

## 6.4 Asthma and related respiratory hospital admissions 3–19 years

### Context

This data item examines the rate of hospital admissions for asthma and bronchiolitis for people aged three to 19 years. 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.

Asthma is an inflammatory condition of the airways characterised by reversible airway obstruction and bronchospasms, causing episodes of wheezing, breathlessness, coughing and chest tightness. Asthma is the most common long-term medical condition diagnosed in Australian children. Almost 21 per cent of children between birth and age 15 are diagnosed with asthma.<sup>1</sup>

Most symptoms are managed at home through medicine and primary healthcare interventions. Presentations to emergency departments for asthma are reasonably frequent but hospital admissions are less so. Hospitalisation is usually only required when asthma exacerbations cannot be managed at home.

Bronchiolitis is an acute viral infection of the lower respiratory tract that causes inflammation of the bronchioles, the small breathing tubes in the lungs. Symptoms include coughing and wheezing. Bronchiolitis generally affects children aged under 12 months and is the most frequent cause of hospitalisation in infants aged less than six months.<sup>2</sup>

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## Magnitude of variation

From 2010–11 to 2012–13, there were 15,111 asthma and related respiratory admissions to hospital on average per annum, representing 309 admissions per 100,000 people aged 3 to 19 years (the Australian rate).

The estimated annual number of asthma and related respiratory admissions to hospital across 323\* local areas (SA3s) ranged from 61 to 651 per 100,000 people aged 3 to 19 years. The number of admissions was **10.7 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 157 per 100,000 people aged 3 to 19 years in Tasmania, to 361 in South Australia.

After excluding the highest and lowest results, the asthma and related respiratory hospital admission rate across the 298 remaining local areas was **3.3 times higher** in one local area compared to another.

Local areas with high asthma and bronchiolitis admission rates were mainly in remote and outer metropolitan locations. In major cities and inner and outer regional locations, admission rates were highest in areas of low socioeconomic status and decreased as the socioeconomic status increased.

## Interpretation

The number of admissions was relatively small so chance fluctuations could have influenced the geographical patterns seen. Other potential reasons for variation include differences in:

- distribution of Aboriginal and Torres Strait Islander peoples, who are almost twice as likely as non-Indigenous people to report having asthma<sup>3</sup>
- the incidence of infectious bronchiolitis

