

# Rural and remote health

Web article

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Around 7 million people – or 28% of the Australian population – live in rural and remote areas, which encompass many diverse locations and communities (ABS 2022c). These Australians face unique challenges due to their geographic location and often have poorer health outcomes than people living in metropolitan areas. Data show that people living in rural and remote areas have higher rates of hospitalisations, deaths, injury and also have poorer access to, and use of, primary health care services, than people living in *Major cities*.

## Defining rural and remote

This report uses the the [Australian Statistical Geography Standard Remoteness Structure, 2016](#) (ABS 2021d) which defines remoteness areas in 5 classes of relative remoteness:

- *Major cities*
- *Inner regional*
- *Outer regional*
- *Remote*
- *Very remote*.

These remoteness areas are centred on the Accessibility/Remoteness Index of Australia, which is based on the road distances people have to travel for services (ABS 2021d).

This report uses the term 'rural and remote' to cover any area outside of Australia's *Major cities*. Due to small population sizes, data for "*Outer regional and remote*" and "*Remote and very remote*" areas are sometimes combined for reporting.

## Profile of rural and remote Australians

The majority of Australians live in *Major cities* compared with rural and remote areas. As at 30 June 2021, the proportion of Australians by area of remoteness was:

- 72% in *Major cities*
- 18% in *Inner regional* areas
- 8.0% in *Outer regional* areas
- 1.1% in *Remote* areas
- 0.8% in *Very remote* areas (ABS 2022c).

## Aboriginal and Torres Strait Islander people

Aboriginal and Torres Strait Islander people are more likely to live in urban and regional areas compared with more remote areas. However, the proportion of the total population who are Indigenous increases with remoteness from 1.8% in *Major cities*, to 32% in *Remote and very remote* areas based on estimated Indigenous population projections for 2021 (AIHW 2021i). Indigenous Australians have lower life expectancies, higher burden of disease, poorer self-reported health and a higher likelihood of being hospitalised than non-Indigenous Australians (AIHW 2022a; AIHW and NIAA 2020, 2021).

See [Indigenous Australians](#)

