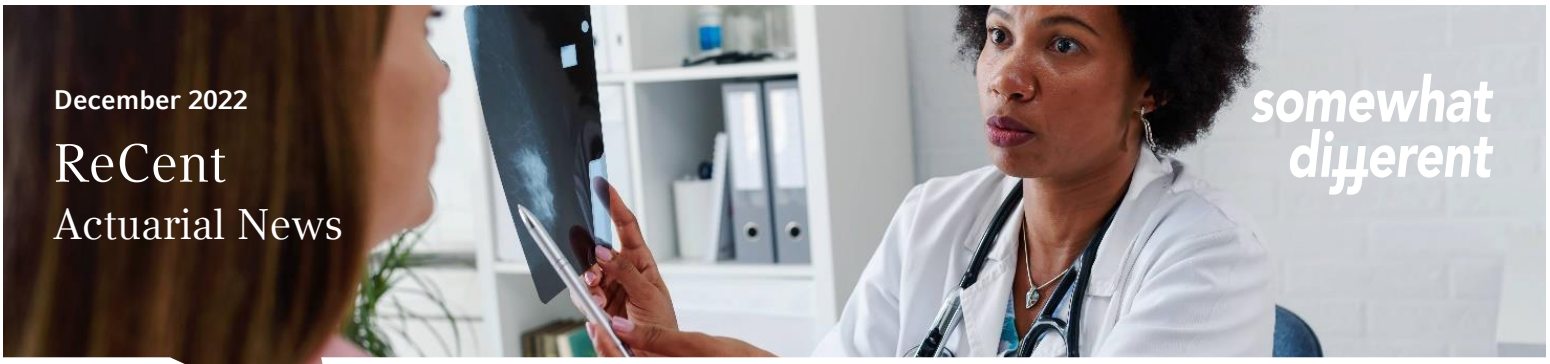
December 2022
ReCent
Actuarial News



Critical illness, a successful product in South Africa for more than 4 decades

Critical illness: pricing & trends over the last decade

Critical illness products were launched in South Africa nearly 40 years ago and have since been launched in markets across the globe. The product was developed with the intention of providing financial security for people who were previously dying from their illnesses but were now surviving due to advancements in treatments and going on to live with their illnesses. In this article we consider the trends observed from a South African perspective.

Over the past few decades the product has evolved due to the perceived need to expand product offerings and cater for more illness as well as different levels of severity of these conditions. Advancements in medical screening and diagnostic procedures have also significantly influenced the incidence of claims for various critical illnesses. Globally there are notable increases in many types of critical illnesses especially for certain types of cancers.

COVID-19 has had an influence on the claims experience observed over the last 2 years. Based on the available data, augmented with further research, it is evident that we need to incorporate this into the pricing, product development and underwriting.

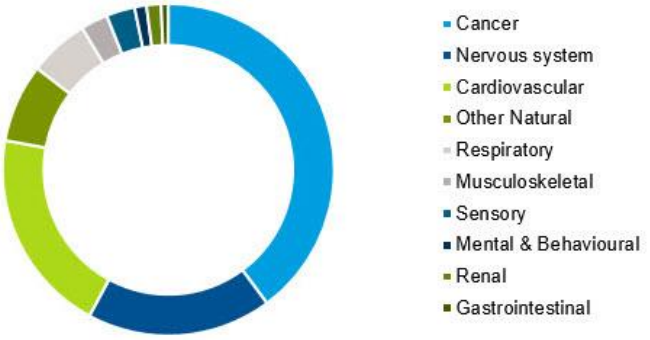
As a result of this, we created a Hannover Re standard comprehensive product offering for the South African market that covers up to 261 conditions, payable at different levels based on the severity of the disease. A corresponding critical illness basis was then derived based on the critical illness experience for insured lives in South Africa for the period 1st January 2012 to 30th September 2021. The aim of this was to create an up to date basis that accurately reflects the experience over the last decade and considers any trends looking forward. This study included 13,000 claims which provided sufficient data to model the major claim categories.

What are the biggest drivers of critical illness experience?

Even though the products have evolved to now include up to 261 conditions, the main causes of claims are still related to the conditions covered at inception of this product (cancer, heart attacks, strokes and coronary bypass surgery).

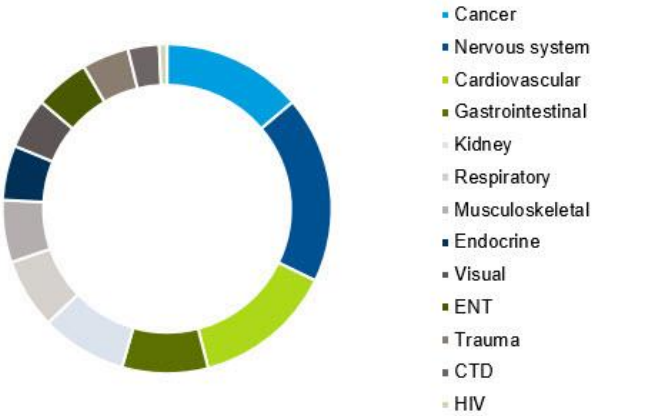
Cancer, cardiovascular and nervous system conditions account for approximately 76% of all claims paid.

