

4.3 Myocardial perfusion scans, 18 years and over

What did we find?

Rates for myocardial perfusion scans (MPS) vary up to about 60-fold across local areas, and are higher in major cities and inner regional areas than in outer regional and remote areas.

Context

MPS is a radionuclide imaging test of cardiac perfusion and function, with and without exercise. It is used to investigate symptoms of coronary artery disease, and allows evaluation of cardiac perfusion and function at rest and during stress.¹ MPS is also known as myocardial perfusion imaging.

Indications for MPS include:

- Symptoms suggesting angina
- Acute chest pain
- Recent acute coronary syndrome
- Known coronary artery disease and new or worsening symptoms
- Previous coronary revascularisation
- Valvular heart disease.^{1,2}

MPS is not appropriate for screening of asymptomatic low-risk patients.²

The rate of MPS use in Australia rose by 51% between 1999 and 2007 and then fell by 16% between 2007 and 2017.³ Canada has shown a smaller but similar pattern of rise and fall: MPS use rose by 7% from 1992 to 2001, and fell by 8.2% from 2008 to 2014.⁴

Appropriate use of MPS

A stress electrocardiogram (ECG) may be the appropriate first step for many low-risk patients with symptoms of coronary heart disease, as it can provide the required information without exposing the patient to radiation and at less cost to the health system than other cardiac tests.^{2,5,6} If a stress ECG is not available, or would not give the required clinical information, stress echocardiography is generally preferred over MPS, again because it does not involve radiation exposure and is less costly to the health system.²

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MPS provides better clinical information than stress echocardiography for some patients.² MPS may also be appropriate for patients who are not good candidates for stress echocardiography (for example, patients who are unable to exercise).² See Section 4.1 'Cardiac tests and imaging, 18 years and over' (page 183) for a discussion of the role of MPS compared with other cardiac tests.

Access to MPS

Availability of MPS and other cardiac tests varies according to location in Australia.⁷ Availability of tests will reflect geographic availability of the required expertise. A previous study of variation in cardiac testing in Australia found that rates of echocardiography and stress echocardiography were strongly correlated with the local availability of doctors, whereas rates of MPS were not.⁸

An MPS has a lower out-of-pocket cost for the patient than a stress echocardiogram. This may encourage referrers to request an MPS, even if a stress echocardiogram is appropriate, and this may be more common in socioeconomically disadvantaged areas. More than 95% of MPS studies are bulk-billed, compared with 70% of stress echocardiograms.⁵

The Cardiac Services Clinical Committee of the Medicare Benefits Schedule (MBS) Review Taskforce reviewed cardiac imaging tests and commented that, although it would be preferable for all patients to have easy access to stress echocardiography, this is unlikely to be achieved in the short term.⁵ The committee recommended retaining MBS reimbursement for MPS as a first-line investigation for patients who cannot access stress echocardiography because of distance, waiting time or out-of-pocket costs for stress echocardiography in their area.⁵ The committee noted that, given the differing cost and radiation exposure of these cardiac tests, the patient should be fully informed and involved in the decision about which test should be requested.

About the data

Data are sourced from the MBS dataset. This dataset includes information on MBS claims processed by the Australian Government Department of Human Services. It covers a wide range of services (attendances, procedures, tests) provided across primary care and hospital settings.

The dataset does not include:

- Services for publicly funded patients in hospitals
- Services for patients in hospital outpatient clinics where claims are not made to the MBS
- Services covered under Department of Veterans' Affairs arrangements.

Rates are based on the number of MBS-subsidised services for MPS per 100,000 people aged 18 years and over in 2016–17.

Because an MBS claim is included for each service rather than for each patient, patients who receive any of the services listed in this data item more than once in the financial year will have more than one MBS claim counted.

The analysis and maps are based on the residential address of the patient recorded in the MBS claim and not the location of the service.

Rates are age and sex standardised to allow comparisons between populations with different age and sex structures.

This analysis was not undertaken by Aboriginal and Torres Strait Islander status because this information was not available for the MBS data at the time of publication.

