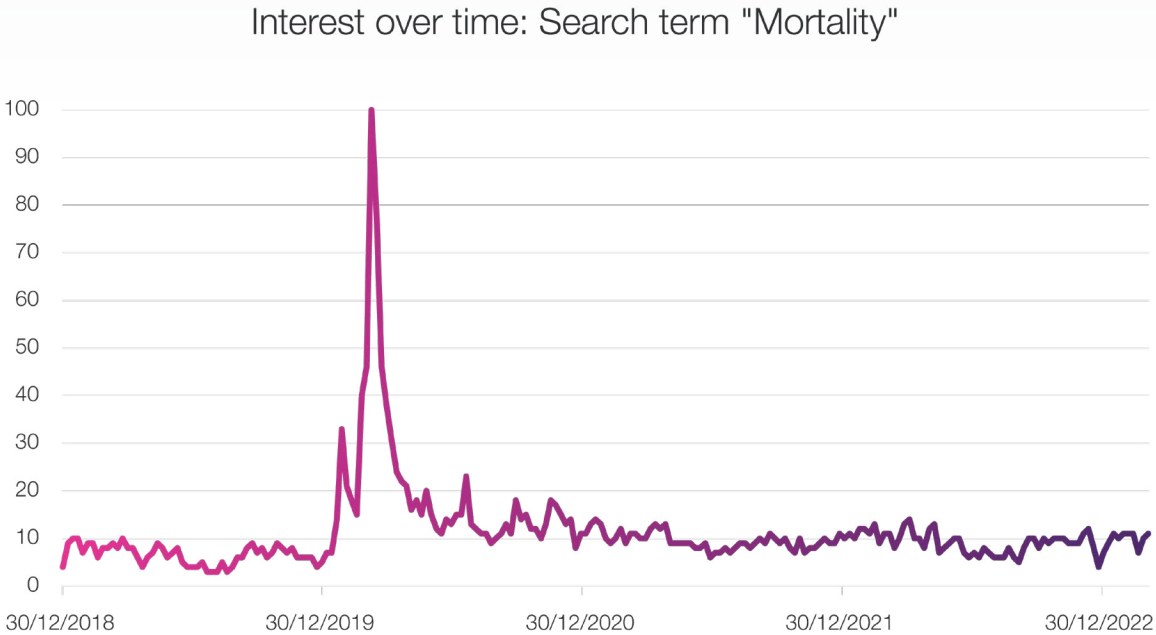


A review of  
**Canadian mortality**  
since the global  
pandemic.

Before the start of the global pandemic, heated discussions on mortality risk usually took place in very specific situations, and usually only between actuaries and demographers. Then in early 2020, everything changed. Mortality risk was suddenly front and centre in the news and in discussions with friends and family.

As the pandemic progressed, we were bombarded every day with statistics and analysis. This chart from Google Trends shows interest in the search term “Mortality” peaked in March 2020. Interest after the pandemic seems to have settled at a higher rate than before the pandemic so, like many of the behavioural changes we have seen in recent years, a fascination with the subject may be part of the ‘new normal’.



Data source: Google Trends (<https://www.google.com/trends>).

All that said, like most other special events general curiosity eventually faded. The pandemic progressed through the Greek alphabet, our scientists worked miracles to produce effective vaccines and public health restrictions were lifted.

Many might interpret the lack of reporting on mortality experience in Canada to mean that everything is now ‘back to normal’. Unfortunately, that isn’t the case.

# What does the data tell us?

The chart below compares the number of weekly deaths in Canada from 2020 to 2022 with the number of deaths that might have been expected had the pandemic never happened.

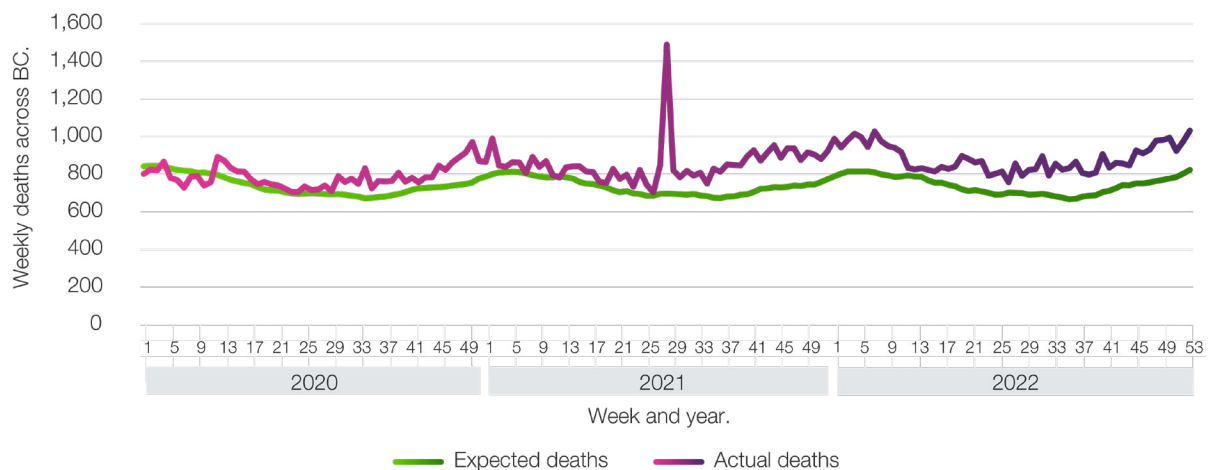


A key takeaway from this analysis is that mortality experience in 2021 and 2022 was actually worse than 2020.

