

A new era for longevity

Insights to tailor your journey

LCP longevity report 2023

Part of LCP's 'Chart your own course' series



Welcome to LCP's latest Longevity Report

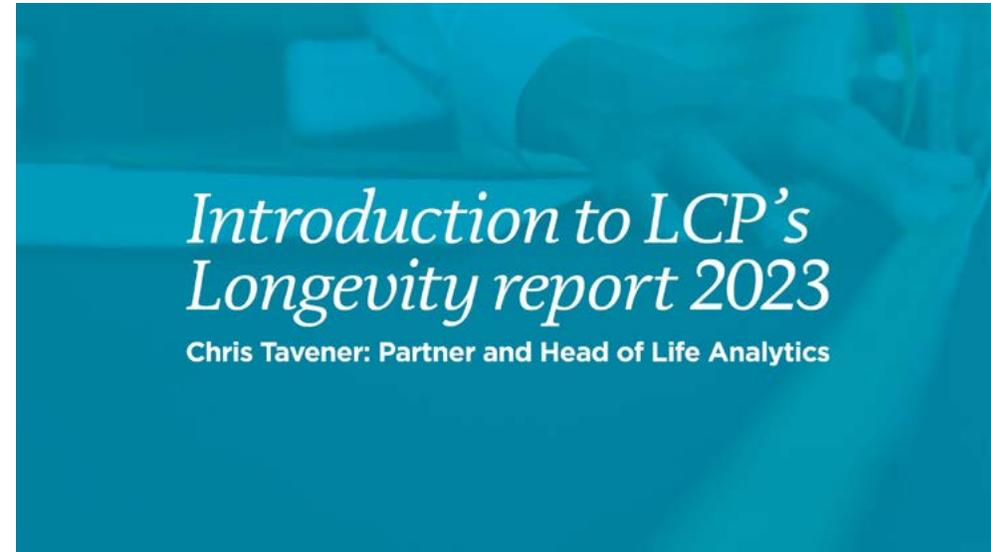
As the dust settles on 2022, we have our first glimpse at a world that has been impacted by the Covid-19 pandemic and is moving towards a "new normal". Sadly we are not seeing a rapid recovery in mortality rates, with many factors adversely affecting the health of the nation.

Views on life expectancy need to be re-examined in light of the pandemic, recognising newly emerging trends. This creates both challenges and opportunities for trustees and sponsors managing defined benefit pension schemes:

- Are schemes taking an appropriate and sustainable level of longevity risk?
- For those approaching the end game or looking to derisk, does insurer pricing offer good enough value for money versus the risks removed?
- Can the pension liabilities on sponsors' balance sheets be reduced?
- Are investment and funding strategies targeting the correct benefit cashflows?
- Does a reduction in life expectancies mean reduced cash commitments from sponsors?
- Are members receiving fair value for their benefits when they cash-out?

We are moving into a new era for longevity risk. New eras require fresh thinking. Better understanding of what is driving changes to mortality will be required over the next few years. More judgement will need to be applied as traditional actuarial models struggle to cope with post-pandemic experience. It is more important than ever to combine the views of actuaries and other experts, such as epidemiologists, to help trustees and sponsors set their mortality assumptions.

In this report we analyse recent trends in mortality and how they affect defined benefit pension schemes. We take a look at what might happen in the future, illustrate some examples of how we have helped other pension schemes to get under the skin of what is driving recent experience and how it might influence your scheme, and set out some practical actions you can take.



Chris Tavener
Partner, Head of
Life Analytics



Stuart McDonald MBE
Partner, Head of
Longevity and
Demographic Insights

Key findings of our report



We expect a material slowdown from the pre-pandemic expectation for longevity improvements, primarily due to the ramifications of the pandemic and the pressures on the healthcare system. Compared to pre-pandemic levels, a fall in life expectancies of 1 to 2% may be a sensible starting point for most schemes.



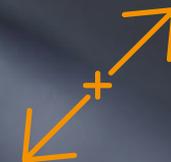
In this challenging environment, a robust longevity assessment is best achieved by sewing together actuarial modelling expertise with expert judgement from healthcare professionals, like a tailor weaving together the finest fabrics.



Longevity is a significant unhedged risk for many pension schemes. We estimate it is around 25% of the investment risks for a typical scheme. However, in many cases the tools trustees and sponsors use to analyse and manage this risk have not changed to reflect this.



Insurers and reinsurers are now making allowances in their longevity pricing for the slowdown in improvements. An informed assessment of longevity is essential for negotiating with them effectively.



The gap between life expectancies for the most and least deprived sections of society is widening. This makes tailored analysis to suit your scheme's membership critical for setting longevity assumptions.

Overview



Understanding longevity risk is more important than ever

Based on analysis of over 300 pension schemes, we estimate that longevity risk is now around 25% of the investment risks of running a typical defined benefit pension scheme. We predict that this will only increase as many schemes continue to manage down their investment risks.

Why understanding longevity risk is important

There is significant uncertainty around longevity trends, and risks remain in both over and under-estimating how long your members are going to live. Key risks include:

Picking up the latest trends:

The repercussions of the pandemic, strains on the healthcare system and economic pressures affecting both individual households and government spending have ramifications for future trends in mortality. On page 8 we describe some of the key indicators we are looking at.

As we enter a new era, having an up-to-date and regularly reviewed mortality assumption, reflecting the latest information and emerging evidence, is important for many sponsors and trustees to ensure that the estimated liabilities, and corresponding journey plans, remain fit for purpose.

Allowing for the correct profile of your members:

We will not all be affected the same way by the current drivers of mortality, and it is important to reflect the profile of your members when setting your longevity assumption. We provide various examples in this report.

There is evidence that those living in the most deprived areas not only have the lowest life expectancies, but are likely to be most adversely affected going forwards. This will expand the gap in life expectancies between those in the highest and the lowest socio-economic groups in the medium term. We provide more analysis on this on page 13.

Managing the end-game:

As schemes progress on their journey and head towards their “end-game” of passing their liabilities onto an insurer / alternative provider, or following a “care and maintenance” path and retain the risk, they need to have a robust understanding of their funding level.

Having a realistic assessment of longevity pricing is key to understanding if and when the time is right to approach the insurance market, assessing whether an insurer is giving you good value-for-money and negotiating with them effectively. We discuss on page 22 our view on the current (re)insurance market.

Consequences of not taking action

The impact of the risks on the previous page and why they are important to consider will vary from scheme to scheme, and what is foremost on the mind of each stakeholder. We have highlighted below why having a well justified and up-to-date mortality assumption is important.

- **Cashflow commitments:** Where a scheme is underfunded, then the sponsor may be required to pay contributions into the scheme to fund the gap. Reflecting the latest slowdown in trends could reduce the cash required and the risk of over funding.
- **Ensuring that investment hedging is calibrated to the most appropriate cashflows:** A cornerstone of any Liability Driven Investment (“LDI”) or Cashflow Driven Investment (“CDI”) strategy is the assessment of future cashflows. If the underlying mortality does not reflect recent trends, the investment hedge will not be performing as efficiently as possible.
- **Employee benefits:** Where employees are accruing benefits, having a realistic understanding of the potential ultimate cost of those benefits ensures resilient planning and sound decisions when considering the overall reward package.
- **Approaching the end game:** With changes in financial conditions over the previous year, we are seeing a larger proportion of schemes move within reach of their end-game and, for example, being able to afford to pass on their liabilities to an insurer.

Often such schemes have largely hedged their investment risks. Mortality may therefore be one of the few material risks remaining that could blow the scheme off course. It is important to include an assessment of the members’ life expectancy to ensure the scheme has reserves that are sufficient to safely get the scheme to its final destination, and assessing whether the insurer price provides good value for money versus the risks removed.

- **On journey:** Where a scheme is still some way off the end game, or intends to retain the longevity risk, then having a regularly assessed assumption for how long members are going to live ensures the scheme stays on track with no shocks, and an appropriate level of investment risk is taken and contributions received. This is particularly important where the ability of the sponsor to fund the scheme is stretched.
- **Financial performance:** A sponsors’ balance sheet, and credit to income, could be over or under-estimated. Where the scheme is a significant entry in the financial statements, small changes to the mortality assumption could have a material impact.
- **Members’ benefits:** When converting a pension into a lump sum to settle a liability (eg paying a transfer value), having an up-to-date assumption is important for ensuring members are receiving fair value.

