

3.3 Lumbar spine surgery hospital admissions 18 years and over

Context

This data item examines hospital admissions for lumbar spine surgery for people 18 years and over. Hospital admission data are sourced from the Admitted Patient Care National Minimum Data Set. This includes both public and private hospitals. Rates are described as the number of admissions per 100,000 people. Repeat admissions for one person and transfers to other hospitals are both counted as separate admissions.

Lumbar spine surgery refers to any type of surgery in the lumbar spine or lower back. Most admissions for back surgery are for people aged 45 years and over.¹ Two common procedures are decompression and fusion.

Lumbar spine decompression (often termed 'laminectomy') is undertaken to relieve pain caused by nerve root pressure, usually caused by a herniated disc or spinal stenosis. It may involve removal of any or a combination of, herniated disc material, bone, thickened ligaments and arthritic facet joints in order to free trapped nerves. The indications for decompression surgery are well developed and accepted.²

Lumbar spine fusion surgery is performed to stabilise the spine, sometimes in combination with decompression surgery. It is also performed for painful degenerative conditions, deformity (scoliosis and spondylolisthesis) and trauma. Despite the increasing rate of fusion surgery, insufficient evidence is available to support its use for painful degenerative back conditions.²

Spinal surgery is usually the last resort in the treatment of back problems. Most back problems are managed non-operatively by general practitioners, physiotherapists and other primary care health professionals.

Lumbar spine surgery hospital admissions 18 years and over

Magnitude of variation

From 2010–11 to 2012–13, there were 17,305 lumbar spine surgery admissions to hospital on average per annum, representing 96 admissions per 100,000 people aged 18 years and over (the Australian rate).

The estimated annual number of lumbar spine surgery admissions to hospital across 322* local areas (SA3s) ranged from 36 to 173 per 100,000 people aged 18 years and over. The number of admissions was **4.8 times higher** in the area with the highest rate compared to the area with the lowest rate. The estimated annual average number of admissions varied across states and territories, from 60 per 100,000 people aged 18 years and over in the Australian Capital Territory, to 113 in Tasmania.

After excluding the highest and lowest results, the lumbar spine surgery hospital admission rate across the 297 remaining local areas was **2.3 times higher** in one local area compared to another.

Rates of admission for lumbar spine surgery were higher in inner regional areas than in major cities or outer regional areas, and lowest in remote areas. In major cities, inner regional areas and remote areas, rates increased with increasing socioeconomic status, but this socioeconomic correlation was not present in outer regional areas.

