

4.2 Lumbar spinal decompression hospitalisations 18 years and over

Context

This data item examines hospitalisations for lumbar spinal decompressions in people aged 18 years and over based on their place of residence.

The first *Australian Atlas of Healthcare Variation* examined variation in lumbar spinal decompression and lumbar spinal fusion combined, and found that the rate was 4.8 times as high in the area with the highest rate as in the area with the lowest rate. Further analysis to separately explore variation in lumbar spinal decompression (without fusion) and lumbar spinal procedures involving fusion was recommended. This analysis excludes any cases where lumbar spinal fusion procedures have been undertaken because of an injury, either a recent injury or where the underlying problem relates to a previous injury.

Lumbar spinal decompression surgery is often used to treat spinal stenosis – the narrowing of a section of the spinal column, usually associated with degeneration. Degeneration of the lumbar spinal joints and intervertebral discs commonly occurs with ageing; although it does not cause symptoms in most people, it can cause severe low back and leg pain and reduced mobility in some people.¹

Lumbar spinal decompression surgery aims to relieve these symptoms by increasing the amount of space in the spinal canal, to decrease pressure on affected nerves and blood vessels. It may also be used to treat a prolapsed or herniated disc, spinal injuries such as fractures, and spinal cord compression due to metastatic cancer.²

Spinal decompression procedures include laminectomy (removal of a section of bone from one of the vertebrae) and discectomy (removal of a section of a damaged disc). In many cases, a combination of these techniques is used.

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Non-surgical treatments for spinal stenosis vary, depending on the location of the stenosis and the severity of the symptoms. They include medication, physiotherapy, steroid injections, cognitive behavioural therapy and educational interventions of a multidisciplinary nature.³ Some systematic reviews of the research on management of spinal stenosis have suggested that surgery is more effective than conservative treatment when the latter has failed for more than six months.⁴⁻⁶ However, more recent reviews have noted a lack of high-quality research in this area and that better studies with comprehensive outcome measurement are needed.³

The 2016 United Kingdom National Institute for Health and Care Excellence (NICE) guidelines note that one of the greatest challenges with non-specific low back pain (that is not associated with serious or potentially serious causes) is identifying risk factors that may predict when a single back pain episode will become a long-term, persistent pain condition. The guidelines recommend use of risk stratification at first point of contact with a healthcare professional for each new episode of non-specific low back pain. This approach helps to identify people at risk of poor outcome so that they can be offered more intensive support and management. The NICE guidelines review a range of non-invasive treatments to improve functioning and decrease pain. They state that spinal decompression should be considered for people with sciatica when non-surgical treatment has not improved pain or function, and their radiological findings are consistent with sciatic symptoms.⁷

About the data

Data are sourced from the National Hospital Morbidity Database, and include both public and private hospitals. Rates are based on the number of hospitalisations for lumbar spinal decompression (without fusion) per 100,000 people aged 18 years and over in 2012–13 to 2014–15. Hospitalisations resulting from trauma (either a recent injury or an old injury) are excluded from this analysis. Because a record is included for each hospitalisation for lumbar spinal decompression surgery, rather than for each patient, patients hospitalised for this procedure more than once in the financial year will be counted more than once.

Data are aggregated over three years to provide sufficient numbers to support reporting at the local level. The number of hospitalisations and the summed population over three years are used to provide an average rate. This is comparable to a rate based on data collected over one year.

The analysis and maps are based on the residential address of the patient and not the location of the hospital. Rates are age and sex standardised to allow comparison between populations with different age and sex structures. Data quality issues – for example, the recognition of Aboriginal and Torres Strait Islander status in datasets – could influence the variation seen.

What do the data show?

Magnitude of variation

Over the three-year period 2012–13 to 2014–15, there were 44,169 hospitalisations for lumbar spinal decompression, representing an average rate of 81 hospitalisations per 100,000 people aged 18 years and over (the Australian rate).

The number of hospitalisations for lumbar spinal decompression across 322[†] local areas (Statistical Area 3 – SA3) ranged from 30 to 156 per 100,000 people aged 18 years and over. The rate was **5.2 times as high** in the area with the highest rate compared to the area with the lowest rate. The number of hospitalisations varied across states and territories, from 53 per 100,000 people aged 18 years and over in the Australian Capital Territory and the Northern Territory to 103 in Western Australia (Figures 4.11–4.14).

After the highest and lowest 10% of results were excluded and 258 SA3s remained, the number of hospitalisations per 100,000 people aged 18 years and over was 2.0 times as high in the area with the highest rate compared to the area with the lowest rate.

