

Impact of COVID-19 in South Africa – Mortality and Life Insurance

Introduction

The Actuarial Society of South Africa (ASSA) has formed the COVID-19 Task Team to consolidate the learnings from the pandemic and enhance preparedness for future pandemics. In this article we review the large impact of COVID-19 on mortality and life insurance in South Africa.

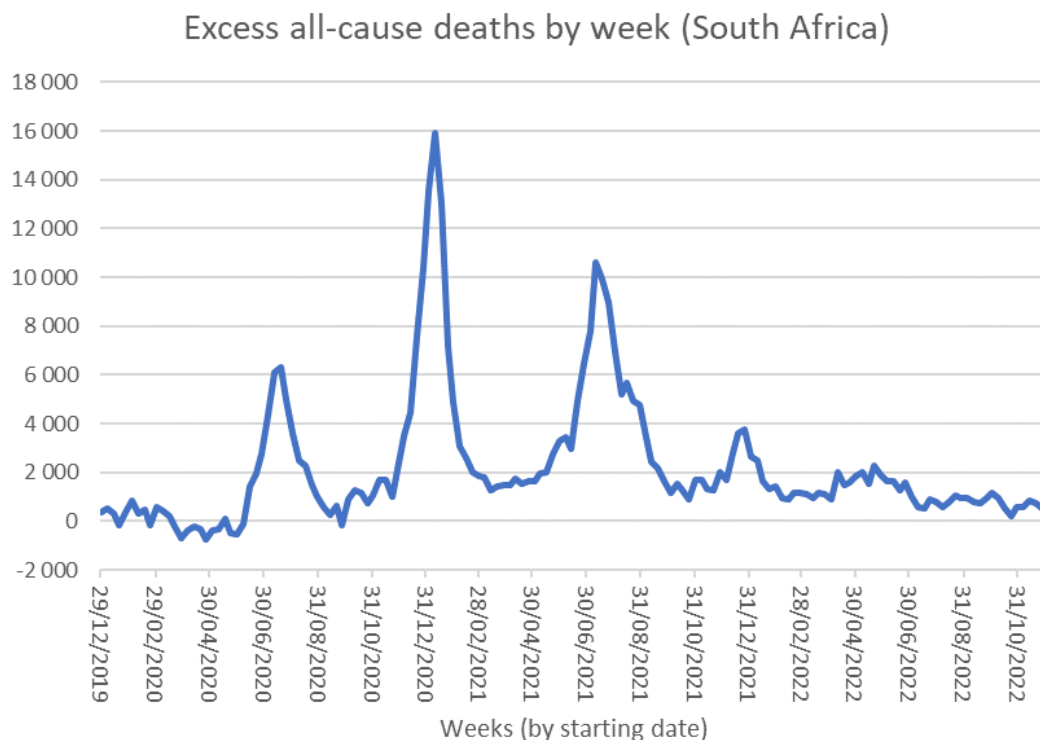
We delve into the impacts on South African mortality, life insurance and other risks covered by life insurers. We then look at how the life insurance industry and actuaries responded, including risk mitigations. We then discuss potential future impacts of COVID-19. We close the document by sharing some of the initiatives being undertaken by the Actuarial Society to ensure that actuaries contribute to future / long-term / public interest.

Impact of COVID-19 on mortality in South Africa

COVID-19 has significantly impacted South African mortality. The National Institute for Communicable Diseases (NICD) reports a [total of 104,154 COVID-19 deaths to 29 July 2022](#). This in itself represents a large loss of life, [however mortality experts, including actuaries](#), identified that COVID-19 deaths were underreported, especially in developing countries like South Africa (See below).

Researchers under the South African Medical Research Council have developed a reporting framework around the South African death registration system. The researchers developed a predicted number of deaths based on registration pre-COVID-19 and then compared actual death reporting during the pandemic.

In their [latest report at time of writing](#) (up to 2 January 2023), they estimate that there has been a total of 341,123 excess natural deaths. These excess deaths are the difference between actual deaths due to natural causes reported since the start of the pandemic and the deaths due to natural causes that would have been expected. This represents in excess of 0.5% of the South African population, or 573 per 100,000 people in South Africa. The expected number of deaths (from all causes) is usually approximately 500,000 per year in South Africa. Below we plot these deaths by week.



