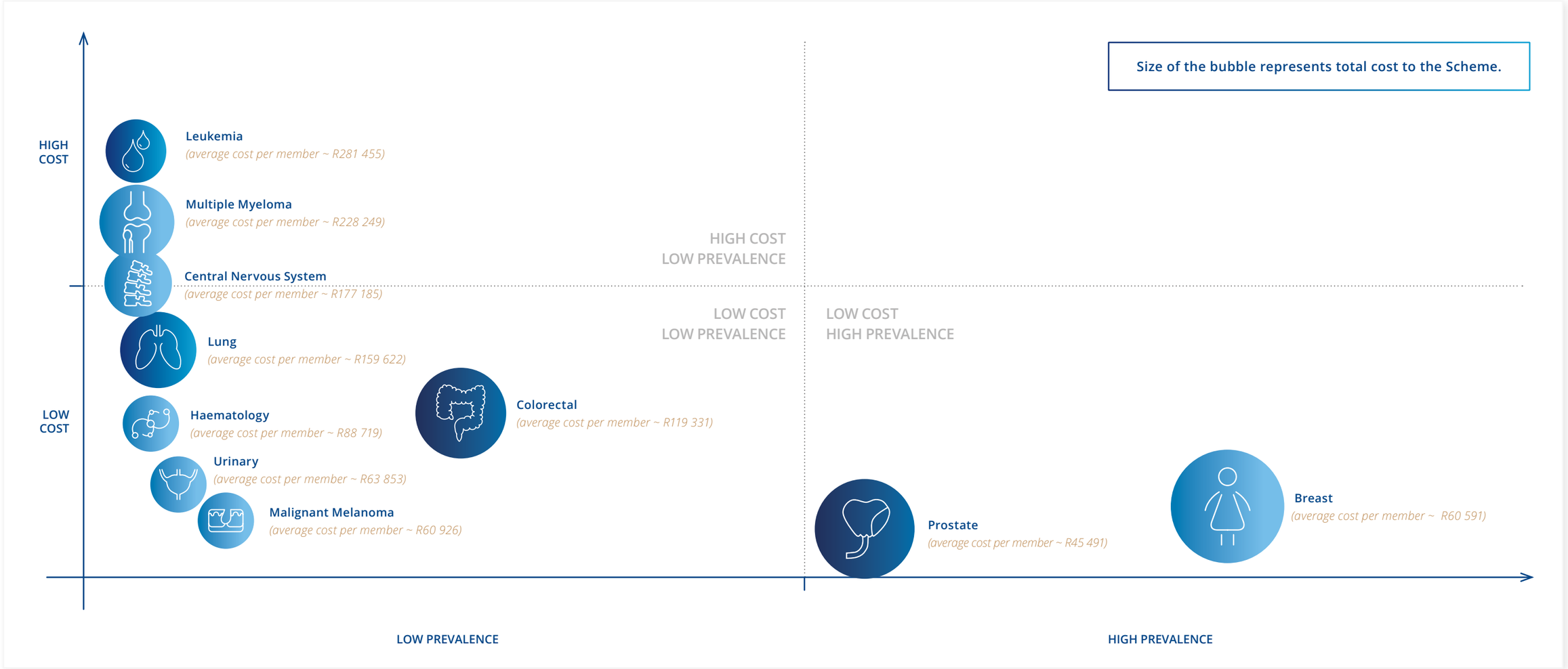


The above graph shows the 2017 oncology costs based on the time since a member's diagnosis. In other words, this graph shows the distribution of the average cost of R77 644 across the time since diagnosis.

The highest oncology cost the Scheme experiences is at the initial stages of a member's diagnosis.

Top 10 types of cancer by cost

The graph below illustrates the top 10 most costly cancers to the Scheme in terms of average cost and prevalence of the cancer.
The most costly cancers to the Scheme are prostate and breast cancer. Even though these cancers have a relatively low average cost, the prevalence is high and therefore they result in the largest cost to the Scheme.
Other cancers like Leukemia and Multiple Myeloma have a relatively low prevalence, but the treatment options for these cancers are expensive so the overall cost to the Scheme is large.



Breast cancer has been identified as the top cancer for women globally[1]. Multiple risk factors for breast cancer have been identified including family history, lifestyle and genetic predisposition.