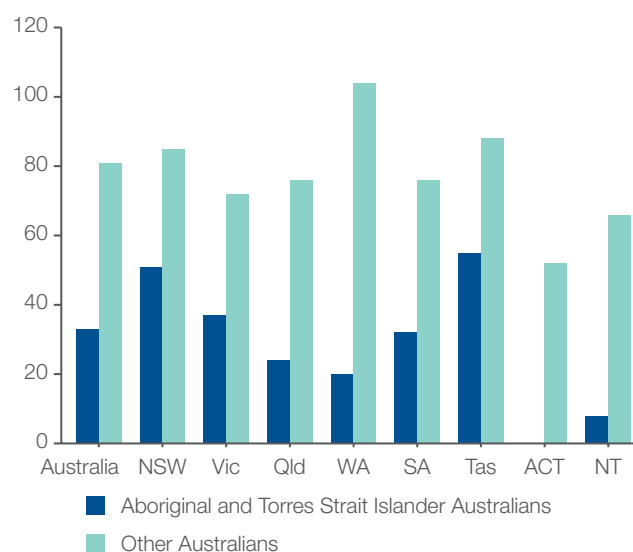
Analysis by remoteness and socioeconomic status

Rates of surgery were higher in inner regional areas than in major cities, and were lowest in outer regional areas and remote areas. Rates of surgery decreased with socioeconomic disadvantage (Figure 4.15).

Analysis by Aboriginal and Torres Strait Islander status

The rate for Aboriginal and Torres Strait Islander Australians (33 per 100,000 people) was 59% lower than the rate for other Australians (81 per 100,000 people) (Figure 4.9).

Figure 4.9: Number of hospitalisations for lumbar spinal decompression per 100,000 people aged 18 years and over, age and sex standardised, by state and territory and Indigenous status, 2012–13 to 2014–15



The data for Figure 4.9 are available at www.safetyandquality.gov.au/atlas.

[†] There are 333 SA3s. For this item, data were suppressed for 11 SA3s due to a small number of hospitalisations and/or population in an area.

Notes:

Rates are age and sex standardised to the Australian population in 2001.

Rates are based on the number of hospitalisations in public and private hospitals (numerator) and people in the geographic area (denominator).

Analysis is based on the patient's area of usual residence, not the place of hospitalisation.

Data for ACT (Aboriginal and Torres Strait Islander Australians) have been suppressed.

Data by Indigenous status should be interpreted with caution as hospitalisations for Aboriginal and Torres Strait Islander patients are under-enumerated and there is variation in the under-enumeration among states and territories.

For further detail about the methods used, please refer to the Technical Supplement.

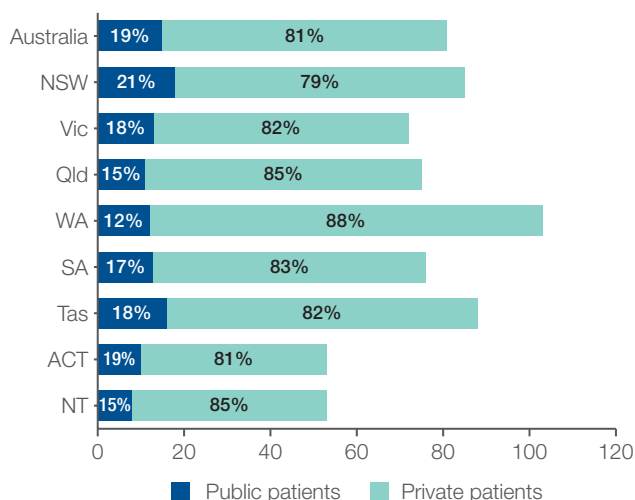
Sources: AIHW analysis of National Hospital Morbidity Database 2012–15 and ABS Estimated Resident Population 30 June 2012 to 2014.

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Analysis by patient funding status

Overall, 81% of hospitalisations for lumbar spinal decompression were for private patients. This proportion varied from 79% in New South Wales to 88% in Western Australia. The median age of patients at the time of operation was 55 years for publicly funded patients and 57 years for privately funded patients (Figure 4.10).

Figure 4.10: Number of hospitalisations for lumbar spinal decompression per 100,000 people aged 18 years and over, age and sex standardised, by state and territory and patient funding status, 2012–13 to 2014–15



The data for Figure 4.10 are available at www.safetyandquality.gov.au/atlas.