One can see the large numbers of excess deaths during the waves. The deaths were highly correlated with the waves of COVID-19 cases. In South Africa, detailed cause of death information is not published quickly as in many developed countries. Our latest cause of death data is for 2017, so it is not possible to definitively estimate the proportion of deaths due to COVID-19. However, [in a separate analysis](#), the researchers conclude:

At both national and provincial levels, relative excess mortality (the p-score) rises and falls with a slight lag following the reported proportions testing positive. This and the close temporal correspondence between the confirmed COVID-19 deaths to the numbers of excess deaths for much of the epidemic, suggests strongly that the majority of the excess deaths from natural causes that have been identified in the country (probably 85%-95% of the excess deaths depending on extent to which the data used are missing deaths yet to be reported) are due to COVID-19.

There are also periods of negative excess deaths in the above chart. The researchers concluded that during restrictions of the sale of alcohol and curfews, unnatural deaths decreased to levels below expected. The stated goal of these restrictions is to increase hospital capacity by reducing the admissions related to alcohol abuse. It seems likely that these resulted in reductions in admissions given that the number of deaths reduced.

As the severity of more recent waves have decreased in terms of cases, hospitalisation and reported deaths it might be that the weighting in more recent waves may be shifting to other conditions. For example, early in the pandemic [rates of initiation of antiretroviral therapy for HIV/AIDS decreased](#), potentially leading to higher mortality over the coming years for those who initiated later and hence may impact mortality in the longer term.



More research is needed to establish:

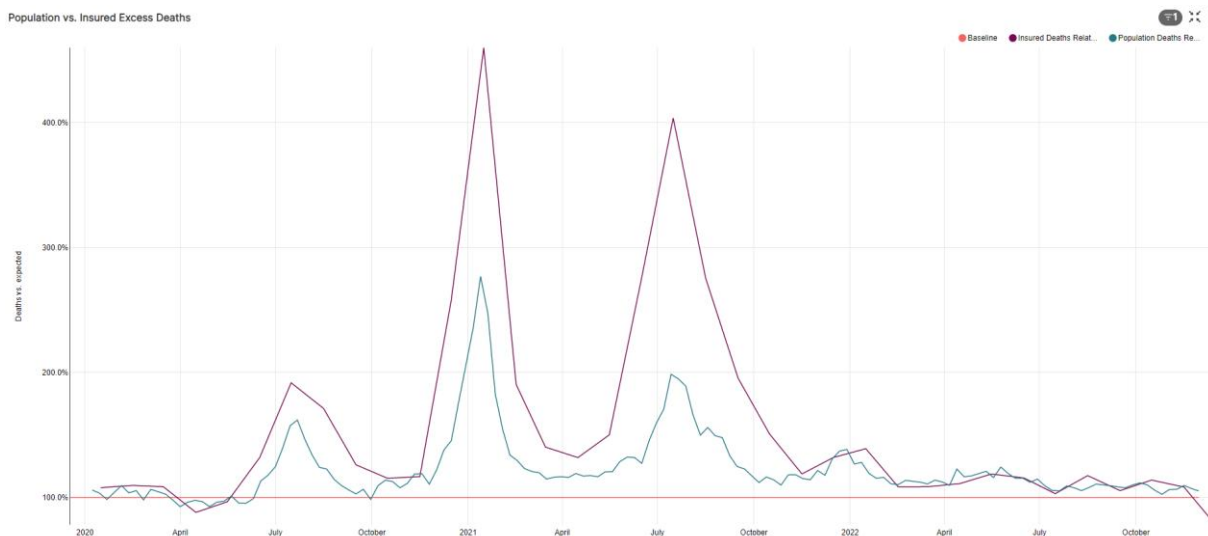
- How accurate the base line is given that it's based on data up to 2019.
- How much of the recent excess deaths is due to other causes.
- How much of the past excess deaths are directly attributable to COVID-19.

Research into (b) and (c) is hampered by the delayed release of cause of death data by Stats SA.