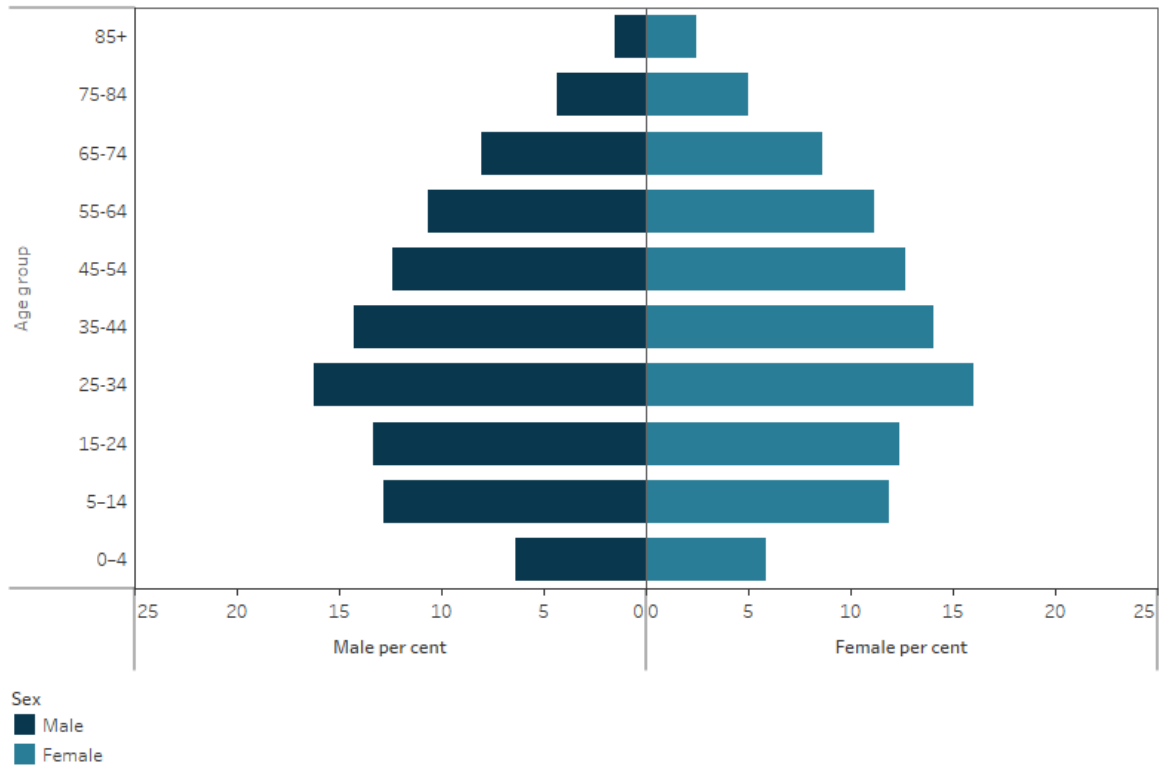
## Age

On average, people living in *Remote* and *Very remote* areas are younger than those in *Major cities*. Figure 1 shows the age and sex breakdown of each of the remoteness areas for 2020.

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**Figure 1: Australian population, by age groups, sex and area of remoteness, 2020**

Filter  
Major cities



Note: Percents for each remoteness area includes those from Other Territories.

Source: AIHW analysis of ABS 2022a; Table S1.

<http://www.aihw.gov.au/>

## Education

In 2021, people aged 20–64 living in rural and remote areas were less likely than those in *Major cities* to have completed Year 12 or a non-school qualification. Around half the people living in *Inner regional* (57%), *Outer regional* (54%) and *Remote and very remote* areas (57%) had completed Year 12, compared with three-quarters (77%) of those in *Major cities* (ABS 2021 e).

Similarly, a smaller proportion of people aged 20–64 living in *Inner regional* (23%), *Outer regional* (18%) and *Remote and very remote* areas (19%) had completed a bachelor’s degree or above, compared with those in *Major cities* (41%) (ABS 2021 e). Young people from rural and remote areas may be more likely to move to metropolitan areas to study and subsequently stay after completing their studies (Mackey 2019). The education levels of people living in rural and remote areas are also influenced by factors such as

decreased study options, the skill and education requirements of available jobs and the earning capacity of jobs in these communities (Lamb and Glover 2014; Regional Education Expert Advisory Group 2019).

## Employment and income

[Labour force data](#) shows, in general, people aged 15 and over living in metropolitan (greater capital city) areas are more likely to be employed than people living outside these areas (ABS 2022b). This may be due to lower opportunities and access to work outside metropolitan areas and the smaller range of employment and career opportunities in these areas (ABS 2022b; NRHA 2013).

People living in rural and remote areas also generally have lower incomes but pay higher prices for goods and services (NRHA 2014). In 2017–18, Australians living outside capital cities had, on average, 19% less household income per week compared with those living in capital cities, and 30% less mean household net worth (ABS 2022b).

Since March 2020, the impact of the COVID-19 pandemic has had a number of effects on a variety of health and non-health related activities, including employment.

See 'Chapter 4 The impacts of COVID-19 on employment and income support in Australia' in [Australia's welfare 2021: data insights](#).

## Health risk factors

### Why is the most recent risk factor and chronic condition data from 2017–18?

Nationally representative estimates on risk factors and chronic conditions are derived from the Australian Bureau of Statistics' (ABS) National Health Survey (NHS).

Previous versions of the NHS have primarily been administered by trained ABS interviewers and were conducted face-to-face. The 2020–21 NHS was conducted during the COVID-19 pandemic. To maintain the safety of survey respondents and ABS Interviewers, the survey was collected via online, self-completed forms.

Non-response is usually reduced through Interviewer follow up of households who have not responded. As this was not possible during lockdown periods, there were lower response rates than previous NHS cycles, which impacted sample representativeness for some sub-populations. Additionally, the impact of COVID-19 and lockdowns might also have had direct or indirect impacts on people's usual behaviour over the 2020–21 period.

Furthermore, there were changes to some modules used to collect information on risk factors as part of the 2020–21 NHS.

Due to these changes, results from the NHS 2020–21 are not comparable with previous surveys. The AIHW are conducting further analyses to understand the impact of these changes for specific population groups before updating these data.

Health risk factors such as smoking, overweight and obesity, diet, high blood pressure, alcohol consumption and physical activity can influence health outcomes and the likelihood of developing disease or health disorders.

