

1.2 Quinolone dispensing

Context

This data item examines quinolone dispensing for people of all ages. These data are sourced from the PBS and relate to the number of prescriptions dispensed per 100,000 people.

Quinolones are a class of antimicrobials that have been available in Australia for more than 25 years and can be administered orally, by injection and topically. Twenty years ago, Australia became the first country to restrict access to quinolones in both hospitals and the community.

Clinicians must obtain authority to prescribe quinolones from the PBS and can prescribe only for specific PBS-listed infections.¹ These restrictions have minimised resistance to these important antimicrobials, and preserved their value in treating infections caused by bacteria resistant to other antimicrobial classes.²

Restricted use of quinolones in food-producing animals has also minimised the risk of transmitting resistance through the food chain. Compared to almost all other developed countries, overall use of quinolones is very low in Australia.²

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Magnitude of variation

In 2013–14, there were 354,403 PBS prescriptions dispensed for quinolones, representing 1,383 prescriptions per 100,000 people (the Australian rate).

The number of PBS prescriptions dispensed for quinolones across 325* local areas (SA3s) ranged from 281 to 2,339 per 100,000 people. The number of prescriptions was **8.3 times higher** in the area with the highest rate compared to the area with the lowest rate. The average number of prescriptions dispensed varied across states and territories, from 1,025 per 100,000 people in the Australian Capital Territory, to 1,731 in Queensland.

After excluding the highest and lowest results, the quinolone prescription rate across the 307 remaining local areas was **2.6 times higher** in one local area compared to another.

Variations in dispensing of quinolones did not strongly correlate with socioeconomic status. Dispensing rates were lower in remote areas, especially those of lower socioeconomic status. Dispensing rates were lowest in remote communities.

Interpretation

The number of prescriptions dispensed for quinolones is relatively small, so a few individuals who receive multiple repeat prescriptions could influence dispensing rates at the local level, especially in areas with small populations.

Other potential reasons for the variation include differences in:

- the distribution of Aboriginal and Torres Strait Islander peoples with a high risk of infections for which quinolones are indicated. Topical quinolones are widely used to treat chronic suppurative otitis media (middle ear infection)
- prescribing preferences, which are known to be a factor in variations across Europe³
- local laboratory reporting practices. Some laboratories routinely report bacterial sensitivity to quinolones, particularly norfloxacin for urinary tract infection. Others restrict reporting of quinolones, providing the result only when resistance to multiple other classes of antimicrobials has been detected. Changing from the former to the latter practice in the laboratory servicing a mid-sized metropolitan hospital resulted in a significant decrease in norfloxacin use⁴
- private prescriptions, which are not included in this data.