Claims paid by condition



This is in contrast to the proportion that these conditions contribute to the full spectrum of illnesses for which HR provides cover (48%). This implies that more than half of the conditions now included in the product account for only roughly 25% of all claims paid.

Hannover Re product definitions by condition



hannover re®

Cancer

In the insured population, cancer accounts for around 39% of all critical illness claims. The most common types are:

- Gastrointestinal cancers which include colon, stomach, and oesophagal cancers. Colon cancer makes up 80% of GIT cancers
- Melanomas and other skin cancers
- Heamatological cancer which includes mainly non-hodgkins lymphoma and leukemia

According to The South African National Cancer Registry[1] the most common types of cancers are:

- Breast cancer
- Gastrointestinal cancer
- Prostate cancer

Globally, as per the WHO[2], cancer is a leading cause of death worldwide. The most common types of cancer (in terms of new cancer cases) are:

- Breast cancer
- Prostate cancer
- Colon and rectum cancer
- Stomach cancer
- Skin cancer
- Lung cancer

There is a significant difference in the breast and prostate cancer proportions observed in the South African / global population and the insured lives.

Cardiovascular

In the insured population, cardiovascular conditions then account for 19% of all critical illness claims. The largest contributors are:

- Heart attacks
- Coronary artery bypass graft
- Arrythmias
- Heart failure

Nervous system

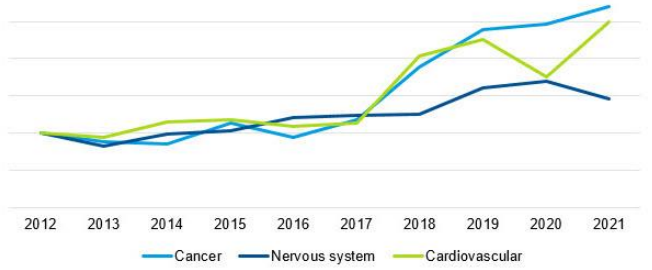
In the insured population, nervous system conditions account for a further 18% of all critical illness claims. The largest contributors being:

- Stroke
- Degenerative conditions

Trends – an analysis of the data and research

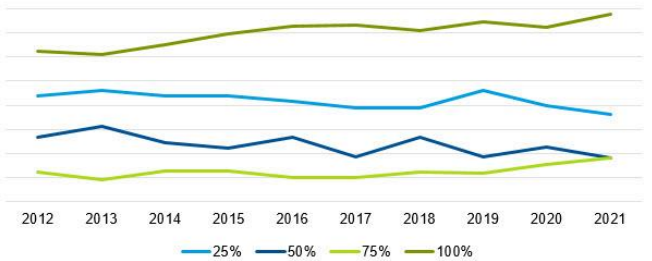
Having revised the Hannover Re critical illness pricing basis, an upward trend in claims over the study period was identified. This trend was analysed for each claim category and the graph shown below shows this trend is driven by cancer, cardiovascular and nervous system conditions.

Trends over calendar year



There was also a significant upward trend noted for respiratory conditions from 2020 onwards, however this is likely due to the misclassification of COVID-19 claims during that period. In order to understand the impact of earlier diagnosis on the incidence of claims, we analysed the claims by severity level.

Trends by severity level over calendar year



From the graph above, it is evident that an upward trend is seen for claims payable at higher severity levels which relate to the more severe conditions. This suggests that the impact of earlier diagnosis and screenings aren't the main driver of increasing trends in critical illness conditions.

A likely reason is that conditions with improved screening do not form a significant proportion of the claims (for example,

breast cancer is a small proportion of cancer claims in the insured population).

Cancer

Cancer is the biggest contributor to the increasing trend in critical illness (35% of the increase is due to cancer). Gastrointestinal cancers show the highest crude rates along with the highest increase over the years. Breast cancer, male reproductive cancers, and melanomas also show an increasing trend.

This is consistent with the research done for the population. Data obtained from The South African National Cancer Registry showed that breast, prostate, melanomas, gastrointestinal, haematological and respiratory cancers show significant increases for the general population. The largest increases are associated with melanomas and prostate cancers, accounting for an increase in over 40% in observed crude incidence rates[1].

Globally the incidence of cancer has increased and a number of different cancers contribute to this increase (female reproductive, male reproductive, melanoma, renal, haematological and respiratory). The largest increases are associated with melanomas and renal cancers, accounting for an increase in over 20% in observed crude incidence rates[2].

Potential reasons for increasing cancer incidences could be due to:

- Increased cancer control initiatives, especially screening for breast and prostate cancer, as both these cancers are earmarked as priorities in both public and private sectors
- Possible increased awareness of mole detection and monitoring (mole mapping) in the case of melanomas.

