The Australian Population Research Institute,
Research Report, April 2025

Life Expectancy by Country: lessons from the OECD and Australian electorates

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Table of contents

Abbreviations

FWE Full workforce equivalent (DoH)
FTEGP Fulltime equivalent GP
GBD Global Burden of Disease.
GP General Practitioner, General Practice.
HALE Health Adjusted Life Expectancy.
HAQ Healthcare Access and Quality.
IRSAD Index of Relative socio-economic advantage and disadvantage
LE Life Expectancy.
OECD Organisation for Economic and Cooperative Development.
ppp Purchasing Power Parity
SDG Sustainable Development Goal
SDI Socio-democratic Index.
SEIFA Socio-economic indices for areas.
UHC Universal Healthcare.

Index of Graphs and Tables

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Acknowledgments: to Bob Birrell and Katharine Betts for advice and assistance with preparation of text.

Life Expectancy by Country: lessons from the OECD and Australian electorates

1 Overview

Australia's Life Expectancy (LE) continued to rise and gained media attention when it reached 4th position internationally in 2020 (before Covid mortality reached a heavy proportion), a significant achievement when compared to the other major economies (Table 1: OECD Data). The Life Expectancy of a country emerges from an amalgam of different social groupings, their standard of personal, social and environmental living combined with the accessibility and efficacy of available Healthcare, (but not necessarily from wealth[1]). The resultant age value gives an indication of achievement but not the kind of understanding of processes that is required to modify policy.

This study explores some of these processes. It is part of an investigation into Australia's Healthcare achievement. It is first a preliminary examination of other OECD countries in comparison with Australia and second an analysis of Life Expectancy itself within Australia, taken from federal electorate data. The analysis indicates that Life Expectancy is highest in inner city electorates, lower in Fringe Metropolitan areas, lower still in non-Capital Major Cities, and declines further in rural and remote regions.[2] The data for each electorate is columned in the Appendix.

Some interesting points arise from this analysis. Within Australia the difference in Life Expectancy observed in the electorates runs parallel with the level of social advantage (from SEIFA score[3]). Within the OECD there appears to be a direct relationship between Health Expenditure (per capita) and Life Expectancy. In most cases, both rise together. More successful countries also have a greater degree of social equality. Obesity appears as a negative influence on Life Expectancy. By and large, success in reducing Treatable mortality (Healthcare Access and Quality (HAQ), discussed below), improves LE. Japan is well ahead of other OECD countries for LE but some way down the HAQ Index. Its overall healthcare characteristics differ substantially from the Australian approach.

The Healthcare structure of OECD countries will be further examined in the next study but it can be said at this point that a relationship between GP numbers and Life Expectancy does not emerge. Japan in particular has a much smaller medical workforce as measured against population. It also has no specialist categories and has only started training GPs very recently.

2 Introduction

To appraise healthcare achievement accurately, hard data is required.[4] Life Expectancy (LE) is the most common parameter used for this purpose. This measure was improving steadily

[1] Highly ranked for LE, Japan, Korea, Italy and Spain have relatively low GDP per capita, as well as low health expenditure per capita.

[2] Life expectancy in Australia's Commonwealth Electoral Divisions, 2016–2018 Federal Parliamentary Library 25-Feb-20., Roden M Statistics and Mapping. This study averaged deaths of 2016 and 2018 obtained from the ABS. https://www.aph.gov.au/About_Parliament/Parliamentary_departments/Parliamentary_Library/Research/Statistical_Snapshots/2019-20/LifeExpectancyAustraliasCommonwealth

[3] Australian Bureau of Statistics: Socio-economic indicators for areas.

[4] Self-rated health scores probably bear some relation to national psychology. The anglophone countries all top the table for populations not in poor health. OECD Health at a Glance 2021 for 2019 Table 1,2.

throughout the world until the Covid 19 pandemic, and can be expected to resume this improvement. No one country has enjoyed superiority over the others in terms of a biological propensity for longevity. Rather, differences appear to be a product of conditions of personal and environmental living on the one hand and Healthcare on the other. Japan started with lowest LE of the major economies but has been clearly at the top since 1980. The other countries are fairly closely ranked behind Japan (Table 1[5]). Australia has been in the top 10 this century, and as mentioned was 4th in 2020.

Rising from around 70 years in the 1960s, top performing countries now have Life Expectancies of around 81 to 83 years. Worldwide, only around 50% of countries have LE in excess of 75 years. Life Expectancy is also prone to fluctuation relative to the prevalence of respiratory tract infections. The Covid pandemic itself was preceded by a particularly bad year in 2015.[6]

Table 1. Increase in Life Expectancy of better performing OECD Health systems 1960 to 2020. The USA is added for comparison.

	1960	1980	2000	2020
Australia	71[5]	74.8[9]	79.2[8]	83.2[4]
Canada		75.1[8]	79.3[6]	81.7[12]
Finland	69[9]	73.7[11]	77.8[11]	82.0[11]
Iceland		76.8[1]	79.7[5]	83.1[5=]
Ireland	70[6]	72.9[13]	76.6[13]	82.6[7]
Italy		74[10]	79.9[3]	82.3[10]
Japan	67.8[9]	76.1[2]	81.2[1]	84.7[1]
Korea	62.3[1970]	66.1[24]	76.0[25]	83.5[2]
Netherlands	73.5[2]	75.9[3]	78.2[10]	81.4[13]
Norway	73.8[1]	75.8[4]	78.8[9]	83.3[3]
Spain	69.8[7]	75.5[7]	79.3[6]	82.4[8]
Sweden	73.1[3]	75.8[4]	79.8[4]	82.4[8=]
Switzerland	71.4[4]	75.7[6]	80[2]	83.1[5=]
USA	69.7[11]	73.7[14]	76.8[22]	77.0[28]

Source: OECD Life Expectancy Data files . ***Notes***: Because there is considerable variation in reported data from various sources, OECD records are selected for this table. There have been further changes in ranking since 2020. Within the OECD as a whole in 2020 the US ranked 28th. Further data can be obtained from the biennial OECD 'Health at a Glance' 2023 and ensuing years.

There has been a general tendency for LE improvement in the OECD to slow since 2011, even though the top countries continue to increase theirs. The reasons for this were not clear to Raleigh in 2019, who cited various authors as to the plateauing of cardiovascular mortality and other possible factors.[7] Gains from some initiatives such as tobacco reduction and lower

[5] Table 1 offers a comparison of 5 yearly OECD data for LE in top HAQ countries from 1960 to 2020. The USA is added to demonstrate its slower ascent, and is further threatened by the some of the incoming Trump administration's healthcare positions. Australia emerged near the top during the Covid-19 pandemic but may fall lower again once the established economies move forwards. *Note*: Life expectancies are generally calculated for the preceding financial year ending in June. Hence excess mortality in 2015 is represented in the 2015-16 year.

[6] Trends in life expectancy in EU and other OECD countries: Why are improvements slowing? Raleigh V S. OECD health working paper No 108. https://dx.doi.org/10.1787/223159ab-en. Data in this field of monitoring is difficult to interpret because of the idiosyncrasies of death certification.

[7] Ibid Raleigh. https://dx.doi.org/10.1787/223159ab-en.

cholesterol have plateaued.[8] The negative contribution of increasing body weight remains to be fully clarified, though it is associated with an increased incidence of type 2 diabetes and an increased healthcare load. The AIHW cites a figure of 10% for all Australian deaths in 2021 as being attributable to overweight.[9] By the age of 17, 25% of Australian youths are overweight.[10] The *prevalence of Obesity* in the Australian population has increased from 20% to 30% this century.[11] Graphic representation for the OECD is provided in Figure 4.

There are various monitoring systems for the effectiveness of healthcare processes in each country. The Global Burden of Disease (GBD) study[12] collects information from every country. This has allowed the accumulation of objective data to assess the performance of each country in limiting mortality in relation to the incidence of disease (as opposed to measures that lead to the reduction of this incidence). Useful projects conducted by the GBD study have been the Healthcare Access and Quality (HAQ) index,[13] the Universal Health Care (UHC) index, [14] and the Socio-demographic Index (SDI).[15]

The SDI stratifies countries into levels of affluence to facilitate comparison. The HAQ exercise reports deaths that should not occur in the presence of timely quality health care; it assesses treatable mortality as a way of scoring each country for its achievement in providing available effective curative medical care. The UHC index combines both preventive and curative elements to assess overall country achievement. 'Avoidable' mortality rates, also derived from the GBD, are now being reported biennially by the OECD for member countries. They are reported as either 'preventable', or as 'amenable or treatable'.[16]

[8] Ibid Raleigh.

[9] Using measured weight rather than self-reported, in persons aged 15 or more, Australia ranks 9th for overweight (64% of population) and 6th for Obesity in the OECD (31% of population. https://www.aihw.gov.au/reports/overweight-obesity/overweight-and-obesity/contents/summary#health_impacts.

[10] Estimates vary but it seems that in excess of 25% of those aged 5-17 were above healthy weight for age in 2024 (https://www.aihw.gov.au/reports/overweight-obesity/overweight-and-obesity/contents/summary).

[11] https://www.aihw.gov.au/reports/overweight-obesity/overweight-and-obesity/contents/summary

[12] The Global Burden of Disease Study is coordinated by the Seattle Institute of Health Metrics and evaluation. There are more than 9,000 contributors worldwide. It is funded by the Gates foundation, which has no input into its academic functioning. Studies related to the exercise have included the evolution of the Health Access and Quality (HAQ) index, a Universal Health Care (UHC) index, and a Socio-Demographic Index (SDI).

[13] Lozano et al. Lancet Global Health 2022; 10 e1715-43. Assessing the performance of the Healthcare Access and Quality Index overall and by select age groups, for 204 countries and territories 1990 – 2019: a systematic analysis from the Global Burden of Disease study 2019. https://pmc.ncbi.nlm.nih.gov/articles/PMC9666426/ . HAQ scores reflect mortality which should not occur in the presence of "timely, quality Health Care". It does not include deaths from violence.