Key actions

Key actions for trustees and sponsors of defined benefit pension schemes include:

- + **Understand how your scheme’s membership has been affected over 2020 and 2021 by the Covid-19 pandemic and how material it is to the scheme’s financial position.**
- + **Consider the characteristics of your members to see if they are more or less likely to be affected in the future, as different adjustments will be appropriate for different schemes.**
- + **Incorporate a range of expert views, supplementing actuarial advice with input from other mortality experts such as epidemiologists. When stitched together seamlessly, this will help you understand mortality trends and how these might impact your scheme’s membership.**
- + **Review how longevity risk fits into your pension scheme’s overall risk profile and how best it can be monitored, managed, and allowed for in your estimated funding positions.**
- + **Assess what level of analysis is required to determine a relevant and informed decision against our range of options.**

We have set out in the next section a framework for how the above actions can be addressed.

Please contact your usual LCP contact or one of LCP’s longevity experts to explore how we can help you.

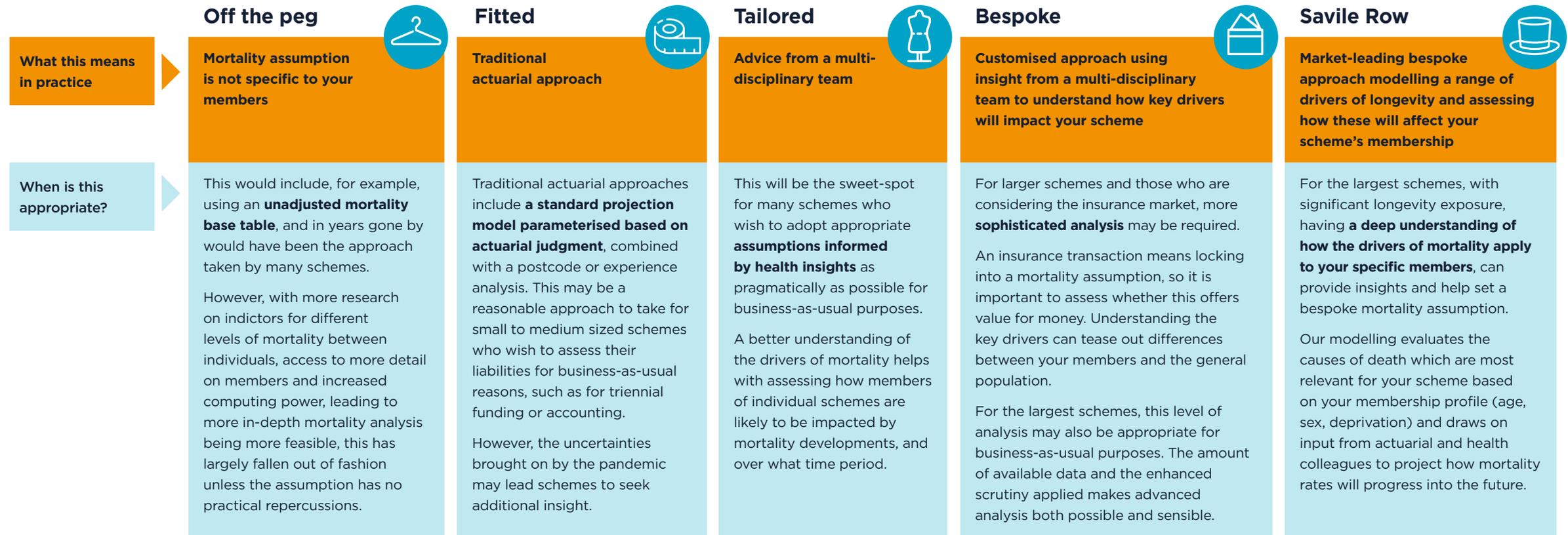


The above actions are part of our robust framework, [LCP GEARS](#), helping you turn journey planning discussions into actions and shift through the gears to achieve your objectives.

Making informed decisions

As described in the previous section, setting an appropriate mortality assumption for your scheme is important. The appropriate attention to give will differ from scheme to scheme and over time as circumstances develop. There is a spectrum of options for setting a mortality assumption. This spans from traditional actuarial analysis to holistic advice given by a multi-disciplinary team. LCP has built such a team, including actuaries, epidemiologists, doctors and public health experts, to help you.

It may be that a pragmatic solution best meets your needs, or it could be that refined analysis could really add value to you. We have set out an indication of the schemes and scenarios that might be suited to each of the options below, with more pointers on what a reasonable approach would be throughout this report as various themes are explored.



Commenting on setting longevity assumptions, Andrew Hunt, Research Director at Pacific Life Re:

“The pandemic has highlighted the need for a multi-dimensional approach to making these judgements, bringing in expertise from our statistical modellers, medical analysts and the wider business in order to make judgements in advance of the full data being available, incorporate these pragmatically into the assumptions used in practice and then monitor these decisions as more information emerges.”

Trends in recent mortality and some key indicators

Rates of UK mortality were extremely high over 2020 and 2021 as the direct impacts of the Covid-19 pandemic gripped the world.

2022 offered us the first opportunity to analyse a world where most people have been vaccinated and/or had a prior exposure to Covid-19, so it may offer insight into our “new normal”.

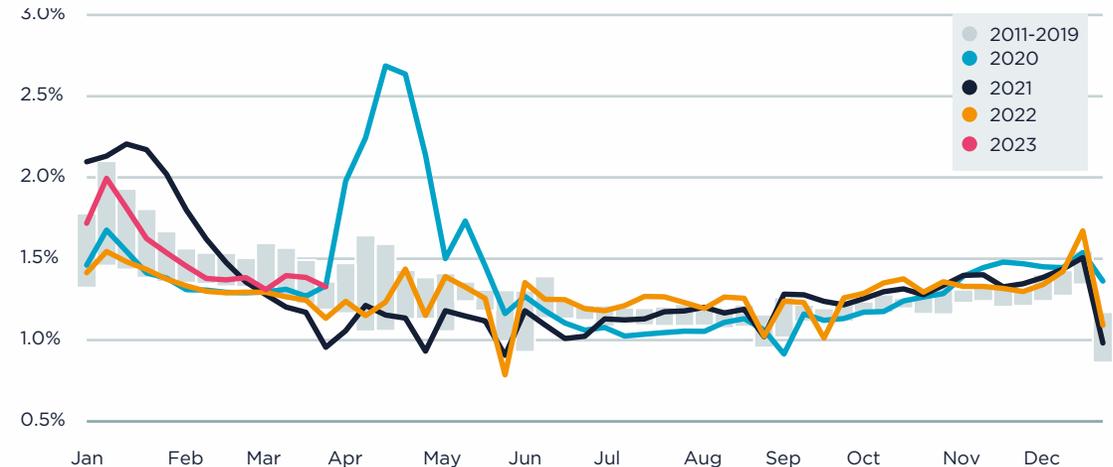
We found that UK mortality over 2022 was particularly high, and the first quarter of 2023 had very high mortality, providing no indication that this trend has come to an end.

A tale of two contrasting halves

2022 was a tale of two contrasting halves. The year started with good news, with the first quarter bringing lowest aggregate mortality rates seen in England & Wales at that time of the year. However, during the second quarter the position pivoted, and we regularly saw the highest weekly death rates for 10 years, peak-Covid years aside.

The chart opposite highlights this contrast. The orange line shows age-standardised mortality rates each week in 2022. For comparison, the grey bars are the range of mortality rates seen between 2011 and 2019. It is clear to see how mortality rates pivoted as the orange line rose from below the grey bars to above them.

Weekly age standardised mortality rate in England & Wales



Source: CMI, LCP calculations

It is likely that the relatively low mortality rates at the start of 2022 were partly due to the earlier deaths of frail individuals due to Covid-19, and partly due to a very light 2021/22 flu season. According to the ONS, annual deaths due to flu and pneumonia are typically between 10,000 to 20,000, which compares to around 5,000 in the winter of 2021/22. These factors may have masked an underlying trend as the relatively high mortality seen in late 2021 resumed by summer of 2022.

