

# Longevity: the uncertainty and managing the risks

Challenger  
Retirement  
Income  
Research

## Executive summary

A key to any plan is knowing the longevity of the plan. For retirement, the plan is often based on life expectancy, but this creates several problems for financial advisers and their clients.

Life expectancies have been increasing in Australia (and around the world) for a variety of different reasons. To be accurate, advisers need to use up-to-date numbers that capture the relevant improvements in health. Also, as plans around retirement income generally involve people in or near retirement, it is important to use life expectancies that are age relevant.

Most plans need to deal with uncertainty. While most of us are aware of market uncertainty, many are not aware that a client's longevity is about as uncertain as the market. This can have a bigger impact on the success or otherwise of a retirement plan because, while markets can recover, there is not an equivalent 'rescue' for a longer than expected life. It is important for your clients to understand this uncertainty. Using a range of outcomes and planning for a high probability of success will make your plans more robust.

There are also differences in longevity across your clients. The different genders have different experiences and considering a couple is more than just the sum of both people. Putting together a plan requires some understanding of these differences.

When it comes to managing longevity risks for your clients, it's also incumbent on you to understand who really needs their risks managed. Retirees with little wealth will have the majority of their needs met by the Age Pension and the very wealthy will have enough money to never fear running out. Those in between are the retirees who need help to manage their longevity risks.

The final key to a successful retirement income plan will be an understanding of what your client needs to protect. It can be expensive to protect everything, so a targeted approach which manages the risks to retiree clients and ensures their needs will be met for life can provide them with the peace of mind they seek.

## Blinded by averages

Life expectancies are routinely used to advise an individual person, or a couple, about how long they are likely to live.

The problem is that when it comes to estimating how long a single person will live, population life expectancies are unhelpful and, at worst, materially misleading. This is because individual lifespans are widely distributed (more than 8 years) either side of the average.

Human beings use averages to make complicated things seem simpler, while the reality remains complex.

**Consider Helen, a 66-year-old female about to retire. She is told that her life expectancy is 90. This figure is factually accurate so far as it goes, but has less than a 5% probability of being her actual lifespan. For typical Australian retirees like Helen, a life expectancy is just a 1-in-20 guess. An expected average that is meaningful for large pools of lives, for insurers, demographers, and governments is simply not fit for purpose for a pool consisting of one person.**

The personal or idiosyncratic risk of a life deviating substantially from the average can have significant financial consequences. A life that is much shorter than the expected average can leave financial dependants without income and mortgage repayments unmet. A longer life can mean running out of money to live on and being left wholly dependent on the Age Pension. Fortunately, these risks can be insured and it's in this insurance process where the usefulness of life expectancies becomes clear.

Insurers 'pool' each customer's idiosyncratic risk with many other lives, effectively diversifying it away. In the case of life insurance, liabilities that attach to lives that fall on the lower side of the average will typically be matched by lives that are longer. For the annuity provider insuring against longevity risk, this matching effect is reversed.

If there is a large enough pool of lives, the average mortality experience in the pool gets closer to the expected average for the whole population or cohort (e.g. male blue-collar workers). This is known as the 'law of large numbers.' A life insurer uses relevant life expectancies to estimate, with a high degree of accuracy, the likely length of the average life in the pool. These data can then be supplemented by other calculations for selection bias and a margin of error. Insurers also hold substantial extra capital to make sure the risk is covered. In a large pool of lives, the life expectancy concept is a highly effective tool in managing longevity risk.

However, when life expectancies are used to predict a single lifespan, they can be dramatically inaccurate. It would matter less if the consequences of the prediction were not so important, but this is a significant issue for Australians in managing their retirement finances.

This paper steps through these and other issues surrounding longevity and some potential solutions for managing them.

## Understanding life expectancies

It is a fact of life that nobody knows exactly how long they will live. Of more concern is that most people don't know how long they are expected to live on average either. Given that Australian seniors are responsible for financing their own retirements, this is a significant financial literacy issue.

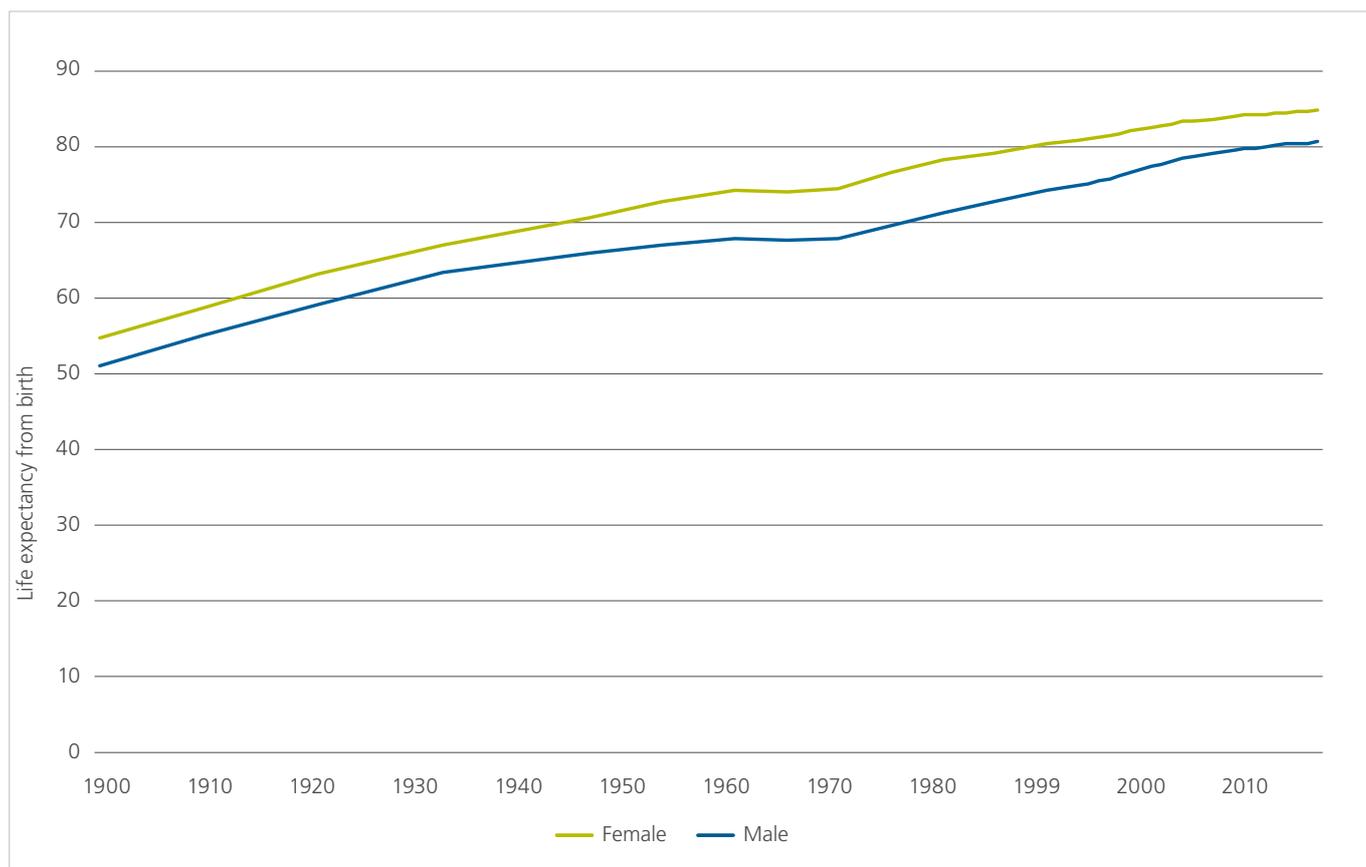
In a 2014 survey of seniors, respondents thought that an average 65-year-old Australian would live to 83.2 years,