Incidence

101

(-4%)

Prevalence

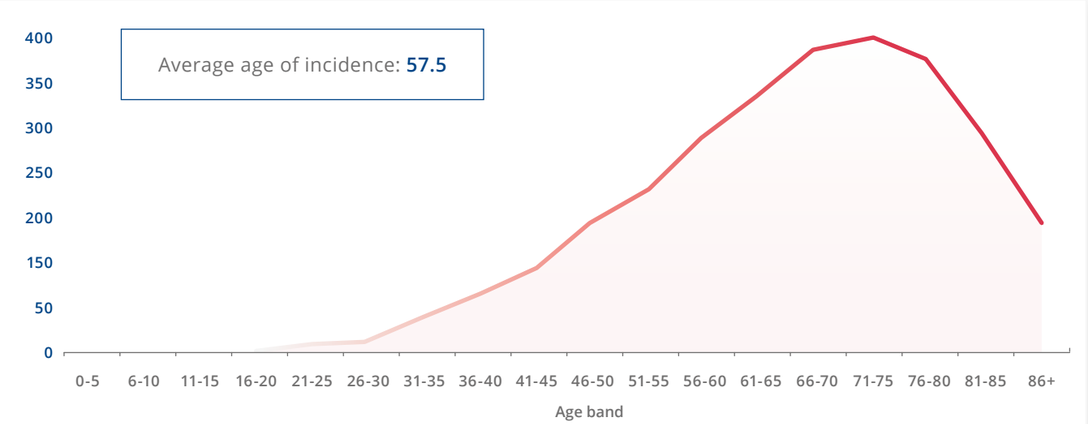
791

(+42%)

The number of DHMS members newly diagnosed with breast cancer each year has remained relatively stable since 2011.

The number of DHMS members receiving active treatment for breast cancer has increased significantly, though, as a result of earlier diagnosis, improving survival rates and members remaining on treatment for a longer period of time.

Incidence by age band

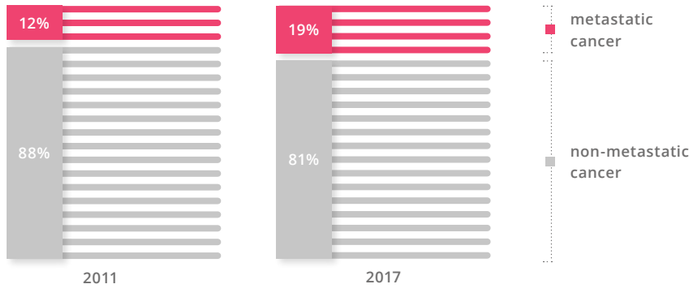


Incidence of breast cancer starts to increase significantly for women from age 40, with the average age of a member when diagnosed with breast cancer at 57.5 years old.

Once standardised for age, the incidence of breast cancer is slightly higher for DHMS females (94 new diagnoses per 100 000 female lives) than South African and global levels (82 and 87 per 100 000 female lives respectively).

[1] World Health Organisation's research titled 'GLOBOCAN 2012: Estimated Cancer Incidence, Mortality and Prevalence Worldwide in 2012'
All figures as at 31 December 2017.

Stage at diagnosis



Screenings

16 500

(+9%)

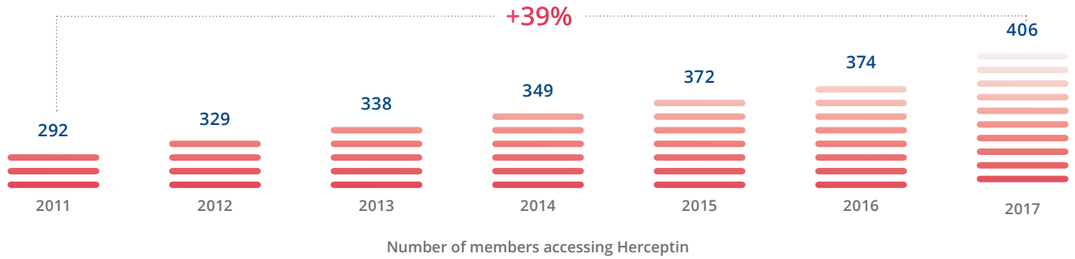
Over time, more members are being diagnosed with breast cancer that has metastasized, or spread, to distant parts of the body.