Interpretation

Potential reasons for the variation include differences in:

- Risk factors for back pain, including the patient characteristics of obesity⁸, physical inactivity, medical comorbidity⁹ and occupation¹⁰
- Factors associated with prolonged symptoms, such as workplace factors, psychosocial factors and functional capacity³
- Access to models of care that encourage self-management and provide a multidisciplinary approach to alternatives to surgery, such as physiotherapy, rheumatology services, pain clinics, cognitive behavioural therapy, exercise, weight loss initiatives and patient education
- Patient preferences, and understanding of likely benefits and risks of different care options¹¹
- Decision-making criteria of clinicians and thresholds for surgical intervention
- Rates of surgery for stenosis where lumbar spinal fusion accompanies decompression
- The history of previous lumbar spinal decompression surgery, including repeat surgery⁹
- The availability of a surgical workforce
- Access to public elective surgery
- Levels of private health insurance and access to private hospitals.

Notes:

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Rates are based on the number of hospitalisations in public and private hospitals (numerator) and people in the geographic area (denominator).
Analysis is based on the patient's area of usual residence, not the place of hospitalisation.
Hospitalisations for public patients do not incur a charge to the patient or to a third-party payer – for example, a private health insurance fund.
Hospitalisations for private patients do incur a charge to the patient and/or a third-party payer.
For further detail about the methods used, please refer to the Technical Supplement.