when the correct figure at the time was 88 years, almost five years higher.<sup>1</sup> In the survey, the average estimation of own life expectancy for the 50-54 age group was seven years below the correct average, while for the 70-74 age group it was two years below. This suggests that older seniors become more in tune with life expectancies as they age, but it is the pre-retirees who need a better understanding.

## Speed of change

The lifespan of Australians has been increasing since we started keeping records in the 19th century. ABS data in Figure 1 show that life expectancy from birth for males was only 55.2 in 1910 and it had increased to 80.7 in 2017. For females, the increase was from 58.8 to 84.9. The rapid increase was initially driven by the improvement in infant mortality, but in recent decades, it has been improvements for older Australians that have driven the increases.

Figure 1: Life expectancy from birth for Australians 1900-2018



Source ABS

1 National Seniors Australia (2014): How realistic are senior Australians' retirement plans?

Today's retirees are now typically living into their late 80s; 10 years longer than they did in the 1990s. In 2018, the most common age of death in Australia was 87, whereas when compulsory super started in 1992, it was only 78. The speed of this change partly explains why longer lives and their financial implications are not yet well understood in the community.

The increase in average lifespans has an impact on retirement income planning. A longer lifespan means a longer period during which income will be needed.

As the length of life is not known in advance, planning uses the concept of life expectancy, which is based on population-wide averages.

## What is life expectancy?

Life expectancy is an estimate published by the government of how long people are likely to live on average, expressed in so-called 'life tables'. These can be estimates from birth or from other ages, typically age 65. How long you are expected to live on average is vital information for Australians over 50 who are starting to plan seriously for their retirement. Unfortunately, this information is currently not getting through to those who most need it.

The potential causes are:

- complicated and differing information maintained by separate parts of government;
- widespread ignorance across the financial services industry; and
- over reliance on averages and out-of-date inputs in retirement calculators.

The result is consumer confusion and potentially poor outcomes, because people cannot plan properly for the financial implications of a longer-than-expected retirement. Thinking about life expectancies is based on an artificial, but convenient, model in which everyone is assumed to live to a particular age. Until very recently, the age of 85 was a convenient estimation of a typical lifespan. Many financial models just assumed that everyone lived to 85. Not only was this factually wrong (life expectancies have been higher for some time), but it was based on only a 50% probability of being correct. This is what happens when you target an average.<sup>2</sup>

How many retirees would be happy to learn that their retirement plan only had a 50% chance of success?

It's actually worse than that. Because of the wide distribution of lifespans either side of the average, life expectancies are all but useless when it comes to informing individuals about how long they will live.

The solution here is that all discussions around retirement and lifespans with individual clients should be based on either a range or a deliberately higher life expectancy that has a safety margin built into it. For argument's sake, that could be at an 80% 'confidence interval' (i.e. probability of success).

## Confusion around life expectancies

Take the latest life expectancy figures from the Australian Bureau of Statistics (ABS). The ABS estimates, based on data from 2015-17, that the life expectancy of an Australian male is 80.5 years and 84.6 years for a female.<sup>3</sup> These are authoritative and accurate, but they are apt to be misinterpreted.

This is because they are estimates of life expectancies from birth, so they include the deaths of people who are likely to die young from accidents or illness. As a result, these figures are misleading to use for retiree life expectancy because they are too low. Having reached 65 or 66, you have a higher life expectancy because you are already a survivor. It is alarming how often supposed experts use these figures to talk about retirement planning. One example was in Nine newspapers on Saturday, 31 August 2019 where the author wrote: "If you are 65 today, you should expect to live to 80.4 for men and 84.5 for women".<sup>4</sup> The figures were both out-of-date and used in the wrong context. Getting to the correct figures, however, is difficult for members of the public, financial advisers and others involved in providing financial services.

The ABS does produce life expectancies for 65-year-olds, but it merely looks at the probability of survival based on data about lifespans from the past. But there is an improving mortality trend that means that each generation is living longer than the previous one. Another part of government, the Australian Government Actuary (AGA), a division of The Treasury, estimates this trend and provides improvement factors that can be used to adjust the 'unimproved' ABS life expectancies.

