The Importance of Accurate Life Expectancy Calculations in Retirement Advice

If an adviser group has 1,000 healthy and wealthy 65-year-old couples as clients then they could expect around half of these households to have one spouse still alive at age 95 [3]

About the Actuaries Institute

The Actuaries Institute ('the Institute') is the sole professional body for Actuaries in Australia. The Institute provides commentary on public policy issues where there is uncertainty of future financial outcomes. Actuaries have a reputation for a high level of technical financial expertise and integrity. They apply their risk management expertise to allocate capital efficiently, identify and mitigate emerging risks and help maintain system integrity across multiple segments of the financial and other sectors.

The Institute is keen to help ensure the methodologies used in the industry to calculate life expectancy are as appropriate as possible and we provide examples where this may not always be the case. Life expectancy calculations are often required in the superannuation and financial planning industries. They have a material impact on the way retirement income strategies and products are formulated and evaluated.

Our public policy principles can be viewed at: https://actuaries.asn.au/public-policy-and-media/public-policy/policyprinciples.

Institute of Actuaries of Australia
ABN 69 000 423 656
Level 2, 50 Carrington Street, Sydney NSW Australia 2000
t +61 (0) 2 9239 6100 **f** +61 (0) 2 9239 6170
e actuaries@actuaries.asn.au **w** www.actuaries.asn.au

Recent research into the methodologies used by financial planners has shown that the retirement tools advisers use may not always reflect best practice when it comes to Australia's increasing life expectancy.

As an example, if we simply take life expectancy from tables referred to in certain pieces of legislation, we get a result for a 65 year old male of 19.2 more years, or age 84. For a female 65 year old it's 22.1 years or age 87. These figures should only be regarded as a simplification - to make the legislation easier to apply. Since the mid 1960's we have witnessed a strong rate of increase in life expectancy for retirees. When making financial decisions, an allowance for possible future increases also needs to made.

For a suggested minimum calculation method and sample results, please refer to page 5 below.

The Australian Government Actuary (AGA) has a history of over 125 years of mortality data.

Chart 1 demonstrates the increases in life expectancy for a 65-year-old female since 1891 and shows the increasing *range* for how long people used to live over this timeframe.

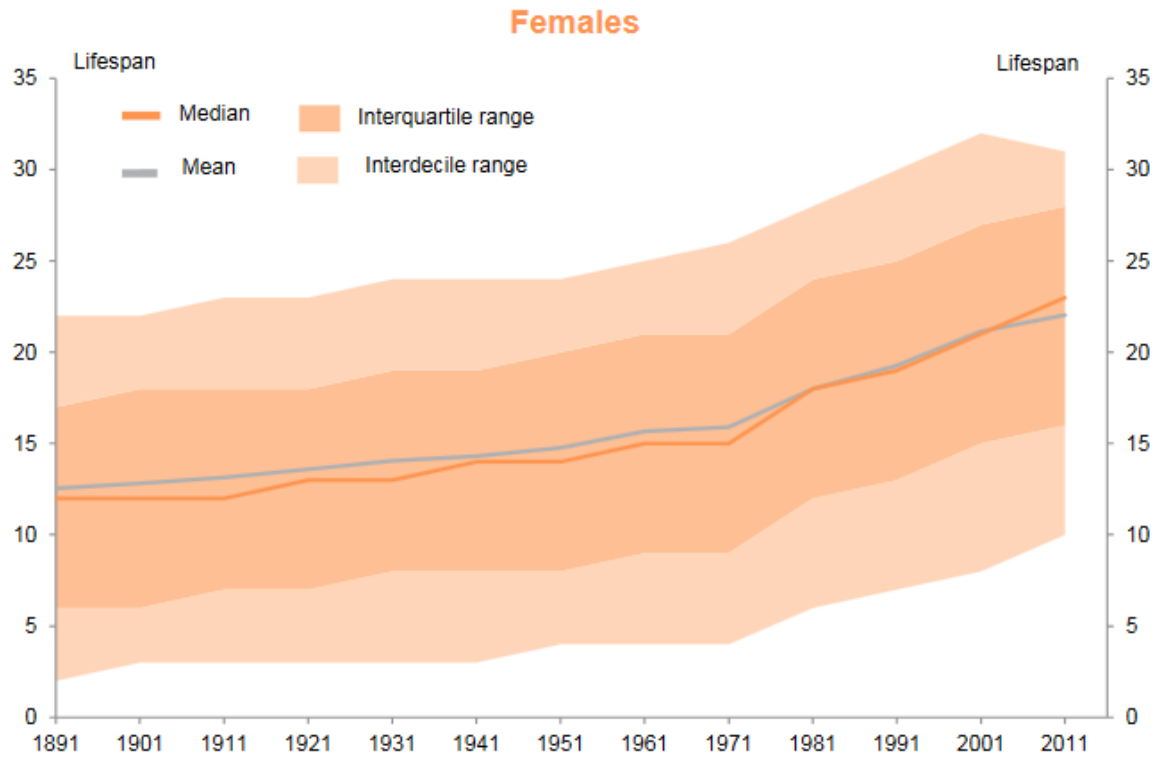

Chart 1: Life expectancy of a 65 year old female in 1891 to 2010[1]