[14] 'Measuring universal healthcare coverage based on an index of effective coverage of health services in 204 countries and territories 1990 – 2019: a systematic analysis for the Global Burden of Disease Study 2019'. Lozano et al. Lancet 2020: 396: 1250-84. 23 coverage indicators were mapped, including MIRs, to a matrix representative of health promotion, prevention, and treatment for five population age groups.

[15] The socio-demographic index (SDI) was developed for the purposes of the GBD. It combines total under age 25 fertility rate with mean education for over 15 age and 'lag distributed income' per capita. The 5 quintiles are described as high, high medium, medium, low medium and low. https://ghdx.healthdata.org/record/ihme-data/gbd-2019-socio-demographic-index-sdi-1950-2019.

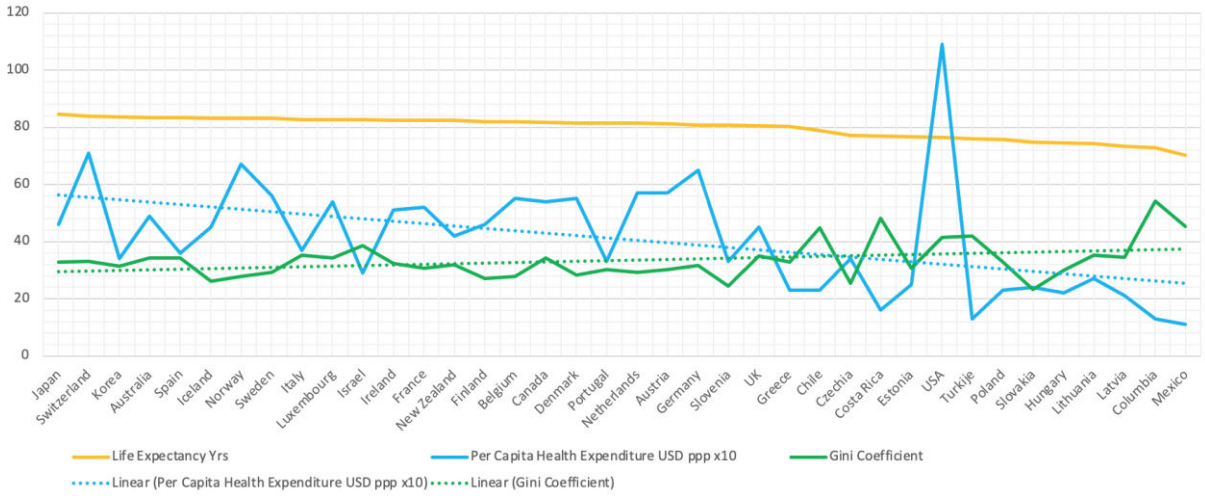
[16] Biennial 'Health at a Glance' OECD 2021 (Fig 3.10) and 2023 (Fig 3.8). *Avoidable* mortality, described as 'potentially avoidable' by Australia, is calculated up to the age of 74. Of avoidable mortality, '*Amenable*', or treatable mortality is distinguished from that '*preventable*' by 'effective public health or primary prevention strategies.

3 Life Expectancy and prosperity in the OECD

The OECD dominates Healthcare rankings. Including Australia, 31 of 38 OECD countries have a high Socio-Democratic Index rating. 27 of 34 countries scoring 80 or more on the Healthcare Access and Quality Index (HAQI) in 2019 were OECD members. 31 of the top 35 countries on the Universal Health Care (UHC) Index are OECD members.

The positive effect of *per capita healthcare expenditure* on Life Expectancy has been studied and discussed by the OECD.[17] Figure 1 shows how, for OECD members, as Life Expectancy declines, so does per capita Health Expenditure on the linear regression line. Australia (4,900 USD (at purchasing power parity) per capita) spends only moderately more than the OECD average of 4,087, but still gets a good return on its investment in terms of outcomes. In 2019 there were plenty of countries spending at a much higher level. (Not necessarily to any advantage, as demonstrated in the USA, where LE was only 78.9 years despite massive expenditure.) A mathematical model known as the *Gini Coefficient*, based on various parameters, is used to compare the degree of inequality of income within countries.[18] Figure 1 uses World Bank calculations for 2019, based on its annual GINI index, as published by Index Mundi,[19] using household income as the basic parameter.[20] Higher scores represent higher disparity. Life expectancy falls as the Gini score rises.

Figure 1: 2019 OECD member country Life Expectancy compared to per capita Health Expenditure (USD ppp) and Gini Coefficient. Sources: OECD Health at a Glance, Index Mundi.



The negative effects of *socio-economic deprivation* on health status are constantly mentioned in the literature. Evidence for these effects can be found in the data for the Australian Electorates using the Australian Bureau of Statistics' 'Socio-economic Index for Areas' (SEIFA), (based on the quintennial national Census).[21] Figure 1 also illustrates how, taken as a whole, increasing Gini scores in the OECD are associated with decreasing LE. Less disparity likely

[17] OECD Health at a Glance 2019, Chapter 2.
[18] Gini scores measure from 0 (zero inequality) to 100 (absolute inequality). OECD scores vary from 26.1 for Iceland to 54.8 for Columbia (USA 41.3). Scores above 30 tend to cut into the benefits of prosperity. Australia's score is 34.8.
[19] https://www.indexmundi.com/facts/indicators/si.pov.gini/compare#country=au
[20] https://databank.worldbank.org/metadataglossary/jobs/series/SI.POV.GINI
[21] https://www.abs.gov.au/websitedbs/censushome.nsf/home/seifa

accounts for higher LE in City states and countries with greater urbanisation. *Iceland* ranks 1st for HAQ, 2nd for UHC, 1st for Gini coefficient (lowest), 5th for Life expectancy and is 94% urbanised. *Japan* leads for life expectancy and is top scored for UHC, despite having an unusually constituted medical workforce. Japan is also 92% urbanised. It has a tendency towards societal conformity which may contribute to widespread norms as to how to live a healthy life, strengthening preventive care enough to achieve the top ranking for Life Expectancy despite its lower HAQ Index rank.

4 Healthcare outcomes and Life Expectancies in OECD countries.

HAQ and UHC Index scores of OECD countries, as might be expected, loosely mirror their life expectancies. The longer established OECD members are more closely grouped. Interestingly Japan, with the longest Life Expectancy and the highest UHC score, ranked only 17th for HAQ score, perhaps indicating an emphasis on preventable mortality more than on medical intervention in reducing treatable mortality. Japan, Korea and Singapore all benefit from a low proportion of obesity, while elsewhere in the OECD, as discussed above, increasing obesity is encroaching on gains made in healthiness.

Figure 2: 2019 OECD member Life expectancy compared to UHC and HAQ scores, together with UHC trendline. Sources: 2021 OECD Health at a Glance. Global Burden of Disease study Lancet papers (Lozano 2020 and 2022)

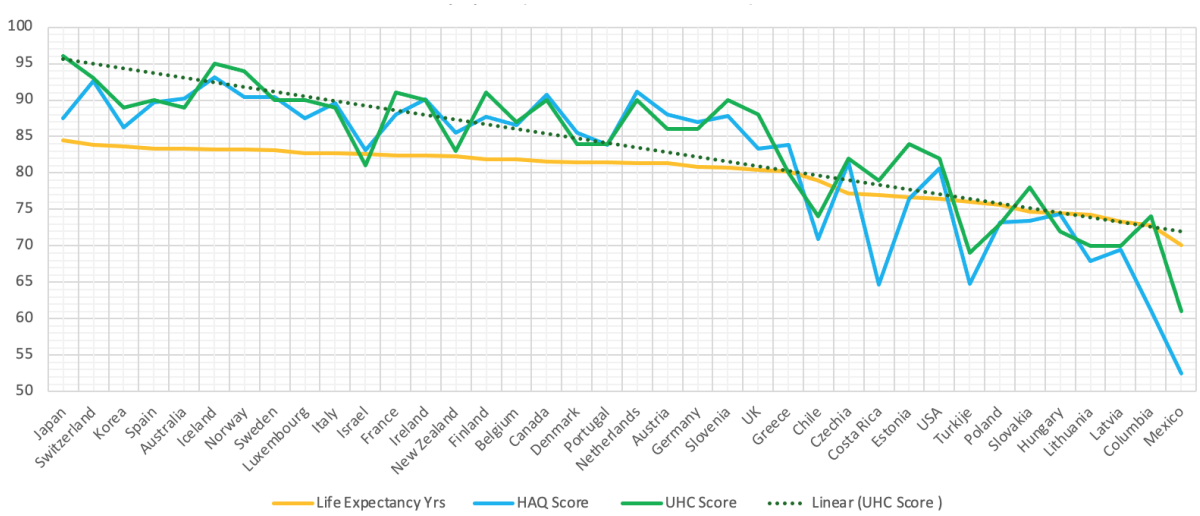


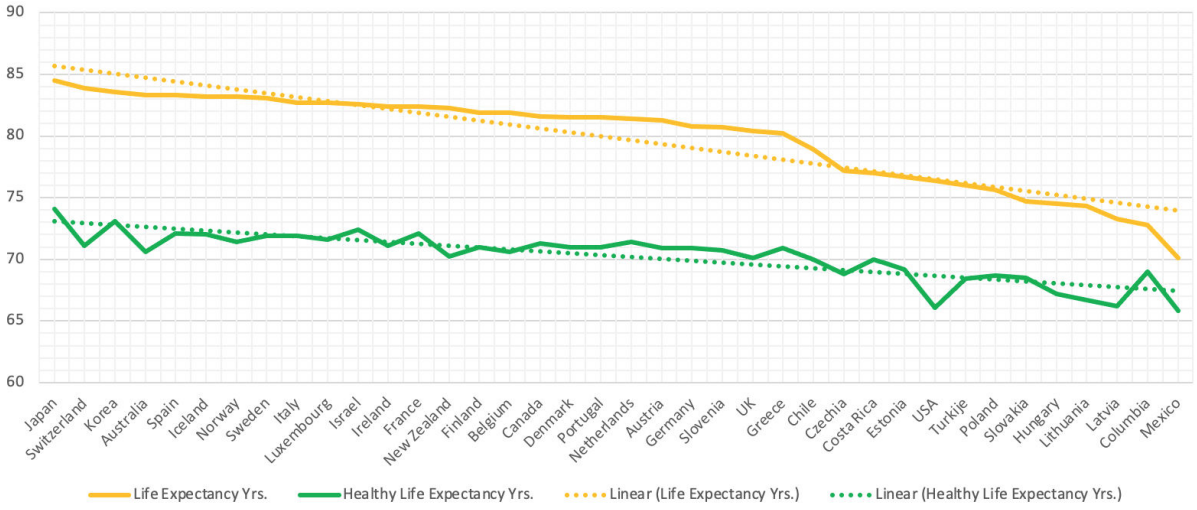
Figure 2 illustrates the relationship between lower scores in HAQ and UHC ranking in the OECD as of 2019 and lower Life Expectancy in OECD member countries.