2 For life expectancies, more than 50% survive beyond the average because the distribution is not symmetric.

3 ABS Cat No. 3302.0.55.001 Life Tables, States, Territories and Australia 2015-2017.

4 <https://www.smh.com.au/money/super-and-retirement/how-to-turn-your-retirement-savings-into-a-regular-pay-cheque-20190828-p52lop.html>

These two separate sources of data are not easy to locate or reconcile and hence are not as widely understood as they should be. This means that many estimates of life expectancy fall short of the mark because only the 'unimproved' ABS expectancies are used.

Based on the improvements over the past 25 years tabulated by the AGA, half of today's 66-year-olds will live to at least 88 for males and at least 90 for females. These numbers have been increasing for many years and are likely to continue to increase for some time, even though the rate of that increase might fluctuate from year to year.

The differences between these three data sets is illustrated in **Figure 2:**

Figure 2: Making sense of different life expectancies

Average life expectancy	From birth	From age 66	From age 66 with mortality improvements
<b>Males</b>	80	85	88
<b>Females</b>	85	87	90

## Not everyone is average

We must also remember that these numbers are only predictions based on expected averages. In reality, there is a wide distribution of actual lifespans either side of the average.

The life expectancy of a 66-year-old female today is currently another 24 years to age 90. What this means in reality is that around two-thirds of females of that age will live to somewhere between a bit over 81 and approaching 99.

As a result, there is only about a 5% chance that any particular 66-year-old female's life will end in the year starting on her 90th birthday.

An Actuaries Institute paper recommends that life expectancy results are shown in a way that includes the range of possible lifespans that an individual or couple might experience.<sup>5</sup> So, what an adviser should be saying to 66-year-old females is very different from "your life expectancy is 90..." A plan that only lasts up to the average life expectancy will disappoint every second retiree. Advice about life expectancy should be something like "There's a big range of possible outcomes and so we need to plan on you living until 96. That way, you will have an 80% probability of your retirement plan working".

## Survivorship effect

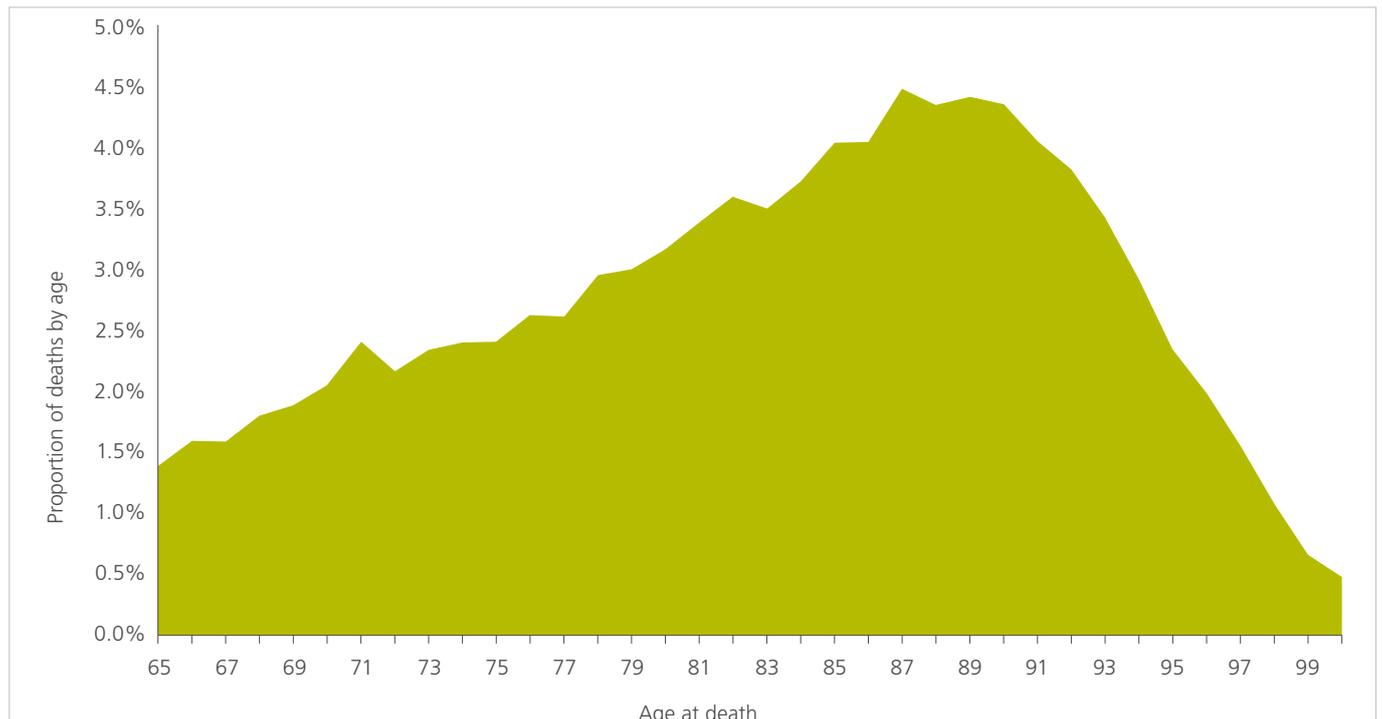
Surviving longer also impacts a person's life expectancy. For example, a male alive at age 90 can, on average, expect to live to 94, whereas a female can expect to live to 95.

## Exploring the distribution of actual lifespans

The spread of actual lifespans can be seen in Figure 3 below, which shows the age of death for older Australians in 2018. The data in the chart are historical (i.e. the peak of the histogram reflects people who were aged 65 back in 1994) and don't capture the mortality trend for younger retirees, but are still indicative. The surprisingly wide range of ages at death can be seen in Figure 3. The highest point (at age 88) is still less than 5% of over-65s.

5 <https://actuaries.asn.au/Library/Miscellaneous/2020/RNLifeExpectancy.pdf>

Figure 3: Actual age of death in Australia in 2018 for the 65 to 100 age group



Source: ABS Cat 3302.0

Perhaps the most important point from this chart is how unhelpful life expectancy figures are in predicting an individual lifespan. Predictions of life expectancies bely a very broad range of actual outcomes. With at best a 5% success rate, a plan that relies on a certain age at death, even if it is the correct life expectancy, has an almost immaterial chance of success. The projected lifespan will either be too short and leave a retiree to live only on the Age Pension or it will be too long and leave a lot of unspent wealth.