[1] www.aga.gov.au/publications/life_table_2010-12/downloads/Australian_Life_Tables_2010-12_Final_V2.pdf

The dark orange line in Chart 1 (Median) demonstrates that since the 1960's we have seen a rapid and consistent increase in lifespans for 65 year olds females. Their life expectancy has gone from just over age 80 in 1970 to age 87 in 2010 – based on current rather than projected mortality rates. Since 2010 it has increased further still.

The shading in Chart 1 demonstrates the dispersion of possible lifespans. The darker shading near to the median line shows the range where 50% of 65 year old females live till (i.e. between age 81 and 93 in 2010) and the lighter shading shows the range where 80% live until (i.e. between 75 and 96 in 2010). It should be noted that the AGA's age-by-age mortality rates extend all the way to age 109 – because a small number of people live that long.

It is important that modellers, researchers and financial advisers make allowance for these trends and this dispersion. The reason we have focussed on females in this letter is because, for retirement planning and product design, retired couples often plan as a combined household rather than as two individuals. It is the lifespan of the longer living spouse that is most important in determining how long a household's finances must last. Usually this is the female as females tend to live longer than males and are often the younger spouse. Around two-thirds of people are married when they enter retirement.

How long will I live personally - and what impacts my own life expectancy?

There is a wide range for how long different individuals live. The lifespan of each individual may well be very different to the average.

The chart below shows the actual age of death (from Census data) for females who died in 2015 aged 65 or more.

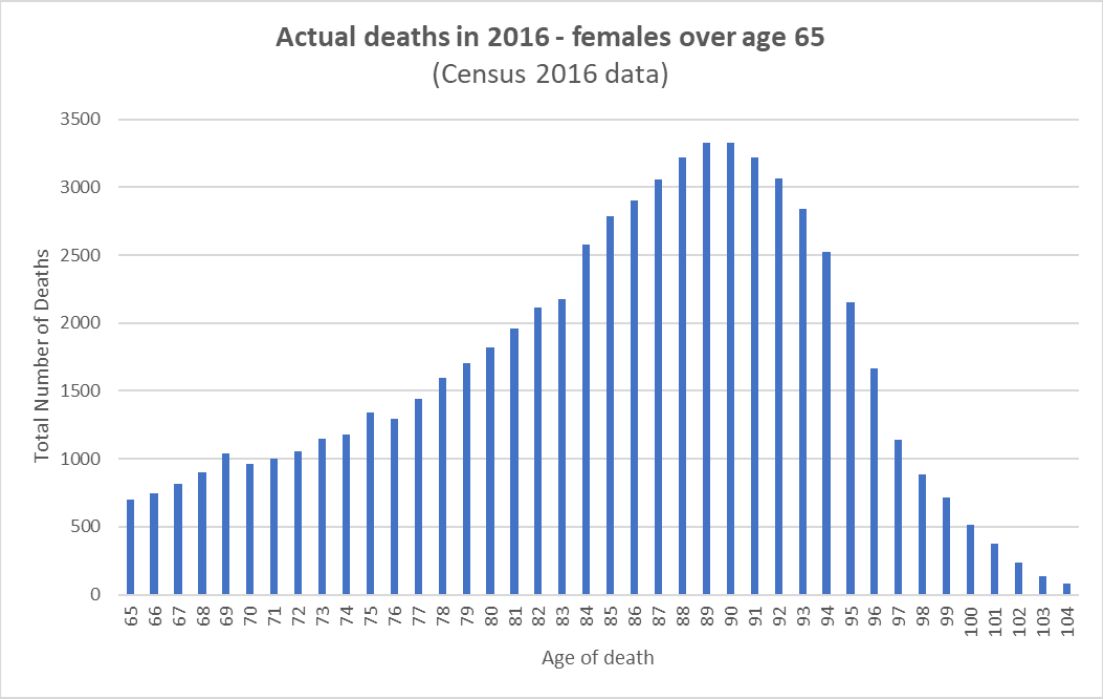

Chart 2: Census data showing actual age at death for those who died in 2016 over age 65

Part of the uncertainty around how long people live is caused by randomness but there are also known factors that cause some individuals to have a longer life expectancy than others. Considerable research has been done by insurance companies and actuaries worldwide to identify the factors that are most relevant for predicting personal longevity. Personal life expectancy has been observed to vary based on:

i. Age and sex
ii. Current health status
iii. Nutrition and lifestyle
iv. Genetics (e.g. family history of certain medical conditions)
v. Quality of housing and geographical location
vi. Education levels
vii. Occupation

The minimum method set out on page 5 allows for (i) above. If modellers require more tailored life expectancy figures, the above factors can be used with actuarial advice to create bespoke mortality tables for different individuals. For example, a healthy, well educated 65 year old female today, who had an affluent career and enjoys good quality housing is just as likely to live beyond age 100 as she is to die before age 80[2].