Sources: AIHW analysis of National Hospital Morbidity Database 2012–15 and ABS Estimated Resident Population 30 June 2012 to 2014.

Variation between areas in rates of surgery may also be influenced by the number of clinicians providing services to people living in the area. The practices of specific clinicians are likely to have a greater impact on rates in smaller local areas with fewer clinicians, such as rural and regional locations. Specific clinicians may influence rates across several local areas, especially those with small populations. The effects of practice styles of individual clinicians will be diluted in areas with larger numbers of practising clinicians.

As well, variations between areas may not directly reflect the practices of the clinicians who are based in these areas. The analysis is based upon where people live rather than where they obtain their health care. Patients may travel outside their local area to receive care.

Addressing variation

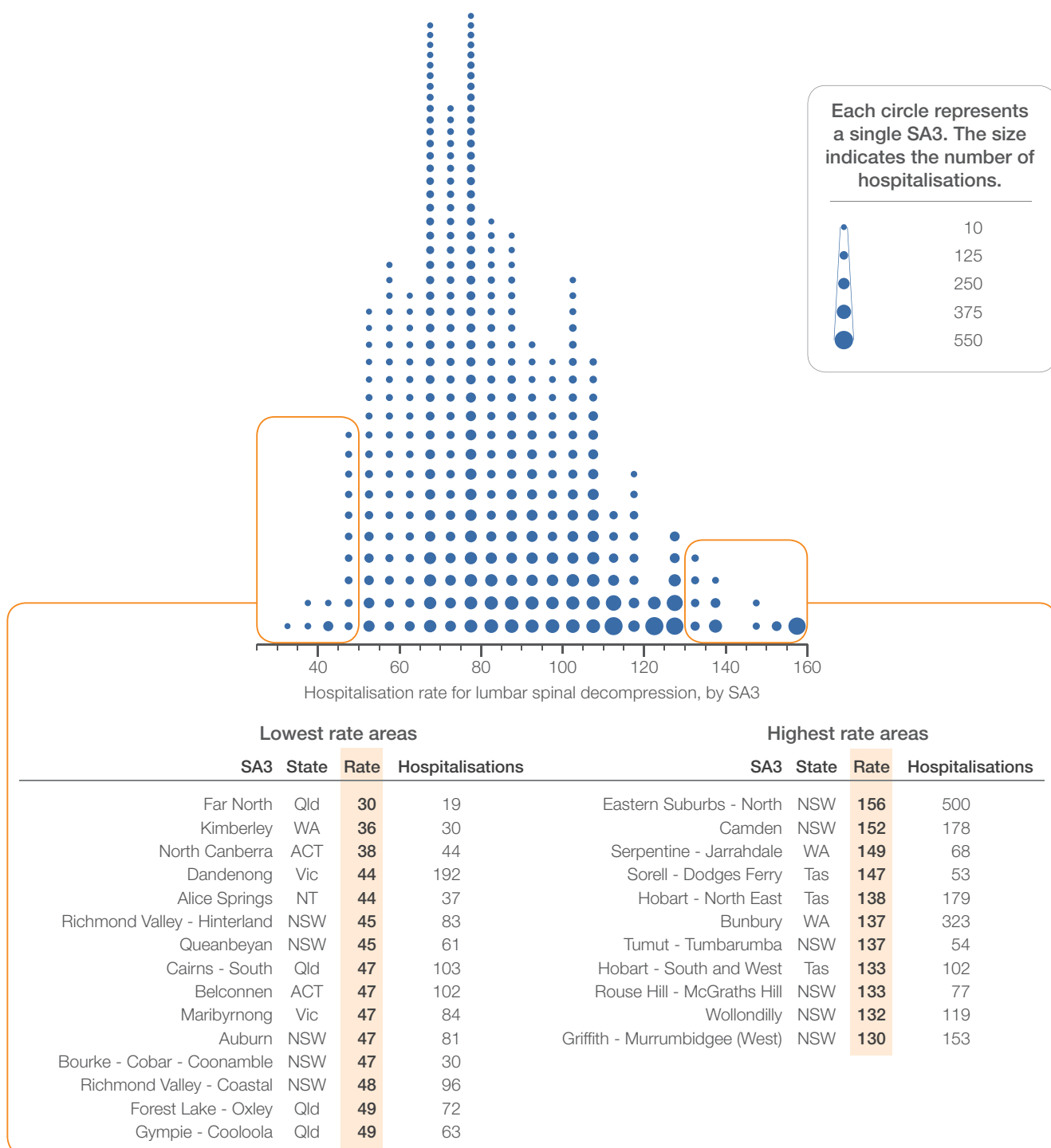
It is not possible to state how much of the observed variation in lumbar decompression surgery is unwarranted. The pattern of higher rates of operation with higher socioeconomic status, and the differences in rates between publicly and privately funded patients suggest that patients' ability to pay is a significant factor. Routine information on outcomes of care is not collected. Comprehensive information about uses of alternative conservative treatments is unavailable. Research to map the availability and patterns of non-surgical care, as well as comprehensive data on the availability and practice patterns of the surgical workforce, would give a more comprehensive view of the treatments available in local regions.