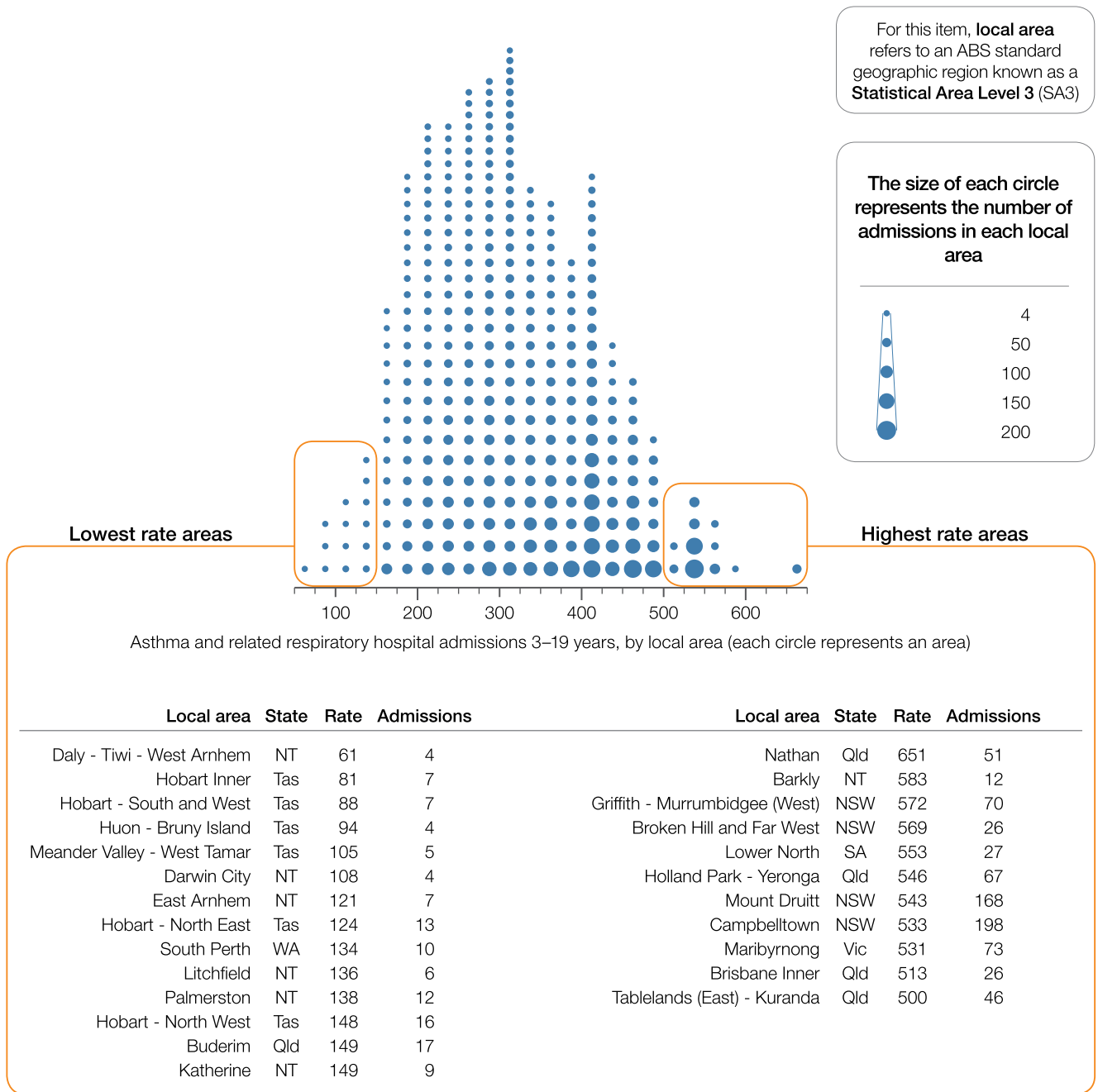
- systems-based factors, including differing access to primary and secondary community care services for timely management of acute exacerbations, availability of hospital beds and hospital admission criteria
- service provider factors, such as the use of evidence-based guidelines for acute and chronic asthma management in primary care, which may decrease hospital admissions
- low parent education levels, smoking and lower socioeconomic status<sup>1,4</sup> which may increase the risk of developing asthma, decrease adherence to preventer medicines and increase the likelihood of delay in presenting for treatment, thereby increasing the likelihood of admission<sup>5</sup>
- the severity of asthma and improper use of medicines, which can affect admission rates<sup>6</sup>
- geographical airborne allergens, particulate matter and cold weather extremes, which can trigger asthma attacks despite best-practice medicine use.

To explore this variation, further analysis could focus on:

- asthma and bronchiolitis hospital admission rates for children aged between three and 19 to understand the impact of patient, family, provider and system factors, including prevalence of asthma at the state and territory level
- the high prescription rate for asthma medicines and low admission rate among children in Tasmania compared to other states and territories
- influence of the private and public sectors on rates of asthma and respiratory-related admissions.

\*There are 333 SA3s. For this item, data were suppressed for 10 SA3s. This is because of confidentiality requirements given the small numbers of admissions in these areas.

**Figure 119: Estimated annual number of asthma and related respiratory admissions to hospital per 100,000 people aged 3 to 19 years, 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.

