

# Long-term health conditions: variations in the number and type of conditions reported, by Indigenous status

## Findings

### Background

The release by the Australian Bureau of Statistics of data from the 2021 Census for long-term health conditions provides the opportunity to examine variations in the number of these conditions by Indigenous status. It is important to note that many Indigenous Australians rate their health as good or excellent despite significant health problems, with consequent impact on the data analysed in this report.

### Overall

When adjusted for age differences, the rate of Aboriginal people reporting one or more conditions was 45% higher than for the non-Indigenous population. The gap in rates by Indigenous status increases with the number of conditions per person, from a rate 23% higher among Aboriginal people with one condition, to 76% higher for those with two conditions and 175% higher (or 2.75 times) for those with three or more conditions.

### By socioeconomic disadvantage

There are marked differences in the prevalence of long-term health conditions by Indigenous status and socioeconomic status, with fewer Aboriginal people in the lowest socioeconomic status areas reporting these conditions (fewer than in the highest socioeconomic status areas). This decline in rates does not align with the level of use of services (such as admission to hospital), or the relatively poorer health outcomes (such as higher rates of premature mortality) of Aboriginal people. Some specific conditions have their lowest rates of reporting in the lowest socioeconomic status areas, which is also at odds with what is found with other data. For the non-Indigenous population, the highest rates are in the lowest socioeconomic status areas and this equity gap increases with the number of conditions reported.

### By remoteness

Regardless of the number of long-term health conditions reported, the highest rates for Aboriginal people were in the Major Cities and Inner and Outer Regional areas, and the lowest were in the Remote and Very Remote areas; again, and as noted above, this does not align with what we know to be the case from other health data sets, either for the number of conditions or for some specific conditions. For the non-Indigenous, the highest rates were in the Inner and Outer Regional areas, and the lowest in the Very Remote areas.

### Summary

The data for long-term health conditions for the whole population provide a measure of the extent of variation in health status across Australia and support the case for a population health approach, if the aim is to reduce inequalities in the prevalence of chronic conditions and health outcomes and reduce the burden on public health services. However, this comparison by Indigenous status highlights deficiencies in the data for Aboriginal people, in particular when viewed by socioeconomic status and remoteness.

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## Related publications

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# Long-term health conditions: variations in the number and type of conditions reported, by Indigenous status

## Background

The release by the Australian Bureau of Statistics (ABS) of data from the 2021 Census of Population and Housing for long-term health conditions provides the opportunity to compare the number and type of condition reported by Aboriginal and Torres Strait Islander people (collectively referred to here as Aboriginal people) and the non-Indigenous population at a finer geographical level than previously possible.

### Caveats specific to the reporting of long-term health conditions by Aboriginal people

It is important to note that many Aboriginal people rate their health as good or excellent, despite their having significant health problems. This may reflect the social and cultural constructs of health, such as culturally distinct views of health and wellbeing held by Aboriginal and Torres Strait Islander peoples, the existing level of health within a community and judgments concerning the person's own health compared with others in their community. This is why a greater understanding of the cultural determinants of health and potential protective factors is needed<sup>1</sup>. This analysis by socioeconomic status and remoteness highlights the deficiencies in the data for Aboriginal people

In addition, identification of Aboriginal people in the Census, as in the majority of data collections, is not perfect and is likely to underestimate this population group, both overall and between geographic areas as presented in this Fact sheet

### Caveats relevant to the reporting of long-term health conditions by all Australians

#### Self-reported data and quality of data

The ABS draw attention to the strong link between age and incidence of long-term health conditions; however, the data presented in this Fact sheet have been age-standardised (to the Australian population) to remove, as far as possible, the effects of differences in the age structure when comparing populations<sup>2</sup>.