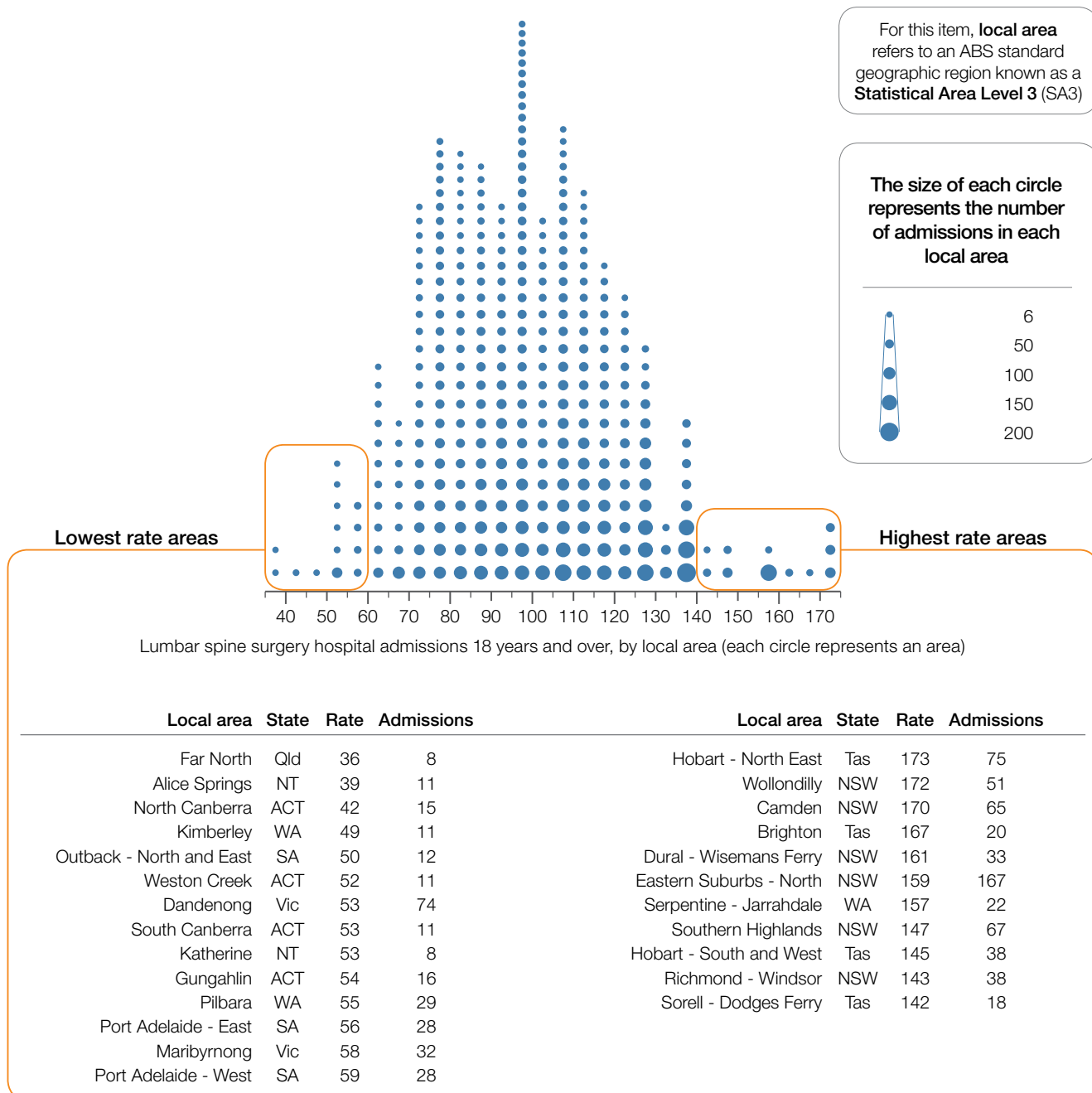
Interpretation

Potential reasons for the variation include differences in:

- clinicians adopting evidence-based practice in clinical decision making
 - rates of private health insurance and access to private hospitals. Most lumbar spine surgery is performed in private hospitals.³ Under-servicing in the public sector and over-servicing in the private sector could contribute to variation³
 - patient and doctor preferences, particularly relating to lumbar spine fusion surgery
 - the presence of risk factors for back pain such as obesity⁴
 - the incidence and prevalence of back injury and back pain.
- No obvious explanation exists for the higher admission rates in regional centres compared to major cities, and it is not possible to state how much variation is unwarranted. In addition, it is unclear whether the considerably higher rates in some states correlate with the higher rates in regional centres in those states or whether they are due to other factors.
- To explore this variation, further analysis could focus on:
- identifying the reasons for the higher rates in regional centres
 - accessing data that distinguishes between fusion and decompression surgery to help determine the extent to which variation represents clinician preferences, particularly relating to fusion surgery
 - the influence of the private and public sectors on rates of lumbar spine surgery
 - potential under-servicing of people without private health insurance. Data on waiting times for public outpatient clinic appointments, the waiting-list time for an operation once seen, and the indications for and type of surgery performed in the public hospital system would be useful in this regard. This data would also need to be compared with that for people with private insurance
 - the relationship between higher rates of surgery and access to non-surgical forms of treatment such as physiotherapy and pain clinics.

*There are 333 SA3s. For this item, data were suppressed for 11 SA3s. This is because of confidentiality requirements given the small numbers of admissions in these areas.

Figure 37: Estimated annual number of lumbar spine surgery admissions to hospital per 100,000 people aged 18 years and over, age standardised, by local area, 2010–11 to 2012–13



Notes:

Rates are standardised based on the age structure of the Australian population in 2001.