Measuring outcomes of the different treatment options would help identify when, and for which patients, surgery would be of most benefit. This information should be used to prioritise access to public surgery. Development of comprehensive evidence-based guidance on management of low back pain and sciatica in Australia, accompanied by high-quality decision support materials for patients, would help ensure that patients are well informed about the range of management options, and the likelihood of benefit from both invasive and non-invasive therapies. Australian researchers are undertaking a multi-centre randomised trial of surgical decompression for lumbar spinal stenosis funded by the National Health and Medical Research Council.

Funding models that enable patients to make well-informed choices about care options, including community-based multidisciplinary care and conservative management options, should be explored.

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Figure 4.11: Number of hospitalisations for lumbar spinal decompression per 100,000 people aged 18 years and over, age and sex standardised, by Statistical Area Level 3 (SA3), 2012–13 to 2014–15



Notes:

Rates are age and sex standardised to the Australian population in 2001.

Rates are based on the number of hospitalisations in public and private hospitals (numerator) and people in the geographic area (denominator).

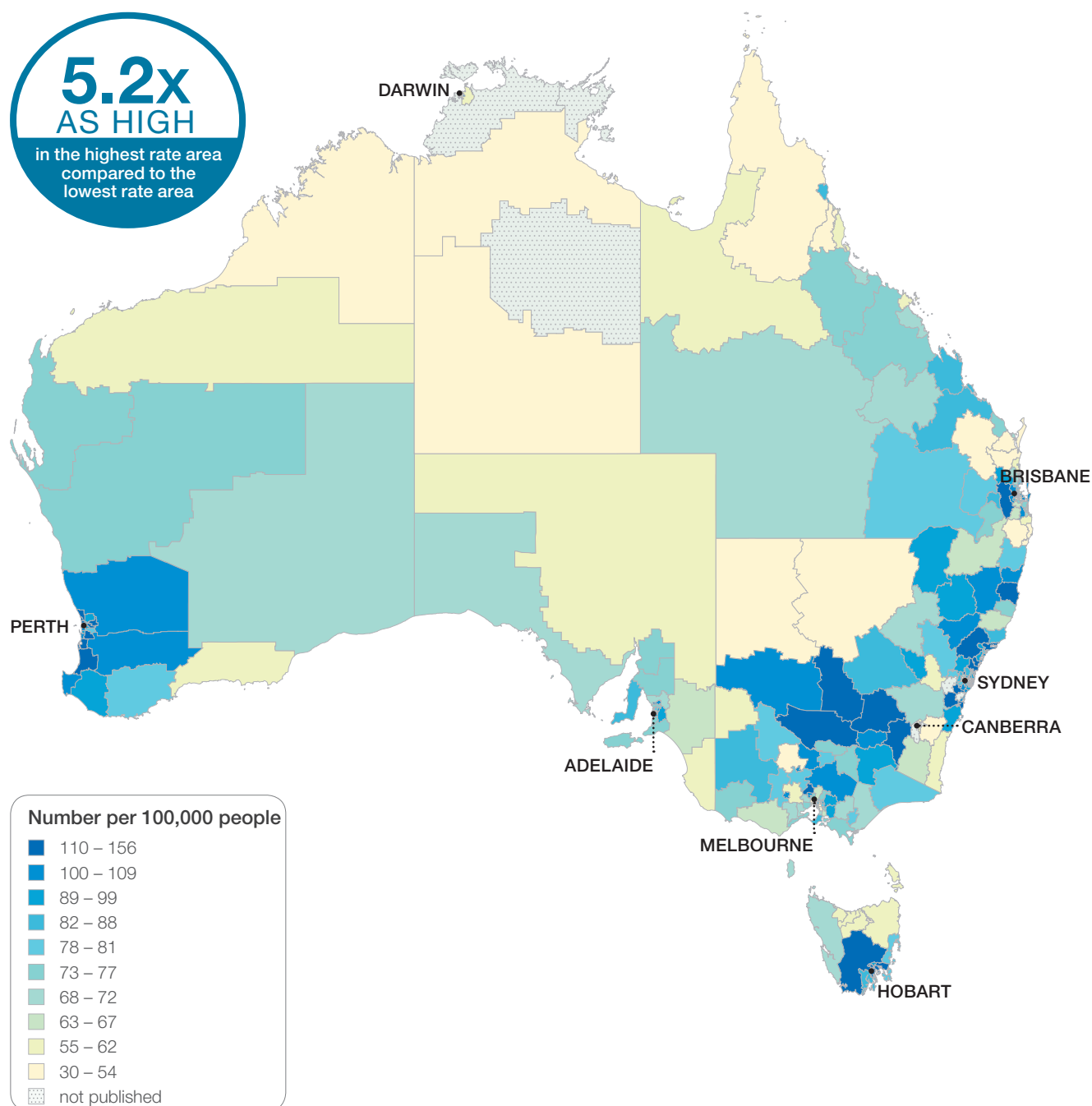
Analysis is based on the patient's area of usual residence, not the place of hospitalisation.

For further detail about the methods used, please refer to the Technical Supplement.

Sources: AIHW analysis of National Hospital Morbidity Database 2012–15 and ABS Estimated Resident Population 30 June 2012 to 2014.

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Figure 4.12: Number of hospitalisations for lumbar spinal decompression per 100,000 people aged 18 years and over, age and sex standardised, by Statistical Area Level 3 (SA3), 2012–13 to 2014–15: Australia map



Notes:

Rates are age and sex standardised to the Australian population in 2001.