Another takeaway for advisers based on these data of actual lifespans (as opposed to predicted life expectancies) is that the most common age of death (or statistical mode) in 2018 was 88-years-old for both males and females. If the life expectancies being used in your software or planning tools aren't at least as high as this, then you are effectively assuming that life expectancies will go down. This would potentially let down nearly all of your clients.

The potential issues are even larger if you are part of an advice practice that has a total of say 1,000 retired clients. The distribution of their lifespans would look a lot like Figure 3. For smaller practices, with only four or five advisers, the client mix might not match the pattern exactly, but it will still be close. The key point is that many

clients will need a plan that extends beyond average life expectancy.

### Life expectancy of couples

A significant majority (nearly 70%) of people enter retirement as a couple. Another interesting fact is that the life expectancy of a couple is actually greater than their individual life expectancies. This is because a couple is a pool of two people, rather than one. This increases the risk that one of them will live longer than their combined individual life expectancies. This needs to be factored into retirement income planning.

If Helen were married to Rob who is also 66, he would have a life expectancy of 87 compared to her 90. Their joint life expectancy is actually 93.

### The 'selection bias' in those seeking advice

There is a well-known link between wealth and life expectancy.<sup>6</sup> People with more wealth tend to have better

6 E.g. <https://news.harvard.edu/gazette/story/2016/04/for-life-expectancy-money-matters/>

health and live longer. This is also evident in Australia. In 2015, Accurium studied the mortality of SMSF trustees.<sup>7</sup> They found that SMSF trustees (aged between 55 and 75 in their study) were materially less likely to die over a one-year period than the rest of the population. This meant that their life expectancy was longer than the average population.

Even the typical client of a financial adviser is likely to be wealthier, and possibly better educated, than the average person. As a result, they will also have a higher life expectancy than average. For an adviser, there is a 'selection bias' in that the people with enough wealth to seek financial advice are likely to be people that live longer than average.

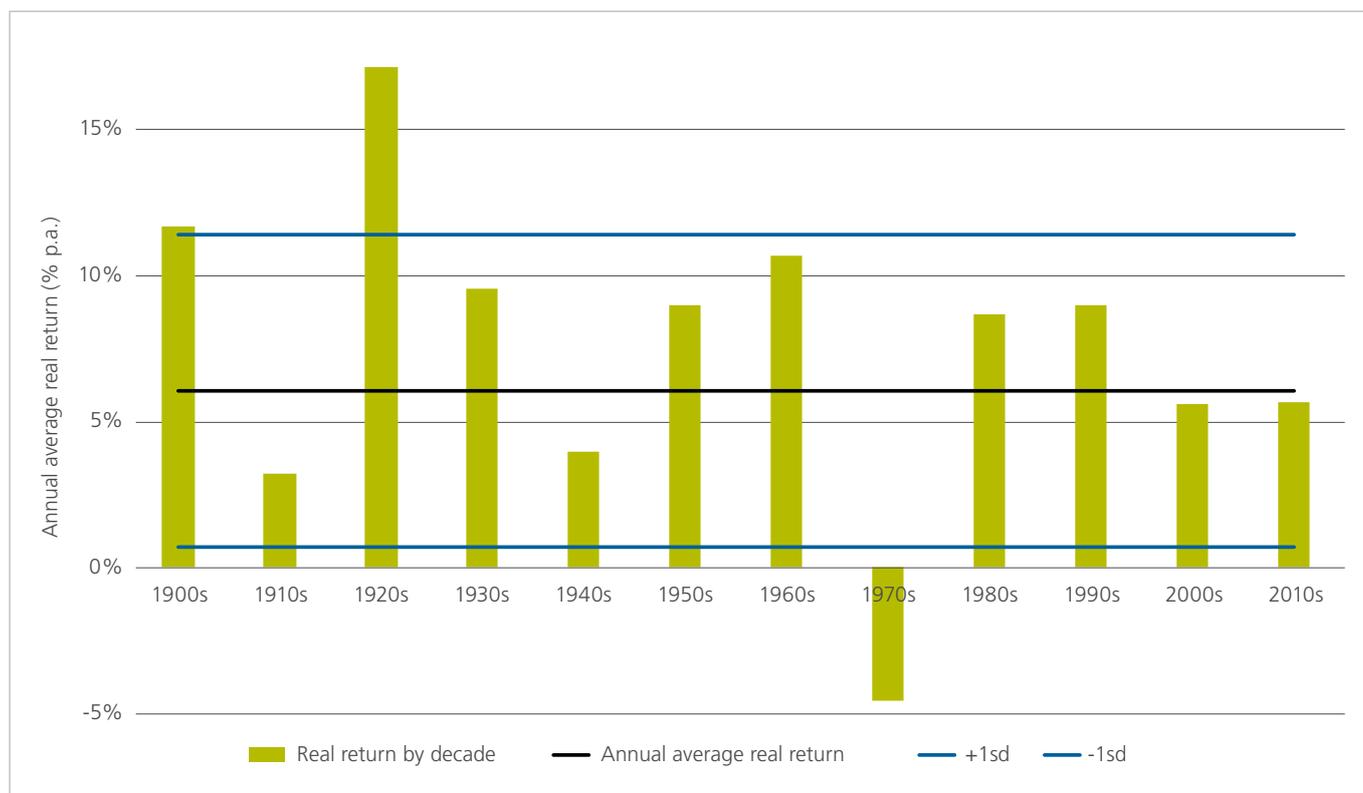
## Understanding longevity uncertainty

The uncertainty around life expectancy is significant. Most investors are aware that equity markets can be volatile. While long-term returns are expected to be positive, the volatility of returns is large, and the

associated risks need to be managed. This volatility is evident even in rolling ten-year annual average real returns as shown in Figure 4. There has been a wide range of decade-long outcomes around the long-run average of 5.8% p.a. above inflation. The extent of the variation, when measured by the co-efficient of variation is 47% – either side of the average.<sup>8</sup>

“Why is this relevant to life expectancies?” you might ask. Well it turns out that the uncertainty surrounding how long retirement will last for a new retiree is about as large as this market risk. Using a measure based on completed actual lives (with no mortality improvement), the potential variation for a new retiree is about the same as long term equity returns. The average age at death in 2018, for those over 66, was 83.5. The standard deviation of this was 8.6 years, meaning that roughly two-thirds of people died between 74.9 and 92.1. The actual values by age are shown in Figure 5. The coefficient of variation is therefore 49%. That is, uncertainty surrounding longevity is as large a risk as the equity market. As such, it is a risk that should be considered by retirees. However, the management of longevity risk will differ across retirees.

