

1.4 Kidney and urinary tract infections

Context

This data item examines hospitalisations for kidney and urinary tract infections (UTIs) in people of all ages based on patient place of residence. Kidney infections and UTIs accounted for 12% of potentially preventable hospitalisations in 2013–14.¹

Risk factors for kidney infections and UTIs include female gender, diabetes, advanced age pregnancy and urinary catheters.² People with diabetes are more likely than the general population to develop serious complications, such as kidney infection, and have longer hospitalisations and increased mortality.³

UTIs are common in the community, accounting for 1.2% of all problems managed in Australian general practice consultations.⁴ Despite the high prevalence of hospitalisations for kidney infections and UTIs, published evidence on international rates and interventions for these conditions is lacking.

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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 kidney infections and UTIs per 100,000 people in 2014–15. Because a record is included for each hospitalisation, rather than for each patient, patients hospitalised more than once in the financial year will be counted more than once. The full data specification is available from the Australian Institute of Health and Welfare.⁵

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

In 2014–15, there were 73,277 hospitalisations for kidney and urinary tract infections, representing 286 hospitalisations per 100,000 people (the Australian rate).

The number of hospitalisations for kidney and urinary tract infections across 323[†] local areas (Statistical Area 3 – SA3) ranged from 140 to 899 per 100,000 people. The rate was **6.4 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 214 per 100,000 people in Tasmania to 411 in the Northern Territory (Figures 1.20–1.23).

After the highest and lowest 10% of results were excluded and 260 SA3s remained, the number of hospitalisations per 100,000 people was 2.2 times as high in the area with the highest rate compared to the area with the lowest rate.

Rates by SA3 for two additional years, 2012–13 and 2013–14, are available online at www.safetyandquality.gov.au/atlas.

Analysis by remoteness and socioeconomic status

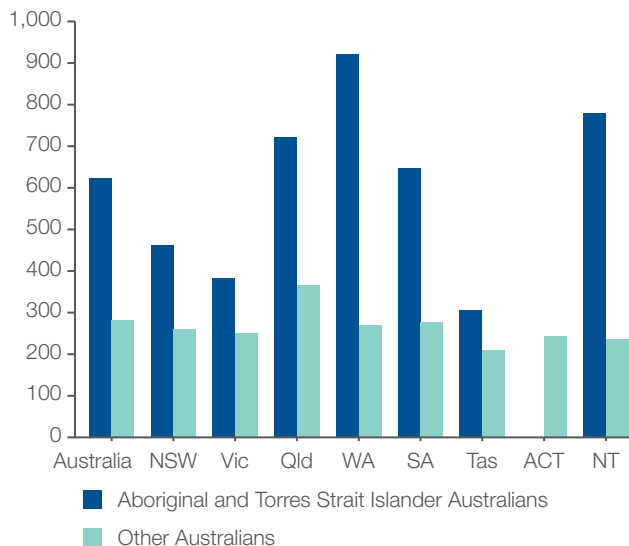
Rates of hospitalisation for kidney infections and UTIs were markedly higher in remote areas than in other areas. Two remote SA3s (Kimberley and Alice Springs) had hospitalisation rates that were more than double the national rate. A further three SA3s in outer regional and remote areas (Outback – North, Innisfail – Cassowary Coast and Tablelands [East] – Kuranda) had rates that were almost double the national rate. Rates of kidney infections and UTIs also increased with socioeconomic disadvantage in all areas, regardless of remoteness category (Figure 1.24).

[†] There are 333 SA3s. For this item, data were suppressed for 10 SA3s due to a small number of hospitalisations and/or population in an area. Some of the published SA3 rates were considered more volatile than others. These rates are excluded from the calculation of the difference between the highest and lowest SA3 rates in Australia.
For further detail about the methods used, please refer to the Technical Supplement.

Analysis by Aboriginal and Torres Strait Islander status

The rate for Aboriginal and Torres Strait Islander Australians (623 per 100,000 people) was 2.2 times as high as the rate for other Australians (282 per 100,000 people). Rates were higher among Aboriginal and Torres Strait Islander Australians than other Australians in all states and territories (Figure 1.19).