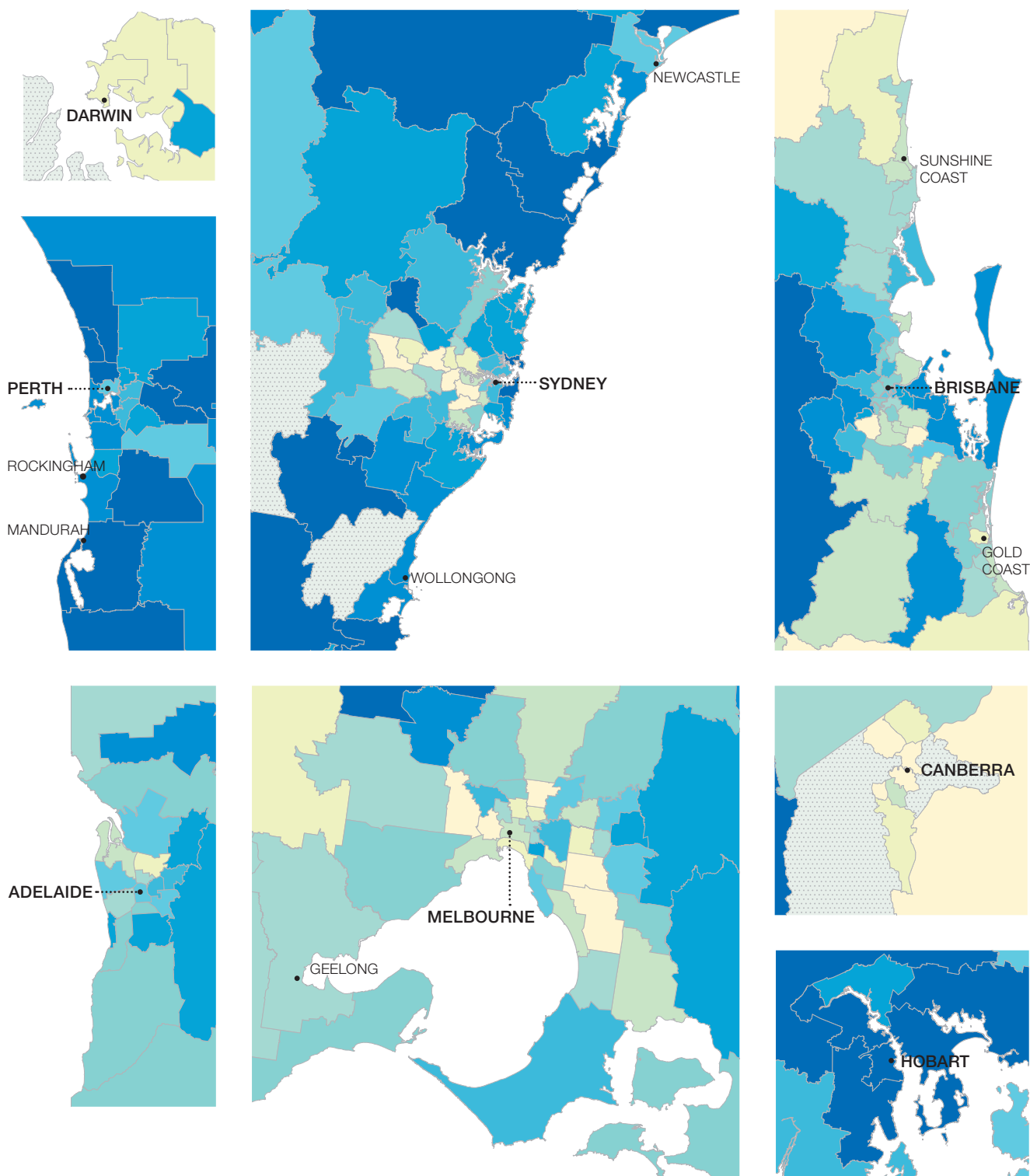
Rates are based on the number of hospitalisations in public and private hospitals (numerator) and people in the geographic area (denominator).

Analysis is based on the patient's area of usual residence, not the place of hospitalisation.

For further detail about the methods used, please refer to the Technical Supplement.

Sources: AIHW analysis of National Hospital Morbidity Database 2012–15 and ABS Estimated Resident Population 30 June 2012 to 2014.

Figure 4.13: Number of hospitalisations for lumbar spinal decompression per 100,000 people aged 18 years and over, age and sex standardised, by Statistical Area Level 3 (SA3), 2012–13 to 2014–15: capital city area maps



Notes:

Rates are age and sex standardised to the Australian population in 2001.

Rates are based on the number of hospitalisations in public and private hospitals (numerator) and people in the geographic area (denominator).

Analysis is based on the patient's area of usual residence, not the place of hospitalisation.