We normally expect mortality rates to fall markedly as we move into the summer months. However, in 2022 the UK's usual seasonal pattern was much less pronounced, with little fall in mortality rates as the year progressed. Mortality rates which were low for winter were high for summer.

Mortality rates in 2022 were around 4.5% higher than those in 2019, equivalent to around 30,000 additional deaths in the UK. This was driven in part by multiple waves of Covid-19 and an early and severe 2022/23 flu season. As well as leading directly to deaths, these factors also contributed to increased demand pressure on healthcare services.

Factors affecting mortality over the past 12 months:

A chronological timeline of indicators



Getting to a hospital



Getting through A&E



Seeing a doctor



Diagnostics of illnesses that kill over the short-term



Diagnostics of illnesses that kill over the long-term

Rising ambulance waiting times

The best measure to focus on for ambulance response times is Category 2 emergencies, which includes serious conditions such as strokes and heart attacks. There is a more urgent Category 1 where there is an immediate threat to life, but there are relatively few incidences in this category.

The ambulance service in England has a target of 18 minutes for Category 2 emergencies, typically attaining between 20 and 30 minutes up until 2020 (see chart below). However, from mid-2021 average response times were typically between 40 to 60 minutes.

In December, average waiting times reached a peak of 90 minutes, with this period coinciding with the flu season and the fifth Omicron wave. Average waiting times improved in January and February but still exceeded 30 minutes, significantly outside the target.

Category 2 ambulance response times (minutes) in England

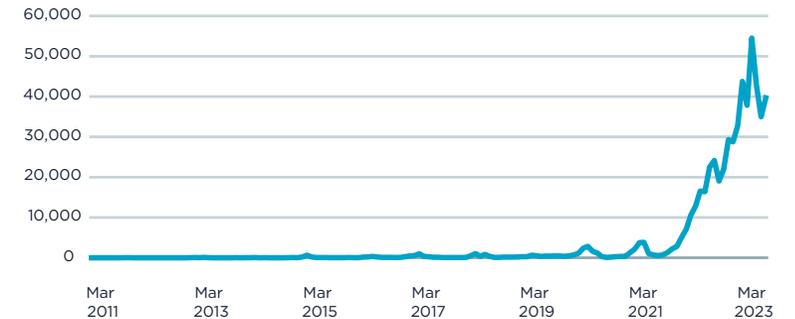


Source: NHS England

A&E admission times rising

The impact of longer ambulance response times is compounded further by the effects of increased A&E waiting times. LCP analysed the additional deaths associated with long A&E waiting times and estimated around 500 additional deaths per week compared to when there are no long waits. This is a significant driver of excess mortality. Our analysis builds on research showing that for every 72 patients waiting 8-12 hours there is one additional death.

Patients waiting more than 12 hours from decision to admit to admission



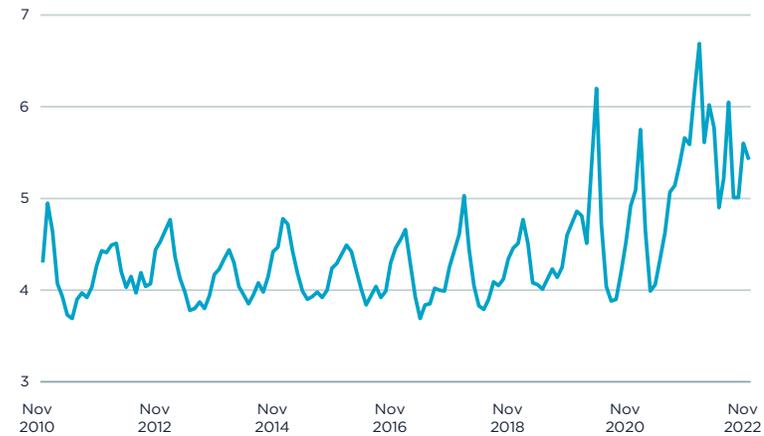
Source: NHS England

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Health of our care workers

The chart below shows the sickness absence (as a percentage of full-time equivalent days) for the NHS workforce in England. A significant increase in the rate can be seen since 2020, which has persisted into 2022.

NHS England monthly sickness absence rates (percentage of days)



Source: NHS England

The highest increase has been amongst the foundation, core training and registrar classes of doctor.

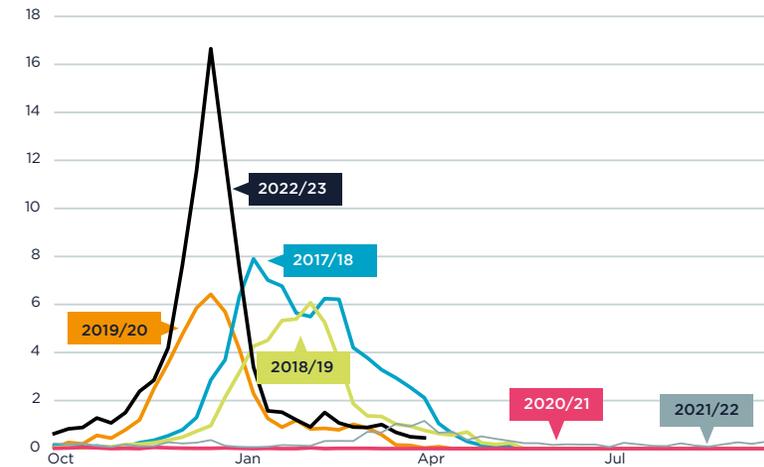
Anxiety, stress, depression and other psychiatric illnesses is consistently the most reported reason for sickness absence, accounting for over 20% of all sickness absence since May 2019. It is also insightful to consider the higher incidence of infectious related reasons for absence since the pandemic started (flu, chest and respiratory problems, and infectious diseases).

Severe and early flu season

Over the first few weeks of 2023 we saw unusually high levels of mortality rates in England, with rates significantly above those observed in the initial few weeks of 2022. A significant factor was the severe and early flu season which gave rise to a large number of excess deaths.

The 2022/23 season started considerably earlier than the previous seasons, commencing in November and peaking with twice as many hospitalisations as any of the previous five years (see dark blue line in chart below). This problem was likely exacerbated by the lack of exposure to influenza during the peak covid-years. With immunity being low, flu spread early and quickly. The season is now behind us, with hospital admission rates for influenza falling away as sharply as they rose.

Weekly influenza hospitalisations in England (per 100,000)

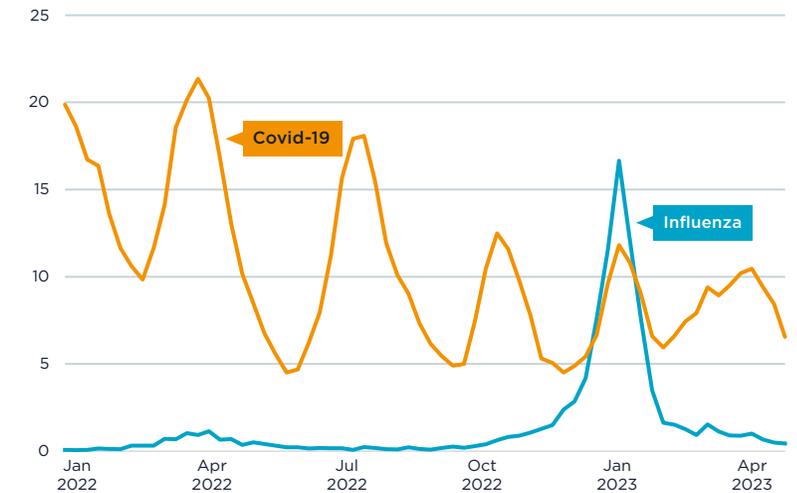


Source: UK Health Security Agency

Covid-19 hasn't gone away

Waves of Covid-19 have been stubbornly and persistently occurring since the pandemic first began. The below chart shows the hospital admission rate for Covid-19 and flu. Although the flu season was severe (as shown by the light blue line) by historical standards, it is informative to compare it to admissions with Covid (orange line). There were five Omicron waves in 2022, but what is of note is that the admission rate even at the bottom of the troughs remained significant, contributing to NHS demand pressures.