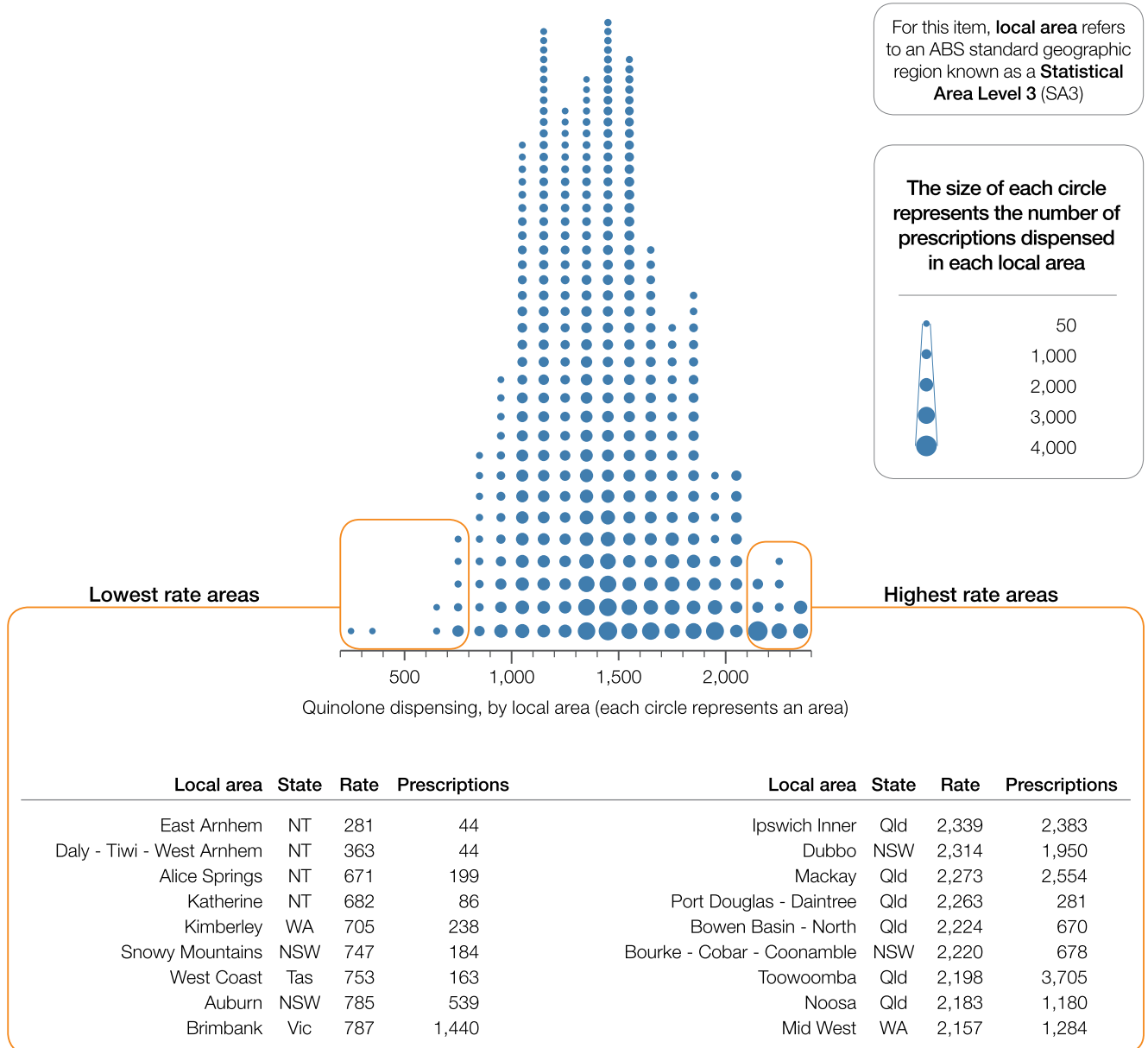
It is also important to consider that the dispensing of antimicrobials in remote areas by some Aboriginal Health Services is not captured in the PBS database.

To explore this variation, further analysis could focus on:

- variations between states and territories. Aside from potential geographical variations in the incidence of some infections, use of quinolones should not significantly vary across Australia
- variations, if any, in the private prescription market.

*There are 333 SA3s. For this item, data were suppressed for 8 SA3s. This is because of confidentiality requirements given the small numbers of prescriptions dispensed in these areas.

Figure 6: Number of PBS prescriptions dispensed for quinolones per 100,000 people, age standardised, by local area, 2013–14



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 prescriptions 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).