The number of breast cancer screening tests per 100 000 adult female lives (identified as adult females who have had a screening test in the past 2 years) has increased by 9% since 2011. The increase in metastatic cancer at diagnosis provides evidence of members still not screening, or members being diagnosed with more aggressive forms of breast cancer which are difficult to identify, even with more regular screening.

Members diagnosed with non-metastatic breast cancer in 2017 were far more likely to have regularly performed screening in prior years than those diagnosed with metastatic breast cancer.

Cost

The introduction of the biologic drug Herceptin® (used to treat breast cancer that is Human Epidermal growth factor Receptor 2-positive) has resulted in a considerable increase in the cost of breast cancer treatment. Since 2011, there has been a 39% increase in the number of members accessing this high cost treatment which has led to the overall cost of breast cancer treatment increasing by 90% over this period.



Number of members accessing Herceptin

To understand the cost impact of Herceptin, we compared the costs of the breast cancer treatment with and without Herceptin. A course of chemotherapy treatment for breast cancer without Herceptin costs approximately R39 000 whereas the cost of chemotherapy with Herceptin amounts to approximately R335 000 (nearly 10 times the cost). As the number of members accessing Herceptin increases, the cost of treating breast cancer will continue to increase.

Prostate cancer has been identified as the second most prevalent cancer for men globally[1]. Risk factors for prostate cancer include family history, age and race.

Incidence

115

(+13%)

Prevalence

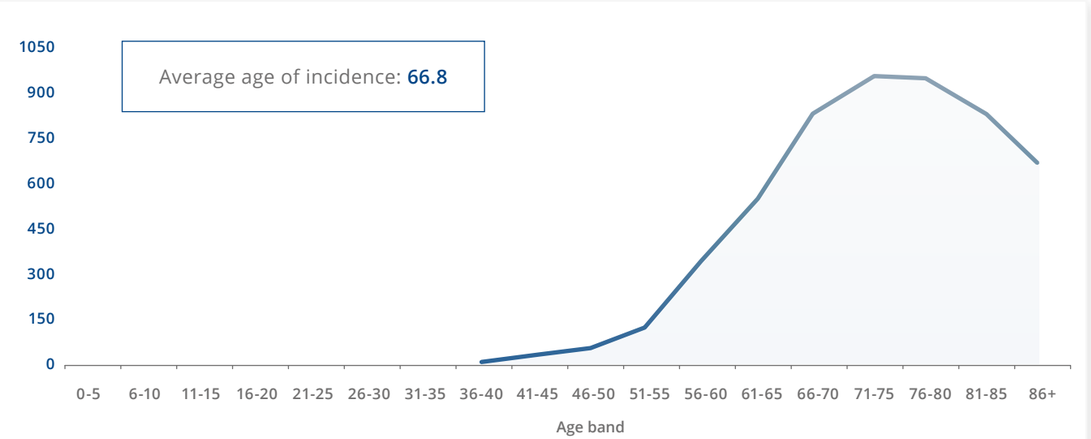
662

(+63%)

The number of members newly diagnosed with prostate cancer each year has increased by 13% since 2011.

The number of members actively treated for prostate cancer increased by 63% since 2011. This increase is a result of a number of compounding factors namely; an increase in prostate cancer diagnoses, increase in survival rates of men with prostate cancer as well as an increase in treatment duration.

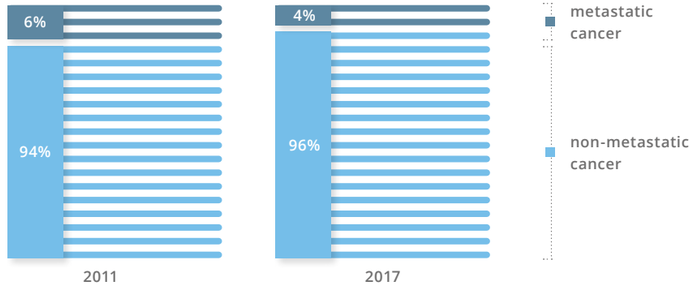
Incidence by age band



The average age of new diagnoses is relatively high at 66.8 years old. Incidence begins to become material at around 41 years old. Once standardised for age, the number of new prostate cancer diagnoses for DHMS (102 per 100 000 male lives) is lower than the South African rate of 137 per 100 000 male lives but still higher than the global rate of new diagnoses (61 per 100 000 male lives).

[1] World Health Organisation's research titled 'GLOBOCAN 2012: Estimated Cancer Incidence, Mortality and Prevalence Worldwide in 2012'
All figures as at 31 December 2017.

