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If a superannuation fund has 1,000 healthy and wealthy 65-year-old couples as clients – how many of these housholds will still have one member alive at 95?

The Importance of Accurate Life Expectancy Calculations in Retirement Advice

Retirement Incomes Working Group

About the author

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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 project Australian households lifespans 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.

The Importance of Accurate Life Expectancy Calculations in Retirement Advice

Recent research into the methodologies used by both superannuation funds and Australian Financial Services licensees has shown that many retirement calculation tools may not always reflect best practice when it comes to allowing for how long people live.

This has a material impact on the way retirement income strategies and products are evaluated.

As an example, if we simply take life expectancy from tables referred to in certain pieces of legislation[1], we get a result for a 65-year-old male of 19.86 more years, or age 85. For a female 65-year-old it's 22.47 years or age 87. These figures should be regarded as an approximation simply to make the legislation easier to apply. With the fast pace of biomedical advancements, life expectancies are improving on a continuing basis and this needs to be allowed for when making financial decisions. While COVID-19 may lead to a reduction in life expectancy, current experience suggests the effect will be small.

For a suggested minimum calculation method and sample results, please refer to page 5 of this Research Note.

The Australian Government Actuary (AGA) has a history of over 125 years of mortality data. Since the mid 1960's we have witnessed a strong rate of increase in life expectancy for

retirees and this trend is expected to continue going forward.

Chart 1 demonstrates the increases in life expectancy for a 65-year-old female since 1896 and shows the increasing range for how long people used to live over this timeframe.

The dark green line in the chart above (Median) demonstrates that since the 1960's we have seen a rapid and consistent increase in lifespans for 65-year-old females. Their life expectancy has gone from just over age 80 in 1970 to over age 87 in 2016 – based on current rather than projected mortality rates.

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 to (i.e. between age 82 and 93 in 2016) and the lighter shading shows the range where 80% live until (i.e. between 75 and 97 in 2016). 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, product managers and Australian Financial Services licensees and their 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.

Chart 1: Life expectancy of a 65-year-old female in 1896 to 2016[2]

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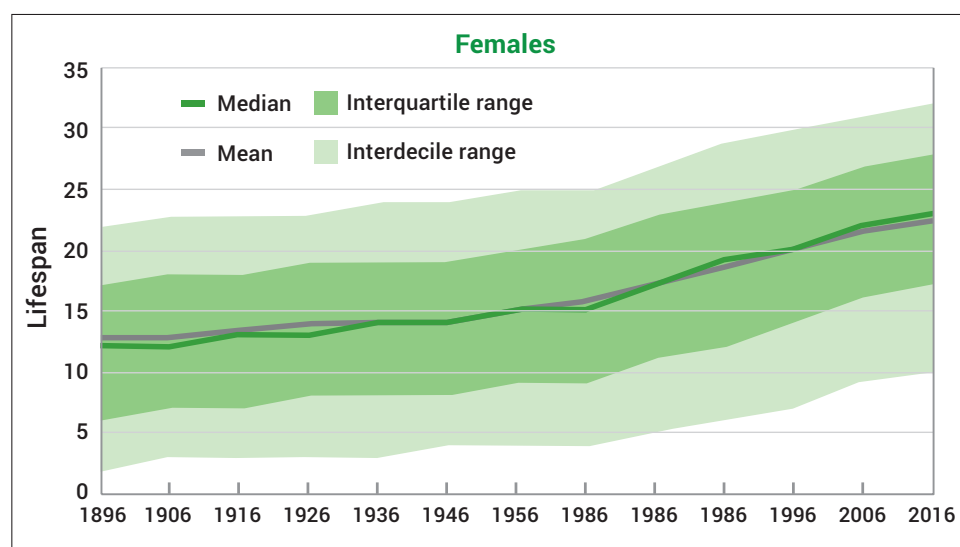
1   For example, Social Security legislation uses life expectancy as the 'Relevant Number' in many benefit/assessment calculations
2   http://www.aga.gov.au/publications/life_table_2015-17/downloads/Australian%20Life%20Tables%202015-17%20v5.pdf

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

There is a wide range for how long the individuals within any group (for example for the members of a super fund or for the clients of a financial planning group) live. The lifespan of each individual may well be very different to the average. Each individual is different.