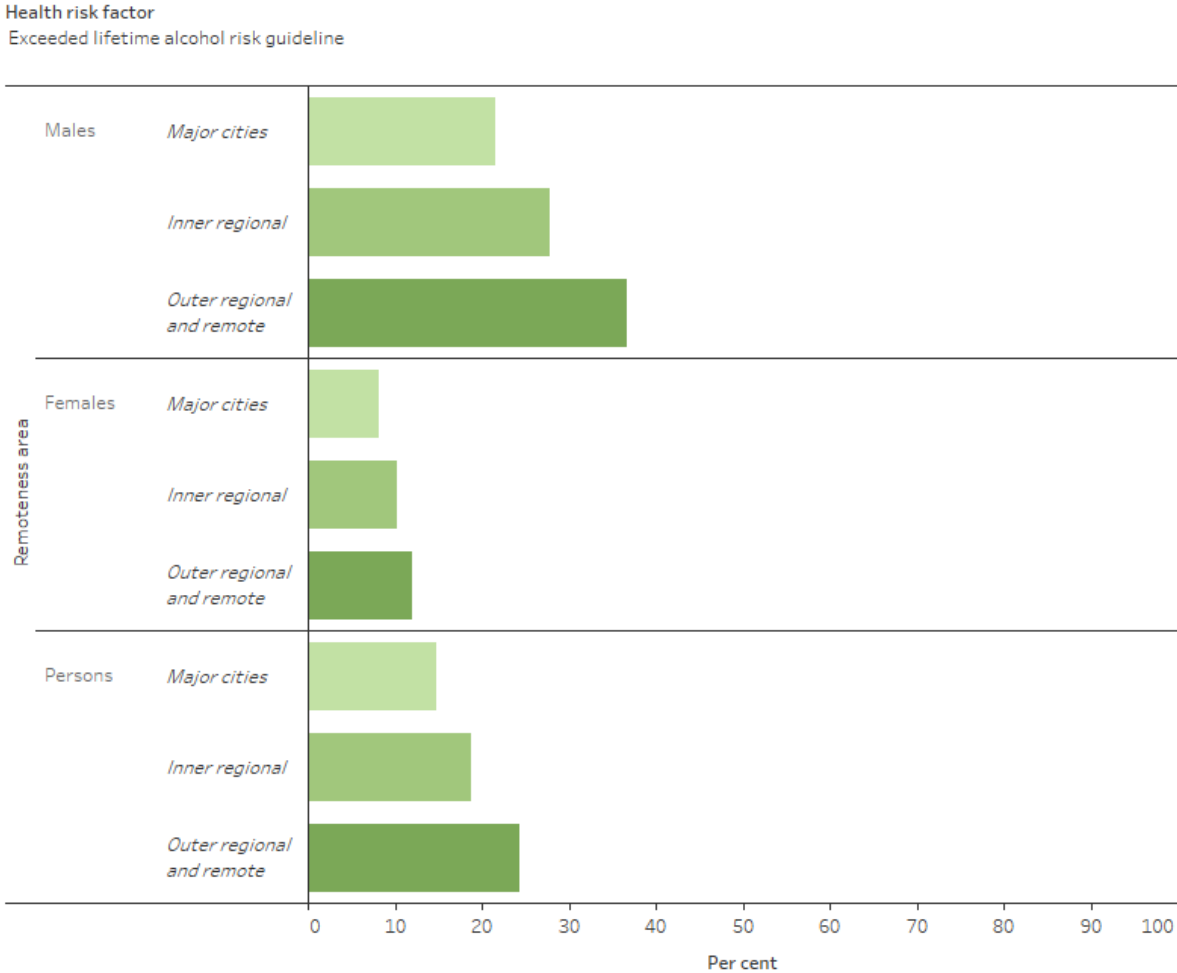
In 2017–18, based on self-reported data from the NHS and after adjusting for age, people living in *Inner regional* and *Outer regional and remote* areas were more likely to engage in risky behaviours, such as smoking and consuming alcohol at levels that put them at risk of life-time harm, compared with people living in *Major cities* (Figure 2; Table S2).

More recent data for daily tobacco smoking from the National Drug Strategy Household Survey 2019 shows the age-standardised rate of daily smoking for people aged 14 and over increases with remoteness area, from 9.8% for those living in *Major cities* to 19.2% for those living in *Remote and very remote* areas (AIHW 2020b).