The data were self-reported and, as such vary from some of the other data that the ABS collects about these conditions. However, the value of the Census data are in providing data for small geographic areas. For more detail, see under the heading *Methodology* at <https://www.abs.gov.au/articles/long-term-health-conditions#cultural-diversity-and-long-term-health-conditions>. The ABS also advise that the use of a single question in the Census to collect information on the complex and sensitive topic of long-term health conditions likely results in some underestimation of the number of people with long-term health conditions. This was observed particularly for mental health conditions. For further details see the heading *Demographic characteristics and long-term health conditions* at the link above.

#### Non-response to the long-term health conditions question

The age-standardisation undertaken has been impacted by the number of 'not stated' cases, as evidenced in the standardised ratios (SRs) reported below, with the SRs for both Aboriginal and non-Indigenous people over 100.

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<sup>1</sup> Australian Institute of Health and Welfare (AIHW). Aboriginal and Torres Strait Islander Health Performance Framework, Key Facts. Available at <https://www.indigenoushpf.gov.au/measures/1-17-perceived-health-status>

<sup>2</sup> Australian Bureau of Statistics (ABS). Demographic characteristics and long-term health conditions at <https://www.abs.gov.au/articles/long-term-health-conditions#demographic-characteristics-and-long-term-health-conditions>

## Coverage

The statistics are of all Australians, whether living in a private dwelling or non-private dwelling (hospitals, nursing homes, gaols, etc.). Whereas the proportion of the non-Indigenous population with a chronic condition is higher for those living in non-private dwellings (45.1% compared to 28.5% in private dwellings), the proportions for the Aboriginal population are not reliable, as data for having a long-term condition and the number of conditions was not stated for 46% of the Aboriginal population in non-private dwellings<sup>3</sup>: the overall 'not stated' proportion was 8.1%, the same as for the non-Indigenous population. However, as just 4.1% of the Aboriginal population live in non-private dwellings, the proportions shown in this Fact sheet (regardless of living arrangements) closely reflect those for the population living in private dwellings, with never more than a one percentage point difference.

Although the data are available for the total population and for those aged 15 years and over and under 15 years, this report mainly refers to those aged 15 years and over, as this group comprises the majority of those with long-term health conditions – 79.6% for Aboriginal people with one condition and 92.6% for other Australians. The proportions for two conditions were 93.6% for Aboriginal adults and 98.6% for non-Indigenous adults; and for three or more conditions were 99.4% and 99.9%.

## Number and type of condition

When adjusted for age differences, the rate of long-term health conditions in the Aboriginal population aged 15 years and over was 45% greater than in the non-Indigenous population (a rate ratio of 1.45, Table 1). The gap in rates by Indigenous status increases with the number of conditions per person, from a rate 23% higher among Aboriginal people with one condition, to 76% higher for those with two conditions and 175% higher (or 2.75 times) for those with three or more conditions.

Table 1: Number of long-term health conditions reported, by Indigenous status, aged 15 years and over, Australia, 2021

Number of long-term health conditions	Aboriginal			Non-Indigenous			RR <sup>3</sup>
	No.	ASR <sup>1</sup>	SR <sup>2</sup>	No.	ASR <sup>1</sup>	SR <sup>2</sup>	
One condition	133,080	27.1	133	4,257,394	22.1	104	1.23
Two conditions	50,733	12.8	185	1,406,017	7.3	103	1.76
Three or more conditions	32,5020	10.3	279	730,534	3.8	101	2.75
One or more conditions	216,321	48.1	152	6,393,947	33.1	103	1.45

<sup>1</sup>ASR is the (indirectly) age-standardised rate per 100 population

<sup>2</sup>SR (the standardised ratio) is the ratio of the number of observed conditions to the number expected from the rate in the standard population (Australia)

<sup>3</sup>RR (the rate ratio) is the ratio of the rate in the Aboriginal population to the rate in the non-Indigenous population

All of the individual long-term health conditions in Table 2 with 50,000 or more cases had rates for Aboriginal people of over 60% higher than reported by the non-Indigenous population.