Data suppression

For all items in the Atlas, some data have been suppressed to manage the low number of events and/or very small populations in some areas, to protect the identity of patients and providers. This process takes into account the Australian Government Department of Health's requirements for reporting MBS data (see Technical Supplement).

The process has resulted in particularly marked data suppression for MPS MBS items. This is indicated on the maps in grey. Most local areas (Statistical Area Level 3 – SA3) were suppressed to prevent identification of the provider (practitioner or business entity). The effect of data suppression was greatest in inner and outer regional and remote areas:

- Overall, 62 SA3s were suppressed, which represents 18% of all SA3s and 8% of all services
- 37 SA3s were suppressed to prevent identification of the provider
- The proportion of SA3s suppressed in each remoteness category was 3% in major cities, 26% in inner regional areas, 43% in outer regional areas and 74% in remote areas.

What do the data show?

Magnitude of variation

In 2016–17, there were 79,905 MBS-subsidised services for MPS, representing 384 services per 100,000 people aged 18 years and over (the Australian rate).

The number of MBS-subsidised services for MPS across 278* local areas (Statistical Area Level 3 – SA3) ranged from 29 to 1,652 per 100,000 people aged 18 years and over. The rate was **57.0 times as high** in the area with the highest rate compared to the area with the lowest rate. The number of services varied across states and territories, from 182 per 100,000 people aged 18 years and over in South Australia to 485 in New South Wales (Figures 4.14–4.17).

After the highest and lowest 10% of results were excluded and 224 SA3s remained, the number of services per 100,000 people aged 18 years and over was 4.9 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 MPS were higher in major cities and inner regional areas than in other remote areas. Rates were higher in areas with lower socioeconomic status in major cities, and inner regional and remote areas. There was no clear pattern according to socioeconomic status in outer regional areas (Figure 4.18).

Interpretation

Variation in rates of MBS-subsidised MPS is likely to be due to geographical differences in the factors discussed under 'Cardiac stress tests and imaging, 18 years and over' on page 188.

Addressing variation

Strategies for addressing variation in the use of MPS are discussed under 'Cardiac stress tests and imaging, 18 years and over' on page 189.

Resources

See 'Cardiac stress tests and imaging, 18 years and over' on page 198.