Weekly Covid-19 and influenza hospitalisations in England (per 100,000)



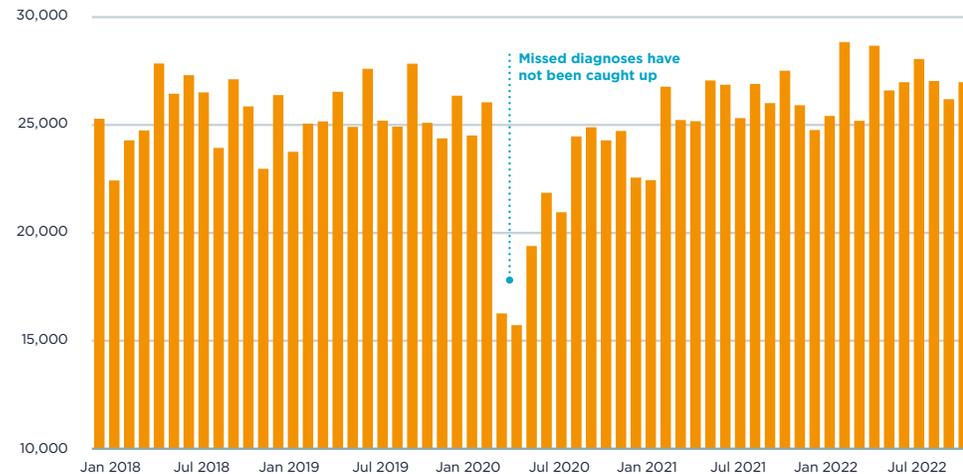
Source: UK Health Security Agency

Missed diagnosis

Over the pandemic, the diagnosis rate of many diseases fell dramatically. For example, there were approximately 40,000 fewer new diagnoses of cancer during the pandemic than would have been expected (see chart). Some of these people may go on to be diagnosed with later stage cancer and have worse outcomes as a result. We also saw a 57% fall in diabetes diagnoses. Similarly, research supported by the British Heart Foundation estimated that there were around half a million fewer prescriptions for blood pressure medicine for previously undiagnosed patients.

These missed diagnoses are likely to result in elevated cardiovascular mortality in the short term, with elevated cancer mortality manifesting over a longer timeframe.

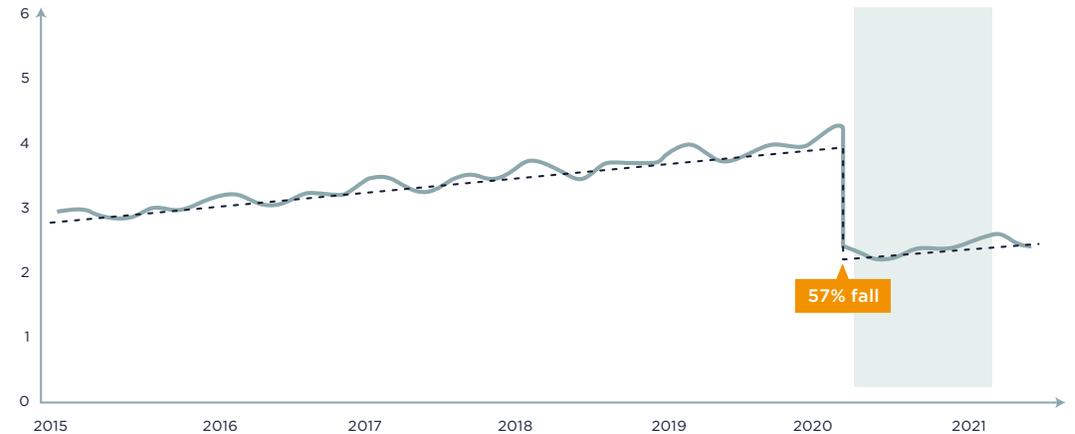
Cancer diagnoses per month in England



Source: NHS Digital / National Disease Registration Service / Rapid Cancer Registration Data

Our analysis of the accounting disclosures of FTSE 100 companies shows a trend towards making more allowance for these headwinds.

New diabetes diagnoses per 10,000 registered patients

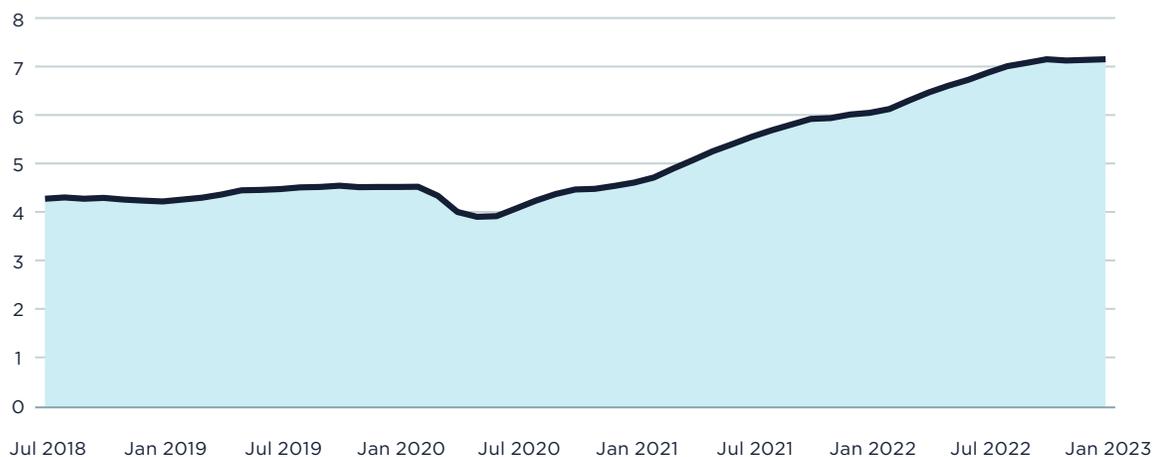


Source: Pearson-Stuttard et al, in submission

NHS waiting lists increasing

Another problem faced by the NHS is increased waiting lists. LCP's tracker shows that prior to 2019 the elective waiting list comprised of around 4 million people. As of January 2023, this number has risen to over 7 million people. This is a worrying development given that early consultation and diagnosis can have significant impacts on both morbidity and mortality. This is likely to affect mortality rates over the longer term.

Elective waiting list in England for all specialities (millions)



Source: LCP / NHS England

After a difficult few years, it is unclear as to how much additional demand pressure the NHS can absorb without adversely affecting more lives and leading to further excess deaths. All these factors suggest a continued slowdown in mortality improvements, and this should be reflected in assumptions.

How these drivers feed in to your choice of analysis

Off the peg

Does not feed into assumption



Tailored

Key indicators inform multi-disciplinary team's view on the impact of drivers on pension scheme members



Savile Row

As for Bespoke with explicit modelling of how drivers will affect the scheme's membership profile



Fitted

Does not feed into assumption, unless using mortality experience to calibrate base table – in which case, beware of distortions if scheme affected like UK.



Bespoke

Feeds into assumption – as for Tailored, consideration of how emerging evidence is likely to affect your scheme



CASE STUDY

By considering the drivers highlighted in the previous few pages a FTSE100 company was able to robustly justify changes to their assumptions to reflect latest emerging trends, allowing the sponsoring employer to disclose lower pension liabilities than it had previously thought possible.

Selecting the initial rate of mortality for your members' profile

In light of the pandemic, it is no surprise that much of the current focus is attempting to quantify how mortality rates will develop into the future. However, it is still important to ensure that the assumption for the current (or initial) rates of mortality is given adequate attention.

In recent years we have seen a growing pool of research looking at the life expectancy inequalities across different groups.

Vast inequalities in health and the drivers of good health were present before the pandemic and have persisted since.