See [Alcohol, tobacco & other drugs](#)



**Figure 2: Prevalence of health risk factors, by remoteness area, 2017–18**



[Hover for notes](#)

Source: AIHW analysis of ABS 2019; Table S2.  
<http://www.aihw.gov.au/>

### Age standardisation

Health status, outcomes and service use are associated with age. This means that comparisons between population groups can be confounded by differences in their age distributions. Age-standardised rates are often used to compare outcomes for populations with different age structures, such as remoteness areas. As the purpose of this web report is comparisons between remoteness areas, age-standardised results have been used throughout. Unadjusted (crude) rates for health risk factors and chronic conditions are available in the supplementary data tables, and are often available in the referenced and/or linked reports.

## Family, domestic and sexual violence

Family, domestic and sexual violence is a major health and welfare issue in Australia. The ABS 2016 Personal Safety Survey estimated that 2.2 million adults had been victims of physical and/or sexual violence from a partner since the age of 15 (ABS 2017).

People living outside *Major cities* were 1.4 times as likely to have experienced partner violence than those living in *Major cities*. Additionally, people living in *Remote* and *Very remote* areas were 24 times as likely to be hospitalised for domestic violence as those in *Major cities* (AIHW 2019).

See [Family, domestic and sexual violence](#).

## Health status and outcomes

### Impact of COVID-19

The COVID-19 pandemic has impacted rural and remote communities in a multitude of ways. While the largest proportion of COVID-19 cases occurred in *Major cities* and decreased with increasing remoteness, a high proportion of residents in *Very remote* areas were affected by COVID-19. See 'Chapter 1 The impact of a new disease: COVID-19 from 2020, 2021 and into 2022' in [Australia's health 2022: data insights](#). Health impacts from COVID-19 can be more severe for those with underlying chronic conditions or higher prevalence of risky health behaviours. With many of those increasing with remoteness, rural and remote communities are particularly vulnerable to enhanced health inequalities from COVID-19 (Lakhani et al. 2020). Additionally, some rural and remote communities face further challenges with the pandemic without the same resources available in urban centres, and longer travel distances required to access testing and vaccination (Carter et al. 2022). However, populations living in regional and remote areas are likely to have benefitted from the introduction of new Medicare Benefits Schedule telehealth services that came into effect in response to the pandemic.

See 'Chapter 2 Changes in the health of Australians during the COVID-19 period' in [Australia's health 2022: data insights](#), and [Impacts of COVID-19 on Medicare Benefits Scheme and Pharmaceutical Benefits Scheme: quarterly data](#).

## Chronic conditions

Chronic conditions are long-lasting and have persistent effects throughout a person's life. They are becoming increasingly common and are influenced by a wide variety of factors.

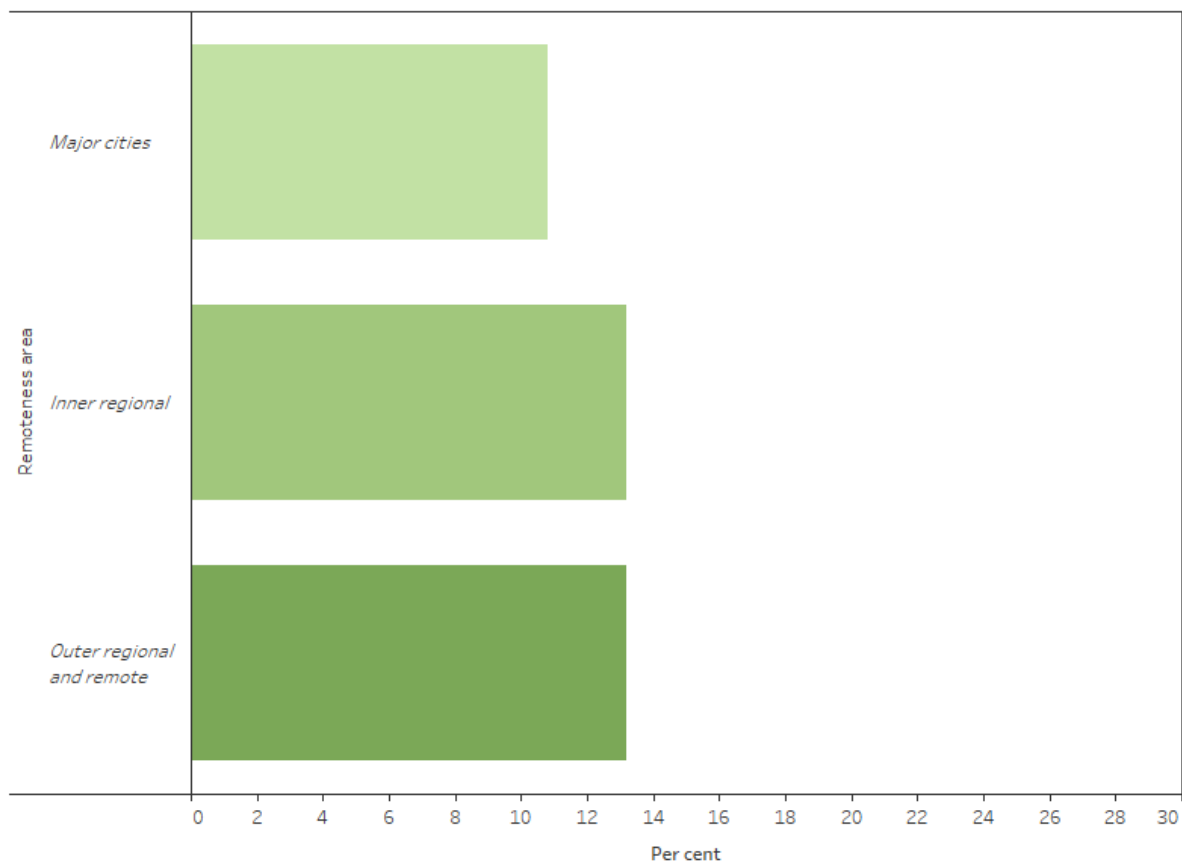
In 2017–18, based on self-reported data from the NHS and after adjusting for age, people living outside *Major cities* had higher rates of arthritis, asthma and diabetes, while mental and behavioural conditions were higher in *Inner regional* areas compared with *Outer regional and remote* areas and *Major cities*. However, rates of all other conditions were similar across remoteness areas (Figure 3; Table S3). Additionally, the prevalence of multimorbidity – the presence of 2 or more chronic conditions in a person at the same time – was similar across remoteness areas (AIHW 2020a).