Australian initiatives

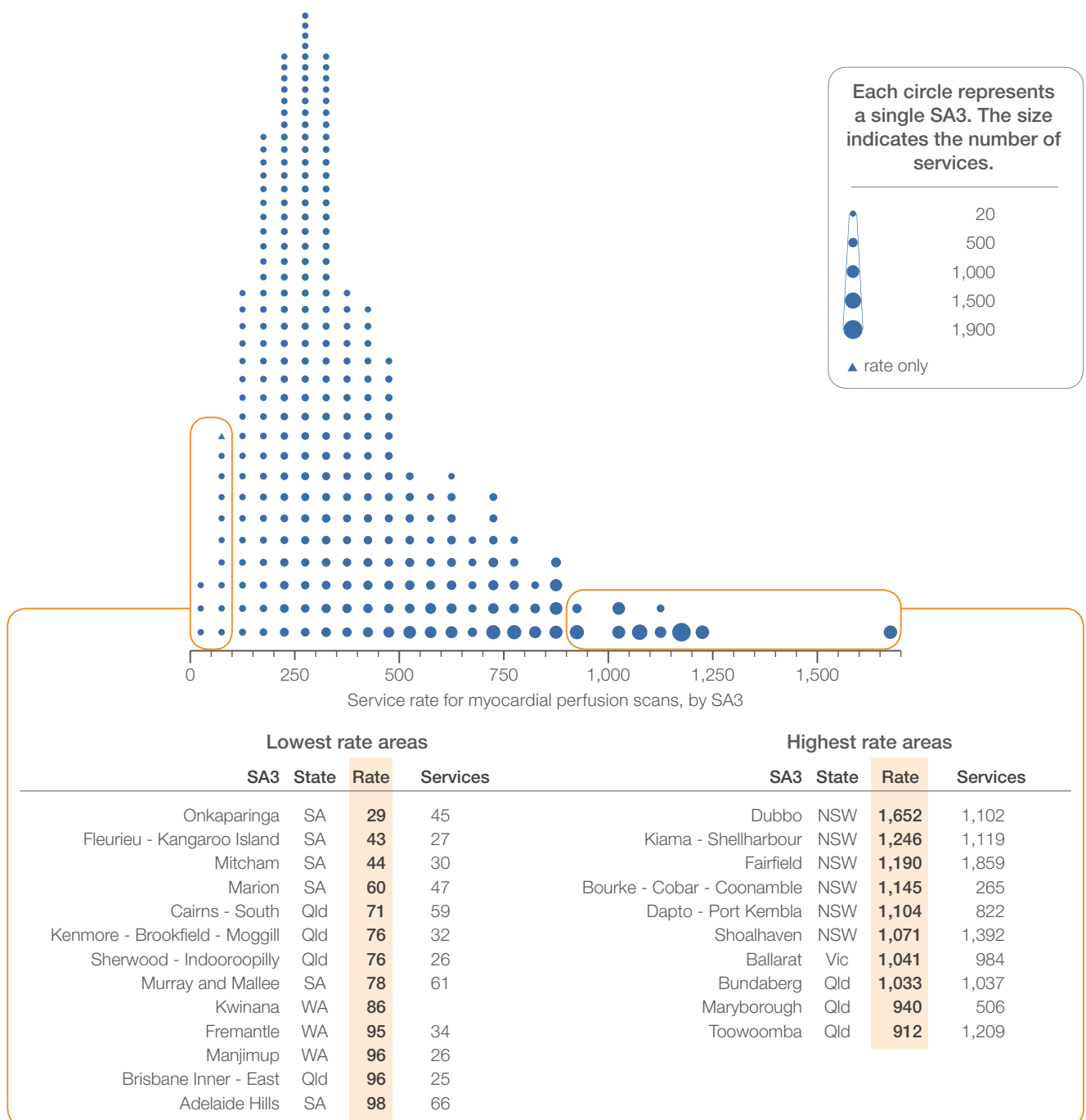
See 'Cardiac stress tests and imaging, 18 years and over' on page 198.

* There are 340 SA3s. For this item, data were suppressed for 62 SA3s due to one or more of a small number of services or population in an area, or potential identification of individual patients, practitioners or business entities.

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Rates by local area

Figure 4.14: Number of MBS-subsidised services for myocardial perfusion scans per 100,000 people aged 18 years and over, age and sex standardised, by Statistical Area Level 3 (SA3) of patient residence, 2016–17



Notes:

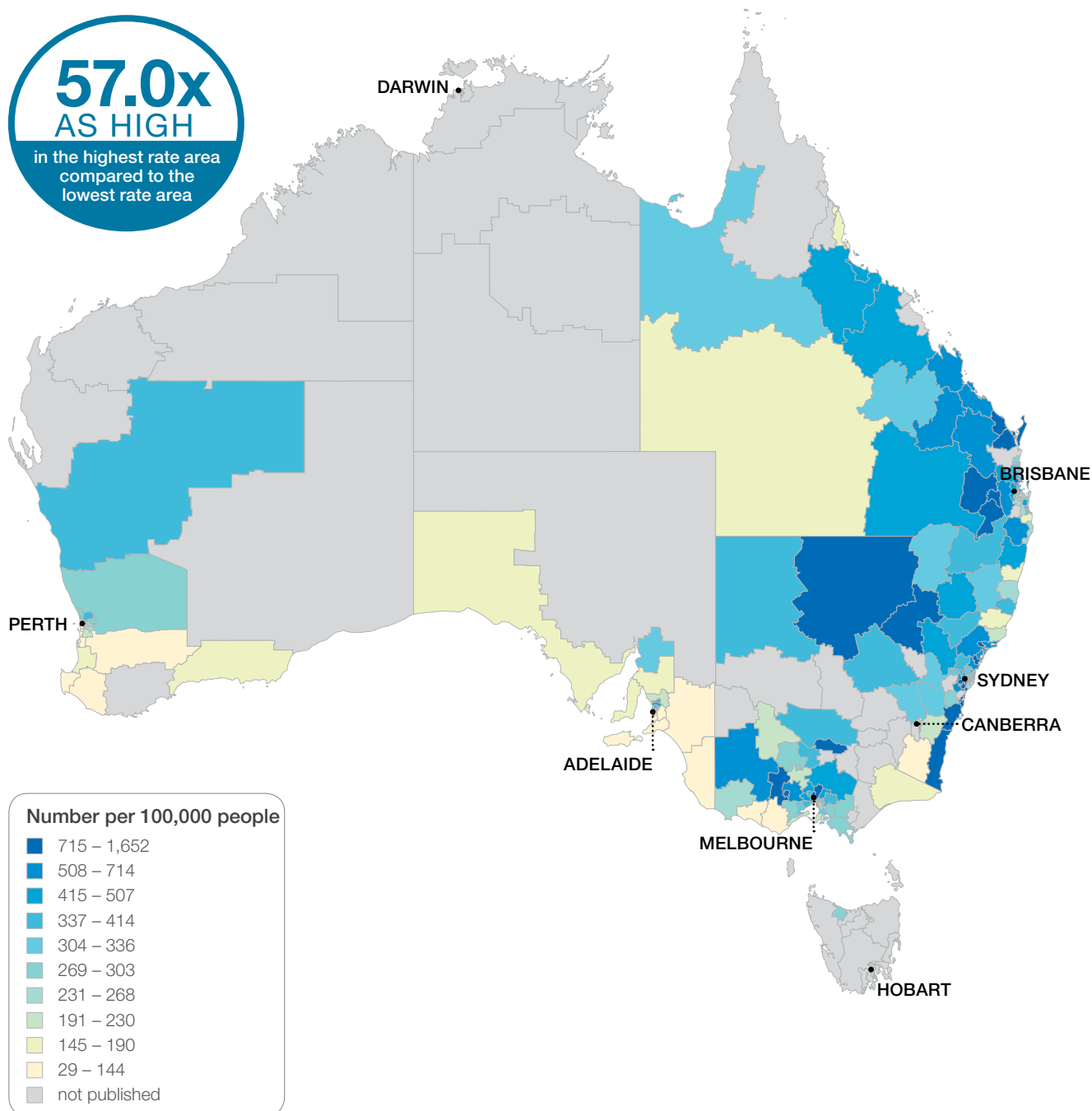
Triangles (▲) indicate SA3s where only rates are published. The numbers of services are not published for confidentiality reasons. For further detail about the methods used, please refer to the Technical Supplement.

Sources: AIHW analysis of Medicare Benefits Schedule data and ABS Estimated Resident Population 30 June 2016.

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Rates across Australia

Figure 4.15: Number of MBS-subsidised services for myocardial perfusion scans per 100,000 people aged 18 years and over, age and sex standardised, by Statistical Area Level 3 (SA3) of patient residence, 2016–17