Although the numbers were much smaller for kidney disease, it had the highest rate compared with the non-Indigenous population, followed by diabetes. The smallest gap was recorded for the reporting of cancer.

<sup>3</sup> Data extracted from ABS TableBuilder, 1 June 2023: table available on request

Table 2: Type of long-term health condition reported, people aged 15 years and over, by Indigenous status, Australia, 2021

Type of long-term health condition	Aboriginal		Non-Indigenous		RR <sup>2</sup>
	No.	SR <sup>1</sup>	No.	SR <sup>1</sup>	
Arthritis	50,398	147	2,078,524	103	1.43
Asthma	79,677	171	1,685,420	103	1.66
Cancer	12,691	111	710,026	104	1.07
Dementia (including Alzheimer's)	3,570	162	181,610	102	1.59
Diabetes (including gestational diabetes)	47,165	233	1,135,781	102	2.28
Heart disease (including heart attack or angina)	29,065	202	953,104	103	1.96
Kidney disease	9,643	265	215,255	101	2.62
Lung condition (including COPD or emphysema)	16,864	257	414,136	102	2.52
Mental health condition	97,074	167	2,024,542	103	1.62
Stroke	6,947	205	223,701	102	2.01
Any other long-term health conditions	54,425	130	1,789,120	104	1.25

<sup>1</sup>SR (the standardised ratio) is the ratio of the number of observed conditions to the number expected from the rate in the standard population

<sup>2</sup>RR (the rate ratio) is the ratio of the rate in the Aboriginal population to the rate in the non-Indigenous population

For children, asthma and mental health conditions were most often reported, with rates for Aboriginal children 62% and 93%, respectively above the non-Indigenous rate (Table 3).

Table 3: Type of long-term health condition reported, people aged 0 to 14 years, by Indigenous status, Australia, 2021

Type of long-term health condition	Aboriginal		Non-Indigenous		RR <sup>2</sup>
	No.	SR <sup>1</sup>	No.	SR <sup>1</sup>	
Asthma	27,498	164	265,467	101	1.62
Mental health condition	10,705	191	87,308	99	1.93
Any other long-term health conditions	16,162	151	171,175	101	1.50

<sup>1</sup>SR (the standardised ratio) is the ratio of the number of observed conditions to the number expected from the rate in the standard population

<sup>2</sup>RR (the rate ratio) is the ratio of the rate in the Aboriginal population to the rate in the non-Indigenous population

## Number and type of condition by socioeconomic status

### Number of conditions by socioeconomic status

When the data for people aged 15 years and over with one or more long-term health condition are analysed by Indigenous status and the Indigenous Relative Socioeconomic Outcomes (IRSEO) index, presented as quintiles, there are some marked differences (Figure 1 and Table 4)<sup>4</sup>. These differences are most evident in the four highest socioeconomic status quintiles, with the rates for Aboriginal people ranging from 20 percentage points higher (than for the non-Indigenous) in Quintile 1 and declining to 13.5 percentage points higher in Quintile 4. However, there is little difference in rates in the lowest socioeconomic status areas (Quintile 5).

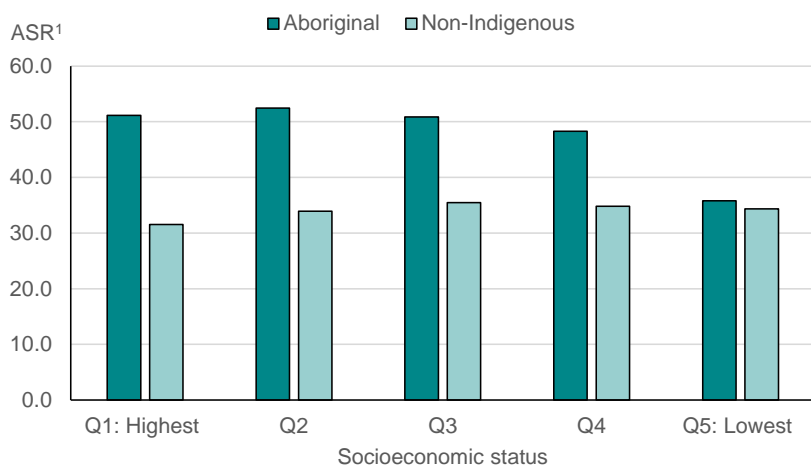
For Aboriginal people, the decline in rates with increasing disadvantage for some long-term conditions, and with the lowest rates of reporting of these conditions being in the lowest socioeconomic status areas, does not align with the level of use of services (such as admission to hospital), or the relatively poorer health outcomes (such as higher rates of premature