Impact on mortality of insured lives

The Society's Continuous Statistical Investigation Committee analyses mortality for underwritten risk products. When the pandemic started life insurers were asked to provide monthly data sets to enable the Committee to perform quick analyses to provide the industry with [up-to-date information](#) as the pandemic unfolded in South Africa. This work continues and [is available here](#) (after free registration). The life insurance industry observed significant excess mortality, leading to significant losses over 2020 and 2021.

The chart below illustrates these excess claims and shows that in the worst months (January and July 2021) the industry incurred over 4 times the number of claims that it would usually incur. Thus in two months of 2021 the industry incurred the equivalent of more than 8 months of claims. The other months of 2021 were also raised.



The chart shows that levels of claims are closer to normal levels during 2022 but it should be noted that this report does not allow for late reported claims, and hence, the more recent months can still deteriorate.

Analysis presented at the [ASSA 2022 convention](#) showed that the rate of excess mortality was lower for insured lives than the population. However, as the above graph shows, on a relative basis it is higher for insured lives because of the underlying mortality for insured lives being much lower than that of the population. The above only includes experience on fully underwritten new generation products. Data on other products (such as funeral, older generation products, group life) has not been centrally collected, though actuaries working in this field



indicate similar high excess deaths for these products. Less data has been collected about other risks covered by life insurers, like disability (income and lump sum), critical illness and hospital cash type business.

Disability income

- There was a significant increase in claims in short waiting period products due to large numbers of people getting booked off for exposure to- and/or infection from COVID-19, particularly in the medical occupations.
- Increases in incidence of other products with longer waiting periods is to be expected.
- There may be increased cessation of disability claims where claimants have died.
- Some lower-than-expected incidence may have occurred on these products as fewer people may have sought medical diagnosis to qualify for a claim.

Disability lump sum

These products either have long waiting periods or require the disability to be significant or permanent. These products are unlikely to be affected significantly by COVID-19.

Critical Illness

There was possibly slightly better than expected experience during the pandemic as fewer people sought medical diagnoses that would qualify for claims. Increased claims may be observed going forward as these diseases get diagnosed (and may be more severe).

Societal Responses

During the COVID-19 pandemic before the arrival of vaccinations, societies attempted to reduce the spread of the pandemic. The initial responses in cities in China were to “lockdown” and require people to stay at home as much as possible. Social distancing, reduced size gatherings and mask wearing were other typical responses. In South Africa, restrictions on the sale of alcohol and curfews were also imposed.

These measures were linked to a reduction in the spread of the disease, [even in South Africa](#), but it's also clear that these measures were less effective in South Africa compared to developed countries. South Africa experienced a significant 1st wave of deaths during the strictest lockdown periods. It is not clear which measures had more of an effect to curb the spread of the virus.

Actuaries have modelled the impacts in South Africa and have shown the benefits of reduced transmissions and reduced mortality correlated with reduced mobility. There was also the risk of the collapse of the healthcare system under a severe pandemic wave that had been largely avoided.

The question remains: What would have happened in South Africa with different (or without) these measures? Even taking the above into account, it's difficult to predict what would have happened under different circumstances. The economic consequences are also hard to study, as it's difficult to know what the economic consequences were due to the lockdowns but also what the economic consequences of uncontrolled rapid spread of COVID-19 may have been. These will continue to be interesting fields of study.



Many developed countries had earlier access to vaccines, in particular, before the wave associated with the Delta variant. South Africa had only initiated population level roll-out during this wave (third wave in South Africa). The levels of excess deaths were significant during this wave, as opposed to much lower levels of deaths in the well vaccinated countries (despite many having older populations). Studies on how further deaths could be avoided would be valuable as well as monitoring for any adverse effects the vaccines may have.

Response of Actuarial Professional Bodies

The Society created a team of actuaries (mainly from the health practice area) early on in the pandemic. This team looked at various aspects:

- The team developed a [series of models](#) that were shared together with other available models. The assumptions underlying these models turned out to be optimistic (in terms of deaths projected) compared to the ultimate outcomes observed. The models were still useful as they allowed for modelling the uncertainty in parameter assumptions which facilitated scenario testing.
- The team also shared information bulletins and articles to help update the profession in a timely manner.