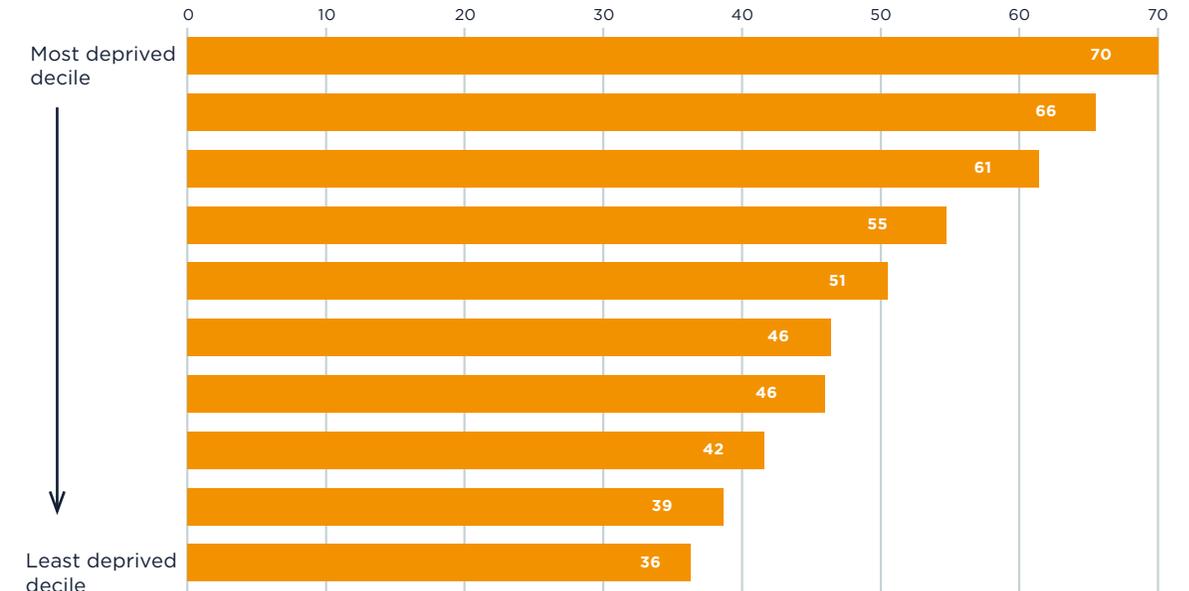
Source: T Rashid et al (2021)



When setting a mortality assumption for the members of a scheme, we are trying to make allowances for all of the factors below. The data that pension schemes collect about their members was not designed for detailed mortality analysis and so crucial indicators, such as smoking status, are not known. But postcode profiling allows us to make some implicit allowance for such factors.

For example, there has been a long-standing correlation between lung cancer and smoking rates. The below chart shows a strong correlation between deaths in 2021 due to lung cancer and the level of deprivation, with those living in the 10% most deprived areas of England (as measured by the Index of Multiple Deprivation) twice as likely to die from lung cancer compared to those living in the 10% least deprived areas. This gives us an insight into the type of indirect allowance that is made possible by allowing for factors such as deprivation in our mortality analysis.

Standardised mortality rate by IMD from lung cancer (all ages per 100,000 persons)



Source: Office for health Improvement & Disparities

It is typical in the actuarial profession to form a view on an appropriate mortality assumption via two forms of analysis:

Experience analysis

Consider the mortality experience observed in a population and to adopt an assumption that fits to this past data. This is often a suitable approach when a large volume of reliable data on the members over a period of time can be sourced.

Socio-economic profiling

Compare the socio-economic profile of a population to mortality rates derived from the mortality experience of other populations with similar profiles where reliable and statistically significant data can be analysed.



CASE STUDY

Trustees were able to use LCP LifeAnalytics to form a suitable mortality assumption using the experience of a scheme where 1/3 of the scheme had been removed due to corporate activity. The scheme was very large and so experience data was insightful but needed to be calibrated against a postcode model to allow for the material change in population.

It is often convenient to summarise the choice of methodology as “if you have enough data, carry out an experience analysis”. This is a strong rule of thumb but there are some nuances to be aware of – it may be that looking at the experience in isolation can throw away valuable insights.

At LCP, we have developed our mortality assumption model, LCP LifeAnalytics, which works across these two methods in tandem to ensure as much insight can be gained as possible.

We have set out some of the key pros and cons for the choice of which to carry out below. This table can be a great starting point for asking questions to your consultant about how various characteristics of your scheme have been allowed for within their analysis.

Situation	Experience	Postcode
Lots of mortality experience data is available	✓	?
Mortality experience may be distorted by a step-change in population	?	✓
Scheme is open and the average age is stable over time	✓	✓
Shift in profile of members over time eg manual to office based	?	✓
Mortality experience is distorted through external factors eg Covid-19 or a heavy flu season	?	✓
Scheme members may not be typical of those modelled using postcode	✓	?

How these methods feed in to your choice of analysis

Off the peg

Does not feed into assumption, as not calibrating mortality base tables.



Fitted and Tailored

Feeds into assumption for initial rates of mortality – most appropriate combination of a postcode model and scheme experience, such as by using LCP LifeAnalytics, to determine mortality base table assumption



Bespoke

Bespoke modelling carried out fitting a postcode model to the experience in your scheme, such as by using a bespoke version of LCP LifeAnalytics



Savile Row

Customised modelling carried out by graduation a table to the experience data and fitting a postcode model to the experience in your scheme.



Looking ahead: drivers of mortality in the short term

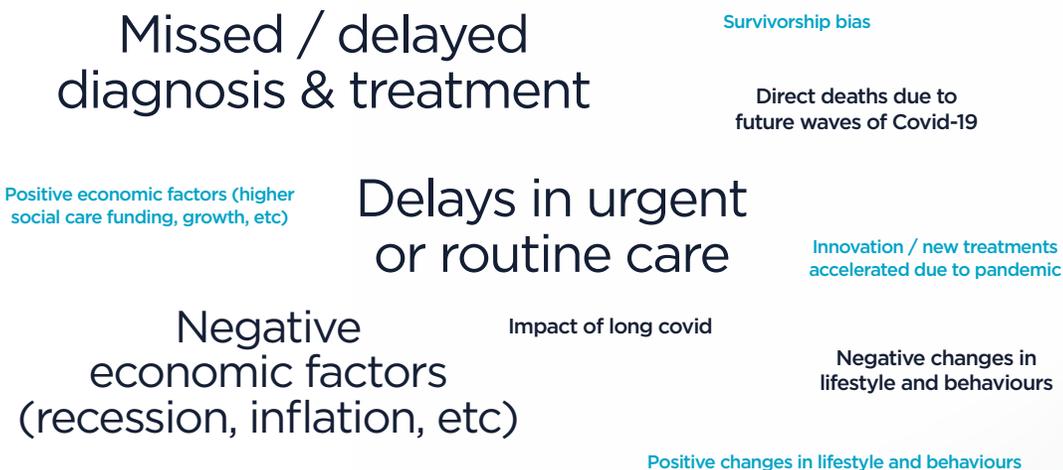
Drivers of mortality in the short-term

The pandemic has led to significantly elevated mortality rates in the UK. We have recently seen these persist into their fourth calendar year, with 2023 showing early signs of being yet another year of high mortality.

As the out-of-the-ordinary data on mortality grows, so does the difficulty of building statistical models to predict future mortality rates. Instead, looking to the drivers for short-term mortality improvements is likely to yield more informed and better decisions.

Within LCP we supplement our actuarial expertise with health insights from our LCP Health Analytics team of doctors, epidemiologists, health economists, health data scientists and public health experts. Bringing together colleagues from such a range of disciplines allows us to form a view on medium-term mortality trends which allows for diverse perspectives.

We summarise below the key influences we have identified, with the size of the text representing the expected influence and light/dark colours representing favourable/adverse drivers.



We look at some of the key drivers to be aware of over the coming years in more detail below:

Continued pressures on the health service

As discussed in the previous section, NHS waiting lists, A&E waiting times and ambulance response times are at unprecedented levels. Given that the underlying drivers of NHS demand pressures are a complex combination of funding, resources, staff shortages, missed diagnosis, etc. it is difficult to see how these will all be resolved in the short-term.

A general election?