<sup>4</sup> Details of the IRSEO and of the composition and definitions of quintiles are available [here](#) (under the heading *Aboriginal & Torres Strait Islander Social Health Atlas of Australia and Indigenous Status Comparison Social Health Atlas*)

mortality) that we know to be the case<sup>5</sup>. As such, the caveat, above, with respect to the reporting by Aboriginal people of long-term health conditions, is of particular relevance when considering these data by socioeconomic status.

The opposite is the case for the non-Indigenous population, with higher rates in the lowest socioeconomic status areas and with the gap between the lowest and highest socioeconomic status areas increasing with the number of conditions reported (Figure 1 and Table 4).

Figure 1: People aged 15 years and over reporting one or more long-term health condition, by Indigenous status and socioeconomic status, Australia, 2021



<sup>1</sup> ASR is the (indirectly) age-standardised rate per 100 population

Similar charts for those reporting one, two or three or more conditions can be seen [here](#).

The pattern across the quintiles for one, two and three or more conditions is similar to that for those reporting one or more conditions, although for the non-Indigenous population the rate ratios increase, from one to two and to three or more conditions (Table 4). For the Aboriginal population there was a small decrease in the rate ratio between the quintiles with an increase in the number of conditions reported.

Also, of note is that, in each quintile, the gap in rates between the Aboriginal and non-Indigenous populations increases as the number of conditions increases.

<sup>5</sup> See <https://phidu.torrens.edu.au/social-health-atlases/graphs/monitoring-inequality-in-australia/aboriginal-and-torres-strait-islander-inequality-graphs/indigenous-inequality-graphs-latest>

Table 4: Long-term health conditions by Indigenous status and socioeconomic status, people aged 15 years and over, Australia, 2021

Number of long-term health conditions	Socioeconomic status (ASR <sup>1</sup> )					Rate ratio <sup>2</sup>
	Q1	Q2	Q3	Q4	Q5	
Aboriginal						
One condition	29.4	29.0	28.0	26.5	21.7	0.74
Two conditions	13.7	14.4	13.8	13.0	8.4	0.62
Three or more conditions	10.2	11.5	11.7	11.1	6.5	0.64
One or more conditions	51.2	52.4	50.9	48.3	35.8	0.70
Non-Indigenous						
One condition	21.6	22.4	22.9	22.5	22.5	1.04
Two conditions	6.7	7.6	8.1	7.9	7.6	1.14
Three or more conditions	3.2	4.0	4.5	4.4	4.2	1.31
One or more conditions	31.5	33.9	35.5	34.8	34.3	1.09
Rate ratio (Aboriginal: Non-Indigenous)						
One condition	1.36	1.29	1.22	1.18	0.96	..
Two conditions	2.04	1.89	1.70	1.65	1.11	..
Three or more conditions	3.19	2.88	2.60	2.52	1.55	..
One or more conditions	1.63	1.55	1.43	1.39	1.04	..