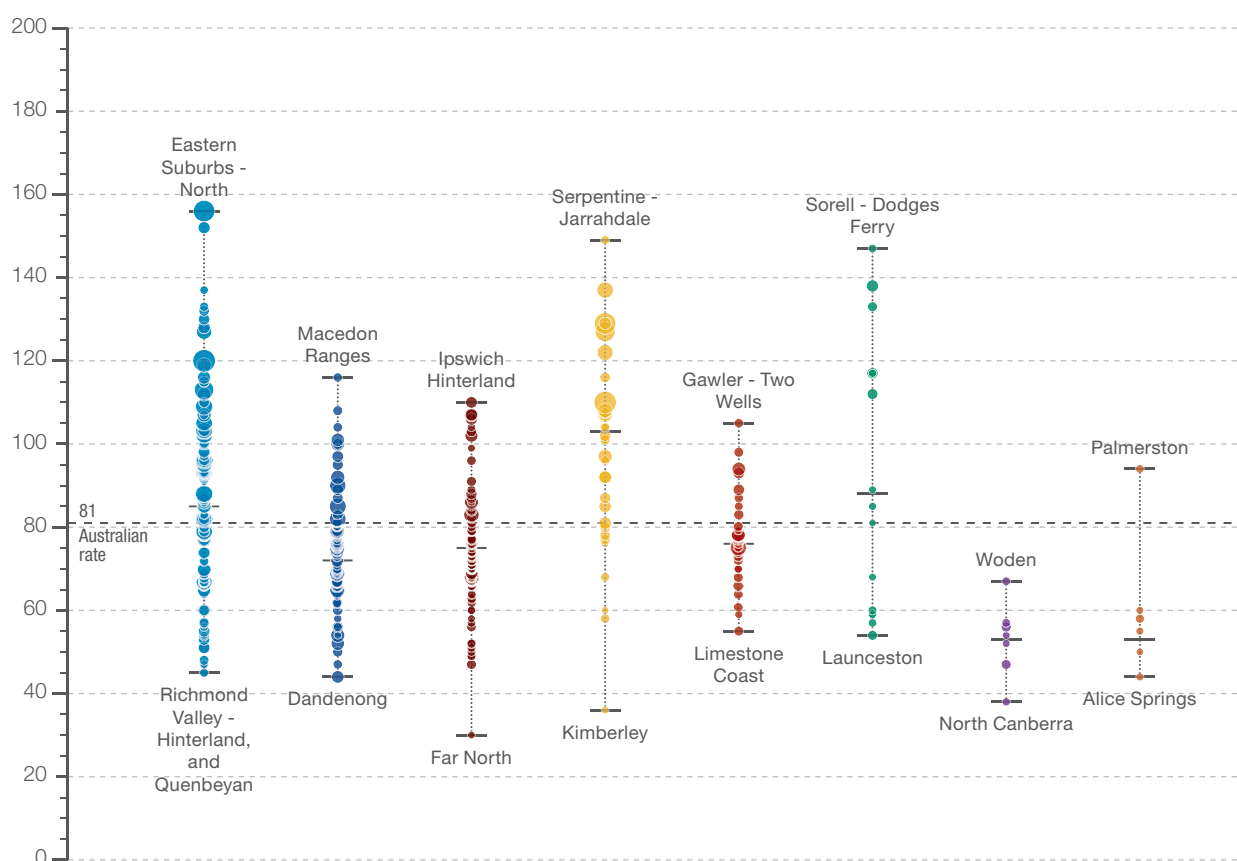
For further detail about the methods used, please refer to the Technical Supplement.

Sources: AIHW analysis of National Hospital Morbidity Database 2012–15 and ABS Estimated Resident Population 30 June 2012 to 2014.

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Figure 4.14: Number of hospitalisations for lumbar spinal decompression per 100,000 people aged 18 years and over, age and sex standardised, by Statistical Area Level 3 (SA3), state and territory, 2012–13 to 2014–15

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Highest rate	156	116	110	149	105	147	67	94
State/territory	85	72	75	103	76	88	53	53
Lowest rate	45	44	30	36	55	54	38	44
No. hospitalisations	15,216	9,892	8,039	5,906	3,230	1,098	442	270



Notes:

Rates are age and sex standardised to the Australian population in 2001.