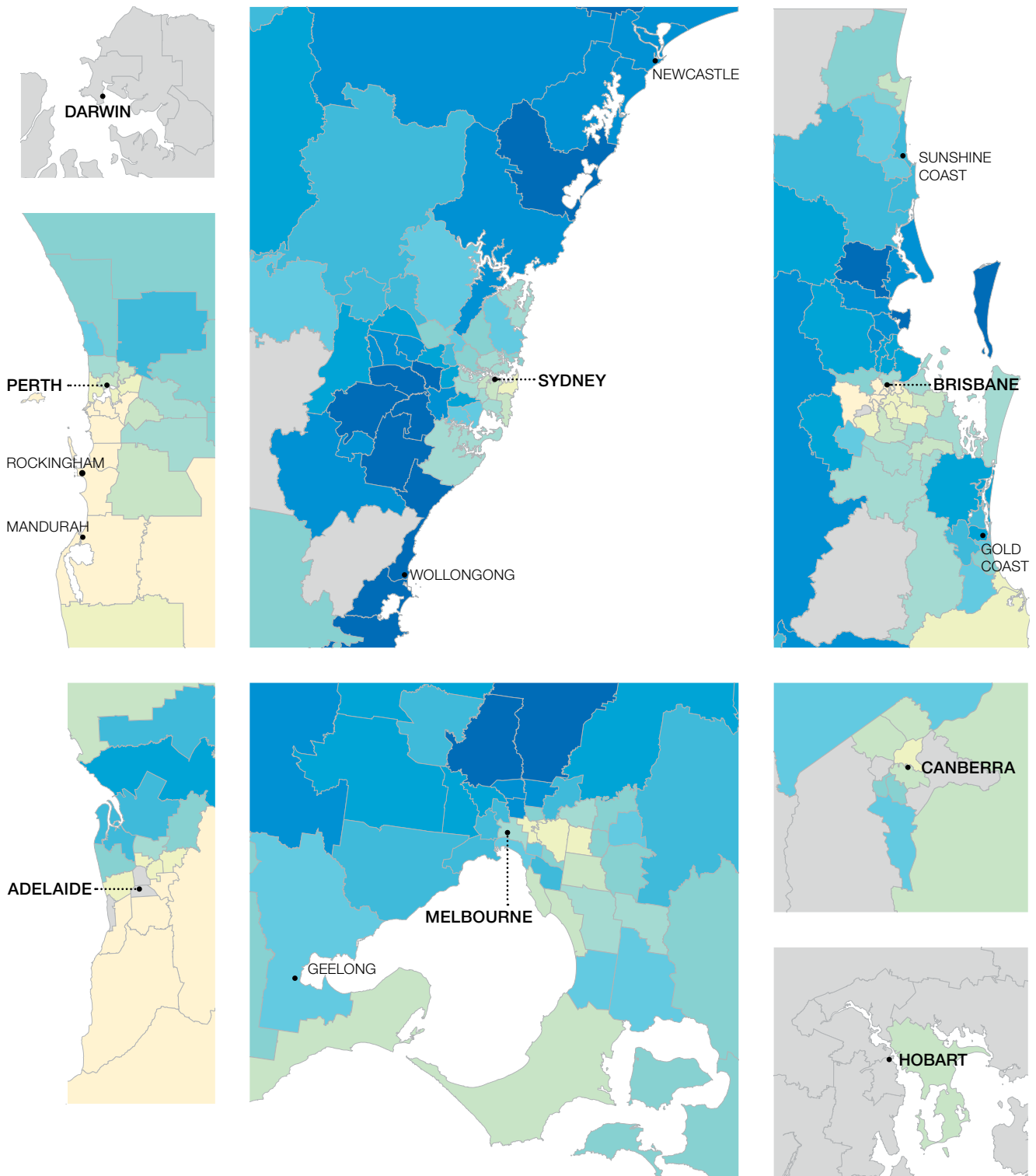
Note:

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

Sources: AIHW analysis of Medicare Benefits Schedule data and ABS Estimated Resident Population 30 June 2016.

Rates across capital city areas

Figure 4.16: Number of MBS-subsidised services for myocardial perfusion scans per 100,000 people aged 18 years and over, age and sex standardised, by Statistical Area Level 3 (SA3) of patient residence, 2016–17



Note:

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

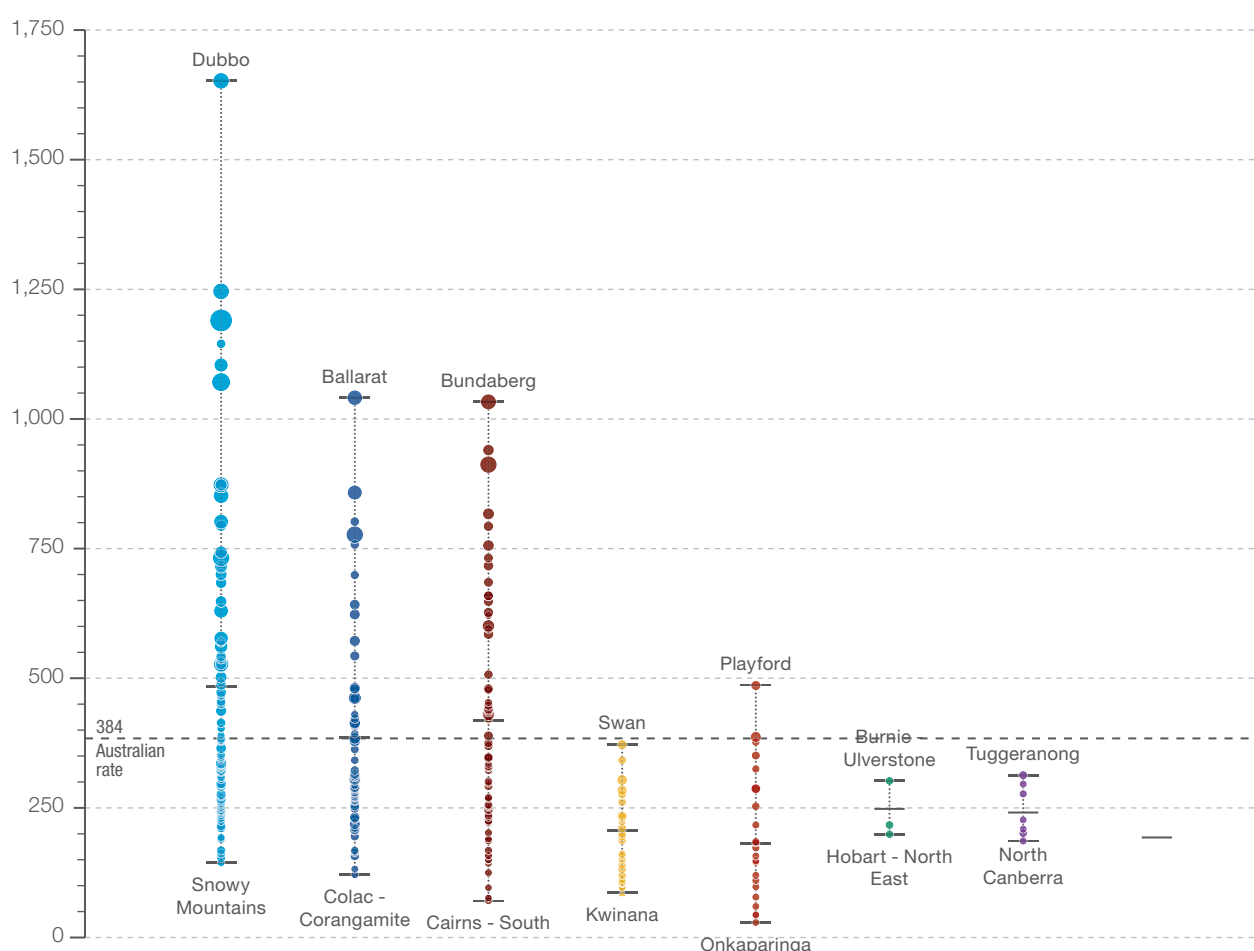
Sources: AIHW analysis of Medicare Benefits Schedule data and ABS Estimated Resident Population 30 June 2016.

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Rates by state and territory

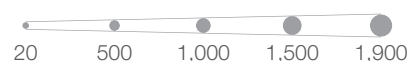
Figure 4.17: Number of MBS-subsidised services for myocardial perfusion scans per 100,000 people aged 18 years and over, age and sex standardised, by Statistical Area Level 3 (SA3) of patient residence, 2016–17

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Highest rate	1,652	1,041	1,033	372	486	302	313	
State/territory	485	385	418	206	182	248	241	193
Lowest rate	144	121	71	86	29	199	186	
No. services	33,155	20,196	17,112	4,227	2,953	1,292	700	262



Each circle represents a single SA3. The size indicates the number of services.

▲ rate only



Notes:

Triangles (▲) indicate SA3s where only rates are published. The numbers of services are not published for confidentiality reasons.