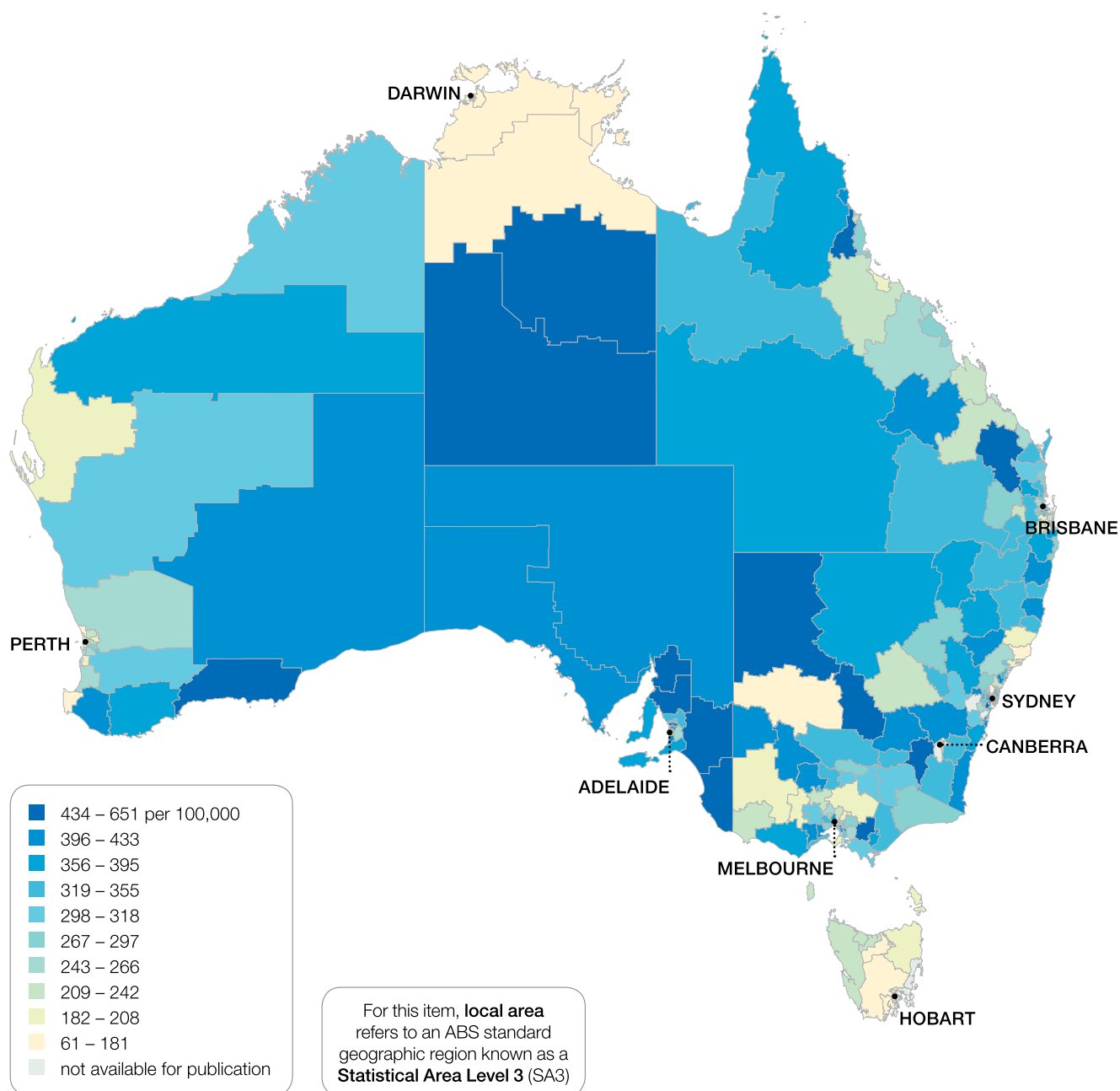
There is variation in administrative practices as to whether patients who attend emergency departments are admitted. This may influence the results for this item.

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.