Whilst we do not wish to comment on political parties' policies towards NHS funding, we would not be surprised if it is one of the key battlegrounds at the next general election. This could lead to parties seeking to attract potential voters with strong commitments to the future of the healthcare system and the funding this requires.

However, a key issue is where any potential new funding is placed – for example, shoring up the areas with current short-term pressures versus investing in prevention to keep the population as healthy as possible.

Long-covid and future Covid-19 variants

There remains significant uncertainty surrounding the long-term impacts of Covid-19. We are continuing to see variants of Covid-19 emerge that are able to spread through the population. To date the emerging variants have largely resulted in milder symptoms (which is at least in part due to pre-existing immunity from vaccination and prior exposures) causing fewer excess deaths.



Missed and delayed diagnoses

As mentioned in the previous section, through the pandemic the diagnosis rate of many diseases fell dramatically.

It is unlikely that this is due to a lower prevalence of disease, and is more likely due to changes to patients' health-seeking behaviour and availability over the pandemic. Unfortunately, we have not seen evidence that these missed diagnoses have been caught up. Therefore, we may expect more deaths as the missed diagnoses start to impact. The timeframe of these excess deaths will depend on the disease – missed cardiovascular disease diagnoses could result in more strokes and heart attacks over the short-term, whereas we may see the impact of missed cancer diagnosis continuing into the medium term.

Economic downturn

The economic environment is intrinsically linked to the funding available for the health and social care systems, and individual household budgets. The inflationary pressures seen over the previous 12 months will leave more people struggling to afford basic necessities such as adequate heating (particularly those in lower socio-economic groups). Analysis carried out on the link between fuel poverty and excess deaths suggests that over the 10 years to 2019 there were 3,000 deaths a year due to fuel poverty. A report by academics at the University of York estimated that over 75% of UK households could be in fuel poverty at the start of 2023.

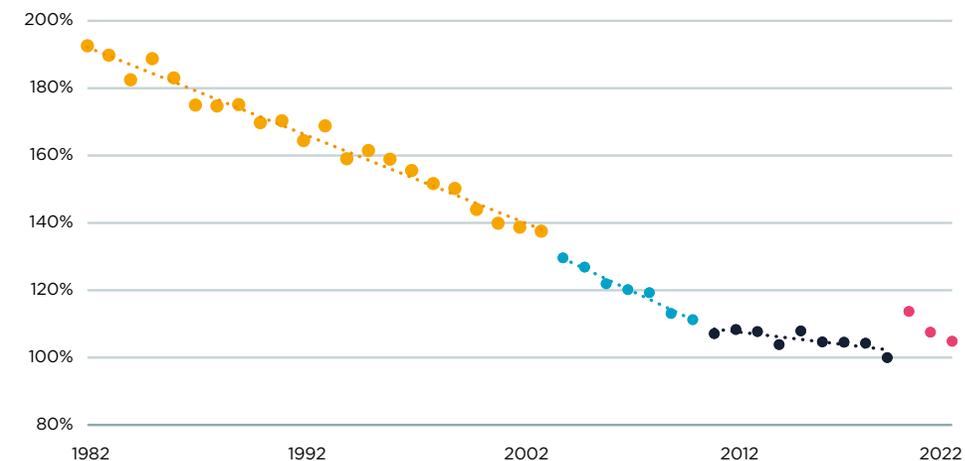
Changing behaviours

Many individuals have changed their behaviour since the pandemic. Some of these changes may have positive impacts, such as quitting smoking or taking more exercise, but others have had negative impacts, such as changing habits for alcohol consumption. The implications for others, such as the widespread adoption of working from home, are yet to be known.

Little improvement observed since 2011

Year-on-year mortality improvements pre-2011 illustrated decades of steady reductions in mortality rates. However, since 2011 progress has been slowing down. There has been a plateauing of mortality rates with little improvement, not only in the UK, but across several European countries and the US too.

Standardised mortality rates relative to 2019 in England (persons aged 65 to 100)



Source: CMI, LCP calculations

Improvements prior to 2011 in the UK were predominantly because of fewer deaths from circulatory diseases such as heart attacks and strokes, with changes in these rates largely driving the trend. Improved diagnosis and treatment of cancer, eradication of some diseases and significant reductions in smoking rates also influenced these trends. Having achieved such large increases in life expectancy, it has become increasingly more challenging to achieve further “wins” for increasing life expectancies.

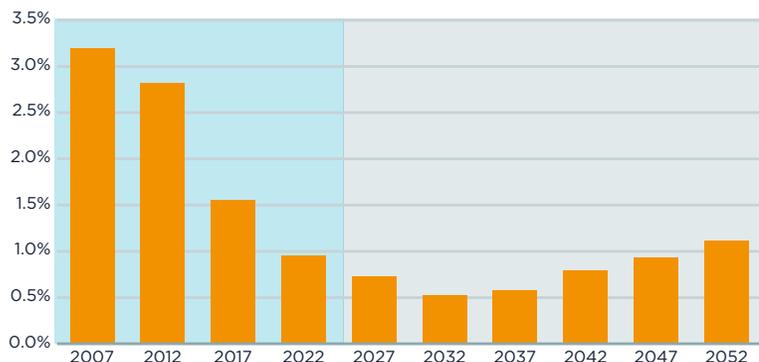
People are now living longer but they are spending more of their lives living with multiple diseases. It is this challenging problem of multi-morbidity in later life that needs to be addressed to repeat the rapid mortality improvements of the past.

Can improvements get any lower?

The chart below shows the average fitted annual improvement (ie fall in mortality rates) over five-year bands across males aged 65 to 85 in England & Wales using the CMI 2021 core model. The fall in the historic improvements (blue area) from over 3% to around 1% can clearly be seen. It can also be seen that the projected rates using the model with a 1.25% pa long-term rate (grey area) are projected to remain historically low for the next decade.

It is tempting to consider whether improvements can indeed fall beyond this point. Falling mortality rates leading to improving life expectancy has been a constant feature for decades but it is not inevitable. The prospect of falling life expectancies, at least in the short term, is not completely implausible.

Average annual improvement in mortality rates (males aged 65 to 85, 5-year periods)



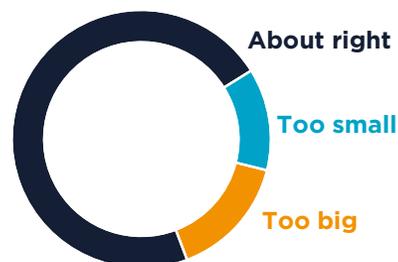
Source: CMI, LCP calculations

How much have life expectancies changed following the pandemic?

There is a growing consensus that, whilst the pandemic has had some positive influences on mortality, the net impact from the pandemic will be detrimental to life expectancies. After consulting with users of the model, the CMI confirmed in March 2023 that the next iteration of the CMI mortality projections core model, CMI 2022, will produce falls in life expectancy of around 2% at age 65 due to the incorporation of post-pandemic experience data. There is no single correct answer for what the impact will be, and many schemes may take alternative views.

We recently asked a selection of our clients for their views on how much life expectancies have changed since the start of the pandemic. Around 40% had yet to form a view. Of those who did express a view, we can see from the results below that the majority believe that a 2% reduction (around 6 months) in life expectancy is about right.

What is your view on a 2% fall in life expectancies at age 65 since the start of the pandemic?



Our view is that the negative drivers coming from the pandemic clearly outweigh the positive, and that a fall in life expectancies of 1 to 2% may be a sensible starting point for most. However, the decision is not clear-cut and there are reasons why a larger or smaller change could be justifiable. It is likely that different subsets of the population may experience the impacts of the pandemic and stress on the healthcare system differently, which should also be considered for your scheme.

How these drivers feed in to your choice of analysis

Off the peg and Fitted

Does not feed into assumption, as not calibrating mortality improvements



Tailored

Key drivers used by the multi-disciplinary team to inform their views of how mortality rates will progress into the future



Bespoke

As for Tailored, but refined to reflect the socio-economic profile of your scheme



Savile Row

As for Bespoke, and refined to reflect the emerging experience of your scheme



Looking further ahead: drivers of mortality in the longer term

Over the last three years mortality rates both globally and in the UK have made headline news. The main focus, quite rightly, has been on how both the direct and indirect impacts of the pandemic impacted our immediate health.