In 2020 deaths were **5.7% higher** than expected. In 2021 and 2022 deaths were **7.4% and 12.5% higher** respectively.

It's very important to highlight that not all of this bad news story can be directly attributed to deaths from COVID-19. There will likely have been many indirect effects such as the impact of delays in receiving medical diagnoses. 2021 saw a record number of accidental poisonings (including drug overdoses). 2021 also saw one of the largest weather-related mortality events in Canada's history in BC. A similar chart of actual vs expected mortality is shown below for BC. The spike in the middle of 2021 is related directly to the heat dome where over 600 heat-related deaths occurred in one week at the end of June.

Actual vs expected deaths - BC.



Data source: Statistics Canada. Table 13-10-0792-01 Provisional weekly estimates of the number of deaths, expected number of deaths and excess mortality, by age group and sex

It's clear from this analysis that while the headline reporting might have gone away, the story has not.





## What does this mean for pension and benefit plans?



### Takeaway 1:

Establish a pre-pandemic baseline mortality and understand the impact of recent experience on your plan(s).

We have shown Canada-wide and province specific statistics above, but looking behind the numbers there is a massive variation between geographies, age groups, genders and socio-economic groups. On average the impact appears to have been more muted for individuals participating in pension and benefit plans, but we need to be very careful not to generalize this as every plan has been affected differently. It is important to look at mortality experience up to the end of 2019 to provide a pre-pandemic baseline, and also to look at recent experience to understand how it has impacted a particular population.



## Takeaway 2:

The past appears to be a less useful guide to the future. Conduct stress and scenario testing to understand the potential impact of different outcomes.

Understanding historic experience is the ‘easy bit’. The harder task is to analyze how we expect this to impact mortality and life expectancy in the future. Even with three years of data in hand, the true answer is that we don’t yet know how this will impact life expectancy in the long-term. There remain plausible scenarios where improvements in life expectancy slow down (long COVID, fallout from the economic impact of the pandemic) and plausible scenarios where improvements in life expectancy accelerate (reversion to long-term trend, medical advances, better health for survivors).

Pension and benefit plans (and their actuaries) should recognise this new level of uncertainty and incorporate it into their risk monitoring policies and decision-making processes. Stress and scenario testing on a deterministic or stochastic basis can help plans understand their exposure to this risk which allows them to make informed decisions about how to manage it.

This uncertainty not only affects pension and benefit plans. Insurers and reinsurers in Canada and around the world face a similar level of uncertainty which will also create risks and opportunities when considering bulk annuities and longevity hedging solutions.

“Le doute n'est pas un état bien agréable, mais l'assurance est un état ridicule”

“Doubt is not a pleasant condition, but certainty is an absurd one”

- Voltaire







### Takeaway 3:

Be ready for more discussions on mortality and take action now to reduce the likelihood of surprises.

While all of this is going on the Canadian Institute of Actuaries has two live projects related to mortality which may have an impact on pension and benefit plans. One project aims to update the assumptions used by Canadian actuaries (in pension and insurance) for future mortality improvements. The other project aims to update the mortality base tables used by Canadian pension plans.

These are both complicated projects and the timelines are uncertain. Your actuary will keep you updated on the latest developments as they are announced. Fortunately, those plans that embrace the first two takeaways can get 'ahead of the game'.

Plans that have undertaken plan specific mortality experience studies will have established their own base mortality adjustments, and so the new mortality tables should not have any material impact on their plan liabilities. Their release will at most trigger a relabelling from the old table to the new table, with any adjustment factor being the balancing item. Also, for plans that have undertaken mortality stress and scenario testing in a robust way, the new mortality improvement scale will likely fall within the ranges considered and so they will quickly have an understanding of the potential impact.





## Conclusions

There is, and will be, lots more to discuss on mortality and life expectancy in the coming years. Decision makers should start to educate themselves on the topic, or continue to develop their understanding. This will ensure they are in a good place to make informed decisions about the impact of future changes in actual experience and future actuarial assumptions. The takeaways noted above should provide a useful starting point for those discussions.

**Murray Wright, FFA, ACIA**

Associate Partner and Head of Demographic Risk  
TELUS Health