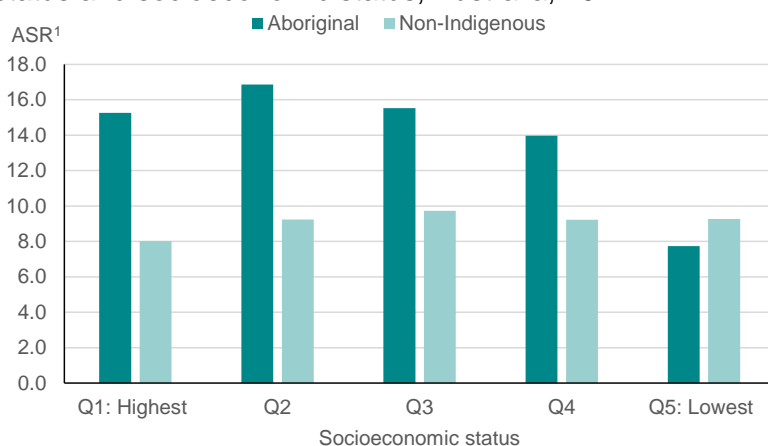
<sup>1</sup> ASR is the (indirectly) age-standardised rate per 100 population in each quintile (based on the IRSEO)

<sup>2</sup> Rate ratio is the ratio between the rate in the lowest socioeconomic areas to the rate in the highest socioeconomic status areas

The charts for the data in Table 4 can be seen [here](#).

The rate of long-term health conditions among children is, understandably, much lower than in the adult population: this can be seen in the different scales in the charts for adults and children. Despite this, there is a similar pattern of declining rates when presented using the IRSEO, although the gap in rates for children is greater than for adults. The higher rate in the lowest socioeconomic status areas for non-Indigenous children may, in part, reflect poor identification of Aboriginality in the Census data.

Figure 2: People aged 0 to 14 years reporting one or more long-term health condition, by Indigenous status and socioeconomic status, Australia, 2021



<sup>1</sup> ASR is the (indirectly) age-standardised rate per 100 population

Similar charts for children with one, two and three or more conditions can be seen [here](#).

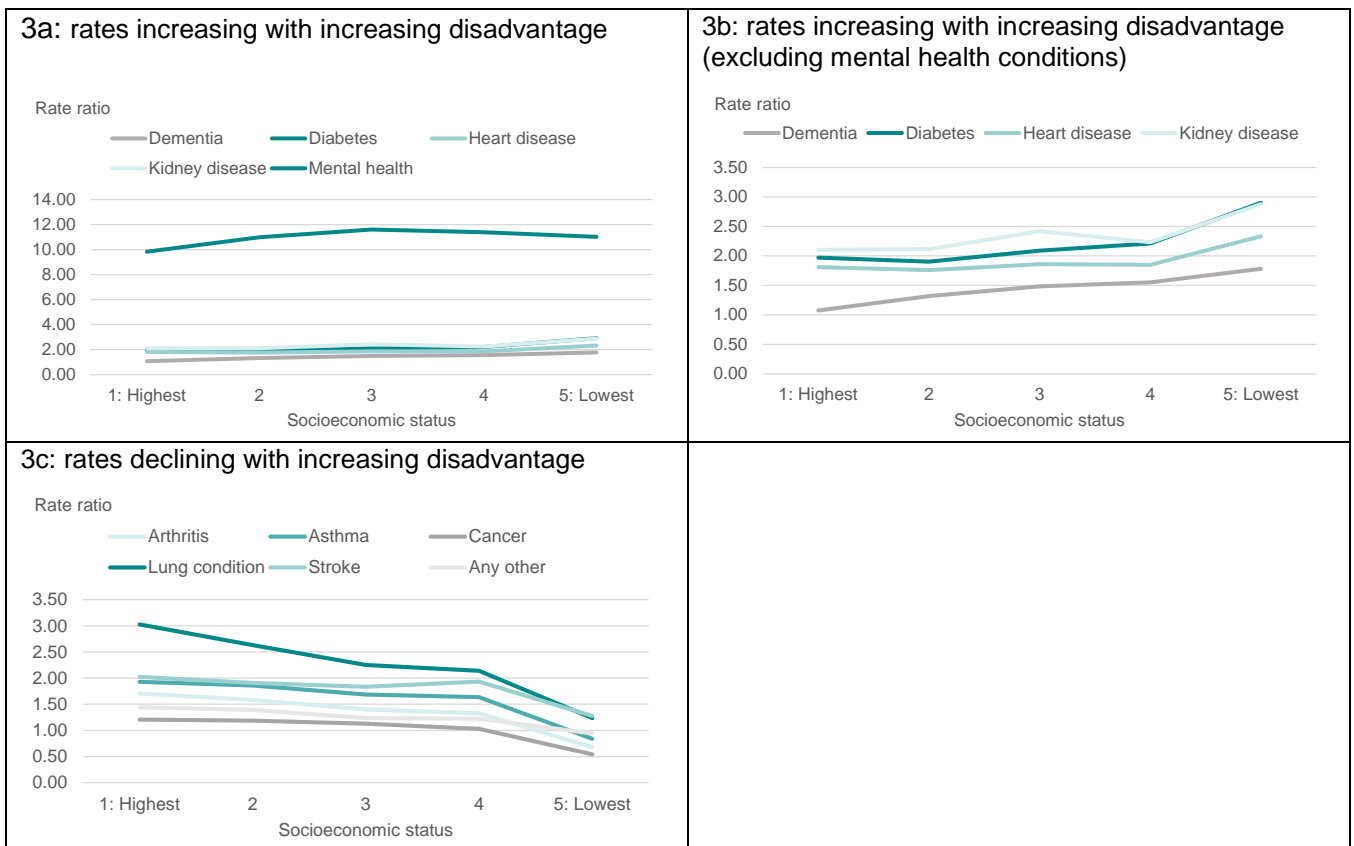
## Type of condition by socioeconomic status