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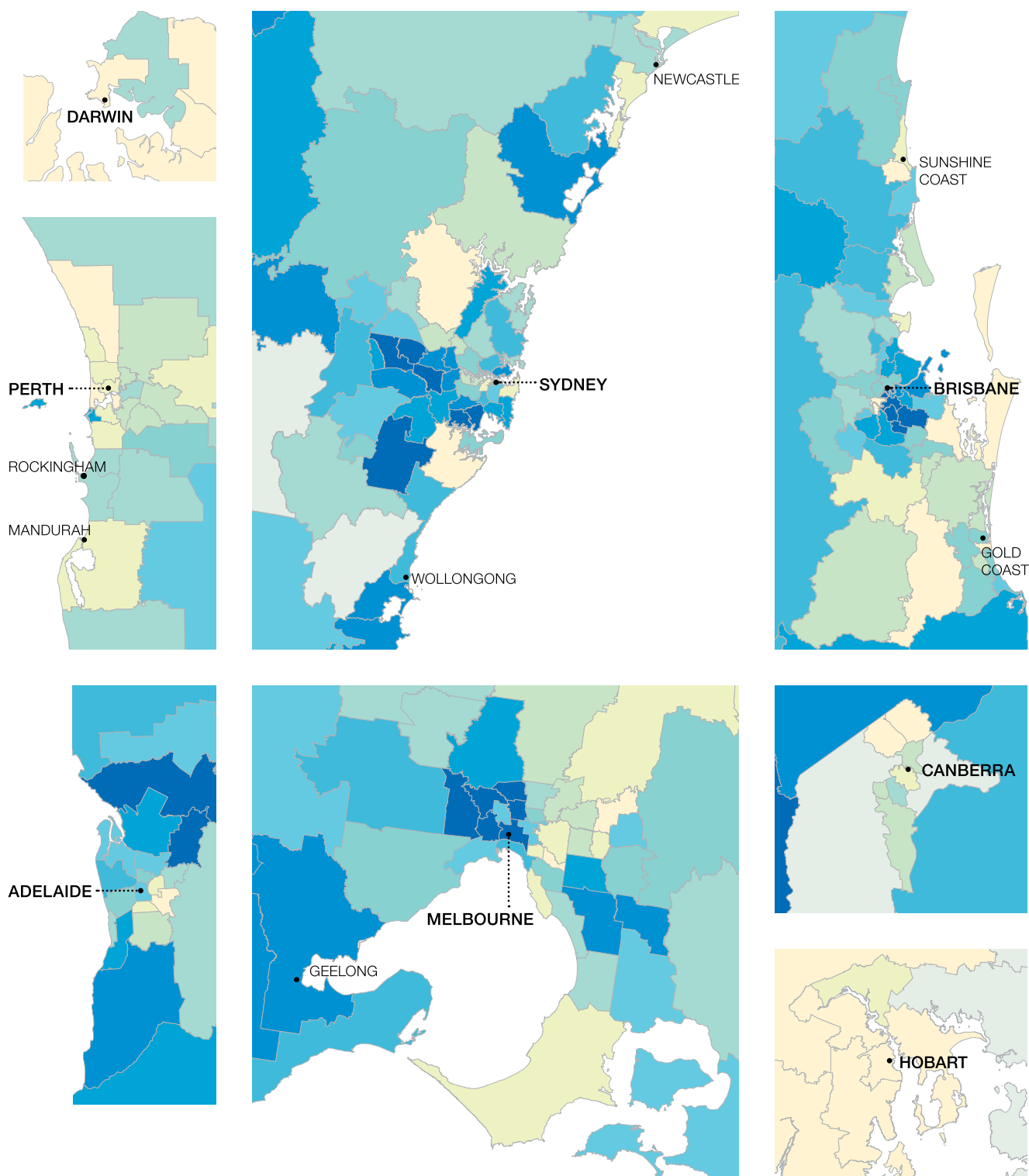
Figure 120: Estimated annual number of asthma and related respiratory admissions to hospital per 100,000 people aged 3 to 19 years, age standardised, by local area, 2010–11 to 2012–13



