Technical notes –

Age standardised rate of premature mortality in males in Australia – Commonwealth Electorate Divisions

Suggested citation for further use of the data:

Deaths data are from AIHW National Mortality Database (unpublished).

Data source

The data reported in the map is from the period 2020-2022 combined, the most recent period of availability for Australia. The data was accessed via the Australian Institute of Health and Welfare (AIHW) using the National Mortality Database. Cause of Death Unit Record File data are provided to the AIHW by the Registries of Births, Deaths and Marriages and the National Coronial Information System (managed by the Victorian Department of Justice) and include cause of death coded by the Australian Bureau of Statistics (ABS). The data are maintained by the AIHW in the National Mortality Database.

This data was compiled and released in response to custom requests. Although approved for public release and use, as it was requested, it is not publicly available from AHIW or any of the of the above sources above (e.g. on official websites).

Definition of premature mortality, rates and age-standardisation

Premature mortality: The data reported in the interactive map is based on a definition of 'premature mortality' being death before the age of 75.

While there is no universal standard for premature mortality, the characterisation used for this data is applied in a range of jurisdictions. In addition, it is a relatively clear bright-line test, which doesn't include disease definitions, making it easy to implement across a range of jurisdictions.

All data was provided as age-standardised rates by the AIHW; see below for further information on 'rates' and 'age-standardisation'.

Rates: All premature mortality data is presented as a 'per 100,000' value. Based on the observed number of deaths in the electorate during the period 2020-2022 combined, this value represents the number of men who would have died out of a group of 100,000. The reason for using this rather than the actual number of deaths is that data presented as rates (i.e. 'per 100,000') accounts for differences in the size of a population.

For example, if location A is twice the size of location B, but the population is otherwise similar, it would be expected that there would be approximately twice as many deaths in

location A. However, without knowing the population, it might appear that the health of men is worse in location A. More concerningly, if the number of deaths were the same in locations A and B, it might not be immediately obvious that men are dying much more frequently in location B.

Using rates, and accounting for the different sizes of the population, remove this issue and allows for a more direct comparison of locations.

Age standardisation: All the rates are age standardised to account for differences in the demographics of different locations. Age standardisation recalculates the values to represent the rate if the age structure of all areas were similar. Since mortality rates vary significantly with age, age standardisation enables fairer comparisons by adjusting for variations in age structures, allowing for more accurate assessments of the true differences in mortality patterns.

For example, an electorate with a very young population (for example many urban areas) will have a comparatively low number of deaths, however, this is more related to the age of the population than the underlying health (and health services) of the population. If this was compared to an area with a moderate-to-old population, it would appear 'healthier' and can disguise underlying issues.

By standardising for age, researchers can better understand the underlying patterns in mortality trends and make more reliable comparisons across locations with very different age structures.

For the current data, the populations have been standardised to the 30 June 2001 Australian standard population. This is the standard population recommended at the time of the request by both AIHW and ABS. It is common for reference populations to be maintained for long periods of time (often decades), as using the same reference period makes data over a broad range of time directly comparable. When a new standard population is established, the ability to directly compare age-standardised values calculated using the prior standard population is lost. This is a significant reason Australia has maintained the 2001 population as the population for age-standardisation of the majority of official values.

It should be noted that because the data is age-standardised it may not reflect the true rates within the country. The primary purpose of the current data is to observe trends and compare across locations, hence the use of age-standardised data. For other uses, for example provisioning of health services where the number of events (impacted by the underlying age structure in the area) is a critical feature, non-age standardised count data would be a more appropriate metric.

Calculated percentage differences: Where a percentage difference is reported in a constituency profile the comparison is based on the difference between the mean of premature mortality age-standardised rate (ASR) in the selected electorate and the mean of the geographic grouping.

For example, Macarthur is reported to have a premature mortality ASR "8.8% higher than the Australian average" and "10.1% higher than the New South Wales average". In this case, the Macarthur constituency ASR is compared to the average premature mortality ASR in Australia and NSW electorates, respectively.

As there is some variation in the population of electorates, the average at the level of the electorate will be similar, but not identical to, an average value calculated on individual-level data for the given geographic grouping. Individual-level data is not currently available; however, additional geographic summary data based on individual-level data may be requested in the future, and this will be updated if and when this data becomes available.

Electorates:

Data is based on Commonwealth electoral divisions for the Federal House of Representatives, based on the 2021 apportionment. As such, this represents the federal electoral boundaries, not the state-based electorates

Location-based designations:

To allow for logical grouping of electorates, additional variables describing the location and demographics were created.

The assignment of location-based designations, which included the state or territory of the electorate and the rurality of the electorate was based on Australian Electoral Commission (AES) and Australian Bureau of Statistics (ABS) supplied data. The demographic data, including socio-economic status and proportion of men identifying as Indigenous, was based on data provided by the ABS.

Rurality:

For rurality, the classifications from the AEC were used (https://www.aec.gov.au/electorates/maps.htm). This classifies locations as:

- Inner metropolitan

- Outer metropolitan
- Provincial
- Rural

A look up for the current electorates from the same body (AEC) was used to assign classifications to electorates (https://www.aec.gov.au/Electorates/files/demographic-classification-as-at-2-august-2021.xlsx).

Cities:

As part of the AEC definitions for electorates, inner and outer metropolitan electorates are located in capital cities. Electorates were therefore allocated to the capital city of the state/territory they were within if their rurality was designed as either inner and outer metropolitan. If an electorate was either provincial or rural it was then assigned to 'Rest of Australia'.

State/territory:

This was based on the CED_code in data supplied by the ABS. The prefix of the code designated the state or territory, with code in the 100's being from New South Wales for example. The table below contains the allocations used:

Prefix	State or territory
100's	New South Wales
200's	Victoria
300's	Queensland
400's	South Australia
500's	Western Australia
600's	Tasmania
700's	Northern Territory
800's	Australian Capital Territory

Socio-economic disadvantage: Data supplied by the ABS was used to assign SES rank to electorates (https://www.abs.gov.au/statistics/people/people-and-communities/socio-economic-indexes-areas-seifa-australia/latest-release). In particular a lookup table by CED was used: https://www.abs.gov.au/statistics/people/people-and-communities/socio-economic-indexes-areas-seifa-australia/2021/Commonwealth%20Electoral%20Division%2C%20Population%20Distributions%2C%20SEIFA%202021.xlsx

The measurement Index of Relative Socio-economic Disadvantage (IRSD) from the collection of measures collectively called Socio-Economic Indexes for Areas (SEIFA)

was used as the indicator. This ranks CED from most disadvantaged (1) to least disadvantaged (151).

These ranked values were then placed into quintiles to represent decreasing disadvantage with increasing quartile, i.e. quartile 1 represents the most disadvantaged 20% of the population, quartile 5 represents the least disadvantaged 20%.

Proportion of men identifying as Indigenous: This was based on ABS-provided data and was derived from the 2021 census. The data was provided by CED and included the number of men who reported identifying as Indigenous as well as all persons identifying as men. Based on this it was possible to calculate the percentage of men identifying as Indigenous. This was further categorised to electorates where 5% or more of the men identified as Indigenous as the format of the map required categorised data for filtering.

The base data can be found on the ABS website in census 2021 geopackage: https://www.abs.gov.au/census/find-census-data/geopackages?release=2021&geography=AUST&table=G01&gda=GDA2020

For further information, please contact advocacy@movember.com