See [Chronic disease](#) and [Chronic conditions and multimorbidity](#).

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**Figure 3: Prevalence of selected chronic conditions, by remoteness area, 2017–18**

Chronic condition  
Asthma



[Hover for notes](#)

Source: AIHW analysis of ABS 2019; Table S3.

<http://www.aihw.gov.au/>

## Cancer

The age-standardised incidence rate of all cancers combined was highest in *Inner regional* and *Outer regional* areas in 2012–2016 (513 and 512 per 100,000 people, respectively), slightly lower in *Major cities* and *Remote* areas (both 487 cases per 100,000 people), and lowest in *Very remote* areas (422 cases per 100,000 people) (AIHW 2021f).

However, the incidence rate for all cancer for *Very remote* areas may be influenced by lower population screening participation rates, later detection of a cancer and lower life expectancy due to death from other causes (AIHW 2022b; Fox and Boyce 2014). *Very remote* areas had the highest incidence rate for cervical cancer, liver cancer, cancer of unknown primary site, uterine cancer and head and neck cancers (including lip).



In the period 2012–2016, people living in *Major cities* had the highest 5-year observed survival for all cancers combined (63%) while *Very remote* areas had the lowest (55%) (AIHW 2021f).

See [Cancer in Australia 2021](#) and [Cancer](#)

## Burden of disease

Burden of disease refers to the quantified impact of living with and dying prematurely from a disease or injury.

In 2018, after adjusting for age, the total burden of disease and injury in Australia increased with increasing remoteness. *Major cities* experienced the least burden per population, while *Remote and very remote* areas experienced the most. The rate of disease burden in *Remote and very remote areas* was 1.4 times as high as that for *Major cities*.

This pattern was mostly driven by fatal burden (years of life lost due to premature death). In *Remote and very remote* areas, fatal burden rates were 1.8 times as high as that of *Major cities*, while non-fatal burden rates – the rates of burden from living with ill health as measured by years lived with disability – were 1.1 times as high. Kidney and urinary diseases, injuries and infections were disease groups with noticeably higher rates of burden in *Remote and very remote* areas, compared with *Major cities* (more than twice as high) (AIHW 2021d).

See [Australian Burden of Disease Study](#) and [Burden of disease](#).

## Deaths

People living in rural and remote areas are more likely to die at a younger age than their counterparts in *Major cities*. They have higher mortality rates and higher rates of potentially avoidable deaths than those living in *Major cities*.