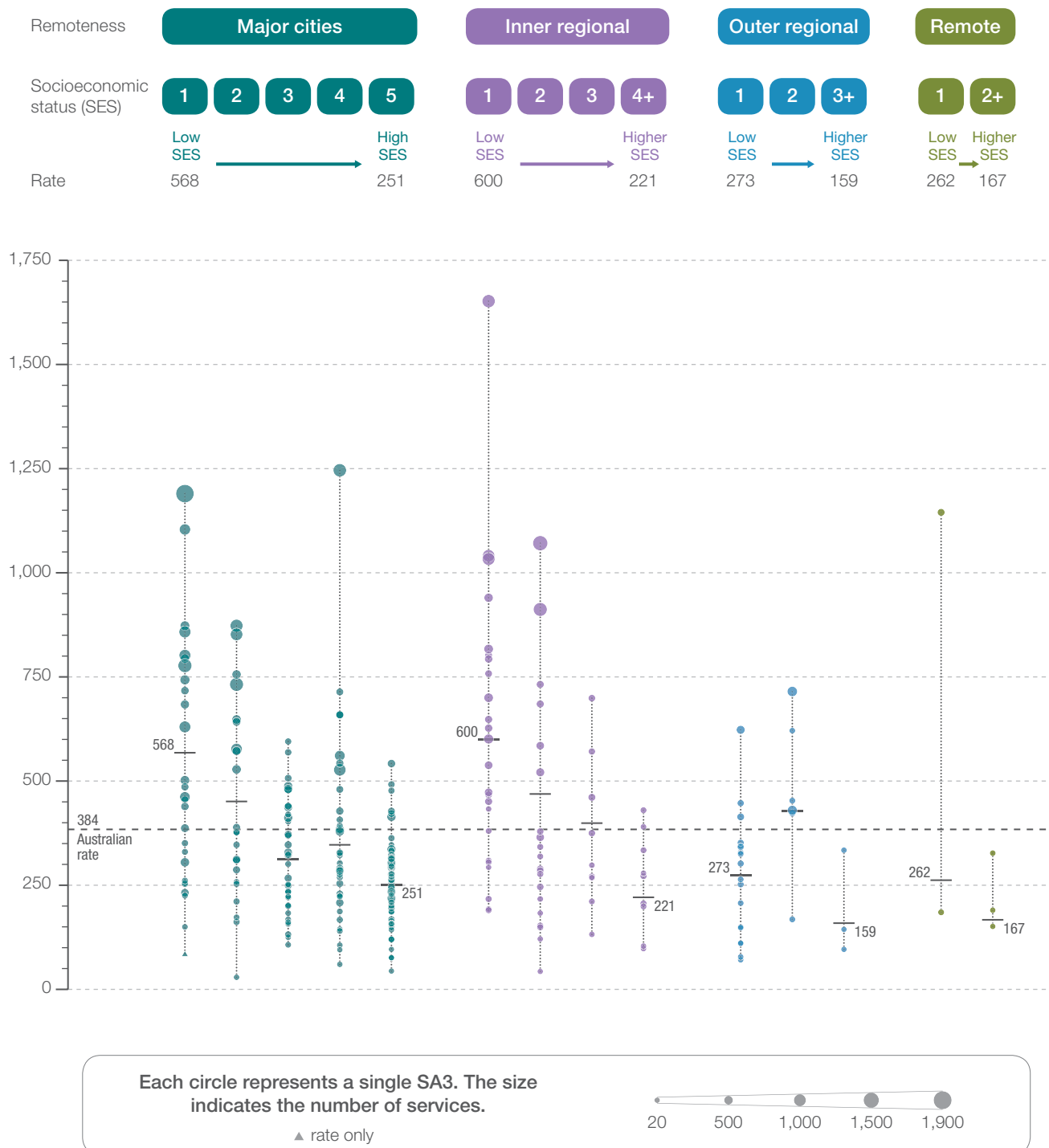
Rates for NT SA3s are not published for reliability and/or confidentiality reasons.

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

Sources: AIHW analysis of Medicare Benefits Schedule data and ABS Estimated Resident Population 30 June 2016.

Rates by remoteness and socioeconomic status

Figure 4.18: Number of MBS-subsidised services for myocardial perfusion scans per 100,000 people aged 18 years and over, age and sex standardised, by Statistical Area Level 3 (SA3) of patient residence, 2016–17



Notes:

Triangles (▲) indicate SA3s where only rates are published. The numbers of services are not published for confidentiality reasons. For further detail about the methods used, please refer to the Technical Supplement.

Sources: AIHW analysis of Medicare Benefits Schedule data and ABS Estimated Resident Population 30 June 2016.

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References

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