Stage at diagnosis



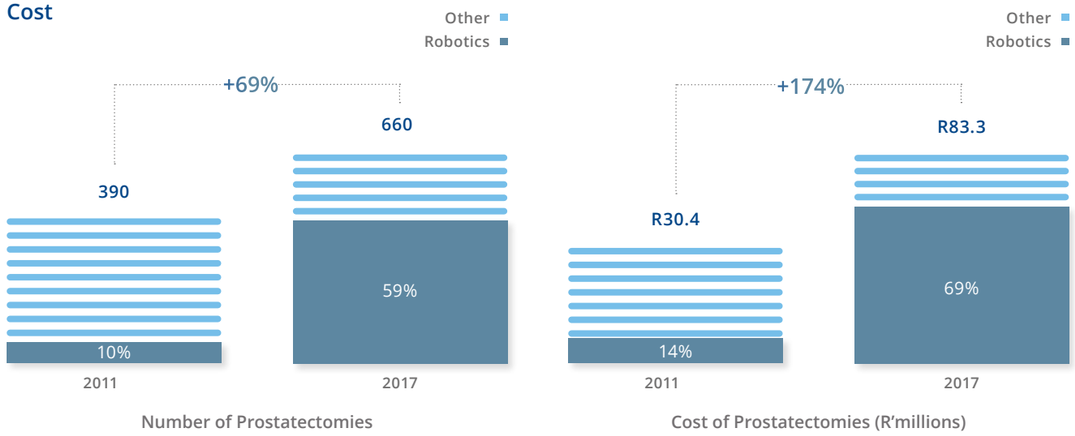
Screenings

16 561

(+17%)

The proportion of prostate cancer diagnoses where the cancer has metastasized or spread to distant parts of the body has remained relatively constant over the period. One of the reasons is increased screening which results in earlier diagnoses of prostate cancer. Since 2011, the number of prostate screenings per 100 000 adult male lives has increased by 17%. Members diagnosed with non-metastatic prostate cancer in 2017 were far more likely to have regularly performed screenings in prior years than those diagnosed with metastatic prostate cancer.

Cost



Historically, the mainstay of treatment for prostate cancer was a radical prostatectomy, which involves the removal of the prostate through an open surgical approach. Recent advances in technology have resulted in less invasive procedures such as brachytherapy and robotic surgery being prescribed more frequently. The overall number of prostatectomies performed has increased by 69%, and the proportion of these that are robotic has increased from 10% in 2011 to 59% in 2017.

The shift from open prostatectomy procedures to robotic prostatectomy procedures has led to a 174% increase in the total cost of such procedures for DHMS members between 2011 and 2017, an average annual increase of 18%.

Colorectal cancer falls in the top 2 cancers for both men and women globally[1]. Risk factors include obesity, physical inactivity and poor diet.

Incidence

36

(+14%)

Prevalence

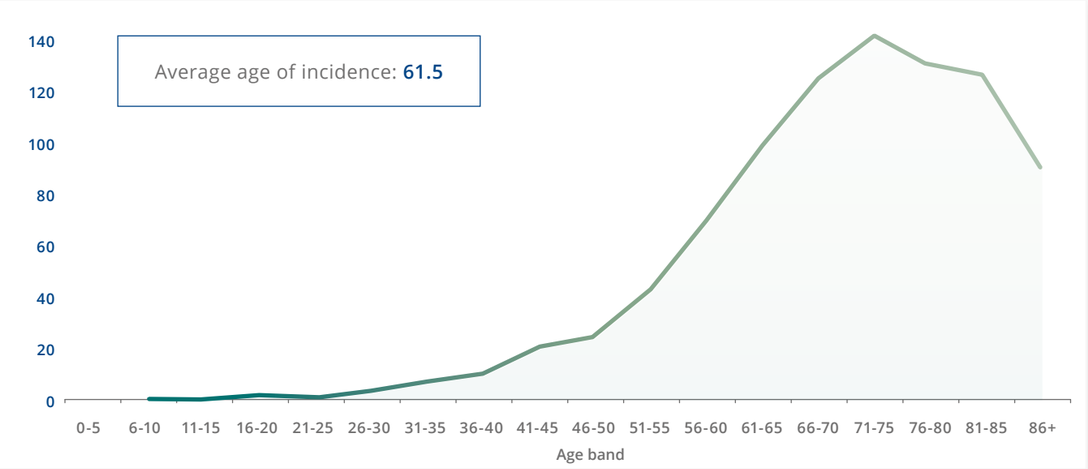
161

(+52%)

The number of members newly diagnosed with colorectal cancer each year increased by 14% across all DHMS adult lives since 2011, similar to the increase seen in prostate cancer.