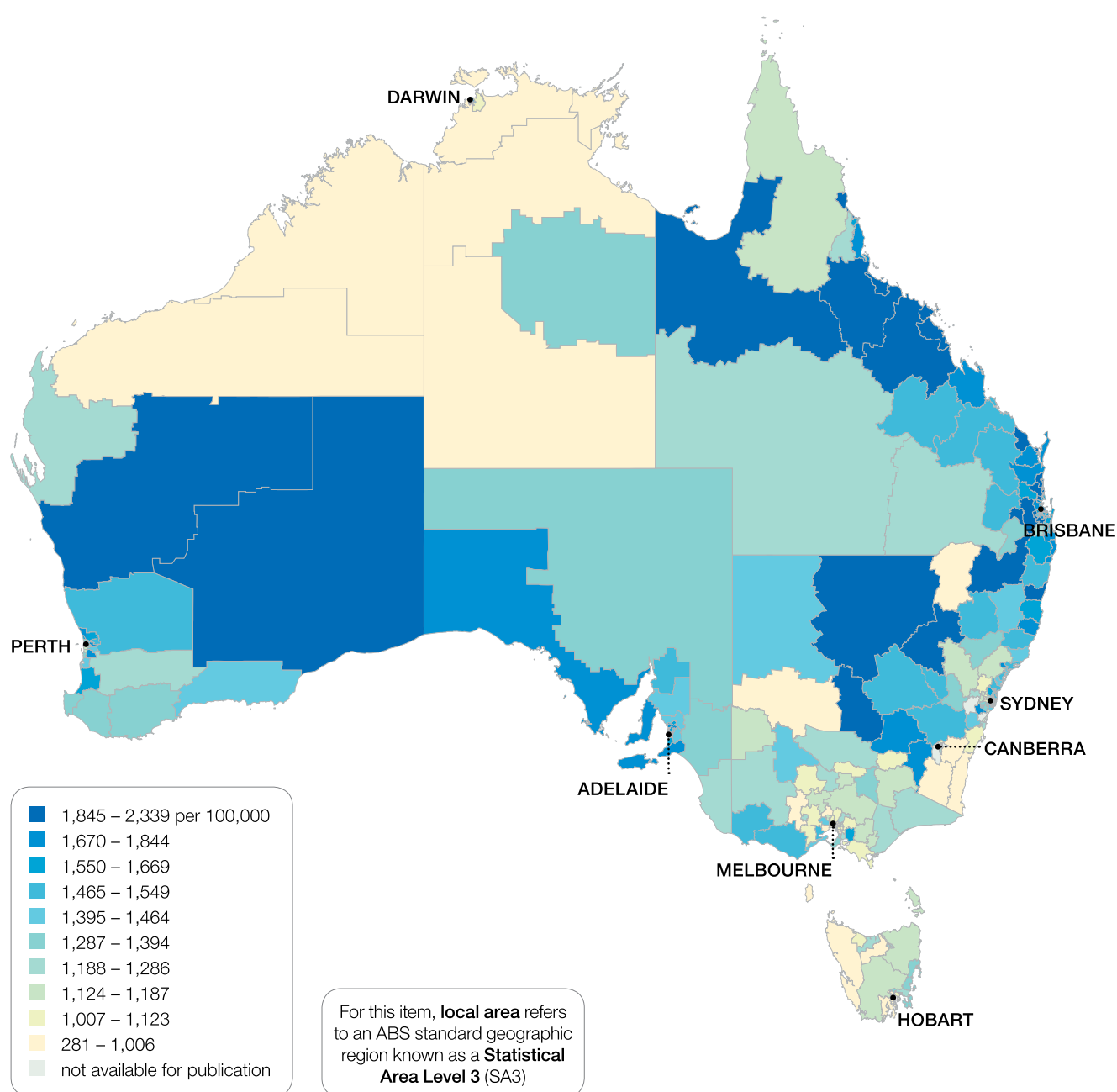
PBS prescriptions include all medicines dispensed under the PBS or RPBS, including medicines that do not receive a Commonwealth subsidy. They exclude a large proportion of public hospital drug usage, direct supply to remote Aboriginal Health Services, over-the-counter purchases and private prescriptions. SA3 analysis excludes approximately 890 prescriptions from GPO postcodes 2001, 2124, 3001, 4001, 5001, 6843 but these data are included in state/territory and national level analysis.

For more technical information please refer to the Technical Supplement.

Sources: National Health Performance Authority analysis of Pharmaceutical Benefits Scheme (PBS) statistics 2013–14 (data supplied 11/02/2015) and Australian Bureau of Statistics Estimated Resident Population 30 June 2013.