State/territory and national rates are based on the total number of admissions and people in the geographic area.

The term local area refers to an ABS standard geographic region known as a Statistical Area Level 3 (SA3).

Includes all public hospitals, private hospitals and day hospital facilities.

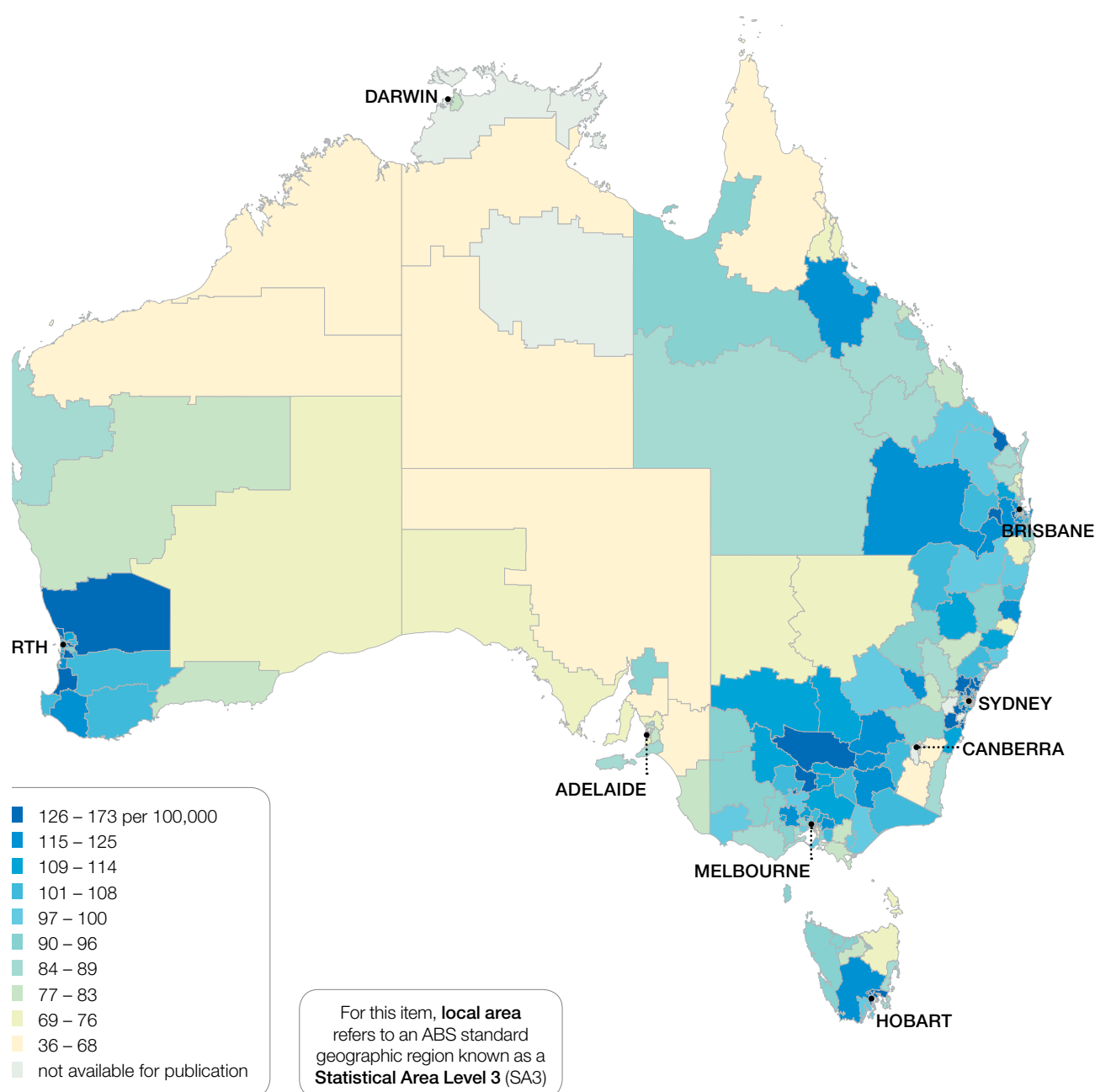
The rate and number of admissions is the average per annum over three years.