The number of members receiving active treatment for colorectal cancer each year has increased significantly since 2011 as a result of multiple compounding factors namely: an increase in colorectal cancer diagnoses, increase in survival rates of adults with colorectal cancer as well as an increase in treatment duration.

Incidence by age band

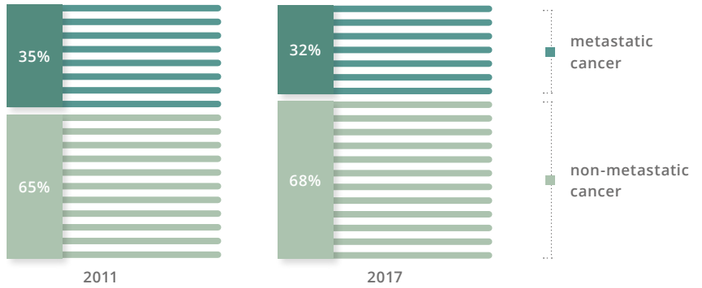


The incidence of colorectal cancer peaks between the ages of 76 and 80 years old, however there are members being diagnosed from as young as 16 years of age. The average age at diagnosis is much lower than that of prostate cancer members but older than that of breast cancer members. Once standardised for age, the colorectal diagnosis rate in DHMS (23 per 100 000 lives) is significantly higher than that of South Africa and the world (12 and 17 per 100 000 lives respectively). The DHMS rates are comparable to the diagnosis rates experienced in North America.

[1] World Health Organisation's research titled 'GLOBOCAN 2012: Estimated Cancer Incidence, Mortality and Prevalence Worldwide in 2012'

All figures as at 31 December 2017.

Stage at diagnosis



Screenings

2 305

(+26%)

The proportion of members diagnosed with metastatic colorectal cancer is significantly greater than for breast cancer and prostate cancer. The number of colorectal screenings is considerably lower per 100 000 members than screenings for breast or prostate cancer, and is performed relatively infrequently by members.

The number of colorectal screenings per 100 000 DHMS adult lives has increased by 26% since 2011.

Cost

The top 3 biological drugs used to treat colorectal cancer are Avastin, Erbitux and Stivarga which have costs exceeding R100 000 per patient per year. Avastin, for example, costs an average of R138 418 per patient for 2017.

It must be noted that these costs below are only for the drug itself however these drugs are commonly used in conjunction with other treatment and therefore the overall cost of colorectal cancer treatment is much higher.

Drug name	Total cost to scheme	Cost per claimant
Avastin	R22 562 066	R138 418
Erbitux	R16 004 111	R181 865
Stivarga	R3 412 999	R106 656

IN SUMMARY

In 2017, 7 597 Discovery Health Medical Scheme (DHMS) members were newly diagnosed with cancer and 38 295 DHMS members actively received treatment for cancer through the oncology benefit. This equates to 277 new cancer diagnoses during the year per 100 000 lives and 1 394 members actively receiving treatment per 100 000 lives, or 1.39% of lives.

The cancer incidence per 100 000 lives has increased by 10% from 2011 to 2017, primarily due to an ageing membership. The cancer incidence rate for DHMS is higher than for South Africa as a whole, and across the world. This is a reflection of adverse selection in the open medical scheme environment.

A higher number of cancer diagnoses is seen in older people, with the highest in the 76 – 80 year old age band (1 557 new diagnoses per 100 000 lives). Males experience a significantly higher number of new cancer diagnoses compared to females from 56 years of age.

Within DHMS, prostate cancer had the highest incidence for males in 2017, followed by colorectal cancer and lung cancer. Breast cancer had the highest incidence for females, followed by colorectal cancer and lung cancer.

The total cost paid by the Scheme for oncology-related treatment has increased by 103% from 2011 to 2017, with a total of R3.0 billion in 2017. The increase is driven by a combination of factors including an increased prevalence of cancer as well as an increase in cost of cancer treatment, partly due to the introduction of new high-cost treatments.

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