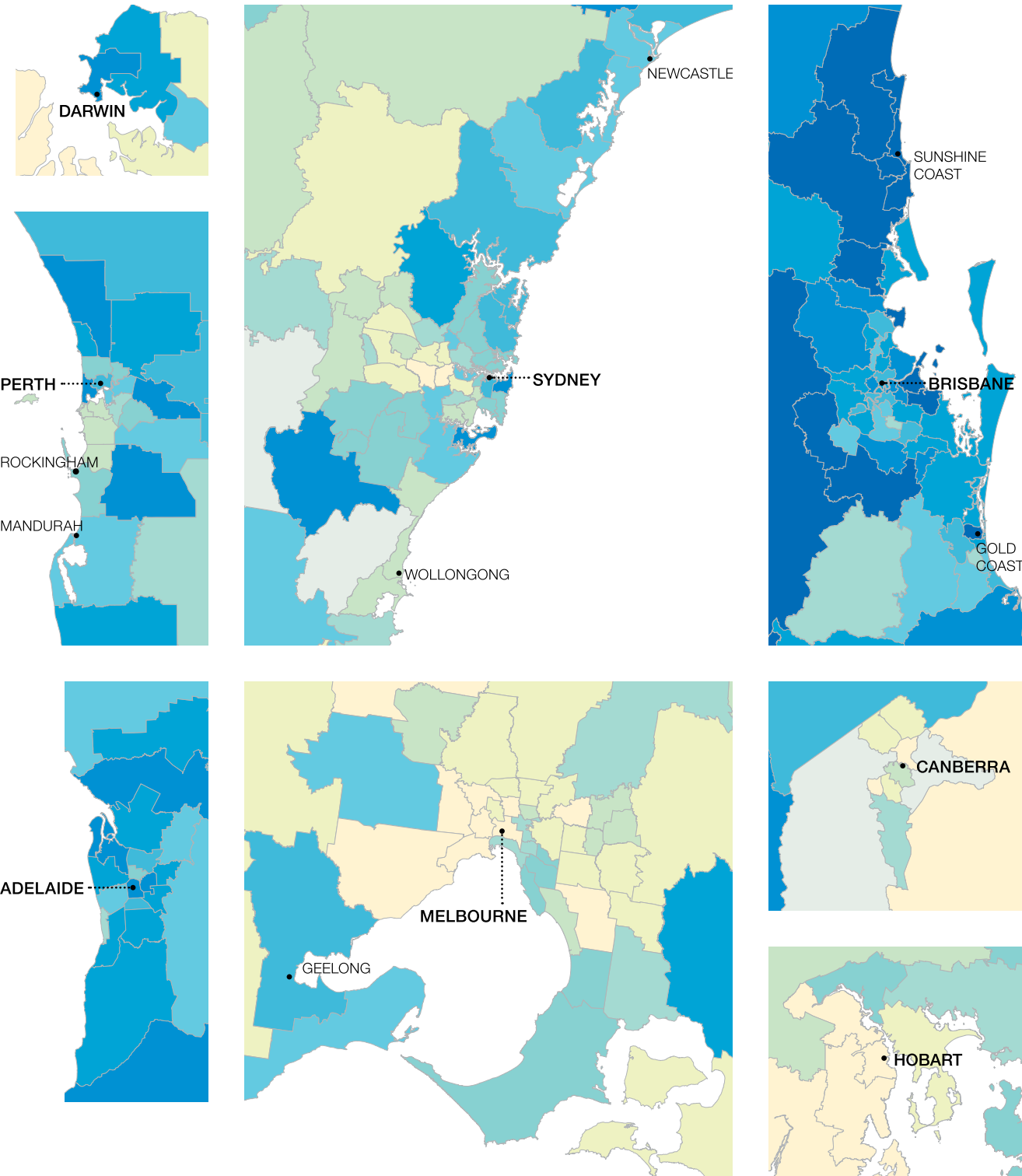
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Figure 7: Number of PBS prescriptions dispensed for quinolones per 100,000 people, age standardised, by local area, 2013–14



Sources: National Health Performance Authority analysis of Pharmaceutical Benefits Scheme (PBS) statistics 2013–14 (data supplied 11/02/2015) and Australian Bureau of Statistics Estimated Resident Population 30 June 2013.