Figure 1.19: Number of potentially preventable hospitalisations – kidney and urinary tract infections per 100,000 people, age and sex standardised, by state and territory and Indigenous status, 2014–15



The data for Figure 1.19 are available at www.safetyandquality.gov.au/atlas.

Interpretation

Potential reasons for the variation include differences in:

- Adherence to evidence-based guidelines, including choice and length of antimicrobial treatment
- Access to primary care, including its availability, acceptability and affordability
- Access to hospital in the home and other community services
- Clustering of populations with a high risk of urinary tract infections, such as residents of aged care homes, people with type 2 diabetes, and Aboriginal and Torres Strait Islander Australians⁶
- The quality, efficiency and effectiveness of primary health care; these may be lower for Aboriginal and Torres Strait Islander Australians
- The incidence of infection with multidrug-resistant, extended-spectrum β -lactamase-producing bacteria
- Weather; hot conditions can increase the risk of dehydration and UTI⁷
- Diagnostic error.

Variations between areas may not directly reflect the practices of the clinicians who are based in these areas. Area boundaries reflect where people live, rather than where they obtain their health care. Patients may travel outside their local area to receive care.

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 2014–15 and ABS Estimated Resident Population 30 June 2014.

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Access to primary care is likely to affect hospitalisation rates for kidney infections and UTIs. Barriers to access include distance, cost, and a lack of health services that provide culturally appropriate care for Aboriginal and Torres Strait Islander Australians, and people from other culturally and linguistically diverse backgrounds. Low health literacy is also a barrier to seeking care and managing treatment effectively. Inability of people with cognitive impairment, such as some residents of aged care homes, to communicate symptoms may contribute to delays in obtaining care.

Severe UTIs are highly prevalent among Aboriginal and Torres Strait Islander Australians living in remote communities.⁸ Aboriginal and Torres Strait Islander Australians, particularly women, have much higher rates of kidney infections and UTIs than other Australians, and screening, treatment and follow-up of these infections among Aboriginal and Torres Strait Islander Australians is often inadequate.⁹

Recent research in Aboriginal and Torres Strait Islander communities in north Queensland has shown that an extremely high background rate of community-acquired kidney infections and UTIs, and a high prevalence of type 2 diabetes, leads to excess hospitalisation for these infections.⁸ UTI is the second most common cause of hospitalisation for infection, and cellulitis is the most common cause, in this population.⁸