However, for trustees and sponsors of defined benefit pension schemes, a significant proportion, around two-thirds, of the benefits of their schemes will be paid beyond 15 years' time. A key consideration is what drivers could affect how long those benefits are paid for. These may be very different to those seen in the past.

Avoidable deaths

Analysis published by the ONS categorised over 20% of the deaths in the UK in 2019 as “avoidable”, equivalent to around 136,000 deaths.

Avoidable deaths are either:

- Preventable deaths, where it is reasonable to expect deaths to be avoided through effective public health interventions and primary prevention interventions. This includes vaccinations for flu, and education / restrictions on smoking; or
- Treatable deaths, where death, following the onset of a disease or injury, could be avoided through timely and good quality health care, including secondary prevention and treatment. This includes, say, cancer treatments.

Not all deaths classed as avoidable can be averted (as factors such as lifestyle, age, disease progression at diagnosis and potential existence of other medical conditions are not considered), and this measure is not intended to be a reflection on the effectiveness of UK's healthcare system. However, 20% is a significant proportion, and means there is an opportunity for improvements to mortality in the future.

Health related technology advances

It is possible that in the next twenty years health related technology advances will keep extending the life of patients that can afford/access them. For example:

- cancer screening and treatment keep improving – cancer is one of the largest causes of death, and is one of the pharmaceutical areas which has experienced the most investment over the previous few years;
- detection and management of common chronic conditions such as hypertension may improve;
- gene therapies have potential to materially change life expectancy in those suffering from rare diseases and may be applied more broadly;
- Artificial Intelligence (AI) could speed up the discovery of new drugs, the advances in robotic surgery, and the development of diagnostic tools like image analysis of scans;
- immune advances to cure and treat diseases will potentially be used even more in the future; and
- wearables to empower better management of chronic diseases, for example type 1 diabetes can be managed via an insulin pump and a continuous glucose monitor that “talk to each other”.

Long-term risks to life and health

There are a number of long-term health challenges that society needs to tackle in the future. These are expected to put upward pressure on mortality rates absent of significant progress addressing them. These challenges include:

- Antibiotics have become less effective, and no new classes of antibiotics have been discovered in more than two decades. International focus and prioritisation might address this issue, as was seen with the rapid development of Covid-19 vaccines.
- We might see outbreaks of re-emerging diseases where there are lower rates of vaccination for other infectious diseases, either generally or among sub-groups of the population.
- There are potential dangers outside our nation that can affect the UK (just as Covid-19 did). Encroachment of human activity into natural habitats increases the risk that zoonotic diseases spill over into human populations. Underdeveloped countries, or those experiencing conflict, may be limited in their ability to apply good practices in healthcare and surveillance.
- Impact on health due to climate change, including direct effects associated with extreme weather events, and indirect effects due to economic and disruption to healthcare systems (see our later section for more details).

Health inequalities

One of the biggest opportunities to increase population life expectancy is to reduce avoidable mortality for those living in more deprived areas. In England, the avoidable mortality rate for those living in the most deprived areas is almost four times that of those living in the least deprived areas.

There are several things that health systems and policy makers can do to reduce health inequalities, for example:

- addressing the social determinants of health (the structural environments that we are born into, and learn, live and work in) would have the largest impact on reducing inequalities;
- incentives in the health sector could change focus to promoting health rather than treating illness; and
- health management could move from treating single diseases towards patient-centred care informed by clinical trials that reflect the people and their increasingly complex health needs that make up populations today.

How the long-term drivers feed into your assumption

Off the peg, Fitted, Tailored and Bespoke



Broad allowance given to long-term drivers at an aggregate level when setting improvement assumption

Savile Row



Long-term drivers considered and modelled into the future when deriving improvement assumption

The future is inherently uncertain but we can consider potential drivers of changes to mortality and keep these under review to anticipate how they may affect the life expectancy of the general population and individual pension schemes.

Impact of climate change

Climate change is a significant issue and presents both risks and opportunities to trustees of defined benefit pension schemes.

Trustees of large schemes (over £1bn in relevant assets) are required by regulations to take proper account of climate change when making decisions about their scheme.

We have been assisting our clients in this area for some time, by advising them on potential pathways and scenario analysis, and in particular with analysis for their Task Force on Climate-Related Financial Disclosures (“TCFD”). Scrutiny of how trustees are dealing with climate change is expected to increase with it being a key change in the new General Code due to be finalised later this year.

Up until now, many UK pension schemes have predominantly considered the impact of climate change by considering the possible effects on financial markets and on the value of the assets that they hold. However, this is only part of the picture and the impact of climate change on pension schemes could be much more wide-ranging. In particular, the impact on future mortality rates is a factor to consider for schemes.

Direct drivers from climate change

Climate change has the potential to impact mortality rates across the world, although deaths are not expected to be as sensitive to climate change in the UK as in some other regions. If temperatures rise, there may be more heat-related deaths from longer-lasting and more frequent heatwaves, but fewer cold-related deaths. According to the ONS, there are around 2,000 deaths from hot temperatures and 25,000-60,000 deaths from cold temperatures in the UK each year. Therefore, in the medium term, warmer temperatures are likely to lead to a net reduction in deaths directly attributed to temperature.

It is estimated that air pollution currently leads to around 30,000 deaths per year in the UK. If air pollution (caused by particulates such as nitrogen oxide) continues to increase in the UK, there is likely to be an uptick in health issues such as respiratory problems, putting upward pressure on mortality rates.

Indirect drivers from climate change

There are also a variety of indirect climate drivers which may lead to changes in mortality rates in the UK. These include:

- An increase in extreme weather events that may damage health and care infrastructure;
- Adverse economic consequences that could potentially result in less spending on health and social care;
- Food supply chains being more regularly disrupted both in the UK and overseas, impacting food availability and prices;
- A potential increase in transmission of vector and water-borne diseases; and
- Changes in lifestyle factors, such as individuals being more active or eating less red meat (new sources of food with less impact on the environment could come in the future, like lab-grown meat).

These indirect factors have a complex relationship with climate change but have the potential to be significant, either positively or negatively affecting mortality rates.

Indirect deaths and health consequences caused by climate change could have a more significant impact in the UK than direct deaths.

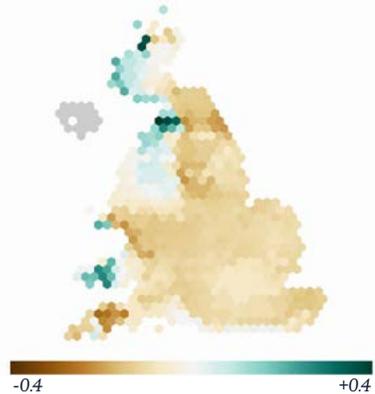
There are a wide range of possible outcomes and so the impact of climate change on mortality rates is uncertain. It is not yet known how the UK population will adapt to a changing climate, although it is expected that those in higher socio-economic groups will be more resilient to the effects. This has the potential to further widen the gap between mortality rates for those in higher and lower socio-economic groups in the UK.

There will be regional inequality also, with different regions experiencing different rises in temperature, heatwaves and droughts. We expect those living in more northern regions to experience lower rises in temperatures and more rainfall, whereas the more southern regions to experience more heatwaves and higher temperatures.

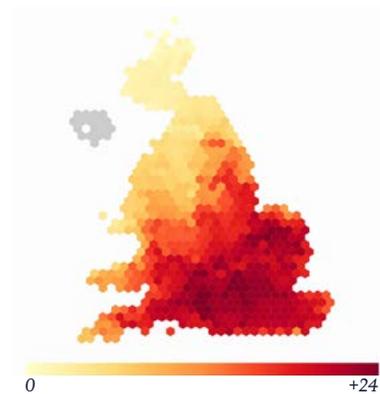
The below projections for changes to rainfall, annual temperatures and heatwaves is analysis by Georgia Willits using the Met Office's UKCP18 dataset. They represent the change in the climate for the years 2051-2080 compared to 1981-2010. The projections use a scenario of global carbon emissions called RCP8.5, associated with emissions continuing to rise throughout the 21st century.