Figure 4: Real returns on Australian equities by decade

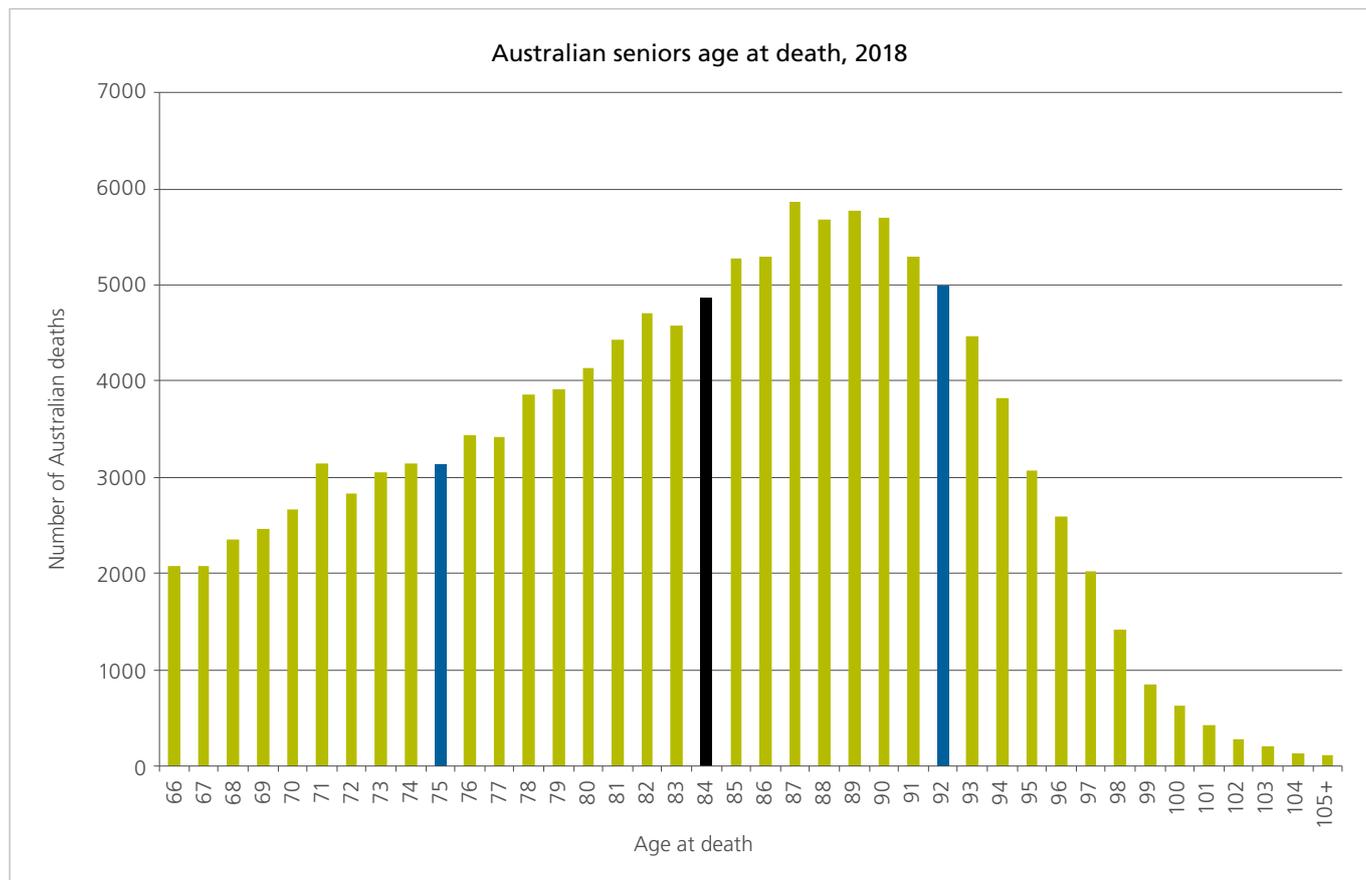


Source: Challenger calculations on data from Morningstar, S&P & ABS

7 <https://www accurium.com.au/-/media/Accurium/Technical-Hub/Retirement-Insights/Volume-2-Edition-II-Trustees-healthier-wealthier-and-living-longer-February-2017.pdf>

8 The coefficient of variation has been calculated as the ratio of the standard deviation of outcomes of the 10-year accumulation to the average 10-year accumulation.