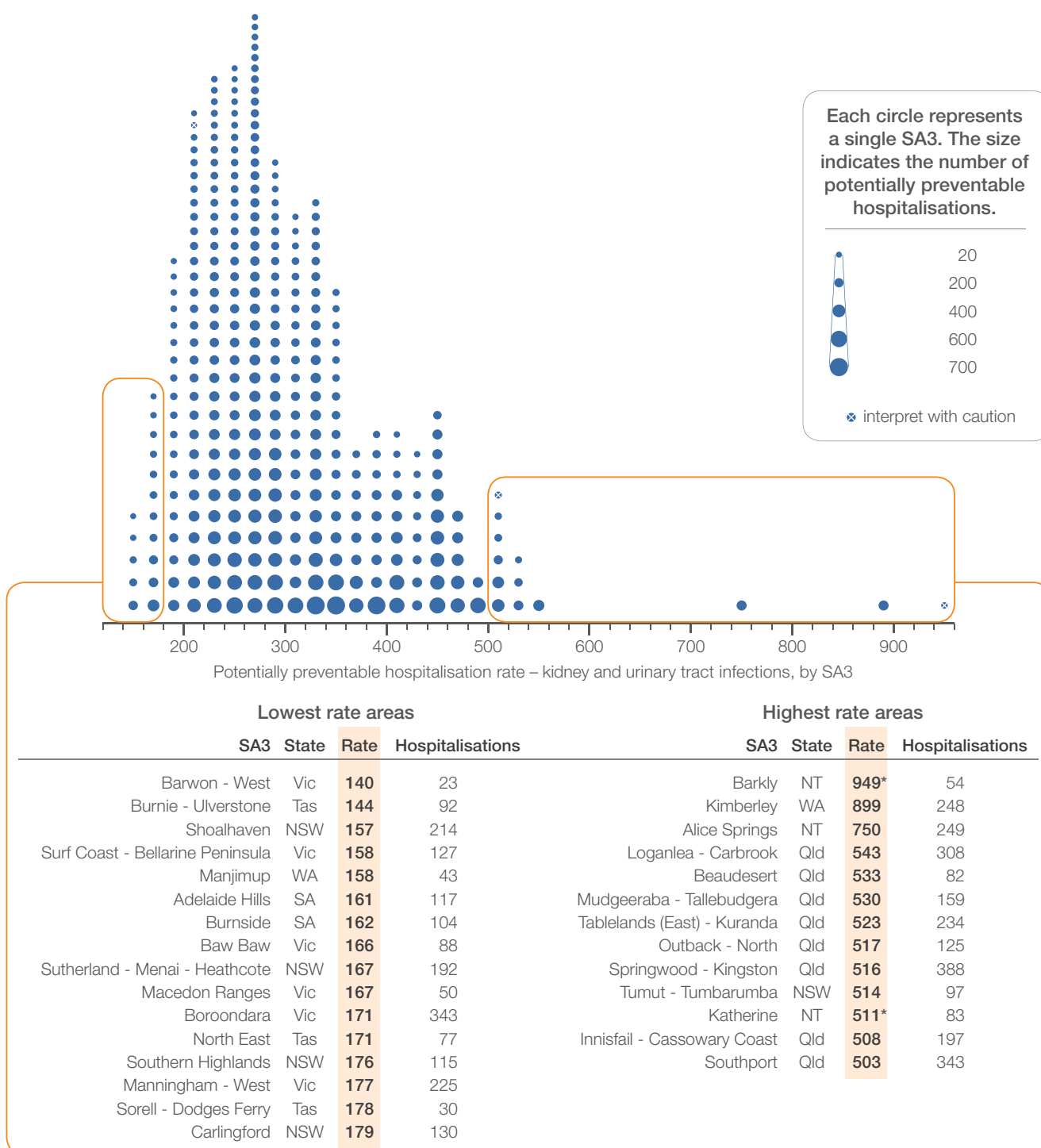
Addressing variation

Increasing incidence of multidrug-resistant, extended-spectrum β -lactamase-producing bacteria in Australia will contribute to increasing rates of hospitalisation for UTI, and longer hospital stay as a result of more complex treatment. Risk factors for UTI with multidrug-resistant bacteria include recent overseas travel, previous exposure to antibiotics and living in an aged care home.¹⁰ Urine culture before starting treatment is advisable for patients with any of these risk factors to guide antibiotic choice.¹⁰

Recurrent UTIs account for a substantial number of infections, and prophylaxis may be appropriate for some women with frequent recurrences.¹¹ Vaginal oestrogen has also been shown to reduce recurrences of UTI in postmenopausal women.¹²

UTIs are a common healthcare-associated infection, and many are associated with indwelling urinary catheters. To reduce the risk of UTI, indwelling urinary catheters are not recommended for managing urinary incontinence except to prevent skin breakdown or wound infection, or as a last resort.¹³

Figure 1.20: Number of potentially preventable hospitalisations – kidney and urinary tract infections per 100,000 people, age and sex standardised, by Statistical Area Level 3 (SA3), 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.