The 2019 HAQ Index provides scores for age divisions. Australia, ranking 7th overall, scored highest internationally for the 65-74 age group. In the working age group (15-64), it ranked 12th and for the child group (0-15), 18th.[22] These findings are not detailed here. They will be covered in more detail in the next study but in general the author thinks that access to

[22] Top scores were for children 96.1 (Iceland), Australia 92.5, and for working adults 95.0 (Switzerland), Australia 90.4. For the 65-74 age group Australia top scored with 87.1.

General Practice during working hours in Australia is less than optimum for the working population. Moreover the high proportion of GPs with basic training overseas (42%) could possibly affect overall workforce competence in child health.

Figure 3. 2019 OECD member Life Expectancy (LE) and Healthy Life Expectancy (HALE) compared. Sources: OECD data 2024 via ourworldindata.org



Healthy, or *Health-adjusted, Life Expectancy* (HALE), is the number of years an individual can expect to live in good health.[23] Figure 3 compares LE to HALE in OECD countries. Japan (74.1 years) remains top. Australia sinks from 4th for LE to 22nd (70.6 years) for HALE, probably reflecting the greater number of persons living longer lives with disability.[24] In Australia, between 2003 and 2018 (Pre-Covid) in Australia, LE increased by 2.4% and HALE by 1.8%.[25] Advances in medical care are keeping people alive longer with disability, and are occurring at a faster rate than are the general conditions that keep them healthy. The proportion of persons with disability in Australia was 21.4% of all persons in 2022, an increase of 3.7% from 2018.[26]

5 Overweight and Obesity.

When LE and HALE of OECD countries are compared to the percentage of the population reported as overweight (Figure 6), although the relationship is irregular, an inverse

[23] https://www.who.int/data/gho/indicator-metadata-registry/imr-details/66 . Average remaining number of years that a person can expect to live in "full health" at a certain age by taking into account years lived in less than full health due to disease and/or injury. The method of estimation/calculation of HALE is a metric introduced by Sullivan in 1971. It provides a single summary measure of population health across all causes combined by weighting years lived with a measure of functional health loss before death and is 'the most comprehensive among competing expectancy metrics'. The mathematical formula is provided on the web page.

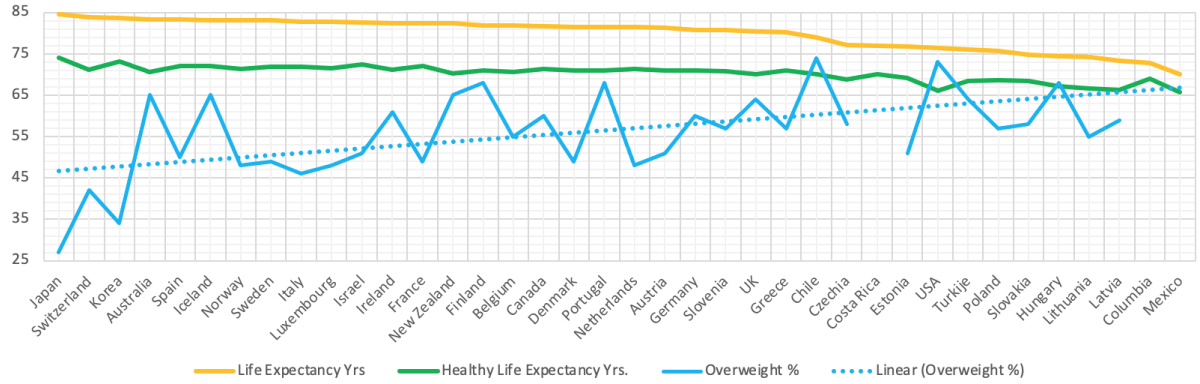
[24] https://ourworldindata.org/grapher/healthy-life-expectancy-at-birth (Interactive map). World Health Organization - Global Health Observatory (2024)

[25] https://www.abs.gov.au/statistics/measuring-what-matters/measuring-what-matters-themes-and-indicators/healthy/life-expectancy.

[26] https://www.abs.gov.au/media-centre/media-releases/55-million-australians-have-disability. 4.7.24.

correlation appears. There is a decrease in Life Expectancy as the % of population overweight increases.[27]

Figure 4. 2019 reported % overweight (BMI >25) in OECD Countries compared to Life Expectancy and Health Adjusted Life Expectancy. Sources: OECD data: Health at a Glance 2021 for 2019 (Table 1.3) and WHO data 2024 via ourworldindata.org



The effects of the increase in overweightness and its multiple sequelae, especially in causing type 2 diabetes as part of metabolic syndrome, put a strain on the medical system, particularly outside the city centres.[28] The age-standardised *prevalence of Diabetes* in the Australian population had increased by 80% this century up until 2011, but has plateaued since.[29] It increases with remoteness and socio-economic deprivation, and is twice as common in First Nations persons. Its *incidence* (that is new diagnoses) dropped by 45% from 2000 to 2021 as screening became more effective.[30]

Some countries, notably Australia and Iceland, have achieved high life expectancies despite high rates of overweight. Presumably this is related to effective curative and preventative care as well as conditions of personal and environmental living. Since Obesity causes clinical problems in only a proportion of cases, there is a move just announced to reevaluate the definition of obesity away from use of the Body Mass Index to a more precise definition.[31]

[27] OECD Health at a Glance 2021 (for 2019) Figure 1.3.
[28] It is often not realised that management of Type 2 diabetes requires a wide range of medical, physical and mental therapy skills. Australian Medical School training curricula cover these aspects. It is highly desirable that a much greater proportion of the future GP workforce especially has basic training onshore rather than the 57% at present.
[29] Numbers increased 2.8-fold. 92% are Type 2 (obesity related) diabetes. There has been energetic activity this century to diagnose diabetes. https://www.aihw.gov.au/reports/diabetes/diabetes/contents/how-common-is-diabetes/all-diabetes
[30] https://www.aihw.gov.au/reports/diabetes/diabetes/contents/how-common-is-diabetes/type-2-diabetes. There are also concerns as to the probable under-registration of persons with diagnosed type 2 diabetes.
[31] 'Definition and diagnostic criteria of clinical obesity'. The Lancet Diabetes & Endocrinology Commission. January 14, 2025. https://www.thelancet.com/journals/landia/article/PIIS2213-8587(24)00316-4/fulltext. Clinical obesity is to be defined as 'a chronic, systemic illness characterised by alterations in the function of tissues, organs, the entire individual, or a combination thereof, due to excess adiposity'. Pre-clinical obesity is simple obesity without any such discoverable alterations.

6 Japan's Life Expectancy

Japan ranks 5th in the OECD for age-standardised preventable mortality, and 7th for treatable mortality.[32] It also has the highest HALE and ranks highest on the Universal Healthcare Index (see Figure 3). It does this with slightly less per capita health expenditure than Australia (Figure 1), and has a slightly lower (more equitable) Gini Index score than Australia (Figure 1). For HAQ in 2019 it was 3rd for the elderly but 32nd for children and 14th for working adults.

In 2019 it had a small supply of doctors (2.6 per 1,000 population compared to a rapidly increasing 3.8 for Australia),[33] [34] only 22% female. As yet it also has few General Practitioners to speak of, and has no differentiation of specialties.[35] Japan has the second highest number of medical consultations per person in the OECD (12.5), (Korea 17.2, Australia 7.3).[36] Along with Korea it had in 2019 exceptionally long lengths of hospital bed stay (18 and 16 days respectively, although reduced from 25 in the year 2000).[37] [38] Of 330,000 total physicians 90,000 are certificated in Occupational Health and 30,000 are practising in this area.[39] This reflects the focus on industry.

Life Expectancy has risen from the lowest in the OECD in the 1960s to, since 1980, being persistently the highest. With exceptions, most Asian nations have low rates of obesity,[40] and Japan's is lowest. A genetic reason has been sought, and it would appear that there are so-called epigenetic mechanisms, (those that modify gene response without changing the genetic code), at work, which have appeared during mankind's progress eastwards and which affect dietary intake.

Social factors are likely also to be significant. From OECD monitoring, a clue to Japan's low obesity rate may be found in their having the near highest personal concern (13.8% of the population) as to perceived bad or very bad health. This is a concern which it shares with Korea. It is in sharp distinction with low levels of concern for personal health status shown in surveys in the anglophone countries (around 3%).[41] This concern is combined in Japan with a capacity for social cohesion and commonality of approach. There is evidence of Japanese trends towards a Western pattern of diet since the 1960s.[42] This presumably has not necessarily been counterproductive given the continued improvement in health and LE and maintenance of relative slenderness.