**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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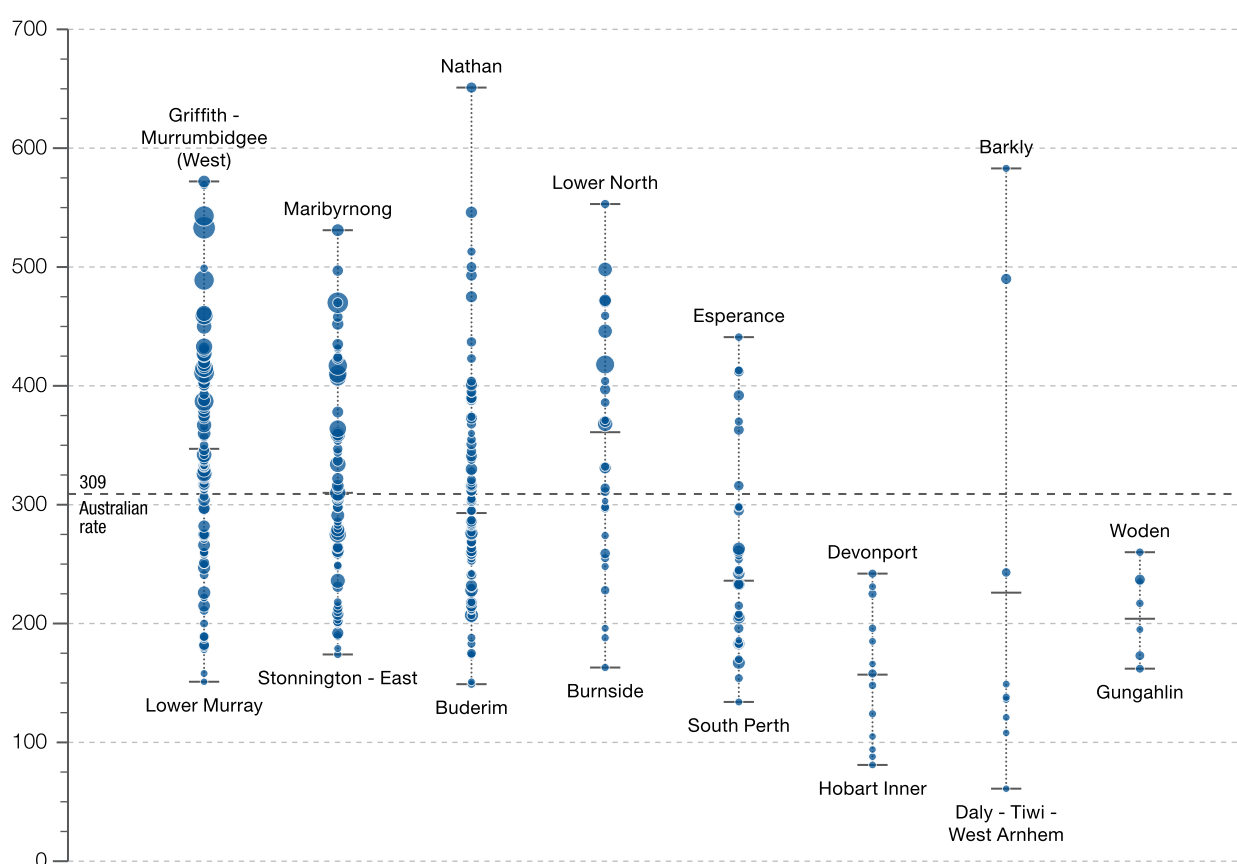


**Sources:** National Health Performance Authority analysis of Admitted Patient Care National Minimum Data Sets from 2010–11 to 2012–13 (data supplied 09/04/2014) and Australian Bureau of Statistics Estimated Resident Population 30 June 2013.

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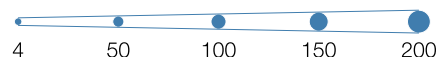
Figure 121: Estimated annual number of asthma and related respiratory admissions to hospital per 100,000 people aged 3 to 19 years, age standardised, by local area, state and territory, 2010–11 to 2012–13

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT
Highest rate	572	531	651	553	441	242	583	260
State/territory	347	310	293	361	236	157	226	204
Lowest rate	151	174	149	163	134	81	61	162
No. admissions	5,456	3,647	3,039	1,206	1,257	171	136	159