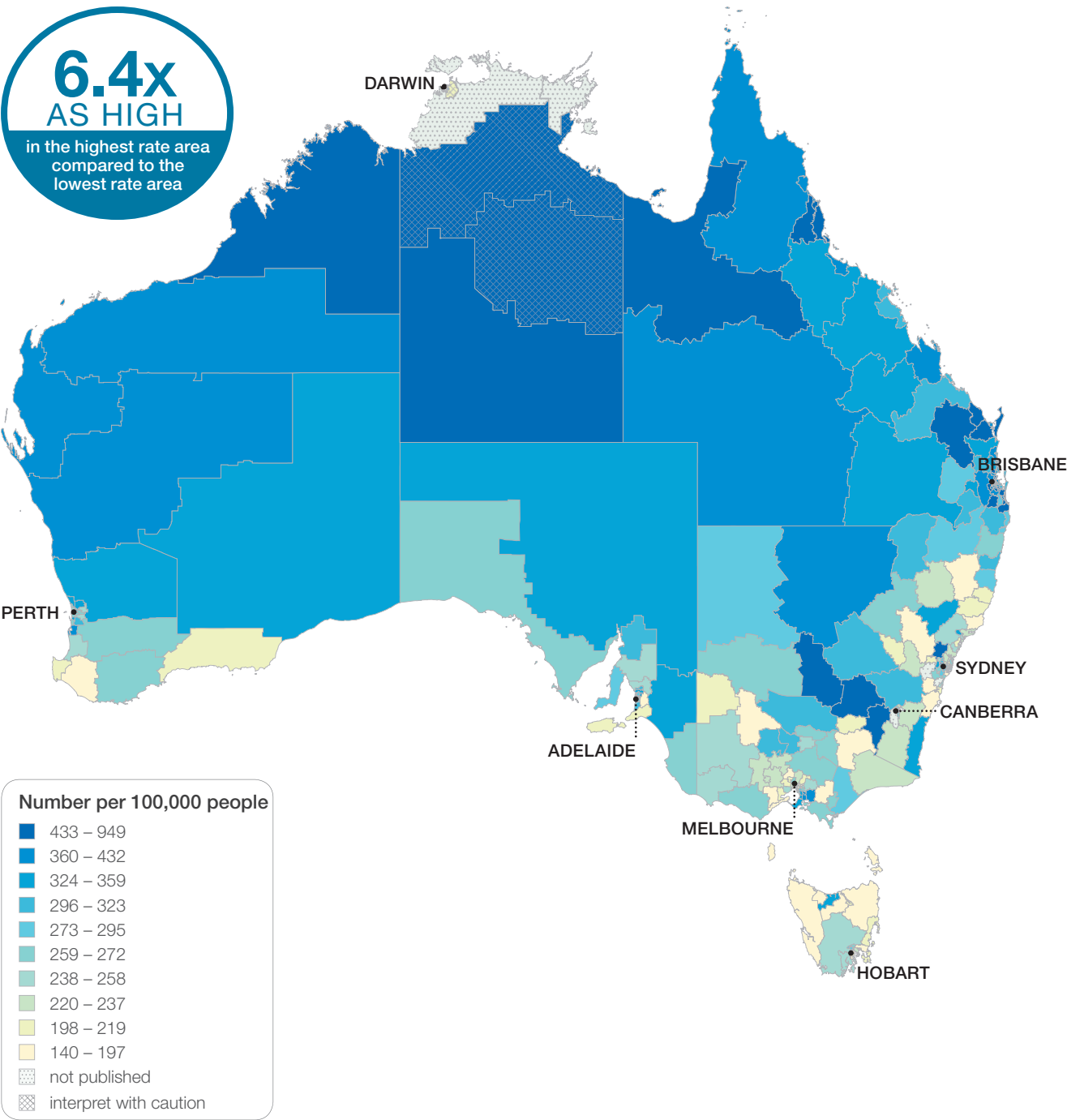
Crosses and asterisks indicate rates that are considered more volatile than other published rates and should be interpreted with caution. These rates are excluded from the calculation of the difference between the highest and lowest SA3 rates in Australia.