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:

- Current health status
- Nutrition and lifestyle
- Genetics (e.g. family history of certain medical conditions)
- Quality of housing and geographical location
- Education levels
- Occupation

There is also a difference between how long different groups of people tend to live. For example, smokers have shorter life expectancies than non-smokers.

Chart 2: ABS data showing actual age at death for females who died in 2018 over age 65[3]

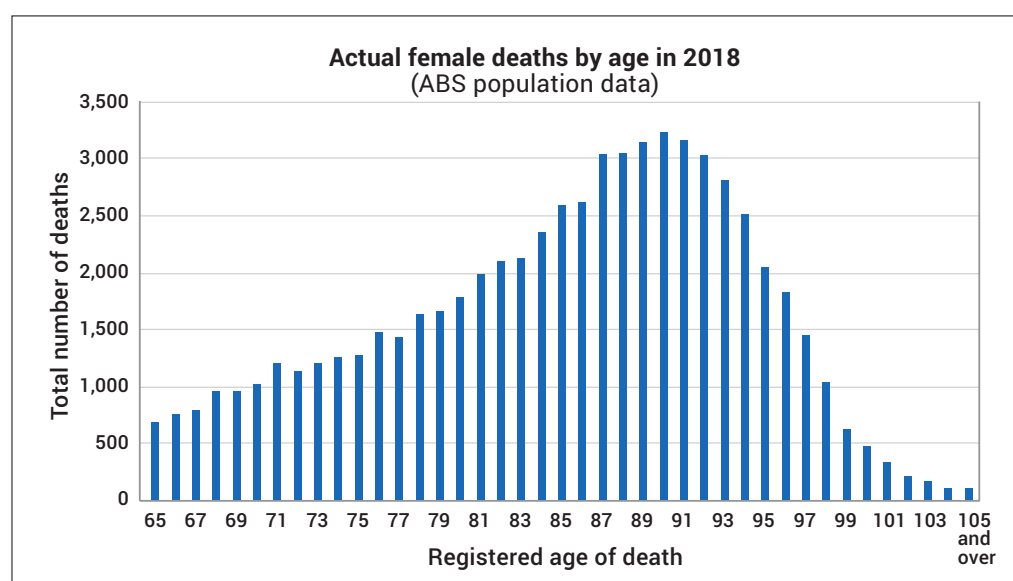**Actual female deaths by age in 2018**
(ABS population data)

Chart 2 shows the **actual** age of death (from ABS data) for females in the general population who died in 2018 aged 65 or more.

At September 2019 Australia had just over 130,000 females who were age 65 or more[4]. Using the AGA 2015-17 mortality tables and applying the '25 year' improvement factors we can project how many of these females will live until each future age, as follows. One in four of them are expected to live past age 95.

Chart 3: Estimated distribution of lifespans for Australian females who are currently age 65[5]