For several long-term conditions the rates by Indigenous status follow a similar pattern to that seen above for the number of conditions reported, declining with increasing disadvantage and being lowest in the lowest socioeconomic status areas.

For dementia, diabetes, heart disease, kidney disease and mental health conditions, rates increased with increasing disadvantage and were highest in the lowest socioeconomic status areas (Figure 3 and Table 5). The higher rate per 100 persons for mental health conditions sets the scale in Figure 3a and hides the variation for other conditions in the chart which have rates of around 2 to 3 per 100. To better show the variation for those conditions, they are repeated in Figure 3b, without the mental health condition data.

However, as noted above, the decline in rates with increasing disadvantage for some long-term conditions, and with the lowest rates of reporting of these conditions being in the lowest socioeconomic status areas, does not align with the level of use of services (such as admission to hospital for lung conditions, or stroke), or the relatively poorer health outcomes (such as higher rates of premature mortality from cancer, lung conditions and stroke) that we know to be the case<sup>5</sup>.

Figure 3: Ratios of Aboriginal to non-Indigenous rates by type of long-term condition and socioeconomic status, people aged 15 years and over, Australia, 2021<sup>1</sup>



<sup>1</sup> Rates are the age-standardised rate per 100 population in each quintile (based on the IRSEO)



Table 5: Ratios of Aboriginal to non-Indigenous rates by type of long-term condition and socioeconomic status, people aged 15 years and over, Australia, 2021<sup>1</sup>

5a: rates declining with increasing disadvantage

Type of long-term health condition	Quintile of socioeconomic status <sup>1</sup>					RR <sup>2</sup>
	Q1	Q2	Q3	Q4	Q5	Q5:Q1
Arthritis	1.71	1.58	1.40	1.33	0.68	0.40
Asthma	1.93	1.86	1.69	1.64	0.84	0.44
Cancer	1.21	1.18	1.13	1.03	0.54	0.45
Lung condition	3.03	2.63	2.25	2.14	1.24	0.41
Stroke	2.03	1.91	1.83	1.93	1.27	0.63
Any other long-term condition	1.44	1.39	1.24	1.22	0.94	0.65