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

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

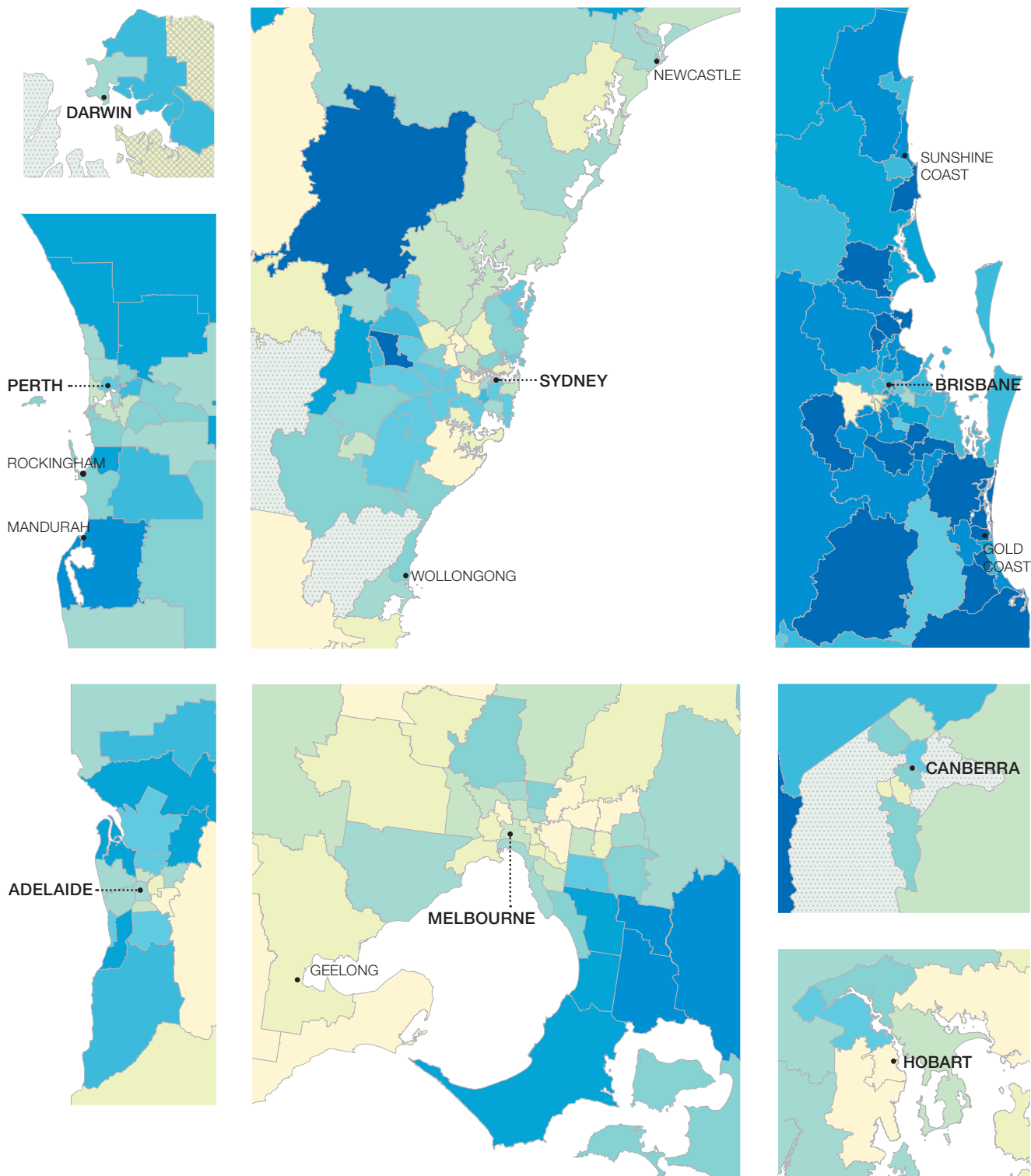
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Figure 1.21: Number of potentially preventable hospitalisations – kidney and urinary tract infections per 100,000 people, age and sex standardised, by Statistical Area Level 3 (SA3), 2014–15: Australia map



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.
 Hatching indicates a rate that is considered more volatile than other published rates and should be interpreted with caution.
 For further detail about the methods used, please refer to the Technical Supplement.
Sources: AIHW analysis of National Hospital Morbidity Database 2014–15 and ABS Estimated Resident Population 30 June 2014.

Figure 1.22: Number of potentially preventable hospitalisations – kidney and urinary tract infections per 100,000 people, age and sex standardised, by Statistical Area Level 3 (SA3), 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.

Hatching indicates a rate that is considered more volatile than other published rates and should be interpreted with caution.