The Institute and Faculty of Actuaries (the UK actuarial body) established the [COVID-19 Action Taskforce \(ICAT\)](#) that also published lots of material on the potential impacts of COVID-19 on actuarial practice areas. The UK body also established the more informal [COVID-19 Actuaries Response Group](#). The thinking was to establish a smaller team of actuaries that could provide actuarial thought leadership in a rapidly evolving world by operating more independently, enabling quicker responses to a very dynamically unfolding situation.

Response of life insurers

Life insurers responded relatively well to the COVID-19 pandemic:

- Life insurers paid significant volumes of claims (shown above, [and per ASISA statistics](#)).
- Life insurers adapted their claims processes to manage the high volume. In addition to that, underwriting criteria and product designs for new products were adjusted. These underwriting and product design adjustments were made to ensure the products remained sustainable and affordable, but these can only be done for new policies.
- Pricing for some products were updated to reflect the increased risks associated with the pandemic. Group life cover required quick decision making and large price increases.
- Actuaries at life insurers had to monitor financial implications of the evolving pandemic under significant uncertainty and derive assumptions and projections with significant implications in short time periods.
- Various life insurers also offered differentiated terms of cover for applicants who presented [proof of vaccination](#). This shifted over the course of the pandemic with some insurers identifying the elderly or heavily impaired lives and/or policies with larger sums assured as representing bigger risk.
- The Society's COVID-19 Task Team have surveyed actuaries working at life insurers to gain a deeper understanding of the various responses and actions of life insurers.



Future mortality and morbidity impacts

Generally, the profession is predicting a changed mortality and morbidity landscape going forward. We list some of the research areas below:

- COVID-19 is expected to continue to impact mortality as it shifts to an endemic disease. The size of this impact remains uncertain but is hoped to reduce over time.
- Delayed diagnosis and treatment of other conditions such as cancer, HIV/AIDS, tuberculosis, and other chronic diseases, is expected to impact mortality.
- The economic impact of COVID-19 is expected impact mortality and disability experience going forward.
- There may be some beneficial impacts such as medical technology advances due to COVID-19 that could have benefits in other areas of treatment. This is expected to take longer to emerge.
- Due to the impact of COVID-19 we expect some deaths that would have occurred in the coming years to have been accelerated and thus we may see some reduced mortality in the short-term. Early estimates indicate that these impacts are likely to be only observable in the very old and severely impaired lives.

Beyond COVID-19

COVID-19 has had a large impact on society at large and the life insurance industry. Considering this, society needs to rethink what the implications of this may be and what needs to be done.

The assumptions about the incidence and severity of future pandemics need to be rethought and recalibrated, particularly relating to capital and solvency regimes. Especially considering the significant burden of deaths observed in developing countries relative to developed countries.

At a societal level there does appear to be a need for better planning as well as independence from global supply chains of medical and pharmaceutical products. The delay in vaccination in many developing countries resulted in significant loss of life that may have been avoided.

The tracking of data and in particular death registration had been a great benefit to South Africans. Death registration and near real-time modelling of excess deaths proved beneficial for understanding of COVID-19 in South Africa. More rapid processing and/or release of cause of death statistics may also increase responsiveness in future.

The role of actuaries

Actuaries should have a significant role to play as these questions need to be addressed by life insurers, pension funds, medical aids, and in other practice areas where actuarial skills are traditionally used.

However, we also think the actuaries can have a role to play at a societal level to help society make better sense of a future that has become more uncertain than before.



The full report was initially published in March 2023. The ASSA COVID-19 Task Team membership at the date of publication included: Adam Lowe (lead – healthcare workstream), Alex Brownlee, Barry Childs, Claiton Manikai (chair), Karsten Roux (lead – life workstream), Louis Rossouw (vice chair), Michael Davies, Pamela Hellig, Paresh Prema, Phumla Tsematse (secretariat), Roseanne Harris, Sarika Besesar, Siebert Benade (lead – market conduct workstream), Simon Henderson, Thandanani Mbhele, Zandile Gobe (secretariat) and Zane Heyl