For more technical information please refer to the Technical Supplement.

Sources: National Health Performance Authority analysis of Admitted Patient Care National Minimum Data Sets from 2010–11 to 2012–13 (data supplied 09/04/2014) and Australian Bureau of Statistics Estimated Resident Population 30 June 2013.

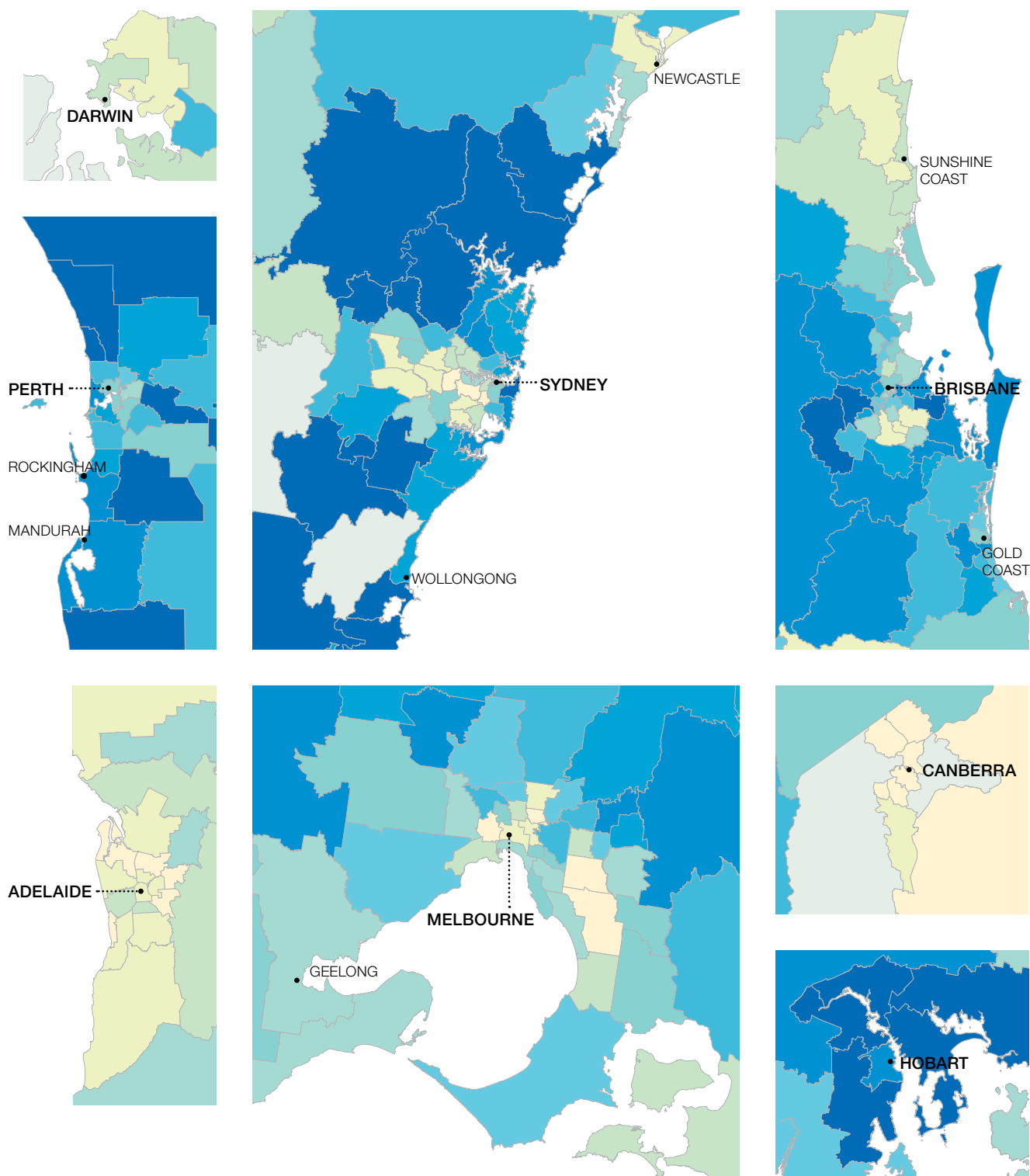
Lumbar spine surgery hospital admissions 18 years and over