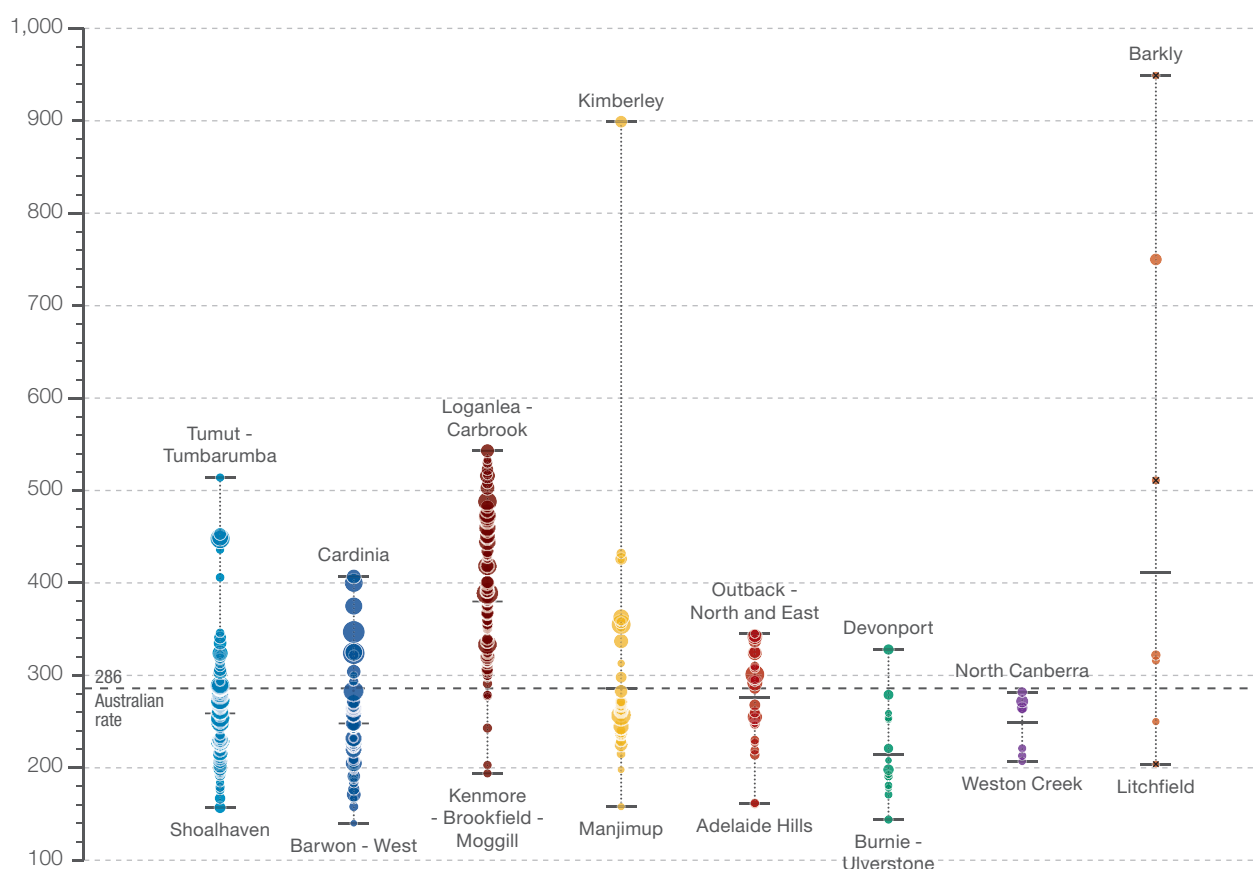
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Sources: AIHW analysis of National Hospital Morbidity Database 2014–15 and ABS Estimated Resident Population 30 June 2014.

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Figure 1.23: Number of potentially preventable hospitalisations – kidney and urinary tract infections per 100,000 people, age and sex standardised, by Statistical Area Level 3 (SA3), state and territory, 2014–15

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Highest rate	514	407	543	899	345	328	282	949*
State/territory	259	248	380	286	276	214	249	411
Lowest rate	157	140	194	158	161	144	207	204*
No. hospitalisations	22,088	16,002	18,720	7,365	5,602	1,301	930	766



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).