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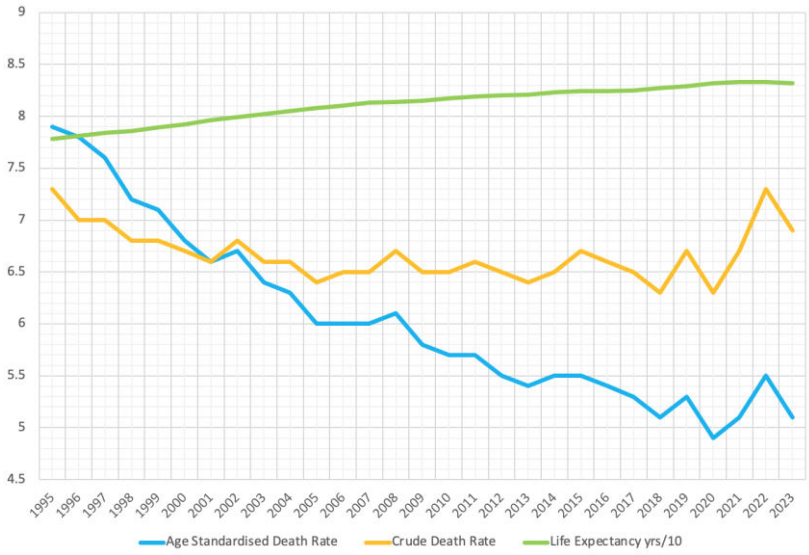
[32] OECD Health at a Glance 2021 (for 2019) Figure 3.10.
[33] OECD Health at a Glance 2021 (for 2019) Figure 8.3.
[34] Australian DoH Health Workforce data (HWD).
[35] There are apparently no specialist colleges in Japan and no qualifying examinations. Rather doctors pursue special interests.
[36] OECD Health at a Glance 2021 (for 2019) Figure 5.11.
[37] OECD Health at a Glance 2021 (for 2019) Figure 5.2.
[38] OECD Health at a Glance 2011 Figure 4.5.1.
[39] OECD reviews of Public Health: Japan 2019.
[40] Asian low country obesity rates include Vietnam 2%, India 5%, Myanmar 6%, the Koreas and China 9%. Higher rates are found in Taiwan and Thailand 12%, Singapore 16% and Malaysia 17%. Low EU rates include France 19%, Switzerland 12% and Netherlands 12%. https://data.worldobesity.org/rankings/
[41] OECD Health at a Glance 2021 (for 2019) Figure 3.22.
[42] 'Thirteen-Year Trends in Dietary Patterns among Japanese Adults in the National Health and Nutrition Survey 2003–2015: Continuous Westernization of the Japanese Diet'. Murakami et al. Nutrients. 2018 Jul 30;10(8):994. doi: 10.3390/nu10080994

From the data Japan appears to have met its health needs satisfactorily overall, notwithstanding an unusual mix of healthcare provision compared to other major economies.

7 Australia's Life Expectancy and Mortality rates

Australia's rising Life Expectancy reflects declining mortality rates. It flattened during the Covid-19 pandemic, although drops in more greatly affected countries brought its overall ranking up to 4th, behind Japan, Korea and Norway (Table 1).[43] This was from 9th in 2018 and 8th in 2000. All the major economies bar the USA prospered and increased their Life Expectancies. Figure 5 shows how standardised mortality rates declined until the Covid-19 pandemic.[44]

Figure 5. Australian life expectancy and Standardised and Crude death rates per 1000 population 1995-2023 (ABS).



The median age of death increased by one year in the decade from 2013.[45] Australia's (age standardised) avoidable mortality in 2019 was calculated at 139/100,000 population, well below the OECD average.[46] Timeline reporting by the OECD of treatable and preventable mortality rates have only recently been reported (2019) so that it is too early at the time of writing to discern trends. For Australia, treatment and prevention deficits in 2019 represented around one and two thirds respectively of potentially avoidable deaths, which amounted to 27% of all deaths all told. [47]

[43] Korea's spectacular rise in Life Expectancy is worth noting. The USA in contrast has flat-lined all century.
[44] The mortality rate is standardised to match the 2001 population. This will be next revised for 2026, the 25 year period being acceptable for statistical purposes. 31010DO003_200106 Standard Population for Use in Age-Standardisation
[45] https://www.abs.gov.au/statistics/people/population/deaths-australia/latest-release.
[46] OECD Health at a Glance 2021 for 2019 Figure 2.1. OECD countries with mortality levels below Australia were Iceland, Israel, Italy, Japan, Korea, Luxembourg, and Switzerland.
[47] OECD Health at a Glance 2019 for 2017 Figure 3.9. Preventable deaths, age-standardised, were estimated as 93/100,000 and treatable deaths as 46/100,000, out of total deaths of 522/100,000 age-standardised (https://www.aihw.gov.au/reports/life-expectancy-deaths/deaths-in-australia/data).

8 Australia's Electorates

Roden's 2020 examination of Life Expectancy in the Australian electorates, from which this discussion is drawn, used the Australian Statistical Geography Standard for remoteness areas.[48] This meant treating all cities classified within the major city category as one block. [49]

Existing geographic classifications are too weighted towards large cities to sufficiently elaborate these gradients. It was therefore decided for the purposes of this study to create, using electoral commission maps,[50] 5 zones for analysis and comparison: inner and fringe zones of major State capitals (IMC[51] and FrM[52]), other ABS defined major cities (OMC),[53] inner rural (IR)[54] and outer rural including remote (OR).[55]

In this way electorates can provide a compact distribution that corresponds to relative remoteness and disadvantage in each of the five zones. The data for each electorate is provided in the appendix, which includes electorate data from other sources, building a more composite picture of each electorate, and improving comparisons as to the nature and gradient of disadvantage.

There is a progression of worsening Life Expectancy and socioeconomic disadvantage in these 5 groups away from the inner Metropolitan centres. Age-standardised total Mortality rates in the electorates varied from 511/100,000 population in Bradfield (in north Sydney) to 1245/100,000 in Lingiari (in the Northern Territory) compared to 648/100,000 for the Australian average for the 2009-2013 period.[56]

Some electorates in the Metropolitan Fringe extend into regional areas (Inner Rural). For electorate changes in the several years prior to the 2019 Federal Election, data has been in most instances carried over. Complete data was realised except for one or two items for the new electorates of Bean (ACT) and Fraser (Victoria). State Capital Major City electorates dominate the ranking. Poor longevity (<82 years) is found in 10 city and fringe metropolitan

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[48] Life expectancy in Australia's Commonwealth Electoral Divisions, 2016–2018 Federal Parliamentary Library 25-Feb-20., Roden M Statistics and Mapping. https://www.aph.gov.au/About_Parliament/Parliamentary_departments/Parliamentary_Library/Research/Statistical_Snapshots/2019-20/LifeExpectancyAustraliasCommonwealth.

[49] These systems are designed to guide government expenditure. The ABS Australian Statistical Geography Standard (ASGS) is based on remoteness and focusses on areas outside major cities. The Modified Monash Model classification identifies populations by remoteness and size. MMM 1 identifies major cities of Sydney, Newcastle, Wollongong, Melbourne, Geelong, Brisbane, Sunshine Coast, Gold Coast, ACT, Adelaide, and Perth. MMM 2-6 are inner regional areas with populations of >50,000, 15-50,000, 5-15,000, and <5,000, while MMM 6-7 are remote and very remote as per ASGS.

[50] https://www.aec.gov.au/electorates/maps.htm.

[51] Capital Major cities: Sydney, Melbourne, Brisbane, ACT, Adelaide, and Perth.

[52] Electorates designated here as Fringe Metropolitan are Berowra, Blair, Brand, Burt, Canning, Casey. Dickson, Dobell, Fadden, Flinders, Forde, Gorton, Groom. Hinkler, a Trobe, Lalor, Longman, Lyne, Macquarie, Mayo, McEwen, McPherson, Pearce, Robertson, Wide Bay, Wright.

[53] Other remoteness Area classified Major Cities are Newcastle, Wollongong, Geelong, Sunshine Coast and Gold Coast.

[54] Electorates selected here as Inner Rural are Ballarat, Barker, Bass, Bendigo, Calare, Capricornia, Clark, Corangemite, Cowper, Dawson, Eden-Monaro, Flynn, Forrest, Franklin, Gilmore, Gippsland, Hasluck, Herbert, Hume, Hunter, Lyons, Monash, New England, Nicholls, Page, Richmond, Riverina, Solomon, Wannon. Hobart (Clark) and Darwin (Solomon) and counted as rural to reflect their Remoteness Area inner and outer regional classification respectively. Hobart and Darwin are classed as Rural.

[55] The selected Outer Rural electorates are *NSW*: Farrer and Parkes, *Victoria*: Mallee and Gippsland, *Queensland*: Kennedy, Leichhardt and Maranoa, *WA*: Durack and O'Connor, *SA*: Grey, Tasmania: Braddon, *NT*: Soloman.

[56] Mortality by Commonwealth Electoral Divisions in Australia. Clarke P et al. Melbourne School of Population and Global Heath. 2016.

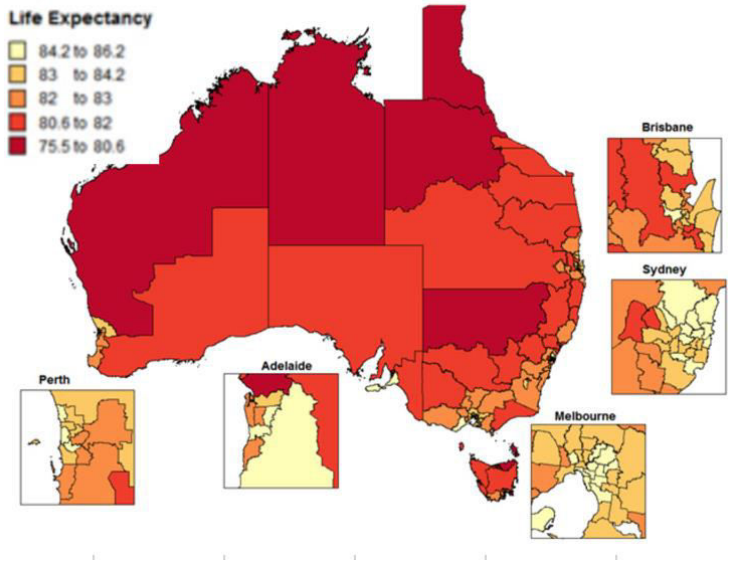
electorates. Outer rural electorates all have poor longevity, as well as 14 inner rural electorates.

Table 2. Life Expectancy for Federal Electorates in allocated zones, by number of Electorates in each zone.