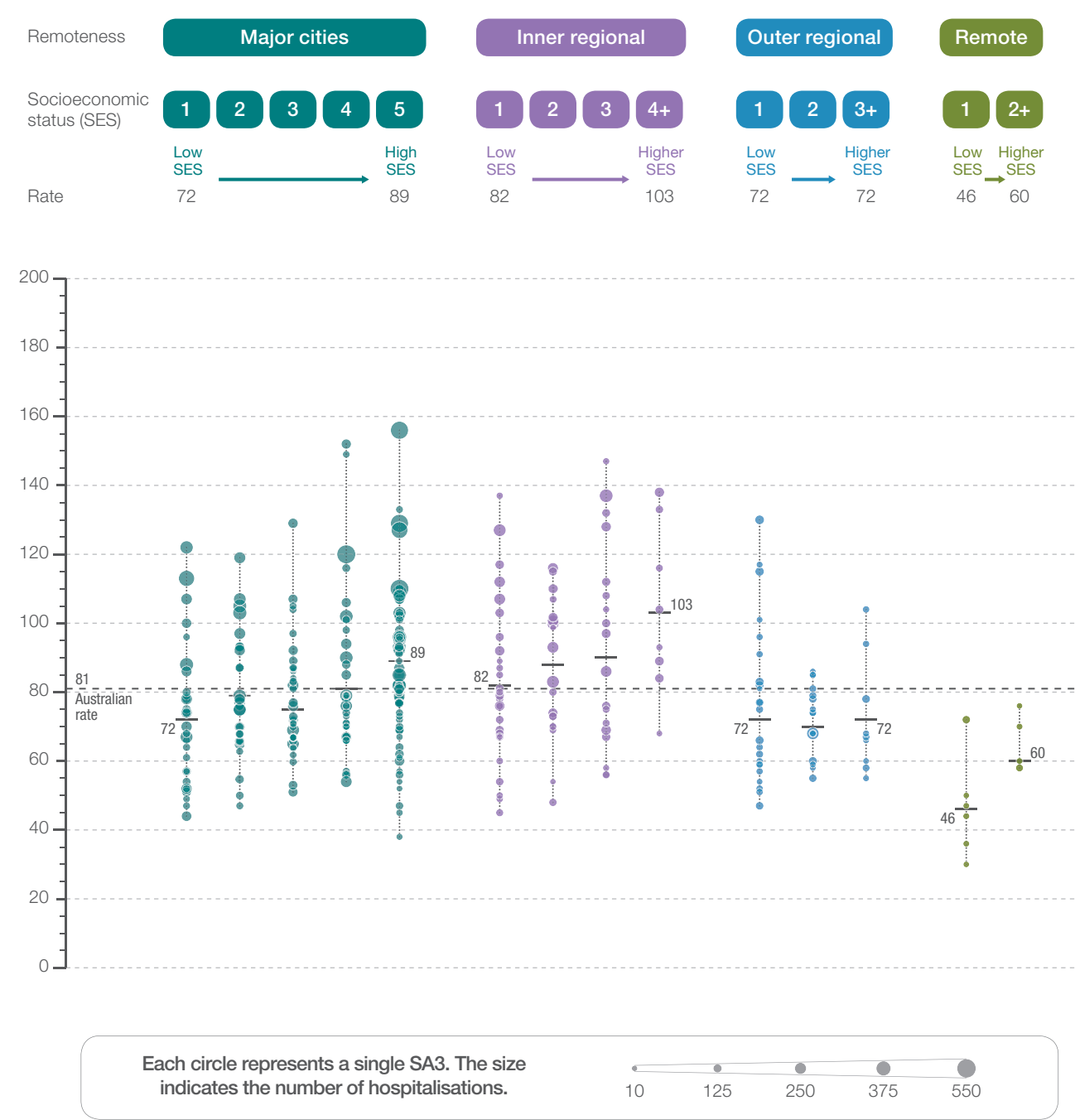
Rates are based on the number of hospitalisations in public and private hospitals (numerator) and people in the geographic area (denominator).

Analysis is based on the patient's area of usual residence, not the place of hospitalisation.

For further detail about the methods used, please refer to the Technical Supplement.

Sources: AIHW analysis of National Hospital Morbidity Database 2012–15 and ABS Estimated Resident Population 30 June 2012 to 2014.

Figure 4.15: Number of hospitalisations for lumbar spinal decompression per 100,000 people aged 18 years and over, age and sex standardised, by Statistical Area Level 3 (SA3), remoteness and socioeconomic status, 2012–13 to 2014–15



Notes:
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Rates are based on the number of hospitalisations in public and private hospitals (numerator) and people in the geographic area (denominator).
Analysis is based on the patient's area of usual residence, not the place of hospitalisation.
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Sources: AIHW analysis of National Hospital Morbidity Database 2012–15 and ABS Estimated Resident Population 30 June 2012 to 2014.

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Resources

- National Institute for Health and Care Excellence. Low back pain and sciatica in over 16s: assessment and management. Invasive treatments. NICE guideline NG59. Methods, evidence and recommendations. London: NICE; 2016.

Australian initiatives

The information in this chapter will complement work already under way to address management of back pain in Australia. At a national level, this work includes:

- Physiotherapy-led triage clinics for low back pain^{12,13}
- Establishment of the Australia & New Zealand Musculoskeletal Clinical Trials Network to support priority areas in musculoskeletal research¹⁴
- A pilot trial of a multi-site Australian Spine Registry, being undertaken by the Spine Society of Australia and Monash University, that will provide an online database of patient-reported and clinical outcomes.

Many state and territory initiatives are also in place including:

- *A model of care for spinal pain*, Western Australia¹⁵
- *A model of care for the management of people with acute low back pain*, NSW Agency for Clinical Innovation.¹⁶

References

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