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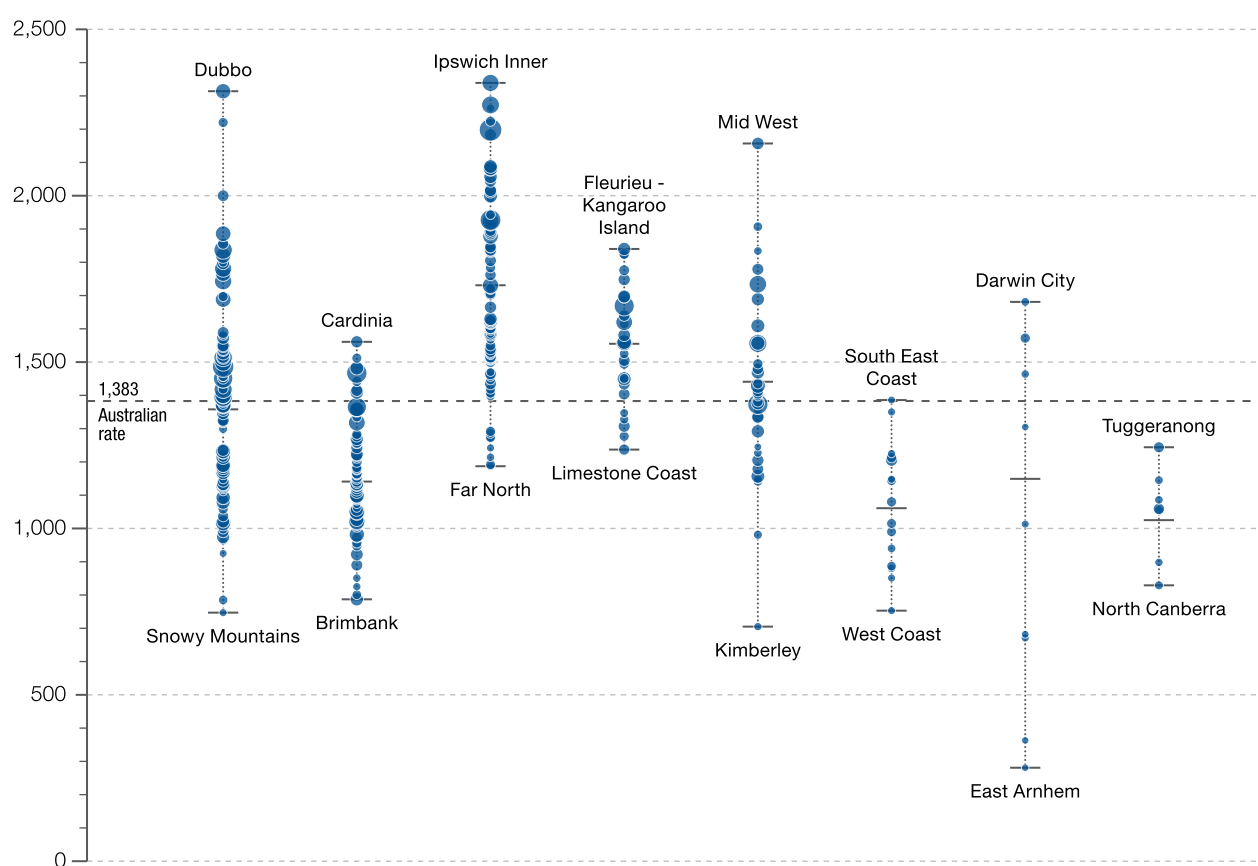


Sources: National Health Performance Authority analysis of Pharmaceutical Benefits Scheme (PBS) statistics 2013–14 (data supplied 11/02/2015) and Australian Bureau of Statistics Estimated Resident Population 30 June 2013.

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Figure 8: Number of PBS prescriptions dispensed for quinolones per 100,000 people, age standardised, by local area, state and territory, 2013–14

	NSW	Vic	Qld	SA	WA	Tas	NT	ACT
Highest rate	2,314	1,561	2,339	1,840	2,157	1,386	1,681	1,244
State/territory	1,358	1,141	1,731	1,555	1,441	1,061	1,149	1,025
Lowest rate	747	787	1,187	1,237	705	753	281	829
No. prescriptions	114,100	72,167	84,722	31,535	36,538	6,631	1,914	3,714



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 prescriptions dispensed in each local area