5b: rates increasing with increasing disadvantage

Type of long-term health condition	Quintile of socioeconomic status <sup>1</sup>					RR <sup>2</sup>
	Q1	Q2	Q3	Q4	Q5	Q5:Q1
Dementia (including Alzheimer's)	1.08	1.32	1.48	1.55	1.78	1.65
Diabetes (including gestational diabetes)	1.97	1.90	2.09	2.21	2.90	1.47
Heart disease (including heart attack or angina)	1.81	1.76	1.86	1.85	2.33	1.29
Kidney disease	2.11	2.11	2.42	2.23	2.88	1.37
Mental health condition	9.83	10.99	11.60	11.38	11.03	1.12

<sup>1</sup> Rate ratios of Aboriginal to non-Indigenous age-standardised rates in each quintile (based on the IRSEO)

<sup>2</sup> RR (the rate ratio) is the ratio of the age-standardised rate in Quintile 5 (the lowest socioeconomic status areas) to that in Quintile 1 (the highest socioeconomic status areas)

Charts for the type of condition by IRSEO and Indigenous status for all conditions shown in Table 5 can be seen [here](#).

## Number and type of condition by remoteness

### Number of conditions by remoteness

The long-term health condition data can also be compiled by the ABS Remoteness Structure<sup>6</sup>, providing data for remote areas where relatively high proportions of the population are Aboriginal. The proportion of the population who are Aboriginal increases markedly with increasing remoteness; however, the largest numbers of the Aboriginal population are found in the Major Cities and Inner and Outer Regional areas (Table 6).

Table 6: Aboriginal estimated resident population by Remoteness Structure, Australia, 2021

Remoteness structure	Number		Proportion of population (%)	
	Aboriginal	Non-Indigenous	Aboriginal	Non-Indigenous
Major Cities	401,674	18,140,963	2.2	97.8
Inner Regional	244,012	4,320,337	5.3	94.7
Outer Regional	187,150	1,895,705	9.0	91.0
Remote	58,727	241,249	19.6	80.4
Very Remote	92,146	103,449	47.1	52.9
<b>Total</b>	<b>983,709</b>	<b>24,701,703</b>	<b>3.8</b>	<b>96.2</b>

Source: Australian Bureau of Statistics (ABS), Table 3: Estimated resident Aboriginal and Torres Strait Islander, non-Indigenous and total populations, states and territories, Remoteness Areas, available [here](#)

<sup>6</sup> Details of the Remoteness Structure are available [here](#)

Regardless of the number of long-term health conditions reported, the highest rates for Aboriginal people were in the Major Cities and Inner and Outer Regional areas, and the lowest were in the Remote and Very Remote areas; for the non-Indigenous population, the highest rates were in the Inner and Outer Regional areas, and the lowest in the Very Remote areas (Table 7).

For Aboriginal people, the decline in rates between the remoteness classes increased as the number of conditions reported increased, from 33% lower (a rate ratio of 0.67) for those in the Very Remote areas reporting one condition, to 63% lower (a rate ratio of 0.37) for those with three or more long-term health conditions (Table 7). This decline in reporting with increasing remoteness, and with the lowest rates of reporting of these conditions being in the most remote areas, does not align with the level of use of services (such as admission to hospital), or the relatively poorer health outcomes (such as higher rates of premature mortality) that we know to be the case<sup>7</sup>. As such, the caveat, above, with respect to the reporting by Aboriginal people of long-term health conditions, is of particular relevance when considering these data by Remoteness Area.

There was no such variation for the non-Indigenous population. Also, of note is that, in each remoteness class, the gap in rates between the Aboriginal and non-Indigenous populations increases as the number of conditions increases.