The impact on your members could therefore be influenced by where they live and their socio-economic profile.

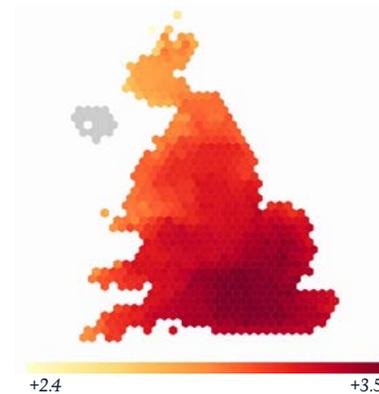
Annual mean change in rainfall (mm/day)



Change in number of days classed as heatwaves (days)



Annual mean change temperature (°C)



Source: Georgia Willits

CASE STUDY

LCP have helped a number of high-profile clients meet their TCFD requirements by incorporating our analysis of how future environmental scenarios could impact the life expectancies of their members.

How climate change feeds in to your choice of analysis

Off the peg and Fitted

Broad allowance given to long-term drivers at an aggregate level when setting improvement assumption



Tailored

Broad allowance given to long-term environmental and other ESG drivers at an aggregate level when setting improvement assumption



Savile Row

Multi-disciplinary team will incorporate their views on environmental and other ESG drivers within their modelling. Consideration of members' profile (eg socio-economic class and region)



Bespoke

As for Tailored, but consideration given to members' profile (eg socio-economic class and region)



Is now the right time to insure longevity risk?

The analysis in this report highlights the significant slowdown in life expectancy gains since the onset of Covid-19. In the light of this, is now a good time to hedge your longevity through a buy-in or longevity swap transaction?

How are insurers and reinsurers adjusting their longevity assumptions?

In the early days of Covid-19, insurers and reinsurers were cautious about implementing material reductions in pricing, citing factors such as survivorship bias and improved healthcare to offset some of the negative impacts. That narrative has changed, and we are now seeing meaningful adjustments coming through. This is driven by fierce competition from both insurers and reinsurers.

Our internal estimate of insurance buy-in pricing set out below suggests that pricing is at some of its strongest levels for several years, driven by improved longevity pricing as well as higher credit spreads.

Estimate of buy-in pricing: implied return on buy-in relative to gilts



Buy-in pricing more favourable than holding gilts

Buy-in pricing less favourable than holding gilts

Source: LCP

Some downside risks to life expectancies may remain...

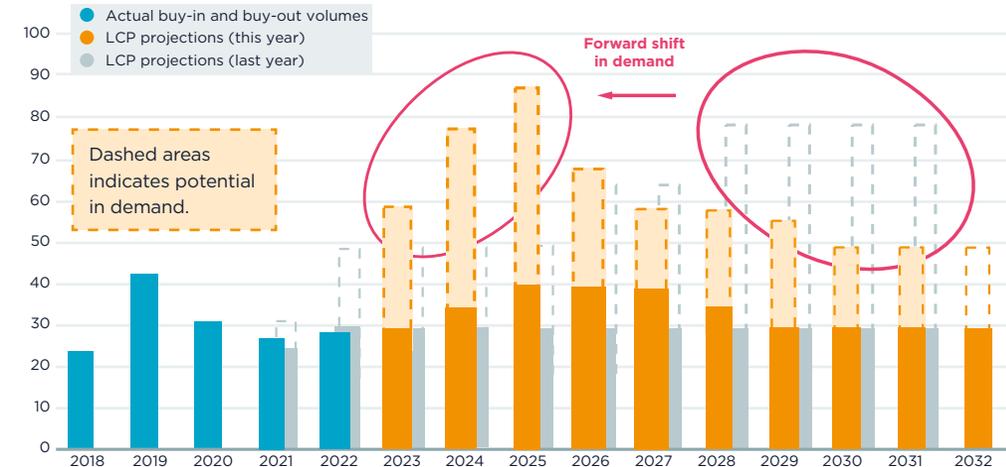
While we are confident that insurers and reinsurers are being driven by competition to incorporate current longevity expectations, there are downside longevity scenarios that may not be fully reflected in pricing. This may lead to “regret risk” for those carrying out a transaction now if such downside scenarios emerge.

...but there are other risks to future buy-in pricing

We estimate that UK pension schemes are now, on average, 90% funded on a full buy-out basis, following material funding improvements over 2022. This has created a forward shift in demand from the £1.5 trillion UK defined benefit pensions market, which could overwhelm an insurance market currently operating at around £30bn pa. If this happens buy-in pricing could increase very quickly. This can be seen in the chart below. Solid bars represent our lower estimate of pension scheme demand, which we expect could easily be absorbed by insurance companies. Dotted bars reflect our higher estimate of potential pension scheme demand, if insurers are able to support increased demand at current pricing levels.

For longevity swaps the position is more nuanced and we recommend a careful analysis of the risk profile of your membership and scenarios as the price is driven directly by longevity.

Projected buy-in and buy-out volumes (£bn)



Source: LCP

Scheme specific analysis is now more important than ever when assessing pricing

A key feature of recent longevity trends is the varying impact on different socio-economic groups. This means it is increasingly important to understand the mortality profile of your membership to allow you to:

- Understand your scheme's risks so you can manage them appropriately.
- Assess whether insurance pricing is good value and not skewed by an uninformed mortality assumption.
- Negotiate effectively with the insurers/re-insurers to ensure you are achieving best price.

What analysis should you consider for an insurance transaction?

Buy-in

Tailored approach or better is required to accurately assess your Scheme's longevity characteristics



Longevity swap

Bespoke analysis is essential given pricing is driven directly from the longevity assumption.



CASE STUDY

LCP advised on the second buy-in transaction for the £4bn BAA pension scheme. The Scheme covers workers in UK airports, particularly Heathrow but also other locations such as Gatwick and Edinburgh.

We were able to demonstrate to insurers that the Scheme's overall mortality experience was not necessarily reflective of the mortality characteristics of the population being insured, in particular due to the different geographical locations of different segments of the membership. Such features are exacerbated by the increasing differentials in life expectancies between socio-economic groups post Covid-19.

This allowed the leading insurer to negotiate improved reinsurance pricing and reduce their pricing by several percent to meet a challenging price hurdle.

We view the potential for supply and demand factors to increase future buy-in pricing as significantly outweighing the risk of further slowdowns in life expectancies creating regret risk for buy-ins secured now.

Next Steps



REVIEW

Review how longevity risk fits into your pension scheme's overall risk profile and how best it can be monitored, managed, and allowed for in your journey.



ASSESS

Assess what level of analysis is required to make informed decisions against our range of options.



INCORPORATE

Incorporate a range of experts' views to help you understand mortality trends and how these might impact your scheme's membership.



Contact us

For further information please contact our team.



Calum Linton
Associate Consultant
calum.linton@lcp.uk.com



Oliver Coe
Associate Consultant
oliver.coe@lcp.uk.com



Matthew Derham
Associate Consultant
matthew.derham@lcp.uk.com



Luisamanda Selle Arocha
Analyst
luisamanda.sellearocha@lcp.uk.com

At LCP, our experts help to power possibility by navigating you through complexity to make decisions that matter to your business and to our wider society. We are powered by our desire to solve important problems to create a brighter future. We have market leading capabilities across pensions and financial services, energy, health and analytics.

Lane Clark & Peacock LLP
London, UK
Tel: +44 (0)20 7439 2266
enquiries@lcp.uk.com

Lane Clark & Peacock LLP
Winchester, UK
Tel: +44 (0)1962 870060
enquiries@lcp.uk.com

Lane Clark & Peacock
Ireland Limited
Dublin, Ireland
Tel: +353 (0)1 614 43 93

Lane Clark & Peacock
(LCP Delta) Edinburgh, UK
Tel: +44 (0)131 625 1011

Lane Clark & Peacock
(LCP Delta) Cambridge, UK
Tel: +44 (0)1223 781 605

Lane Clark & Peacock
Paris, France
Tel: + 44 (0)131 625 1011

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