L. Expcty. range (yrs)	Capital M City	Fringe Metro	Other M City	Inner rural	Outer rural	Total
75<81	1	1	0	2	6	10
81<82	3	3	2	12	6	26
82<83	9	9	4	12	0	34
83<84	28	8	1	1	0	38
84<85	18	4	2	1	0	25
85<86	17	1	0	0	0	18
All Electorates 2019	76	26	9	28	12	151

Sources: Electoral Division Electorate information for 2019; Federal Parliamentary Library reports on Life Expectancy.
Notes: (Inner) Capital M City includes Sydney, Melbourne, Brisbane, Adelaide, Perth and ACT. For other categories consult footnotes.

Figure 6. Life Expectancy by Commonwealth Electoral Division 2016-18. From life expectancy in Australia's Commonwealth Electoral Division 2016-18 federal Parliamentary Library 25-Feb-20., Roden M Statistics and Mapping



Life Expectancy within Australia is highest in the main body of Major Cities. It decreases through the zone categories used in this study. Table 2 finds a decrease of Life Expectancy away from the capitals in the selected categories. In central Capital City electorates it varied from 81.3 in Lindsay to 86.2 in North Sydney and Warringah, all in NSW. Fringe Metropolitan LE varied from 81.4 in Blair (Q) to 85.5 in Berowra (NSW). In the 9 other major cities, LE in Newcastle (NSW) was 81.4 and Fairfax (Q) 84.2. In inner rural, LE for Bass (T) was 80.4 and Hasluck (WA) 82.8. In outer rural LE for Solomon (NT) was 75.5 and for Indi (Vic) 82.5.

With Life Expectancy in all zones above 80 despite poorer levels in outer rural, Australia's achievement overall is fairly satisfactory and, for 2017, it placed equal 8th with Norway in the OECD. During the pandemic, because of lower death rate (from relative isolation), it rose to 4th place in 2020 behind Japan, Korea and Norway (Table 1).

Details for each electorate are to be found in the appendix. *Only 52% of the total population is found in the electorates of inner metropolitan capital city electorates and the ACT, so that the contribution of the other 4 zone categories in depressing overall LE is substantial.*

9 Other available Australian electorate related data

Table 3 compares Life Expectancy, SEIFA score, First Nations proportion of population, % over 65 age, [57] GP supply, [58] number of electorates, the number of marginal electorates, population per electorate and total population in each of the selected zones. Detailed data for each electorate are provided by State and Territory in the Appendix. Most of the data is reasonably recent, except for SEIFA estimates. These variables are dealt with below in turn.

Table 3. Federal Electorates grouped by allocated geographical zone against Life Expectancy and selected related data.

Zone	LE '16-18	SEIFA 06	1st N%	%65+	GPs '16	GP/k	E.Dvsns	%Margnl	Av Pp k	T Pop m
Outer rural	80.5	947.1	11.4	16.8	293	1.86	12	25	156.8	1.88
Inner rural	82.0	981.5	4.1	18.0	225	1.52	29	25	149.3	4.32
Other MtroC	82.8	991.9	2.8	18.3	243	1.52	9	22	159.3	1.43
Frng Mtro	83.0	1011.3	2.4	16.2	212	1.31	26	42	162.9	4.24
Capital MtroC	84.0	1011.4	1.1	13.9	245	1.44	75	28	170.2	12.76
All zones	83.1	999.4	2.8	15.6	239	1.47	151	29	163.2	24.6

Sources: Electorate data and Federal Parliamentary Library papers, including GP headcounts per FOI 362-1718. ***Note***: Capital M City includes Sydney, Melbourne, Brisbane, Adelaide, Perth and ACT. For other categories consult footnotes. There are high numbers of part time GPs in outer rural (DoH GP statistics RA 4-5). ***Abbreviations***: LE 16-18 = life expectancy between 2016 and 2018, SEIFA = Socio-economic indexes for areas, 1st N = First Nation Population, %65+ = % 65 years and older, GPs '16 = average number of practising GPs in each electorate by headcount, average GP per 1,000 population per zone, Dvsns = number of Electorates in each classification, % Margnl = % of marginal electorates in each zone, Av Pp K = Average population in 1000s, T Pp m = Total population in millions, MtroC = major city, Frng Mtro = Fringe Metro, Other MtroC = Other major city.

10 Socio-economic disadvantages

The Socio-economic index for areas (SEIFA) model was developed after 1970 to guide Federal Government expenditure. [59] The Index of Relative socio-economic advantage and disadvantage (IRSAD) uses the SEIFA model.[60] It describes 5 quintiles from disadvantaged to advantaged. It is a multilayered system. Although the system can only provide an approximation of advantage and disadvantage, the progression found in this study certainly indicates a correlation between level of advantage and outcomes. While at pains to acknowledge the potential limitations, the ABS feels that the system is "generally robust".[61]

[57] https://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/2082.02019?OpenDocument.

[58] General practice headcount by Electorate 2016-2017 [FOI-362]. https://www.health.gov.au.

[59] Socio-Economic Indexes for Areas (SEIFA) is a product developed by the ABS that ranks areas in Australia according to relative socio-economic advantage and disadvantage. The indexes are based on information from the five-yearly Census. Reference ABS 27 Mar 2018.

[60] IRSAD uses 17 indicators of disadvantage and 8 of advantage.
https://www.abs.gov.au/ausstats/abs@.nsf/Lookup/by%20Subject/2033.0.55.001~2016~Main%20Features~IRSAD~20

[61] https://www.abs.gov.au/Ausstats/abs@.nsf/0/BEC86C4146B4A10CCA258259000BA7F1?OpenDocument#:~:text=The%20relationship%20between%20the%20indexes,populations%20may%20be%20more%20sensitive.

Figure 7: Index of Relative Socio-economic Advantage and Disadvantage (IRSAD) – Australia Local Government Areas (LGA). Australian Bureau of Statistics.

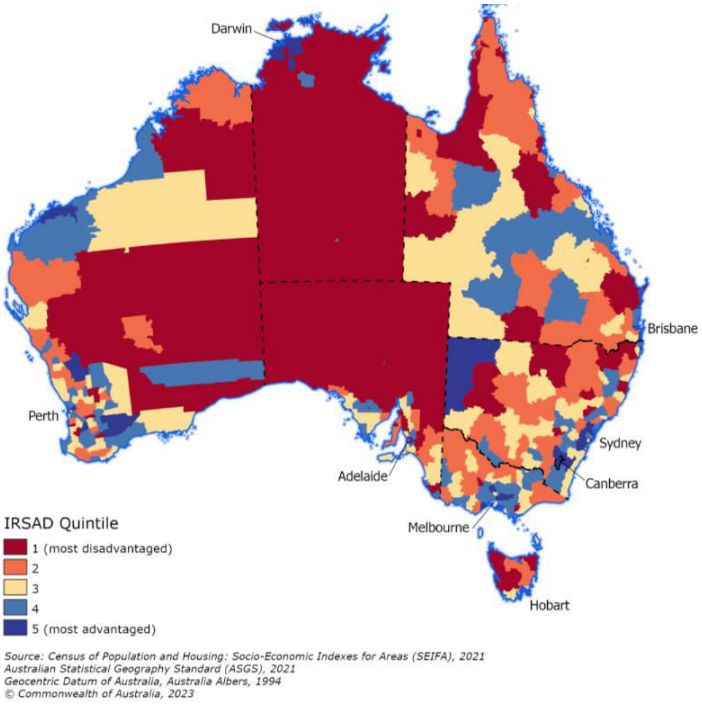


Table 4. 2006 SEIFA score range for Federal Electorates by allocated Zone

SEIFA	Outer rural	Inner rural	Other M City	Fringe Metro	Capital Major City	Total
<950[1]	5	3	0	1	5	14
950-1000	7	20	5	7	19	58
1000-1050	0	6	4	14	27	51
1050-1100	0	0	0	2	18	20
>1100	0	0	0	1	6	7
All zones	12	29	9	25	67	150

Sources: Electorate information for 2019; Federal Parliamentary Library reports on Life expectancy, GP numbers and SEIFA score by electorate. ***Notes***: [1]Most disadvantaged. [not sure what this note refers to.]

A higher SEIFA score is found in more central locations and progresses to lower in the periphery. This is illustrated in Table 4. Only one score of over 1100, that of Berowra, was found outside of central capital city electorates. SEIFA distribution by Local Government Area (Figure 7) is more of a patchwork, but widespread IRSAD quintiles 1 - 3 are seen inland.

Table 5 shows the spectrum of socio-economic indices in parallel with Life Expectancy in the selected zones. Electorates with a higher SEIFA score not surprisingly have the highest life expectancy. Mortality rates are also strongly correlated with socio-economic disadvantage.[62] Increased disadvantage is associated with a higher proportion of people aged over 65 years and with increased 1st Nations population (especially in the 1st IRSAD quintile). Whereas higher advantage attracts a higher supply of GPs, that in the lowest quintile is high from Federal and State policies designed to increase supply.

[62] Ibid Clarke et al.

Table 5. Health-related features of Federal electoral divisions by SEIFA score bracket.

SEIFA	IRSAD	Div.	Av. Popn	Pp.m	Av. 1st Nat %	Y65+%	Av LE 16-18	GP/1000
<950	1	14	158.6	2.2	8.1	16.7	81.1	1.56
950-1000	2	58	162.9	9.4	3.5	16.3	82.3	1.41
1000-1050	3	51	166.4	8.5	1.8	14.9	83.5	1.42
1050-1100	4	20	160.1	3.2	0.7	14.4	84.7	1.56
>1100	5	7	163.6	1.1	0.4	15.1	86.0	1.73
All		150	163.2	24.4	2.8	15.6	83.1	1.50

Sources: Electoral Division Electorate information for 2019; Federal Parliamentary Library reports on Life expectancy, GP numbers and SEIFA score by electorate. [63] IRSAD = Index of Relative socio-economic advantage and disadvantage
Notes: A few scores have been assumed for new electorates from previous electorate scores. Data for Bean and Fraser allowed for when absent. No SEIFA data for Bean.[Better to add Bean and Fraser to your footnotes below]

11 Age

The over 65 age population represents an impost on the capacity of the community and services to provide medical and social care. Although Life Expectancy in the capital major cities is longer, the 14% proportion of elderly is significantly lower and the employment pool that much greater to provide care. Table 6 shows the distribution of electorates in the % groups for the elderly. City electorates have preponderantly lower percentages. From 14% overall in the Cities, the proportion rises to 16% in Fringe Metro and 18% in other major cities and inner rural. It falls again to 17% in outer rural because of the younger age of aboriginal persons.