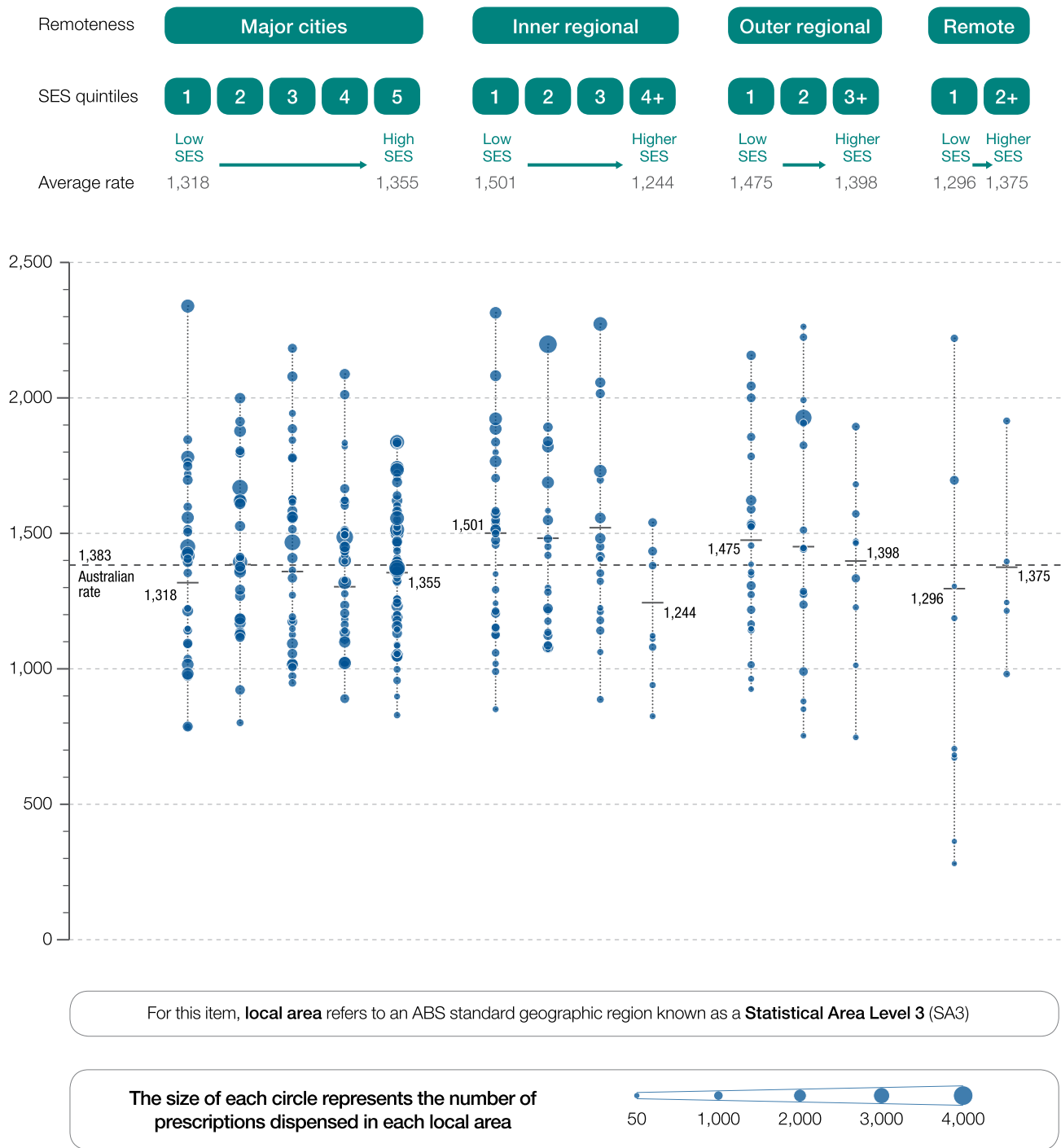


Notes:

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 prescriptions and people in the geographic area.

Sources: National Health Performance Authority analysis of Pharmaceutical Benefits Scheme (PBS) statistics 2013–14 (data supplied 11/02/2015) and Australian Bureau of Statistics Estimated Resident Population 30 June 2013.

Figure 9: Number of PBS prescriptions dispensed for quinolones per 100,000 people, age standardised, by local area, remoteness and socioeconomic status (SES), 2013–14



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 prescriptions and people in Australia.
Average rates are based on the total number of prescriptions and people in the local areas within each group.

Sources: National Health Performance Authority analysis of Pharmaceutical Benefits Scheme (PBS) statistics 2013–14 (data supplied 11/02/2015) and Australian Bureau of Statistics Estimated Resident Population 30 June 2013.

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Resources

- Therapeutic Guidelines Limited. *Therapeutic Guidelines: Antibiotic*. Version 15. 2014. Available at: www.tg.org.au/.
- Australian Medicines Handbook Pty Ltd. *Australian Medicines Handbook 2015* (online). 2015. Available at: <http://amhonline.amh.net.au/>.
- Pharmaceutical Benefits Scheme. *Antibiotics Roundtable Outcomes Statement*. 2015. Available at: www.pbs.gov.au/reviews/authority-required-files/antibiotics-roundtable-outcome-statement.pdf.

1 Australian Group on Antimicrobial Resistance. AGAR Surveys. (Accessed 1 September 2015 at: www.agargroup.org/surveys).

2 Cheng AC, Turnidge J, Collignon P, Looke D, Barton M, Gottlieb T. Control of fluoroquinolone resistance through successful regulation, Australia. *Emerging infectious diseases* 2012;18(9):1453–60.

3 Deschepper R, Grigoryan L, Lundborg CS, Hofstede G, Cohen J, Kelen GV et al. Are cultural dimensions relevant for explaining cross-national differences in antimicrobial use in Europe? *BMC Health Service Research* 2008;8:123.

4 Australian Commission on Safety and Quality in Health Care. National Antimicrobial Utilisation Surveillance Program. 2014. (Accessed 1 September 2015 at: www.safetyandquality.gov.au/national-priorities/amr-and-au-surveillance-project/national-antimicrobial-utilisation-surveillance-program/).