Modelling for groups of retirees

There is also a difference between how long different *groups* of people tend to live (for example for the members of a super fund or for the clients of a financial planning group). For example, smokers have shorter life expectancies than non-smokers.

The Actuaries Institute recently carried out research into the lifespans of those who purchase lifetime annuities. These are the people who, at the point of retirement, were likely to be in good health and therefore sought financial security in the event that they outlived their life expectancy. The study found that this group have much lower risk of dying each year than average, particularly in their 60s and 70s.

If an adviser group or superannuation fund had 1,000 'healthy, educated, professional' 65-year-old couples as clients then they could expect that around 500 of these households will still have one spouse alive at age 95.[3] This results in significantly different advice and strategies than if we assume their life expectancy was all age 87.

[2] Using tables from the Actuaries Institute investigation into annuitant mortality (Basis 1 with 25 year improvement factors). Consistent with ALT2010-12 with 25-year improvement factors and a 2 year age adjustment to allow for select mortality.
[3] Ibid.

Calculating life expectancy – suggested minimum approach

The Actuaries Institute recommends that as a minimum, life expectancy be calculated using the AGA's published mortality tables as follows:

(1) **Refer to the most recent Australian Life Table[4] (currently 2010-12)** www.aga.gov.au/publications/#life_tables

Note that where you are looking at groups who are likely to have different mortality to the average (such as those in good health to the point they are considering a lifetime income product) more appropriate life tables may be required than using overall population mortality.

(2) **Choose an appropriate mortality improvement table – which allows for estimated ongoing** improvements in life expectancy. An example of these and how to apply them is given in the Australian Government Actuary report here www.aga.gov.au/publications/life_table_2010-12/default.asp

Note that the '125 year' improvements are generally thought by actuaries to be pessimistic when it comes to how much life expectancy will increase in future and the '25 year' improvements are generally thought to be optimistic. Your selection may therefore depend on how cautious your client wishes to be (clients who are concerned about outliving their savings may wish to use the 25 year improvement factors).

The Actuaries Institute also recommends that modellers:

(3) **Include the age of both spouses if the household is a couple.** This is because joint-life expectancy (the age of the second death) is longer than single life expectancy. Also, one spouse is typically younger than the other and can therefore dominate the required planning horizon.

(4) **Show results in a way that includes the range of possible lifespan that the individual or couple may experience.** Half of individuals will live to somewhere between their life expectancy and the end of the life tables (age 109). To be confident their plan is robust, people may need to know to what age they should plan on living to be, say, 80% certain that their finances will last as long as they live. For example, for an average 65-year-old female to be 80% sure her planning horizon is sufficient it needs to last until age 97.

(5) **When looking at groups of lives** (e.g. compliance staff in advice groups overseeing the advice given to entire books of clients, or superannuation trustees who are responsible for all the members in a fund), model the full distribution of *how many* lives will live until *each* future age – as per chart 2 – rather than focussing on the average age for the overall group. Some members will live up until near the end of the life tables.

[4] Modellers may consider adjusting this based on the demographics of the group of people you are looking at (e.g. considering the list of factors above).

Worked examples

Household:	Single male, 65	Single female, 65	Married 65 yo male and 62 yo female
Life expectancy ignoring improvement trends	84	87	27 years
Life expectancy allowing for '25 year' improvements	87	89	30 years
Planning horizon to be 80% confident	95	97	35 years
Notes	Note: Healthier retirees live even longer than these figures		The above figures relate to 'second death' (the age by which both will have died)

Summary

- Life expectancy statistics in legislation and commonly quoted in the media are usually less than what Australian retirees are really likely to face, allowing for longevity improvements
- There is a range for the lifespans that any individual can expect to live. Retirees wanting confidence that their planning horizon is sufficient need to know what age to plan to in order to have, say, 90% certainty their planning horizon is sufficient
- Retirees who are healthy and wealthy tend to live even longer than average population statistics
- Couples need to consider the age to which at least one of them could survive to. This requires 'joint-life' life expectancy calculations and it is often the female's lifespan that drives the result
- If you are responsible for the outcomes of a group of people, model the whole distribution for how long members of the group will live (see Chart 2), not just the overall average.

The above issues impact the way people perceive and assess different retirement strategies and retirement products. The use of averages masks or downplays the longevity risk that is inherent in drawing down one's own assets to fund lifetime spending needs in retirement. If the 'lens' through which we view retirement is inaccurate, then incorrect conclusions will be drawn about retirement strategies and products.