Figure 38: Estimated annual number of lumbar spine surgery admissions to hospital per 100,000 people aged 18 years and over, age standardised, by local area, 2010–11 to 2012–13



Sources: National Health Performance Authority analysis of Admitted Patient Care National Minimum Data Sets from 2010–11 to 2012–13 (data supplied 09/04/2014) and Australian Bureau of Statistics Estimated Resident Population 30 June 2013.

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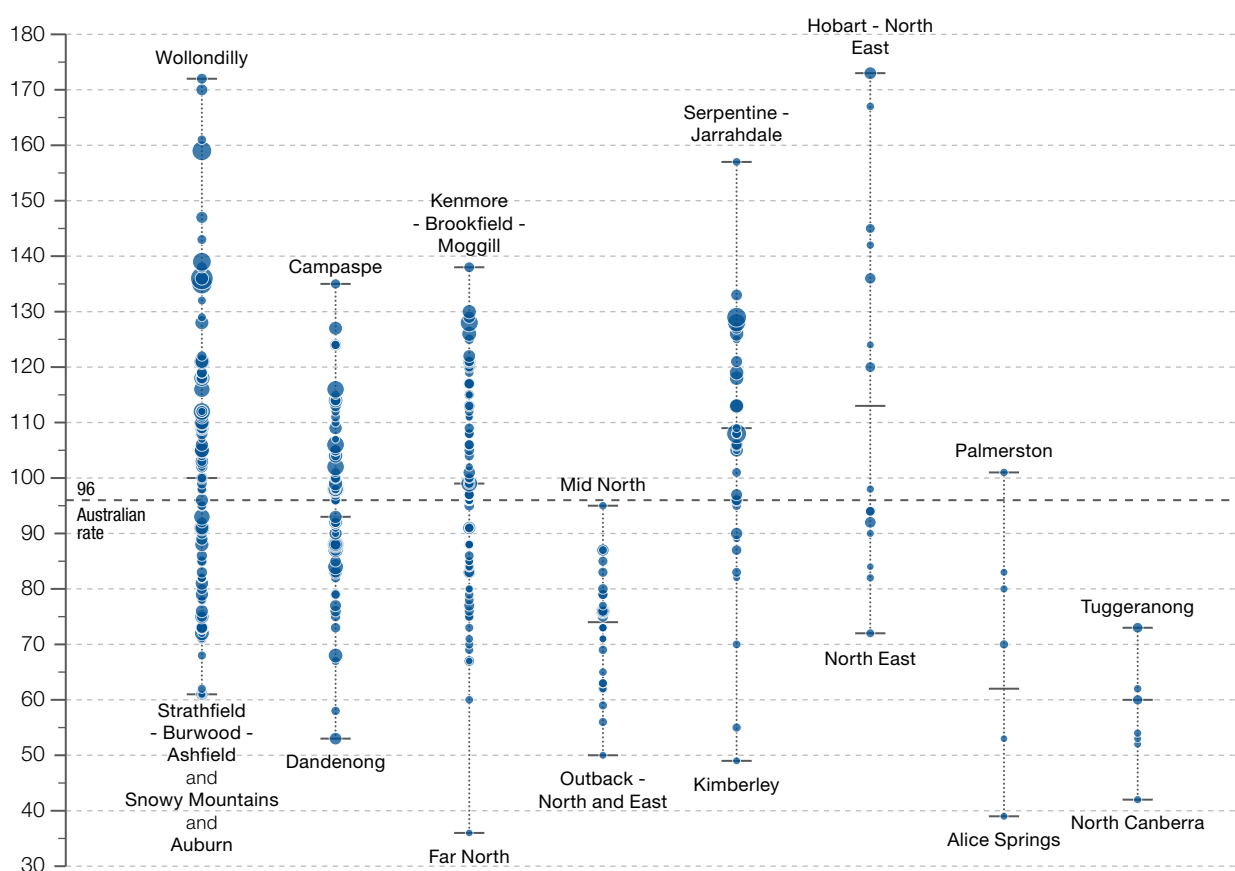