The South African Journal of Oncology[3] shows the incidence of all cancers included in their modelling is increasing over time. These forecasts indicate that the incidence will double over the modelling period (2019 – 2030). The main drivers of the increases are associated with non-Hodgkin's and prostate cancers.

The paper states the reasons for this are demographic and epidemiological. As there is a strong correlation between cancer and age, an ageing population is a driver of the increase. Environmental and dietary factors also play a role. This is an increasing phenomenon in global markets as well.

Cardiovascular

Data collection related to cardiovascular conditions is scarce in South Africa, however based on the available research, a slight downward trend is observed for overall cardiovascular disease[4]. Further research depicts a downward trend in heart attacks, with a corresponding increase in arrhythmias and heart failures being observed[5]. The research is very similar to what is seen in the experience of the insured population.

Nervous system

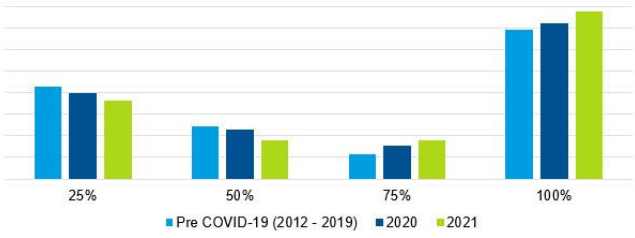
Data collection related to nervous system conditions is also scarce in South Africa. Based on the available research, an upward trend is observed in stroke incidence rates[6]. This is in line with the experience in the insured population.

COVID-19 considerations

The analysis of critical illness claims experience has shown some notable changes following the pandemic. There is a drop in the claims observed in 2020 after which the claims start to increase again. Conditions that were undetected in 2020 due to less testing/diagnoses as a result of COVID-19 lockdown levels could have progressed to higher claim severity levels in the following years.

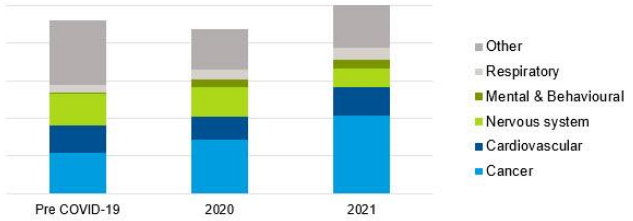
The reduction of cardiovascular events in 2020 with the subsequent increase in 2021 is an example of this. We have also seen a significant increase in cancer claims in 2021 (this increase is far more significant than the increases we were seeing pre COVID-19).

Severity level by period



An analysis of the claims paid at different severity levels confirms that the proportion of claims paid at higher severity levels increased significantly in 2021 especially for cancer.

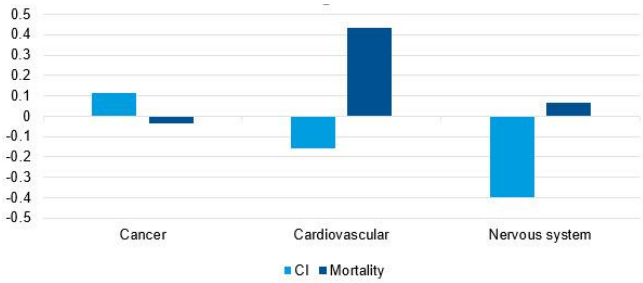
Claims amounts by period



The change in the claims profile of critical illness products have also had an impact on mortality products. The graph below shows the relative change in claim causes pre and post COVID-19 across both critical illness and mortality products.

The impact of late diagnosis of cardiovascular events and the subsequent increase in higher severity claims has resulted in a significant increase in cardiovascular death claims.

Claim impacts by line of business



There is a lot of research relating to the long-term impacts of COVID-19 on morbidity products. Some of these stats are detailed below:

- Individuals that have contracted COVID-19 are at an increased risk for heart failure. Studies show a 72% increase in chances of heart failure due to long COVID-19[7]. In the insured population, heart failure depicts an upward trend especially in 2021. This may be due to COVID-19 which according to the research can increase the chance of heart failure.
- Long COVID-19 symptoms may also translate to an increased risk in strokes. Individuals who have contracted COVID-19 are 52% more likely to experience a stroke in the medium to long term[7].
- Individuals who have contracted COVID-19 are at increased risk to respiratory disorders as well. Studies show a 30% increase in chances of respiratory related conditions due to long COVID-19[8].

Both the immediate and long-term impact of COVID-19 needs to be taken into account for all future pricing.

The way forward

There is a clear upward trend observed in our insured experience and we need to ensure that we accurately account for future trends in critical illness pricing.

We have also noted variability in the experience due to the immediate and longer-term impact of COVID-19. Research has shown there is a long-term impact of COVID-19 on some of the major causes of claims (heart, stroke, respiratory conditions and mental & behavioural conditions).

Due to the uncertainties around these areas we will regularly be monitoring the experience to adjust the critical illness pricing basis. This will involve ongoing research that will be done in collaboration with our medical team.

As we have access to a significant volume of critical illness data we will regularly analyse the data in order to identify trends and adjust the pricing bases to reflect this.

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