Table 6. Number of Federal Electoral Divisions in selected zone by % of population aged over 65 years.

>65y % range	Outer rural	Inner rural	Other M City	Fringe Metro	Capital M City	Total
6-10.9	2	1		4	14	21
11-13.9	1	3		6	22	32
14-15.9		4	1	2	20	27
16-17.9	3	4	3	6	13	29
18-19.9	2	10	3	2	5	22
20-22.9	4	4	2	2	1	13
>23		3		4		7
All	12	29	9	26	75	151
Overall %	16.8	18.0	18.3	16.2	13.9	15.6

Source: Electoral Division Electorate information for 2019. ***Notes***: Electoral divisions allocated to Capital Major Cities, Fringe Metropolitan, other Major cities, inner and outer rural zones.

The average number of visits to the GP per person in 2018-19 (pre-Covid) rose from 6.4 in the under 65 population to 10 in the 65-74s, 14 in the 75-84s and 17 in the over 85s. The proportion of elderly in acute overnight hospitalisations rose from 37% in 2013 to 41%in 2019. Travel time of an hour or more is quite significant in the effectiveness of acute medical care so this is a factor in depressed life-expectancy in the outer areas.

Table 7 illustrates how the proportion over 65 years of age matches up with other parameters. Around half of the population live with a proportion of elderly under 16%. Electorates with 18% or more over 65 years of age have lower life expectancy (82.4 – 82.6 years) than those with 11-18% (83.3-83.7 years). Life expectancy drops again to 82.6 where

[63] Source: Socio-economic indexes for 2009 electoral divisions: 2006 Census Parliamentary Library from ABS.

the over-65s drop below 11%. This is primarily because electorates with high 1st Nations population are included, namely Durack WA and the NT electorates.

Table 7. Federal Electorate Division selected parameters against % age over 65.

>65% range	Electorates	T. Pop m.	1st N %	y65+%	SEIFA 06	LE 16-18	GPs 2016	GP/1,000
6-10.9	21	3.8	4.6	9.4	996.8	82.6	274	1.55
11-13.9	32	5.5	2.2	12.6	1002.2	83.3	227	1.33
14-15.9	27	4.4	1.5	14.7	990.9	83.7	240	1.47
16-17.9	29	4.7	2.7	16.8	1023.7	83.4	236	1.49
18-19.9	22	3.3	3.3	19.0	996.9	82.6	208	1.38
20-22.9	13	2.0	3.1	20.9	980.7	82.4	223	1.46
>23	7	1.1	4.1	24.5	969.1	82.4	255	1.66
All	151	24.6	2.8	15.6	1006.0	83.1	239	1.47

Sources: Electoral Division Electorate information for 2019; Federal Parliamentary Library reports on Life expectancy, GP numbers and SEIFA score by electorate. ***Notes***: data for Bean and Fraser allowed for when absent.

12 First Nations population

Life Expectancy for First Nations people born in 2020-22 remains at 8.8 years less for males, and 8.1 years less for females when compared to non-indigenous Australians.[64] In the selected zones the % of 1st Nations population rises in parallel with decreasing Life Expectancy and social advantage. Their Life Expectancy at birth in 2020-21 was 74 overall but varied from 68 in the Northern Territory to 76 in New South Wales.[65] In world terms they now rank below 100th Life Expectancy by country, [66] and in remote Australian areas this rank drops below 150th. Their total population is increasing rapidly and, as reported, grew by 25% between the 2016 and 2021 censuses. In 2021 34% were aged under 15, but, overall, First Nations people were still only 3.2% of the total population.

Table 8. 2016-18 % of First Nations population in Aust. Federal Electorates

% Range	El. Division	T Pop m.	1st N. Pop k.	1st N Pop %
< 1	50	8.5	47	0.5
1-1.9	34	5.6	80	1.4
2-2.9	22	3.6	87	2.4
3-3.9	12	1.8	61	3.3
4-4.9	10	1.5	64	4.2
5-5.9	8	1.4	78	5.5
6-8.5	9	1	95	7
13-17	4	0.7	109	15.8
40-41	1	0.1	53	40.2
	150	24,624	674	2.7

Source: ABS Quick stats. ***Notes***: 2016 census total 649,168.

[64] https://www.aihw.gov.au/reports/life-expectancy-deaths/deaths-in-australia/contents/life-expectancy.
[65] https://www.abs.gov.au/statistics/people/aboriginal-and-torres-strait-islander-peoples/aboriginal-and-torres-strait-islander-life-expectancy/2020-2022. The mean estimated LE for aboriginal persons at birth was 73.6 in 2016 to 2018 and 73.8 in 2020-22. from 57.2 years in 2012 to 62.3 in 2022
[66] This is depressingly low but still ahead of major countries like Russia, Pakistan, India, Indonesia, Egypt and South Africa.

Despite relatively static Life Expectancy, the median age at death of First Nations people rose from 57.2 years in 2012 to 62.3 in 2022.[67] In the Northern Territory their Life expectancy improved significantly between 1998 and 2018.[68] However, overall 24% are reported as having disability.[69]

13 General Practitioner supply

Portugal apart, (2.74 per 1,000 population[70]), Australia's GP headcount supply (1.5/1000) is the highest in the OECD. Despite this, among electorates GP supply varied from to 0.65 per 1000 to 3.25 per 1,000 population.[71] Fifteen electorates had a supply of less than 1/1,000, 45 had 1-1.29/1000, 35 had 1.3-1.49/1000, 31 had 1.5-1.69/1000, 16 had 1.7-1.9/1000, and 11 had 2.2-3.25/1000.

Of the very highly supplied electorates, 4 were in State Capital centres, namely Brisbane (3.25), Adelaide (3.13), Clark (2.84) and North Sydney (2.52), and 3 had a high % of First Nations persons namely Lingiari (2.53), Maranoa (2.48) and Leichhardt (2.36).

For various reasons, comparable fulltime equivalent estimations for GPs in the zones are not feasible for this study.[72] Table 3 (on page 12) provides the headcount per 1,000 population. The highest total (1.86/1,000) in outer rural (including remote) relates to very much greater numbers of part time, often non-resident, GPs in the more remote locations. However, the fringe Metropolitan areas are the lowest supplied at 1.31/1,000.

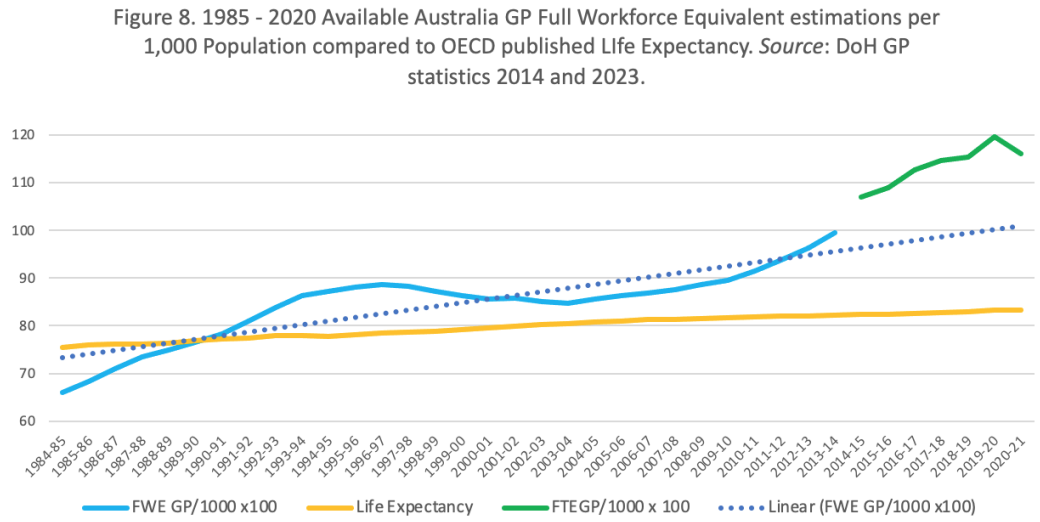
It can take decades for Healthcare activities to make significant improvements to Healthcare outcomes. Total GP workforce equivalence supply per 1,000 population, estimated from hours worked weekly, has not been consistently estimated.[73] From available data, Life Expectancy (Figure 8), has not shown an overt response to the significant increases in GP workforce supply. Additionally, from steadily rising high acuity presentation at Emergency Departments (ED) all century, there is a suggestion that General Practice has become significantly less responsive to acute illness, which could suggest delay in definitive management.[74]

There is a high rate of overnight Hospitalisation from ED in the elderly. From the data this is currently around 85%. This might be a factor in reduced mortality as suggested by data from

[67] https://www.aihw.gov.au/reports/australias-health/indigenous-health-and-wellbeing#:~:text=Life%20expectancy%20is%20widely%20used,75.6%20years%20(ABS%202023a). This was despite the mean age-standardised death rate rising by 4.1% over the decade to 2022.
[68] Zhao et Al. Improved life expectancy for Indigenous and non-Indigenous people in the Northern Territory,1999–2018: overall and by underlying cause of death. MJA July 2022.
[69] https://www.abs.gov.au/articles/aboriginal-and-torres-strait-islander-people-disability. Because of the much younger age profile, the figure of 24% represents a higher proportion of disabled than that of the non-aboriginal population
[70] Derived from OECD Health at a Glance (2021 for 2019) Figures 8.3 and 8.7.
[71] Calculated from: General practice headcount by Electorate 2016-2017 [FOI-362]. https://www.health.gov.au.
[72] Extrapolating working hours in the electorates from the data available from DoH health workforce data would be a major exercise. Additionally, Especially in rural areas GPs have extra duties in rural hospitals and health services that do not enter Commonwealth data collection.
[73] There have been three sets. The 2014 (from 1984), 2018 (from 2000) and current set (from 2014) have used Full workforce Equivalent FWE and Fulltime Equivalent FTE, Full Service Equivalent FSE, and GP Fulltime Equivalent GPFTE.
[74] Emergency Department attendance by triage category: what the data suggest, Moynihan M, TAPRI 21 February 2024. https://tapri.org.au/

Norway, Finland and Switzerland. On the other hand, Iceland, Netherlands, Canada, Spain and Italy all have good HAQ scores with low overnight hospitalisation rates.