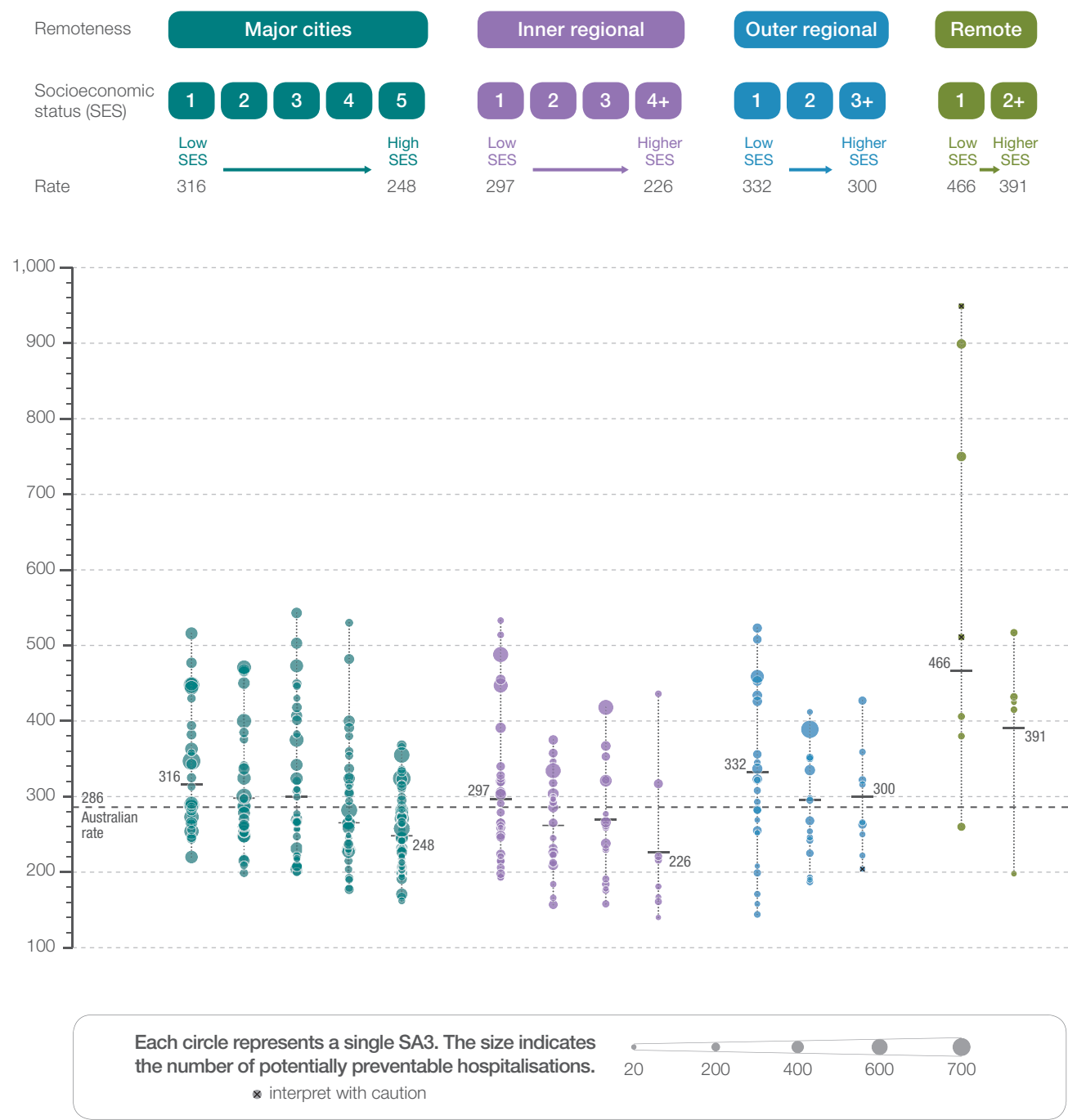
Analysis is based on the patient's area of usual residence, not the place of hospitalisation.

Crosses and asterisks indicate rates that are considered more volatile than other published rates and should be interpreted with caution. These rates are excluded from the calculation of the difference between the highest and lowest SA3 rates in Australia.

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

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

Figure 1.24: Number of potentially preventable hospitalisations – kidney and urinary tract infections per 100,000 people, age and sex standardised, by Statistical Area Level 3 (SA3), remoteness and socioeconomic status, 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.
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Sources: AIHW analysis of National Hospital Morbidity Database 2014–15 and ABS Estimated Resident Population 30 June 2014.

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Resources

- Therapeutic Guidelines Limited. Antibiotic guidelines: urinary tract infections (revised October 2015). In: eTG complete. Melbourne: TGL; 2016.
- Royal Australian College of General Practitioners. Medical care of older persons in residential aged care facilities (silver book). Melbourne: RACGP; 2006.

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