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

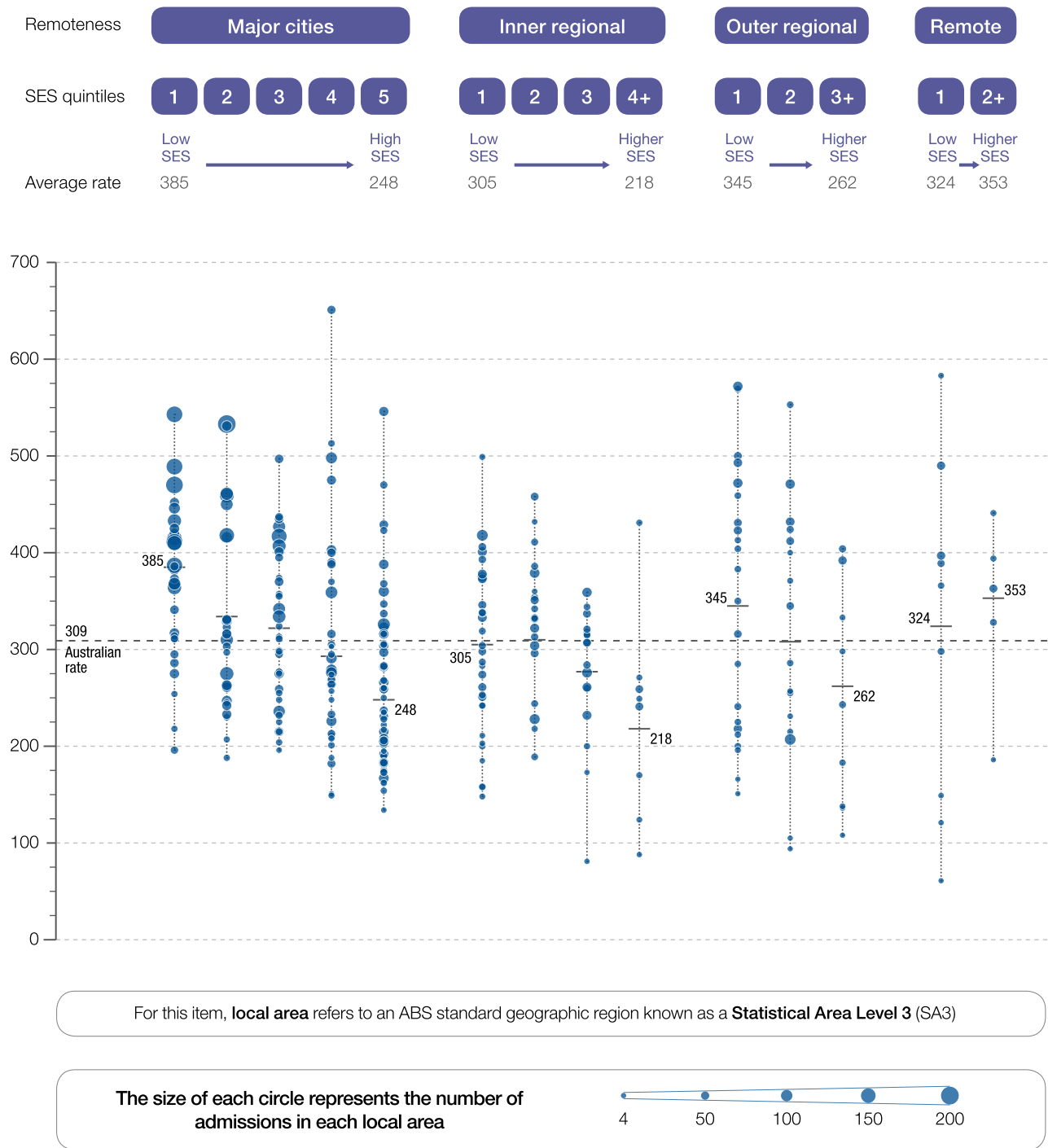


## Notes:

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 122: Estimated annual number of asthma and related respiratory admissions to hospital per 100,000 people aged 3 to 19 years, 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.

# Asthma and related respiratory hospital admissions 3–19 years

## Resources

- NSW Ministry of Health. *NSW Health policy infants and children – acute management of bronchiolitis*. 2012. Available at [www.health.nsw.gov.au/policies/pd/2012/pdf/PD2012\\_004.pdf](http://www.health.nsw.gov.au/policies/pd/2012/pdf/PD2012_004.pdf).
- Royal Children's Hospital Melbourne. *Clinical practice guidelines asthma acute*. 2015. Available at: [www.rch.org.au/clinicalguide/guideline\\_index/Asthma\\_Acute/](http://www.rch.org.au/clinicalguide/guideline_index/Asthma_Acute/).

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- 1 Australian Centre for Asthma Monitoring. Asthma in Australian children: findings from growing up in Australia, the longitudinal study of Australian children. Cat. no. ACM 17. Canberra: AIHW, 2009.
  - 2 Yanney M, Vyas H. The treatment of bronchiolitis. *Arch Dis Child* 2008;Sep;93(9):793–8.
  - 3 Australian Bureau of Statistics. Australian Aboriginal and Torres Strait Islander health survey: first results, Australia, 2012–13. Cat. No. 4727.0.55.001. Canberra: ABS, 2013.
  - 4 Kozyrskyj AL, Kendall GE, Jacoby P, Sly PD, Zubrick SR. Association between socioeconomic status and the development of asthma: analyses of income trajectories. *AJPH* 2010;100(3):540–6.
  - 5 Christakis DA, Mell L, Koepsell TD, Zimmerman FJ, Connell FA. Association of lower continuity of care with greater risk of emergency department use and hospitalization in children. *Pediatrics* Vol. 103 no. 3. March 2001;524–9.
  - 6 Rasmussen F, Taylor DR, Flannery EM, Cowan JO, Greene JM, Herbison GP et al. Risk factors for hospital admission or asthma from childhood to young adulthood: a longitudinal population study. *Journal of Allergy and Clinical immunology* 2002;110(2):220–7.