Figure 8. 1985 -2020 Available Australia GP Full Workforce Equivalent (FWE GP) estimations per 1,000 Population compared to OECD published Life Expectancy (LE). Source: DoH GP statistics 2014 and 2023.[75]



FTEGP/1000x100 stands for full-time-equivalent GPs per 1000 population x100 for purpose of comparison.

Does GP supply affect Life Expectancy? In general a relationship of GP supply per se to Healthcare outcomes on a national scale has yet to be established. On the 2019 Healthcare Access and Quality Index (Lozano 2022), in the OECD top-ranked Iceland has near fewest (0.62/1000) GPs for population and is also 6th overall for Life Expectancy. Japan until recently has had no recognised GPs but is first for LE and 17th on the HAQ Index. Korea, with few GPs, is 6th for LE and 22nd for HAQ. Australia (1.5 GPs/1000 and increasing rapidly – Fig. 6) was 4th for LE in 2020 and 7th for HAQ in 2019. On the other hand, Portugal (2.74 GPs/1000), with nearly double the GP supply as Australia, was 20th for LE and 28th for HAQ. Canada (1.32/1000) has 4th place for HAQ but 19th for LE. Finland (1.37/1000) ranks 16th for HAQ and 28th for LE.

Low GP supply in marginal electorates was briefly a political issue in 2003, when it had a profound effect on medical workforce policy. This opened the gates to overseas recruitment and vastly increased university medical graduate output.

14 Conclusion

There is a downward gradient of wellbeing away from the centres of Australian major capital cities. This is where 52% of the population live and enjoy an average life expectancy of 84 (see Table 2). This is equal to that of Switzerland and, in the top countries on the HAQ Index, is exceeded only by Japan (84.5) and Monaco (85.6). The lower Life Expectancy in the other four zones selected for this study (Table 3), in 2019 reduced the overall Australian level to

[75] FTEGP/1000x100 stands for full-time-equivalent GPs per 1000 population x100 for purpose of comparison.

83.0 years.[76] Despite this, the Outer Rural zone (LE 80.5 years), as grouped in this study, is still equivalent to 29th position for Life Expectancy in the OECD and to 36th out of all 204 countries on the HAQ Index. First Nations people remain in too much of a minority (3.2%) for they themselves to significantly affect the overall level with their much shorter life expectancy.

The usual practice of aggregating all (ABS) Remoteness area 1 Major Cities (Footnote 51) together avoids comparison with superior living standards and medical care in inner State capital electorates. But this needs to be taken into consideration in the matter of development objectives. The gradient of affluence away from the main metropolitan locations may be unavoidable but is obviously subject of concern. More needs to be done. The UN has reported on 'Sustainable Development Goals' and here Australia lags in 37th position, above only the US of the major economies.[77] [78]

[76] OECD Health at a Glance 2021 Table 1.2
[77] Sustainable Development Report 2024. The SDGs and the UN Summit of the Future. https://dashboards.sdgindex.org/.
[78] Australia SDG profile: https://dashboards.sdgindex.org/profiles/australia. Australia is losing ground on SDG 1 'No Poverty'.

15 Appendix: Federal electoral divisions 2019 by selected health related parameters

Division	State	Zone	Marg?	Popn.	1st N%	%y65+	SEIFA '06	LE'18	GPs'16	GP/k
Banks	NSW	IMC		164.4	0.8	15.7	1005.4	84.5	166	1.01
Barton	NSW	IMC		187.9	0.7	14	999.2	83.8	214	1.14
Bennelong	NSW	IMC		181	0.4	14	1061	85.3	240	1.33
Blaxland	NSW	IMC		186.9	0.6	11.8	905.3	83.4	255	1.36
Bradfield	NSW	IMC		169.3	0.2	16.6	1123.5	86.3	271	1.6
Chifley	NSW	IMC		181.1	4	10.8	927.4	81.1	203	1.12
Cook	NSW	IMC		146.8	1	18.4	1074.2	84.8	184	1.25
Fowler	NSW	IMC		173.3	0.8	13.4	865.5	83.3	200	1.15
Grayndler	NSW	IMC		159.7	1.1	11.9	1018.4	84	266	1.67
Greenway	NSW	IMC	Y	180.9	1.5	9.8	1028.7	83.4	246	1.36
Hughes	NSW	IMC		149.5	1.2	14.2	1057.4	84	169	1.13
Kingsford Smith	NSW	IMC		190.9	1.7	12.8	1020.4	83.7	211	1.11
Lindsay	NSW	IMC	y	174.5	4.2	11.9	998.1	81.3	196	1.12
Macarthur	NSW	IMC		173.6	3.6	10.9	1008.6	82.4	183	1.05
Mackellar	NSW	IMC		156.8	0.6	18.3	1093	85.2	120	0.77
McMahon	NSW	IMC		174.7	1.2	12.7	967.1	83.3	194	1.11
Mitchell	NSW	IMC		163.9	0.5	13.5	1113	86.1	256	1.56
North Sydney	NSW	IMC		173.5	0.3	14.3	1106.2	86.2	437	2.52
Parramatta	NSW	IMC	Y	199.9	0.7	10.6	984.4	83.4	229	1.15
Reid	NSW	IMC	Y	196.1	0.6	12.4	1011.7	85.7	261	1.33
Sydney	NSW	IMC		223.8	1.2	8	1034.4	83.9	466	2.08
Warringah	NSW	IMC		158.1	0.4	15	1104.7	86.2	259	1.64
Watson	NSW	IMC		186	0.5	12.8	937.1	83.4	211	1.13
Wentworth	NSW	IMC	Y	158.9	0.4	15	1093.3	85.9	252	1.59
Werriwa	NSW	IMC	Y	181.2	1.7	10.1	966.7	82.7	121	0.67
Berowra	NSW	FrM		151.1	0.5	16.7	1117	85.5	179	1.18
Dobell	NSW	FrM	Y	159.6	4.3	18.9	988.4	80.9	230	1.44
Lyne	NSW	FrM		149.4	5.5	27.2	962.6	82.2	192	1.29
Macquarie	NSW	FrM	Y	145.6	3	17	1043	83	193	1.33
Robertson	NSW	FrM	Y	148.2	2.8	21	1007	82.7	200	1.35
Cunningham	NSW	OMC		162.8	2.2	16.7	1013	82.8	241	1.48
Newcastle	NSW	OMC		159.9	3.4	15	976.2	81.4	314	1.96
Paterson	NSW	OMC		161.7	5.5	18.2	981.5	81.9	194	1.2
Shortland	NSW	OMC	Y	148.6	3.9	20.5	981.8	82.8	213	1.43
Whitlam Tsd	NSW	OMC		158.3	3.4	19.3	965.8	82.4	222	1.4
Calare	NSW	IR		165.8	6.3	18.1	976.2	81	233	1.41
Cowper	NSW	IR		164.1	6.1	24.2	937.9	82	335	2.04
Eden-Monaro	NSW	IR	Y	152.4	3.2	18.3	1000.5	82.2	234	1.54
Gilmore	NSW	IR	y	155.5	5	24.2	982.8	82.3	263	1.69
Hume	NSW	IR		158.1	3.1	15.2	998.2	82.6	181	1.14
Hunter	NSW	IR	Y	161.8	5.9	17.8	971.8	81.1	207	1.28
New England	NSW	IR		158	8.4	19.5	960.1	81.5	229	1.45
Page	NSW	IR		163	5.5	21.7	944.8	81.9	217	1.33
Richmond	NSW	IR	Y	159.9	3.3	23.1	978.8	82.5	288	1.8
Riverina	NSW	IR		159.3	6.1	19.1	979.7	81.5	214	1.34
Farrer	NSW	OR		168.5	4.2	19.8	972	81.7	197	1.17
Parkes	NSW	OR		157.4	15.9	17.7	943.8	79.4	282	1.79
Aston	VIC	IMC		161.8	0.5	15.3	1065.6	83.9	217	1.34
Bruce	VIC	IMC		190.1	0.4	14.3	988.7	83.4	222	1.17
Calwell	VIC	IMC		178.3	0.7	9.7	965.1	83.2	213	1.19
Chisholm	VIC	IMC	Y	182.1	0.2	16.8	1047	85.8	264	1.45
Cooper	VIC	IMC		171.1	0.8	13.5	971.6	83.6	111	0.65
Deakin	VIC	IMC	Y	162.3	0.4	16.5	1042.2	84.8	168	1.04
Dunkley	VIC	IMC	Y	159.6	0.9	15.8	1012	83.2	230	1.44
Fraser	VIC	IMC		178.8	0.4	13.7	1068.1	83		
Gellibrand	VIC	IMC		180	0.5	11.1	978.1	83.7	244	1.36
Goldstein	VIC	IMC		158.5	0.2	17.5	1087.8	85.3	250	1.58