Figure 5: Age of seniors at death, Australia 2018



Source ABS

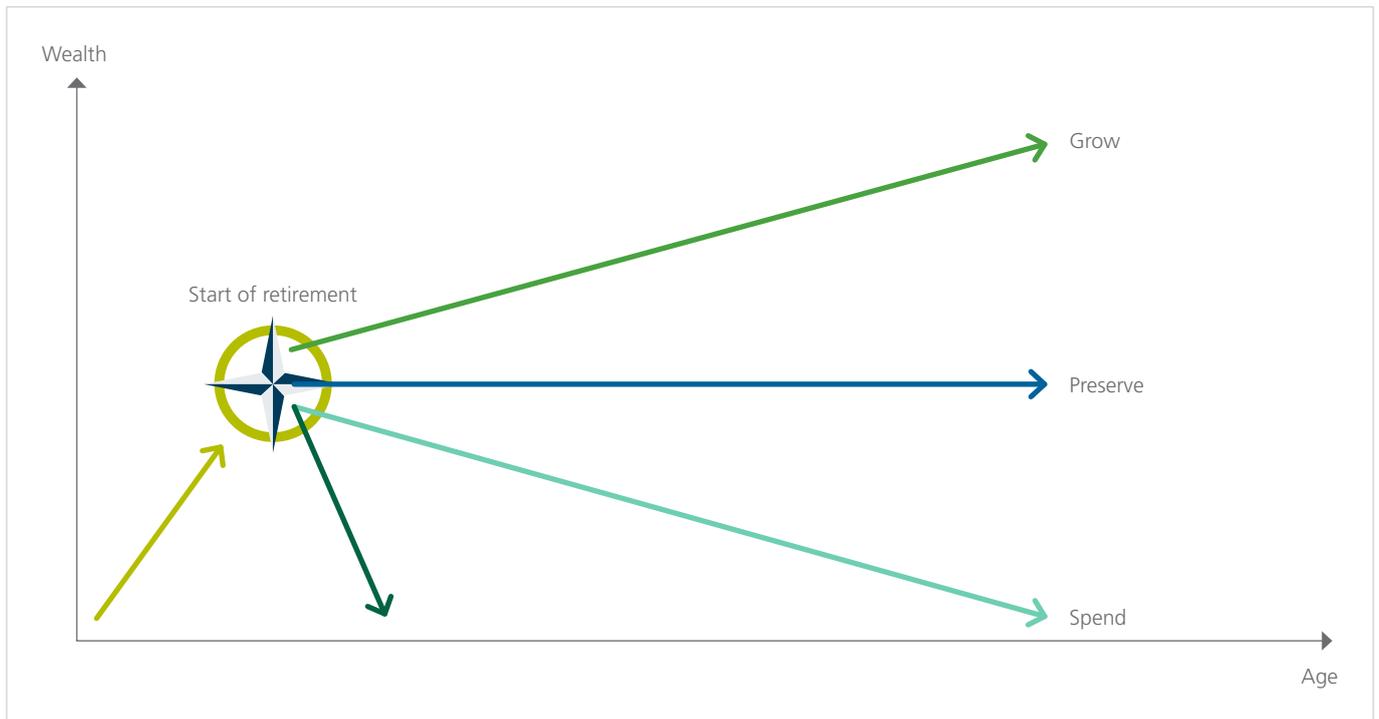
## Who needs protecting from longevity?

Not all retirees will need a specific plan to manage longevity risk. Both the very wealthy and those with limited means might not need a plan, but for very different reasons. Minney (2017) provides details on this,

but in simple terms, longevity risk is only a concern when capital is consumed over retirement.<sup>9</sup> The key is that the lifestyle of a retiree who preserves their capital will be a lot lower than one who spends their capital. It takes ultra-high levels of wealth to sustain a desirable lifestyle without spending any capital.

<sup>9</sup> See Minney, A. (2017) 'Adding Direction to the Consumption Rate in Retirement' *The Journal of Retirement Summer Vol 5 (1)* pp106-116.

Figure 6: Capital trends in retirement



Source: Adapted from Minney (2017)

Figure 6 illustrates the different directions that a retiree's capital can take over the course of retirement, based on that rate at which it is spent. Someone with limited means is likely to run out of savings while they are alive and will be reliant on the safety-net of the Age Pension. This will provide them with income for the rest of their life, albeit at a low level.

Retirees with substantial wealth might be able to grow or preserve their capital as they are able to meet their lifestyle needs, wants and desires without spending the capital. Because their capital is not running out, they do not need to manage their longevity risk. They will always have enough money to live off.

The majority of the population will sit in-between these two categories. They might not spend all of their savings, but they intend to spend some or all of it.<sup>10</sup> Longevity risk for this group can be seen in Figure 6 as the spend line is reaching zero at the end of life. The uncertainty of not knowing the end point in advance is what creates the risk from uncertain longevity. One way to manage this is to consume so little so that the capital is preserved, but that means accepting a much lower lifestyle than necessary. This would be a poor way to manage the risk.

A better retirement will be one that enables a retiree to enjoy the lifestyle they desire while managing longevity risk.

### What needs protecting from longevity risks?

This is actually an important question for an adviser to address. As Figure 6 shows, not everyone needs (additional) longevity protection on their savings. Similarly, retirees who need protection don't necessarily need to protect all their income. Most retirees could expect to fund their retirement lifestyle for a significant period. If not, their desired lifestyle is probably unaffordable. Longevity risk protection might only be needed for the spending in the later stages of retirement and only for the essential spending not covered by the Age Pension.

10 83.5% of surveyed National Seniors Australia members reported intending to spend some or all of their retirement savings according to: National Seniors & Challenger (2018). Once bitten twice shy: GFC concerns linger for older Australians.

## Stages of retirement spending

Retirees' spending tends to change over retirement. Total levels of spending tend to decline as they get older.<sup>11</sup> This decline is often described through three broad phases:

- Active phase: This is when retirees have full health and maximise their lifestyle options through travel and discretionary activities.
- Passive phase: As retirees get older, the activities are less intense and can involve less frequent travel. Spending is lower in this phase.
- Frail phase: When health concerns and costs dominate, other spending drops off. Many retirees spend little or no time in this phase.

The spending risks that need to be managed for longevity relate to the passive and frail stages of retirement.

Generally, as most retirees won't have high discretionary wants if they live a long time, there is no need to protect such expenditure against longevity risk. These wants can be foregone by the retiree with less pain than foregoing the needs that they will continue to require to be met through all stages of retirement. It is the ability to meet these needs (e.g. utilities, groceries and the like) that requires protection against longevity risk.

## The safety-net role of the Age Pension

Australians potentially have access to some longevity protection through the Age Pension. This is a means-tested payment to keep older Australians out of poverty. The fiscal burden of the Age Pension is one of the lowest in the world at 2.4% of GDP.<sup>12</sup> However, according to the OECD, this results in Australia having a relatively high proportion (25.7%) of old-age poverty.<sup>13</sup> While there is some debate about this comparison, it indicates that the Age Pension on its own provides a meagre living standard. Most retirees do not want to be wholly reliant on the Age Pension at any stage. As such, for most retirees, additional lifetime income will be required.