Sources: National Health Performance Authority analysis of Admitted Patient Care National Minimum Data Sets from 2010–11 to 2012–13 (data supplied 09/04/2014) and Australian Bureau of Statistics Estimated Resident Population 30 June 2013.

Lumbar spine surgery hospital admissions 18 years and over

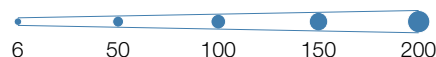
Figure 39: Estimated annual number of lumbar spine surgery admissions to hospital per 100,000 people aged 18 years and over, age standardised, by local area, state and territory, 2010–11 to 2012–13

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT
Highest rate	172	135	138	95	157	173	101	73
State/territory	100	93	99	74	109	113	62	60
Lowest rate	61	53	36	50	49	72	39	42
No. admissions	5,867	4,160	3,477	1,005	2,028	480	101	165



For this item, **local area** refers to an ABS standard geographic region known as a **Statistical Area Level 3 (SA3)**

The size of each circle represents the number of admissions in each local area

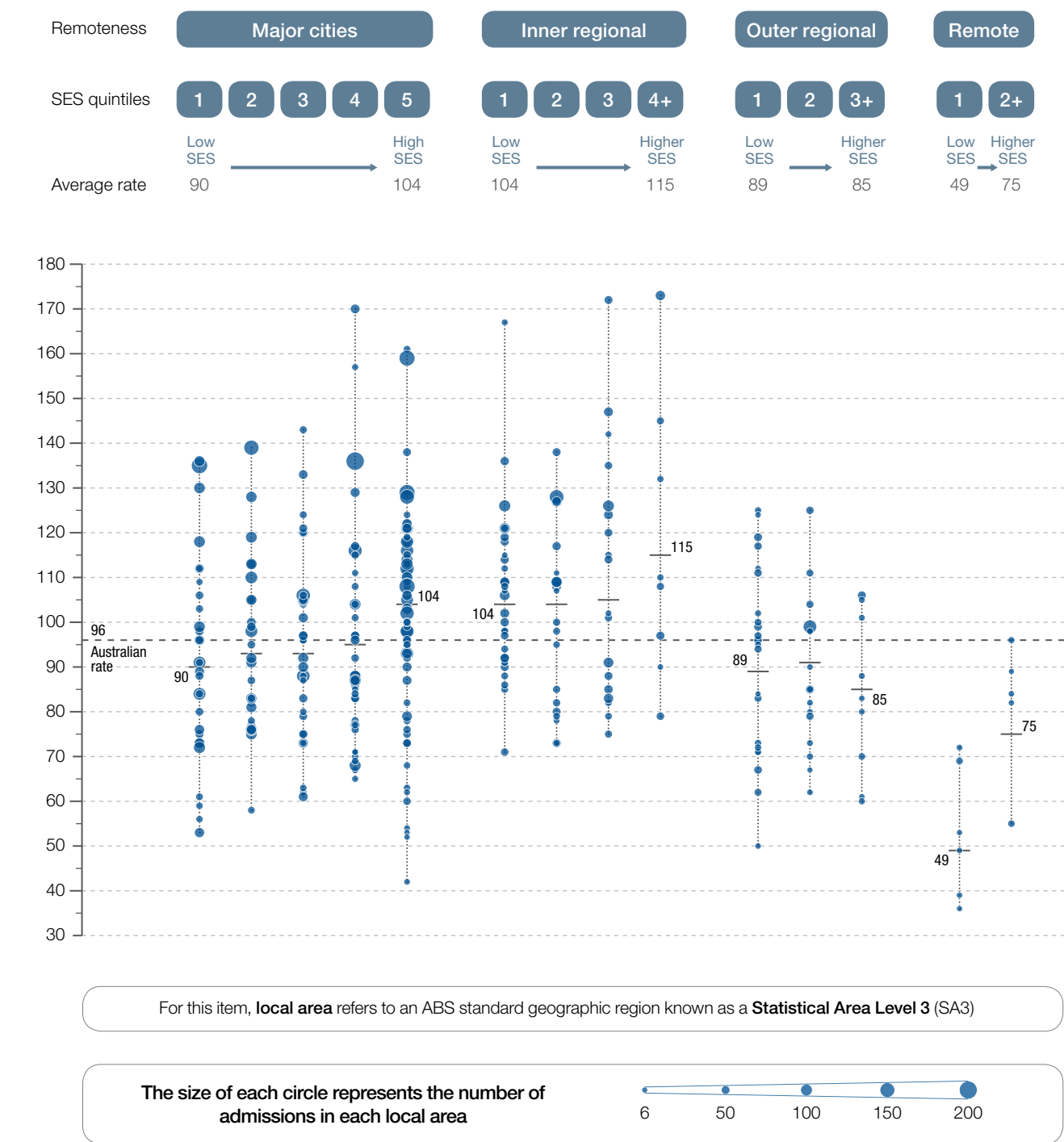


Notes:

Rates are standardised based on the age structure of the Australian population in 2001. State/territory and national rates are based on the total number of admissions and people in the geographic area.

Sources: National Health Performance Authority analysis of Admitted Patient Care National Minimum Data Sets from 2010–11 to 2012–13 (data supplied 09/04/2014) and Australian Bureau of Statistics Estimated Resident Population 30 June 2013.

Figure 40: Estimated annual number of lumbar spine surgery admissions to hospital per 100,000 people aged 18 years and over, age standardised, by local area, remoteness and socioeconomic status (SES), 2010–11 to 2012–13



Notes:
Rates are standardised based on the age structure of the Australian population in 2001.
The national rate is based on the total number of admissions and people in Australia.