Division	State	Zone	Marg ?	Popn	1st N%	%y65+	SEIFA '06	LE '18	GPs '16	GP/ k
Higgins	VIC	IMC	Y	172	0.2	14.3	1089.6	85.3	329	1.91
Holt	VIC	IMC		184.2	0.6	8.4	995.8	84.1	176	0.96
Hotham	VIC	IMC	Y	188.3	0.2	16	1000	84.7	176	0.93
Isaacs	VIC	IMC		160.7	0.4	15.7	996.8	84.6	178	1.11
Jagajaga	VIC	IMC		153.9	0.6	16.2	1060.2	85.1	173	1.12
Kooyong	VIC	IMC	y	166.4	0.2	16	1103.5	86.1	243	1.46
Macnamara	VIC	IMC		185.2	0.3	12.1	1009.3	84.7	404	2.18
Maribyrnong	VIC	IMC		170.4	0.4	14	976.6	84.5	240	1.41
Melbourne	VIC	IMC		216	0.4	7.8	1075.6	84.2	496	2.3
Menzies	VIC	IMC		158.4	0.2	19	1083	85.8	258	1.63
Scullin	VIC	IMC		170.8	0.7	12.4	981.9	84.1	243	1.42
Wills	VIC	IMC		168.8	0.5	13.1	991.7	83.8	246	1.46
Casey	VIC	FrM	Y	156.7	0.9	15.4	1045.5	84.1	180	1.15
Flinders	VIC	FrM	Y	145.1	0.9	24.6	1012.6	83.8	177	1.22
Gorton	VIC	FrM		183.9	0.9	8.9	973.5	83.3	183	1
La Trobe	VIC	FrM.	Y	162	0.6	11.1	1051.4	84.3	196	1.21
Lalor	VIC	FrM.		193.7	0.9	8.1	1005.9	82.8	261	1.35
McEwen	VIC	FrM.		153.9	1	12.1	1037.7	83.7	272	1.77
Corio	VIC	OMC		154.5	1.1	17	968.4	82.4	230	1.49
Ballarat	VIC	IR		154.5	1.3	17.2	990.1	82.3	225	1.46
Bendigo	VIC	IR		150.8	1.5	18.4	977.2	82.2	237	1.57
Clark	VIC	IR		106.1	3	17.3	989.4	81.6	301	2.84
Corangamite	VIC	IR	y	143.5	0.8	19.1	1029.1	84.5	222	1.55
Franklin	VIC	IR		102.1	4.6	19.5	999.4	82.6	141	1.38
Gippsland	VIC	IR		147.9	2	21.4	968.1	81.6	225	1.52
Lyons	VIC	IR		104.2	4.8	19.9	935.2	80.9	112	1.07
Monash	VIC	IR		185.2	0.3	12.1	983.8	83	166	0.9
Nicholls	VIC	IR		153.8	2.6	20.2	968.8	82.3	236	1.53
Wannon	VIC	IR		153.6	1.6	20.6	981.6	82.7	210	1.37
Indi	VIC	OR		148.1	1.6	20.9	990.4	82.5	235	1.59
Mallee	VIC	OR		155.8	2.6	21.8	965.1	81.7	195	1.25
Lilley	QUEENs.	IMC		158.8	2.2	14.8	1022.7	82.7	241	1.52
Bonner	QUEENs.	IMC		158.5	1.8	14.3	1041.3	84.2	203	1.28
Bowman	QUEENs.	IMC		154.6	2.3	17.6	1034	83.7	211	1.36
Brisbane	QUEENs.	IMC	y	174.6	1	9.7	1067.7	83.7	567	3.25
Griffith	QUEENs.	IMC	Y	162.8	1.2	9.9	1046.7	83.5	311	1.91
Moreton	QUEENs.	IMC	Y	172.6	1.2	12.3	1034.9	83.4	198	1.15
Oxley	QUEENs.	IMC		178.1	3	10.1	986.7	82.4	209	1.17
Petrie	QUEENs.	IMC		173.7	2.8	16.6	989	82.5	221	1.27
Rankin	QUEENs.	IMC		188.4	2.8	10.3	977.7	81.8	296	1.57
Ryan	QUEENs.	IMC		163.2	0.9	13.3	1101.1	85.3	345	2.11
Dickson	QUEENs.	FrM	Y	159.3	2	12.7	1060.4	84.1	239	1.5
Blair	QUEENs.	FrM	Y	171.5	4.4	12.8	966.9	81.4	207	1.21
Fadden	QUEENs.	FrM		175.6	1.7	16.1	1022.9	83.2	245	1.4
Forde	QUEENs.	FrM		175.9	2.8	12.5	1000.1	81.9	193	1.1
Groom	QUEENs.	FrM		153.9	4	16.8	1002.3	82.8	246	1.6
Hinkler	QUEENs.	FrM		146.6	4.1	25.3	947.1	81.4	247	1.68
Longman	QUEENs.	FrM	Y	169.2	3.7	16.9	986.3	82	182	1.08
McPherson	QUEENs.	FrM		159.7	1.7	17.4	1023.7	84	242	1.52
Wide Bay	QUEENs.	FrM		147.4	4.1	23.2	961.8	82.3	280	1.9
Wright	QUEENs.	FrM		165.4	2.9	14.3	1016.9	83	164	0.99
Fairfax	QUEENs.	OMC		156.3	2	18.9	1018.9	84.2	223	1.43
Fisher	QUEENs.	OMC		154.1	1.9	20.9	1007.4	84.1	246	1.6
Moncrieff	QUEENs.	OMC		177.2	1.5	17.8	1013.8	83.5	305	1.72
Capricornia	QUEENs.	IR		154.8	5.3	14	988.5	81.7	210	1.36
Dawson	QUEENs.	IR		157.2	5.5	14.2	1005.3	81.7	236	1.5
Flynn	QUEENs.	IR		158.4	5.3	13.2	983.7	81.9	203	1.28
Herbert	QUEENs.	IR		165.4	8.5	13.6	993.2	81.1	293	1.77
Kennedy	QUEENs.	OR		168.7	13.7	16.3	947.7	80.3	376	2.23
Leichhardt	QUEENs.	OR	Y	175.5	16.8	12.4	959.3	80.5	415	2.36
Maranoa	QUEENs.	OR		151.5	6	19.2	959.3	81.1	375	2.48
Curtin	WES. A	IMC		151.4	0.6	16.4	1090.3	84.7	314	2.07
Fremantle	WES. A	IMC		157	1.9	13.4	1018.4	83.8	260	1.66
Moore	WES. A	IMC		145.8	0.6	13.8	1083.1	85.3	245	1.68
Perth	WES. A	IMC	Y	159	1.1	14	1011.4	83.1	313	1.97
Stirling	WES. A	IMC	Y	154.4	1.2	15.8	1006.3	83.7	194	1.26
Swan	WES. A	IMC	Y	170.4	1.8	13.4	1003.2	82.8	161	0.94
Tangney	WES. A	IMC		140.7	0.7	17.9	1091.1	85.7	204	1.45

Division	State	Zone	Marg ?	Popn	1st N%	%y65+	SEIFA '06	LW '18	GPs '16	GP/k
Cowan	WES. A	IMC	Y	153.2	1.6	12	1030.7	83.6	180	1.17
Brand	WES. A	FrM	Y	172.8	2.4	11.4	1001.5	82.6	169	0.98
Canning	WES. A	FrM		153.1	2	19	992.9	82.8	176	1.15
Brand	WES. A	FrM	Y	172.8	2.4	11.4	1001.5	82.6	169	0.98
Canning	WES. A	FrM		153.1	2	19	992.9	82.8	176	1.15
Pearce	WES. A	FrM		194.2	2.2	10.5	1028.6	83.9	176	0.91
Burt	WES. A	FrM	y	177.6	2.4	10.9	1002	82.8	202	1.14
Forrest	WES. A	IR		152.5	2.2	16.5	1008.3	83	249	1.63
Hasluck	WES. A	IR	y	148.2	2.8	15.2	1004	82.8	194	1.31
Durack	WES. A	OR		186.2	16.7	10.1	953.8	80	417	2.24
O'Connor	WES. A	OR		159	5.9	16.4	982.4	81.1	256	1.61
Adelaide	STH. A.	IMC		185.4	1.2	14.7	1006.4	82.4	581	3.13
Boothby	STH. A.	IMC	y	170.8	0.9	20.1	1038.4	84.3	223	1.31
Hindmarsh	STH. A.	IMC		165.8	1.7	19.2	998.2	82.9	165	1
Kingston	STH. A.	IMC		162.1	1.9	16.4	984.5	84.3	208	1.28
Makin	STH. A.	IMC		179.8	1.4	16.4	1010.3	82.3	189	1.05
Spence	STH. A.	IMC		177.5	2.8	13	922.1	80.5	220	1.24
Sturt	STH. A.	IMC		179.9	0.7	19.9	1024.4	84.4	175	0.97
Mayo	STH. A.	FrM		163.9	1	21.3	1035.1	83.2	270	1.65
Barker	STH. A.	IR		171.1	2.5	19.9	961.3	81.9	261	1.53
Grey	STH. A.	OR		173.4	6.4	20.1	927.1	80.7	280	1.61
Bass	TAS	RUR	y	104.8	3.4	19.1	960.4	80.4	176	1.68
Braddon	TAS	OR	Y	105	7.3	20.7	933.4	81	154	1.47
Bean	ACT	IMC		138.3	2.1	14.4		83.3		
Canberra	ACT	IMC		133.1	1.2	14.2	1074.7	83.4	319	2.4
Fenner	ACT	IMC		142.4	1.8	9.2	1068.1	84.3	229	1.61
Lingiari	NOR. T.	IR	Y	117.5	8.5	8	1004	81.2	227	1.93
Solomon	NOR. T.	OR	y	132.5	40.2	6.5	830.6	75.5	335	2.53
Electorates	151			163.2	2.8	15.6	1006.0	83.1	239.0	1.47

Sources: Electoral Division Electorate information for 2019; Federal Parliamentary Library reports on Life Expectancy, GP numbers (DoH to FPL by FOI) and SEIFA score by electorate; electoral marginality from Wikipedia. ***Notes***: data for Bean and Fraser allowed for when absent. ***Zone captions***: OR: outer rural; IR: inner rural; OMC: other major cities; FrM: fringe metropolitan; IMC: inner capital major city. This classification has been adopted for the study to suit the distribution and characteristics of electorates in preference to the other Geographical classifications. ***Other Abbreviations***: Marg = Marginal Electorate in 2019, Popn. = Population, !st N + 1st Nations, 65y+ = over 65 age, SEIFA = Socioeconomic indices for areas, LE = Life Expectancy, GP = General Practitioner.