## The cost of managing longevity risk

As with any risk reduction strategy, there is a cost to managing longevity risk, which varies depending on the approach taken and the amount of the risk reduction.

It is also important not to confuse longevity risk with adequacy. While it was noted above that very wealthy retirees will not need to manage their longevity risk, the quantum of savings required is significant. Strategies that will help adequacy, such as saving more; retiring later, or extracting more value from the investment strategy, do not necessarily reduce longevity risk. More is always better, but it doesn't remove the uncertainty, unless you can keep working until you die.

There are effectively three ways that the risks can be managed. These can broadly be described as:

- self-insurance;
- pooled risks; and
- fully insured.

The notional cost of the three approaches varies, but so does the extent of longevity risk management.

## Self-insurance

The concept of self-insurance is really a misnomer, except in the case of very wealthy retirees. Typically, it is just a strategy to try and protect a retiree against running out of money in case they live too long. The approach is to spend less, creating a buffer, so that their accumulated savings can last for longer. This increases the probability that income will be available at later ages, but it means a diminished lifestyle for the retiree. It also means a higher chance of leaving an unintentional bequest when the retiree doesn't live as long as they plan.

Spending less just in case you live longer also needs to be combined with the management of market risk. If investment returns fall below expectations, then your clients will run out of money earlier. The easiest way to see this is to look at the different rates of spending that can be sustained for different periods. In Figure 7, the numbers are all adjusted for inflation, and it demonstrates the wide variance in spending that can be achieved from a pool of savings.<sup>14</sup>

11 This is supported by a range of research including: Blanchett, D. (2014). 'Exploring the Retirement Consumption Puzzle.' Journal of Financial Planning, May 2014 and Daley, J., Coates, B., Wiltshire, T., Emslie, O., Nolan, J. and Chen, T. *Money in retirement: more than enough*. Grattan Institute, 2018.

12 Based on expenditure of \$48.3bn from 2019/20 Budget paper No.1.

13 OECD (2017), Pensions at a Glance 2017: OECD and G20 Indicators, OECD Publishing, Paris.

14 This does not include the Age Pension, which lifts spending, particularly as retirees spend their savings and qualify for a full pension later in retirement. It also assumes constant fixed returns. Any variability in returns will reduce the sustainable spending level.

Figure 7: Sustainable spending over different time horizons for a retiree aged 65

Lifespan	CPI+1%	CPI+2%	CPI+3%	CPI+4%	CPI+5%
20 yrs (85)	\$55,000	\$61,000	\$67,000	\$74,000	\$80,000
25 yrs (90)	\$45,000	\$51,000	\$57,000	\$64,000	\$71,000
30 yrs (95)	\$39,000	\$45,000	\$51,000	\$58,000	\$65,000
35 yrs (100)	\$34,000	\$40,000	\$47,000	\$54,000	\$61,000
40 yrs (105)	\$30,000	\$37,000	\$43,000	\$51,000	\$58,000

Calculated on \$1,000,000 initial savings using a start of year drawdown assumption.

Let's imagine an optimistic adviser who expected high returns, CPI+5%, and only planned for 20 years (using male life expectancy for a 65-year-old with no mortality improvements). The adviser might conclude his clients could spend \$80,000 a year from \$1,000,000 and not run out of money. ASIC's RG229 requires a super fund to project an income stream for at least 25 years. This sends a strong signal about what the regulator considers an appropriate life expectancy to use as a minimum. While 25 years covers the life expectancy for a 66-year-old female with mortality improvements, it is too short for a couple and it doesn't build in any buffer or additional margin of safety.

The idea of self-insuring is to have a buffer in case it is needed. It would not be unreasonable to have a buffer that relied on getting no more than CPI+1% returns (in the current low-rate environment, this is a likely outcome) and to plan to have money to age 100. About one-in-ten newly retired couples will have one partner who lives to 100-years-old. The numbers in Figure 7 highlight that spending only \$34,000 a year is sustainable for that long. This is less than half the optimistic scenario. Relative to the optimistic view, spending could be halved. In practice, the plan might have a buffer for either living longer or weaker returns, rather than both occurring. Spending up to \$47,000 a year might be manageable, but it is still well below the optimistic scenario. It is also not guaranteed. If returns are low, the retiree will run out of money if they live longer than expected.

## Fully insured

At the other end of the spectrum is a fully insured retirement. Senior white-collar employees in earlier generations had greater access to a defined benefit (DB) pension. DB pensions were effectively fully insured, depending on the strength of the scheme covenants and

the sponsor, and often involved a reversionary lifetime pension for a surviving spouse. While some people can still access a DB pension, even politicians joining the Australian Parliament after 2004 no longer enjoy this benefit. They now have to manage the same risks as everyone else with their defined contribution super.

There is a solution that a retiree can take to fully insure all the risks in retirement, including longevity. They could buy a lifetime annuity with payments linked to the CPI. Investing everything in an annuity is usually not optimal and we will address that later. From a costing point of view, there is a price available any day to convert a pool of savings into lifetime income.<sup>15</sup> To get a clear price, we will use the enhanced income (immediate payments) Challenger Guaranteed Annuity (Liquid Lifetime). At 26 October 2020, a 66 year old male would be able to get \$46,014 a year indexed to inflation and a 66 year old female would get \$42,590 a year from a \$1,000,000 investment. This payment would be fully guaranteed and would be higher than many of the buffers that are required in the self-insure strategy.

## Pooled risks

A recent alternative to insuring longevity has been the idea of pooling the risk. This can take various forms, depending on the underlying investments and payment structure, but they usually have a common element. The longevity risks for an individual retiree are managed by pooling their exposure across a group of retirees. Using the law of large numbers allows an accurate gauge of mortality and a large enough pool enables idiosyncratic longevity risk to be diversified away. The idiosyncratic risk comes from the fact that people don't know in advance how long they will live – they don't know what age in Figure 5 to which they need to plan. By pooling, they can assume the average result and agree to pass their capital on to the survivors who need it because they are living longer.

<sup>15</sup> Sample rates for products including death benefits are available at [challenger.com.au/personal/products/lifetime-annuities/lifetime-annuity-payment-rates](https://challenger.com.au/personal/products/lifetime-annuities/lifetime-annuity-payment-rates).