Average rates are based on the total number of admissions and people in the local areas within each group.

Sources: National Health Performance Authority analysis of Admitted Patient Care National Minimum Data Sets from 2010–11 to 2012–13 (data supplied 09/04/2014) and Australian Bureau of Statistics Estimated Resident Population 30 June 2013.

Lumbar spine surgery hospital admissions 18 years and over

Resources

- North American Spine Society. *Evidence-Based Clinical Guidelines for Multidisciplinary Spine Care – Diagnosis and Treatment of Degenerative Lumbar Spinal Stenosis*. 2011. Available at: www.spine.org/Documents/ResearchClinicalCare/Guidelines/LumbarStenosis.pdf.
- North American Spine Society. *Evidence-Based Clinical Guidelines for Multidisciplinary Spine Care – Diagnosis and Treatment of Lumbar Disc Herniation with Radiculopathy*. 2012. Available at: www.spine.org/Portals/0/Documents/ResearchClinicalCare/Guidelines/LumbarDiscHerniation.pdf.
- North American Spine Society. *Evidence-based Clinical Guidelines for Multidisciplinary Spine Care – Diagnosis and Treatment of Degenerative Lumbar Spondylolisthesis*. 2014. Available at: www.spine.org/Documents/ResearchClinicalCare/Guidelines/Spondylolisthesis.pdf.

1 Australian Institute of Health and Welfare. What role do hospitals play in treating back problems? 2015. (Accessed 6 October 2015 at: www.aihw.gov.au/back-problems/treatment-by-hospitals/).

2 Gibson JN, Grant IC, Waddell G. The Cochrane review of surgery for lumbar disc prolapse and degenerative lumbar spondylosis. *Spine* 24.17. 1999;1820–32.

3 Harris IA, Dao ATT. Trends of spinal fusion surgery in Australia: 1997 to 2006. *ANZJS*. 2009;79(11):783–8.

4 Shiri R, Karppinen J, Leino-Arjas P, Solovieva S, Viikari-Juntura E. The association between obesity and low back pain: a meta-analysis. *AJE*. 2010;171(2):135–54.