Table 7: Number of long-term health conditions by Indigenous status and Remoteness Area, people aged 15 years and over, Australia, 2021

Number of long-term health conditions	Remoteness Area (ASR <sup>1</sup> )					Rate ratio <sup>2</sup>
	Major Cities	Inner Regional	Outer Regional	Remote	Very Remote	
	Aboriginal					
One condition	29.5	28.5	25.6	22.5	19.8	0.67
Two conditions	14.6	14.3	11.8	8.5	6.5	0.45
Three or more conditions	11.6	11.9	9.7	6.4	4.3	0.37
One or more conditions	52.9	52.3	45.4	36.6	30.4	0.57
	Non-Indigenous					
One condition	21.6	23.7	22.7	21.3	20.5	0.95
Two conditions	6.9	8.2	7.8	6.8	6.3	0.91
Three or more conditions	3.5	4.4	4.1	3.5	3.2	0.91
One or more conditions	32.1	36.4	34.6	31.7	29.9	0.93
	Rate ratio (Aboriginal: Non-Indigenous)					
One condition	1.37	1.20	1.13	1.06	0.97	..
Two conditions	2.12	1.74	1.51	1.25	1.03	..
Three or more conditions	3.31	2.70	2.37	1.83	1.34	..
One or more conditions	1.65	1.44	1.31	1.15	1.02	..

<sup>1</sup> ASR is the (indirectly) age-standardised rate per 100 population

<sup>2</sup> Rate ratio is the ratio of the rate in the Very Remote areas to the rate in the Major Cities areas

These data and those in the following table can be viewed in charts [here](#).

<sup>7</sup> See <https://phidu.torrens.edu.au/social-health-atlases/graphs/remoteness-in-australia/remoteness-aboriginal-and-torres-strait-islander-population/indigenous-remoteness-graphs-latest>

## Type of condition by remoteness

The reporting of several conditions by Aboriginal people living in the Very Remote areas was very low (Table 8a), although for some conditions the rate was higher (Table 8b). The very low rate of reporting of mental health conditions reminds us of the caveat, noted earlier, with respect to the reporting of long-term health conditions by Aboriginal people.

For Aboriginal people, the decline in rates with increasing disadvantage for some long-term conditions, and with the lowest rates of reporting of these conditions being in the lowest socioeconomic status areas, does not align with the level of use of services (such as admission to hospital for asthma, or lung conditions), or the relatively poorer health outcomes (such as higher rates of premature mortality from cancer, lung conditions or stroke) that we know to be the case<sup>7</sup>.

Table 8: Comparison of rates between Major Cities and Very Remote areas, by type of long-term condition and indigenous status for people aged 15 years and over, Australia, 2021

8a: rates for the Aboriginal population declining with increasing remoteness

Type of long-term health condition	RR <sup>1</sup>	
	Aboriginal	Non-Indigenous
Arthritis	0.26	0.95
Asthma	0.31	1.00
Cancer	0.24	0.90
Lung condition	0.31	1.18
Mental health condition	0.16	0.82
Stroke	0.40	0.84
Any other long-term condition	0.50	0.70

8b: rates for the non-Indigenous population increasing with increasing remoteness

Type of long-term health condition	RR <sup>1</sup>	
	Aboriginal	Non-Indigenous
Dementia (including Alzheimer's)	1.14	0.66
Diabetes (including gestational diabetes)	1.50	0.91
Heart disease (including heart attack or angina)	1.39	0.95
Kidney disease	1.42	0.94

<sup>1</sup>Rate ratio is the ratio of the age-standardised rate in Very Remote areas to the rate in the Major Cities areas

## Summary

The data for long-term health conditions for the population as a whole provide a measure of the extent of variation in health status across Australia. When analysed by socioeconomic status and remoteness, they provide a clear case for a population health approach, if the aim is to reduce inequalities in the prevalence of chronic conditions and health outcomes and reduce the burden on public health services.

However, this comparison by Indigenous status highlights some flaws in the data for Aboriginal people, and in particular when viewed by socioeconomic status and remoteness.

## Data sources

Unless otherwise stated, the data referred to above are available from the PHIDU website, at the links shown, or from <https://phidu.torrens.edu.au/>