The pooling approach only manages the idiosyncratic component of longevity risk. If everyone in the pool lives longer than expected (or even if just the average is longer), the pool is at risk of failing, unless payments are reduced. Just as an annuity provider is required to inject capital when the pool lives longer than expected, all participants in the pool would have to 'contribute' to the shortfall by reducing their income entitlements. This has happened in the Netherlands where both the indexation of pensions, and then pension payments themselves, were cut to maintain the sustainability of their (pooled) pension system.

A pooled approach also provides the opportunity to include market exposure in investments in the pool. This can be useful when retirees prefer a very high market exposure. In this case, the retirees are likely to be protecting most of their spending against longevity risks, not just their essential needs. The retained risks for the participants in the pool are also increased. While the payments might be increased due to higher expected returns, the market risks increase the probability that the payments might be cut, possibly to a level below that which could have been guaranteed originally.

## Implementation example – income layering

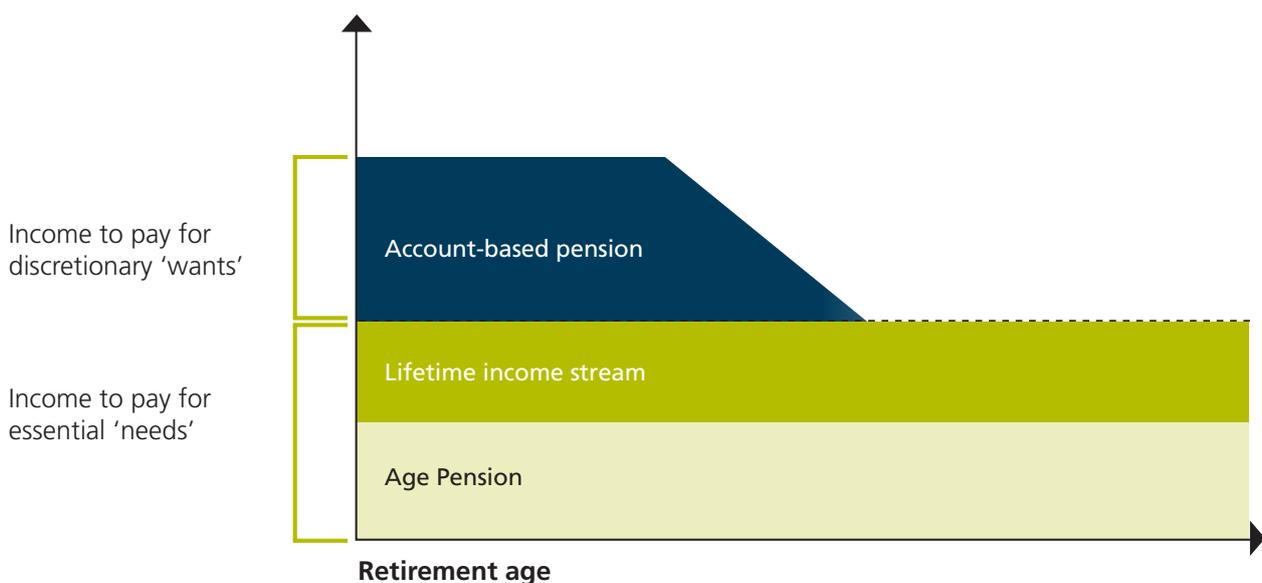
An income layering approach to retirement income portfolio construction seeks to provide cash flows to

meet the goals and objectives of retirees. Central to this approach is the ordering of the importance of different objectives from the most essential living needs up to the more discretionary retirement wants. This approach ensures that a retiree is at least able to meet a certain level of spending needs, including required lifestyle expenditures, for as long as they live.

The first layer will be (partially) provided by the Age Pension (to the extent that a retiree meets the criteria) and pays for only the basic necessities. Retirees will likely have in mind a level of spending that will provide for their needs for a minimum standard of living in retirement. As a result, a second layer of lifetime income can be used to fill the gap between potential Age Pension payments and their retirement needs, as shown in Figure 8. Once retirees have locked in a cash flow to provide for their required minimum standard of living, the remainder of their retirement savings are available for investing or additional spending.

Layered retirement cash flows can be constructed using a range of different retirement products. A lifetime income stream, such as a lifetime annuity, can be used to provide the 'required lifestyle' layer of cash flows, with the remaining funds invested in growth assets to provide for additional spending or a bequest. Non-guaranteed options can also be used in the second layer, but the retiree will have the risk that their needs won't always be met.

Figure 8: Income layering portfolio



## A longevity checklist for advisers

As the Actuaries Institute paper recommends, it is important to measure and manage the longevity risks for your client appropriately. As a practical solution, this checklist helps ensure that you have considered everything appropriately for your clients. The data sources in the checklist have been incorporated into the Challenger Retirement Illustrator.

1. Use up-to-date life tables – currently 2015-17 at [www.aga.gov.au](http://www.aga.gov.au).
2. Use an appropriate mortality improvement table – 25-year improvements (explained in 2015-17 life tables) which are the ‘most optimistic’ and hence safest to use.
3. Never use a ‘from birth’ life expectancy. They are not relevant to retirees.
4. What confidence interval are your plans based on? Build in a margin of error – don’t let 50% of your clients down because, on average, that’s how many will live longer.
5. Use a range when talking to clients about how long they might live.
6. Remember the gender differences and plan for them.
7. Remember the ‘joint lives’ issue – the age of the second death is potentially longer than each single life expectancy.
8. Research shows that pre-retirees materially underestimate their own life expectancies so communicate the real numbers effectively.
9. Identify those clients who don’t need a longevity risk plan:
  - a. the ultra-wealthy who can’t stop growing their capital; and
  - b. modest clients who would be happy on the Age Pension alone.
10. Work with your client to determine the essential spending requirements that they can’t go without. This is what needs protecting from longevity risks.
11. Consider a guaranteed solution for clients who want peace of mind.

## The information in the report has been compiled by the Challenger Retirement Income Research team.

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