In 2020, age-standardised mortality rates increased as remoteness increased for males and females:

- Males living in *Very remote* areas had a mortality rate 1.3 times as high as those living in *Major cities*.
- Females living in *Very remote* areas had a mortality rate 1.5 times as high as those living in *Major cities*.

Males had a higher mortality rate than females in all remoteness areas, with the highest difference in *Remote* areas– at 1.5 times higher (AIHW 2022b) (Table 1).

See [Causes of death](#).

### **Table 1: Median age at death, mortality rate, and rate ratio, by sex and remoteness area, 2020**

	<b>Major cities</b>	<b>Inner Regional</b>	<b>Outer Regional</b>	<b>Remote</b>	<b>Very remote</b>
<b>Median age at death (Males)</b>	79.6	78.7	76.8	73.1	65.7
<b>Age-standardised rate (deaths per 100,00) (Males)</b>	545.9	630.7	668.1	703.3	712.7
<b>Rate ratio (Males)</b>	0.94	1.09	1.15	1.21	1.23
<b>Median age at death (Females)</b>	85.2	84.3	82.7	78.3	66.2
<b>Age-standardised rate (deaths per 100,00) (Females)</b>	388.6	435.9	461.0	468.7	569.5
<b>Rate ratio (Females)</b>	0.95	1.07	1.13	1.15	1.40

Source: AIHW 2022b.

### Leading causes of death 2016–2020

Figure 4 shows the 10 leading causes of death for each remoteness area for the period 2016–2020, with comparison to mortality rates for Australia overall (AIHW 2022b).

- Coronary heart disease was the leading cause of death across all remoteness areas. Age-standardised rates were higher in *Very remote* (1.6 times) and *Remote* areas (1.3 times) than for Australia overall.
- The top 7 causes of death were the same for *Major cities*, *Inner regional* and *Outer regional* areas.
- Land transport accidents were a leading cause of death in *Remote* and *Very remote* areas. The rate of dying due to land transport accidents was nearly 3 times as high for *Remote* areas and nearly 4 times as high for *Very remote* areas, compared with Australia overall (AIHW 2022b).

	Major Cities	Inner Regional	Outer Regional	Remote	Very Remote
1	Coronary heart disease	Coronary heart disease	Coronary heart disease	Coronary heart disease	Coronary heart disease
2	Dementia including Alzheimer disease	Dementia including Alzheimer disease	Dementia including Alzheimer disease	Lung cancer	Diabetes
3	Cerebrovascular disease	Cerebrovascular disease	Lung cancer	Chronic obstructive pulmonary disease	Chronic obstructive pulmonary disease
4	Lung cancer	Lung cancer	Cerebrovascular disease	Dementia including Alzheimer disease	Lung cancer
5	Chronic obstructive pulmonary disease	Chronic obstructive pulmonary disease	Chronic obstructive pulmonary disease	Cerebrovascular disease	Suicide
6	Colorectal cancer	Colorectal cancer	Colorectal cancer	Diabetes	Cerebrovascular disease
7	Diabetes	Diabetes	Diabetes	Suicide	Land transport accidents
8	Influenza and pneumonia	Prostate cancer	Prostate cancer	Colorectal cancer	Dementia including Alzheimer disease
9	Heart failure	Heart failure	Suicide	Land transport accidents	Other ill-defined causes
10	Prostate cancer	Influenza and pneumonia	Heart failure	Prostate cancer	Kidney failure

Rate ratio (compared with all Australia)					
<= 1.0	1.1–1.24	1.25–1.49	1.5–1.9	2.0–2.9	3.0–4.0

**Notes**

Rates are age-standardised to the 2001 Australian standard population.

Leading causes of death are listed in order of number of deaths in each remoteness area from 2016–2020.

Boxes are coloured based on rate ratio comparing each region to Australia overall.

Source AIHW 2022b; Table S4.

### Potentially avoidable deaths

The rate of potentially avoidable deaths – deaths under the age of 75 from conditions that are potentially preventable through primary or hospital care, such as cancer screening and transport accidents – increased as remoteness increased. For more details on examples and definitions of potentially avoidable deaths see [Potentially avoidable deaths, 2021](#).

In 2020, 17% of all deaths in Australia were potentially avoidable. For males and females, the rate increased with remoteness. After adjusting for age, the rates of potentially avoidable deaths were:

- 3.0 times as high for females in *Very remote* areas compared with females in *Major cities* (181 per 100,00 population compared with 61)
- 2.1 times as high for males in *Very remote* areas compared with males in *Major cities* (235 per 100,000 population compared with 111) (AIHW 2022b).