Today's 65 year-old females (130,000 people)
– range of projected lifespans

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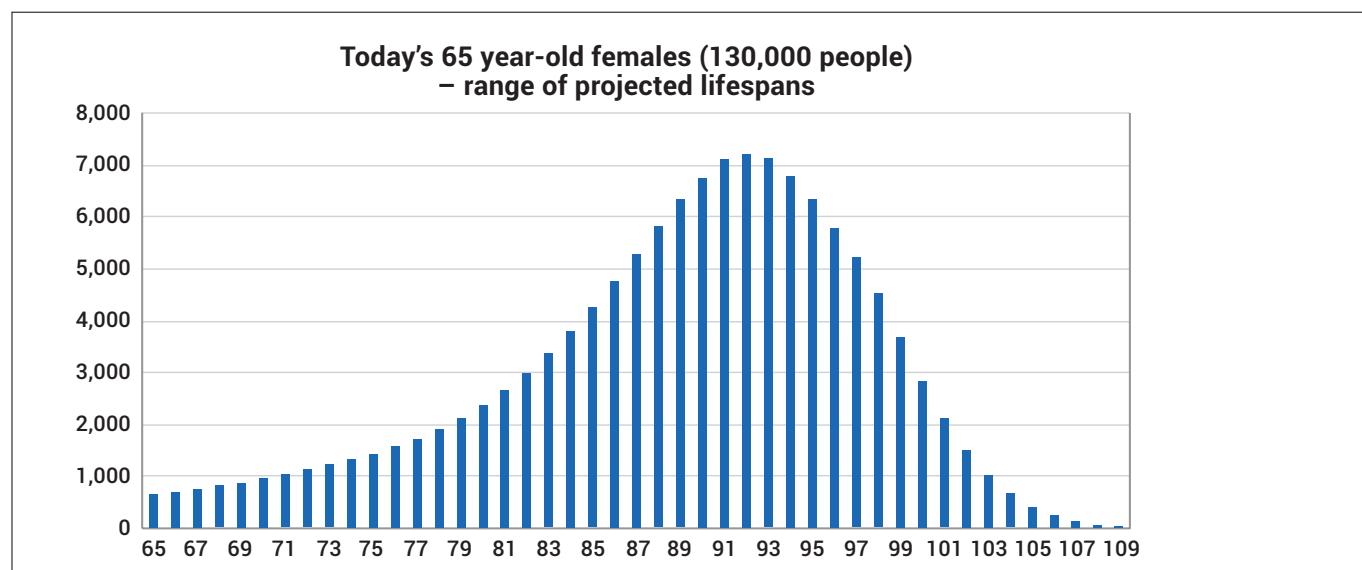
3   Data sourced from ABS.Stat and relates to Deaths, Australia (cat. no. 3302.0), available from the ABS website, https://www.abs.gov.au/AUSSTATS/abs@.nsf/mf/3302.0

4   Data sourced from ABS.Stat and relates to Australian Demographic Statistics (cat. no. 3101.0), available from the ABS website, https://www.abs.gov.au/AUSSTATS/abs@.nsf/mf/3101.0

5   Applying ALT 2015-17 with 25-year improvements

Modelling for different groups of retirees

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 the general population, particularly in their 60s and 70s.

In that modelling:

A healthy, well-educated 65-year-old female, who had an affluent career and enjoys a good quality of housing has a similar chance of living beyond age 100 as she does of dying before age 80[6].

If a superannuation fund had 1,000 'healthy, educated, professional' 65-year-old couples entering retirement then they could expect around 500 of these households will have one spouse still alive at age 95.[7] This implies significantly different advice and strategies than if we assume their life expectancy was all age 87.

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[8] (currently 2015-17) 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_2015-17/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 superannuation funds and Australian Financial Services licensees:

(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 lifespans 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 96.

(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.

Household:	Single male, 65	Single female, 65	Married 65 yo male and 62 yo female
Life expectancy ignoring improvement trends	85	87	28 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)

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6   Using tables from the Actuaries Institute investigation into annuitant mortality (Basis 1 with AGA 2010-12 25-year improvement factors).
7   Actuaries Institute investigation into annuitant mortality (Basis 1 with AGA 2015-17 25-year improvement factors)
8   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).

Summary

- Life expectancy statistics in legislation and commonly quoted in the media are usually less than the ages to which Australian retirees are likely to really 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, 80% or 90% certainty their planning horizon is sufficient

- Healthy retirees with good lifestyles 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 Charts 2 and 3), 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.

The Actuaries Institute welcome comment and opportunities to work together in this area. If you are interested, please contact the Retirement Incomes Working Group via the Actuaries Institute <john.mclenaghan@actuaries.asn.au>

If a superannuation fund or adviser group has 1,000 healthy and wealthy 65-year-old couples as clients then they could expect around 500 of these households to still have one spouse alive at age 95.