See [Mortality Over Regions and Time \(MORT\) books](#).

## Life Expectancy

Estimates of life expectancy at birth represent the average number of years that a newborn baby can expect to live, assuming current age-specific death rates are experienced through their lifetime. In 2018–2020, life expectancy at birth was lower for those living outside of metropolitan areas (Table 2; ABS 2021b).

**Table 2: Life expectancy by sex for Greater capital city and Rest of state 2018–2020**

	Males	Females	Persons
<b>Greater Sydney</b>	82.7	86.4	84.5
Rest of NSW	79.3	84.2	81.7
<b>Greater Melbourne</b>	82.6	86.3	84.4
Rest of Vic.	79.4	84.3	81.8
<b>Greater Brisbane</b>	81.6	85.7	83.6
Rest of Qld	80.2	84.9	82.5
<b>Greater Adelaide</b>	81.4	85.6	83.4
Rest of SA	79.6	84.4	82.0
<b>Greater Perth</b>	82.3	86.4	84.3
Rest of WA	79.0	84.3	81.6
<b>Greater Hobart</b>	80.6	84.9	82.7

	<b>Males</b>	<b>Females</b>	<b>Persons</b>
Rest of Tas.	79.4	83.9	81.6
<b>Greater Darwin</b>	<b>80.2</b>	<b>84.8</b>	<b>82.5</b>
Rest of NT	73.0	77.4	75.1

Source: ABS 2021b.

## Access to health care

People living in rural and remote areas face barriers to accessing health care, due to challenges of geographic spread, low population density, limited infrastructure, and the higher costs of delivering rural and remote health care.

### Primary health care

Medicare claims data from 2020–21 show that the number of non-hospital non-referred attendances per person, such as general practitioner (GP) visits, were lower in *Remote* and *Very remote* areas (4.7 and 3.4 per person respectively), than in *Outer regional* areas (6.1 per person), *Inner regional* areas and *Major cities* (6.8 per person for each area) (Department of Health 2022).

However, bulk-billing rates were highest in *Very remote* areas (91%) and *Major cities* (90%) and slightly lower but similar in regional areas (87% in both *Inner regional* and *Outer regional* areas) and lowest in *Remote* areas (86%) (Department of Health 2022).

People living in *Remote* and *Very remote* areas also have lower rates of bowel, breast and cervical cancer screening (AIHW 2021e, 2021g, 2021h).

See [General practice, allied health and other primary care services](#) and [Indigenous Australians and the health system](#).

### Health workforce

Australians living in *Remote* and *Very remote* areas experience health workforce shortages, despite having a greater need for medical services and practitioners with a broader scope of practice (AMA 2017). For most health professionals including specialists (all doctors other than GPs who require a referral from another doctor) dentists, pharmacists, and other allied health professionals, there is a marked decline in the rate of clinical full-time equivalent (FTE) practitioners per 100,000 population once outside *Major cities* with the notable exception of nurses and midwives. The FTE rate for nurses and midwives is higher in *Remote* and *Very remote* areas compared with *Major cities*, *Inner regional* and *Outer regional* (Department of Health 2020) (Figure 5; Table S5).

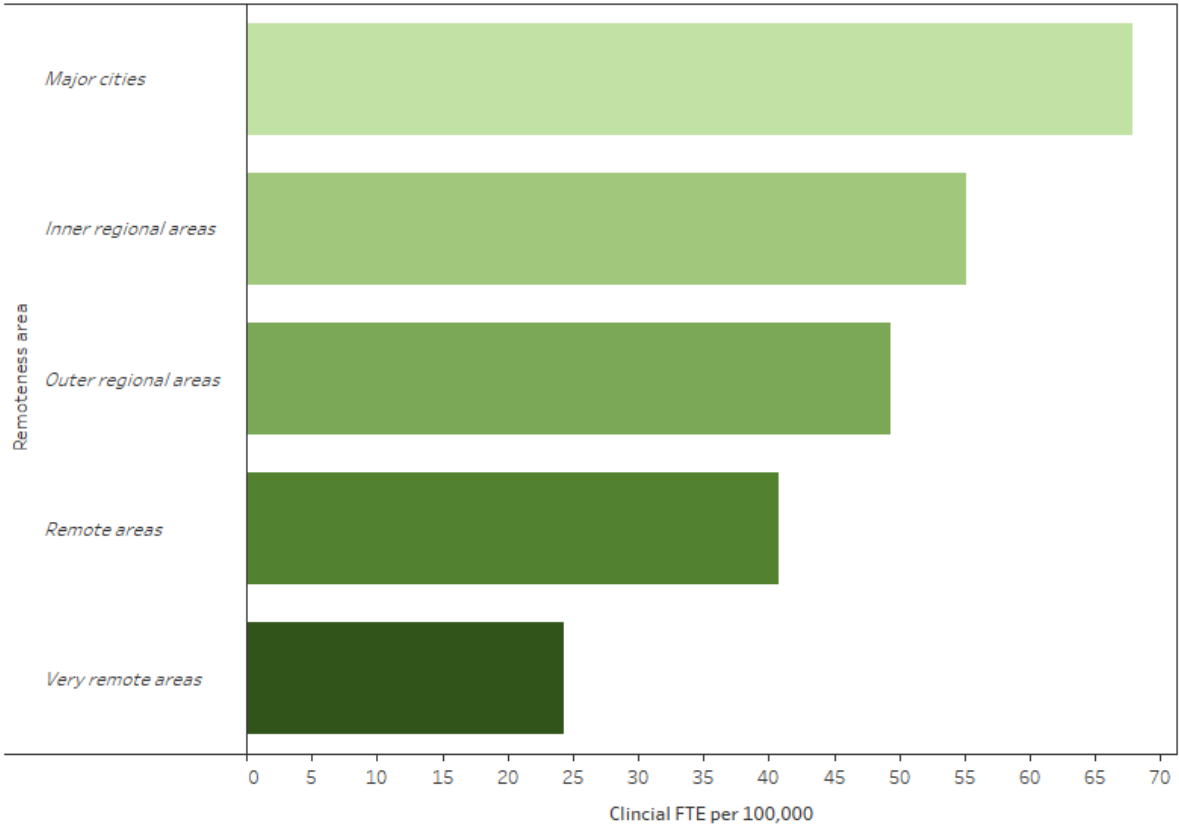
Although the FTE rate for GPs increases with increasing remoteness, care should be taken in interpreting the data, as work arrangements in these areas have the potential

to be more complicated (NRHA 2017). For example, there may be poor differentiation between general practice for on-call hours, activity for procedures and hospital work for GPs working in rural and remote areas, which affects the accuracy of statistics on GP supply and distribution (Walters et al. 2017).

See [Health workforce](#).

**Figure 5: Employed health professionals, clinical full-time equivalent (FTE) rate, by remoteness area, 2020**

Type of health professional  
Occupational therapists



[Hover for notes](#)

Sources: ABS 2021c; Department of Health 2020; Table S5.  
<http://www.aihw.gov.au/>

## Hospitalisations

In 2019–20, people living in *Very remote* areas were hospitalised at almost twice the rate as people living in *Major cities* and those in *Remote areas* at 1.4 times the rate. There was no difference in rate of hospitalisations for regional areas compared with *Major cities* (AIHW 2021a). People in *Major cities* had higher rates of rehabilitation care compared

with people living in other remoteness areas (18 hospitalisations per 1,000 population compared with 13 for *Inner regional* areas, 8 for *Outer regional* areas, 4 for *Remote* areas and 3 for *Very remote* areas). In part, this may reflect the distribution of private hospitals across remoteness areas, as private hospitals accounted for 80% of rehabilitation care separations (AIHW 2021b).

See [Hospitals](#).

### Potentially preventable hospitalisations

Potentially preventable hospitalisations (PPH) are for conditions where hospitalisation could have potentially been prevented through the provision of appropriate individualised preventative health interventions and early disease management, usually delivered in primary care and community-based settings. When compared with *Major cities*, the rate of PPH in 2019–20 was:

- 2.6 times as high for people living in *Very remote* areas
- 1.8 times as high for people living in *Remote* areas
- slightly higher in *Inner regional* and *Outer regional* areas (1.1 and 1.3 times as high respectively) (AIHW 2021c).

## Where do I go for more information?

For more information on rural and remote health please see:

- [Australian Burden of Disease Study: impact and causes of illness and death in Australia 2018](#)
- [Mortality Over Regions and Time \(MORT\) books](#)
- [Admitted patients](#)
- [National Rural Health Alliance](#)

Visit [Rural and remote Australians](#) for more on this topic.

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