

5.3 Repeat gastroscopy MBS services, all ages

Why is this important?

Gastroscopy is used to investigate or treat conditions affecting the upper gastrointestinal (GI) tract. It can also be used to monitor conditions affecting the upper GI tract that lead to cancer in certain high-risk groups.¹

Differences in use of gastroscopy for monitoring were identified as a possible reason for the substantial variation seen in hospitalisations for gastroscopy reported in the *Third Australian Atlas of Healthcare Variation*.² There are very few clinical reasons for repeating a gastroscopy after a period of less than three years. Guidelines recommend repeating gastroscopy at three to five years to monitor for signs of cancer for most people with Barrett's oesophagus, the most common condition that may require surveillance.³

The fourth Atlas examines rates of gastroscopy that are repeated within two years and 10 months of an earlier gastroscopy, using Medicare Benefits Schedule (MBS) data.

What did we find?

In 2018–19, there were almost 88,000 MBS-subsidised services for repeat gastroscopy performed within two years and 10 months in people of all ages.

The rate in the area with the highest rate was **14.9 times as high** as the rate in the area with the lowest rate. Rates were markedly higher in major cities than elsewhere. Rates increased with socioeconomic advantage everywhere apart from outer regional areas.

What can be done?

Development and application of national guidance on the appropriate use of gastroscopy are priorities. The guidelines should include guidance on when it is appropriate to repeat the procedure.

Integration of data about cancer incidence and lifestyle into healthcare pathways and resources could promote discussion between clinicians and patients about the low risk of upper GI cancer for most people and reduce inappropriate requests for the procedure.

Better ways to identify people at high risk of progression to upper GI cancers are needed to improve rates of cancer detection and minimise low-value care. Educating people about the lifestyle measures that can be taken to reduce upper GI cancer risk could also reduce inappropriate repeat gastroscopy.

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Context

This item examines rates of MBS-subsidised services for repeat gastroscopy performed within two years and 10 months of an earlier gastroscopy for people of all ages in Australia in 2018–19.

What is gastroscopy?

Gastroscopy, also known as an upper GI endoscopy, is the examination of the upper part of the GI tract, using a small, flexible tube with a camera on the end, called an endoscope.⁴ It can also include a biopsy, if needed. The procedure requires an empty stomach for a safe and accurate examination. It is usually quick to perform, taking up to about 15 minutes.^{1,4}

When does a gastroscopy need to be repeated?

Gastroscopy is used to investigate, treat or monitor certain upper GI symptoms or diseases.

The most common reasons to repeat a gastroscopy are¹:

- Monitoring (surveillance) of conditions that can increase the risk of upper GI cancer or bleeding in high-risk groups – for example, Barrett's oesophagus, gastrointestinal metaplasia (GIM) and oesophageal varices
- Investigation of new signs and symptoms, such as bleeding
- Confirmation that a stomach ulcer is healing.

Gastroscopy may be repeated within one to two years of a previous gastroscopy in people with coeliac disease to monitor response to treatment with a gluten-free diet, although there is uncertainty about its benefit.^{5–8}

A repeat gastroscopy is also recommended to treat upper GI conditions detected in an earlier gastroscopy, such as bleeding, some upper GI cancers, or a narrowed oesophagus (oesophageal stricture) that may be causing difficulty swallowing. However, gastroscopies repeated for treatment (therapeutic gastroscopy) are not included in this data item.

A small proportion of people who have a gastroscopy require a repeat within three years. Many people who have a gastroscopy do not need a further one because they have a negative result or a further investigation is of no benefit.⁹ A minority of people may require a repeat gastroscopy for surveillance of an upper GI condition or for the reasons noted above. However, of these, only a small number are likely to need one within three years if guidelines are followed.

Barrett's oesophagus is a chronic upper GI condition in which the cells change in the lining of the oesophagus. It requires monitoring with gastroscopy because it can lead to oesophageal cancer in some people. It affects about 5% of the general population.¹⁰ Barrett's oesophagus is more common in men, people aged 55 years and over, and people with chronic uncontrolled gastro-oesophageal reflux disease (GORD).^{10–12}

Guidelines recommend that people with Barrett's oesophagus undergo repeat gastroscopy every three to five years, with more frequent surveillance if risk factors are present.^{3,11,13,14} Although this is recommended practice, there is uncertainty about the effectiveness and value of gastroscopic surveillance for people at low risk of developing cancer. The evidence base for surveillance is weak, except in high-risk groups.^{15–17}

Although people with Barrett's oesophagus have up to 50 times the risk of developing oesophageal cancer of the general population, the absolute risk of progression to cancer in most people is very low.^{3,12} Population-based studies estimate that the incidence of oesophageal cancer for people with Barrett's oesophagus is 0.22% per year.¹⁸ People with Barrett's oesophagus are more likely to succumb to other conditions, such as coronary artery disease, before developing oesophageal cancer.¹⁹ As well, the vast majority of people who develop oesophageal cancer have no previous diagnosis of Barrett's oesophagus.³ For these reasons, the anxiety associated with surveillance may outweigh the chance of detecting cancer for people with Barrett's oesophagus who are at low risk of developing upper GI cancer, and so they may choose not to participate in gastroscopic surveillance.^{11,20,21}

Similarly, in people with GIM – a condition that can lead to stomach cancer – the annual risk of progression to cancer is very low, with a Dutch study reporting estimates of 0.25% per year.²² United Kingdom guidelines suggest surveillance with gastroscopy every three years²³, whereas United States guidelines promote participation in shared decision making instead.²⁴

Use of gastroscopy for population-based screening for upper GI cancer is not recommended because of the low chance of diagnosing serious disease.

Why examine repeat gastroscopy?

The Gastroenterology Clinical Committee of the Medicare Benefits Schedule Review Taskforce reviewed numbers of repeat gastroscopies per patient.²⁵ It noted that more than 40% of people who had a gastroscopy between 2008–09 and 2014–15 had a repeat gastroscopy within three to five years. The number of repeat gastroscopies ranged from two to 51 per patient. The rates were higher than expected, given the taskforce's estimation of rates of recurrent bleeding.²⁵

The *Third Australian Atlas of Healthcare Variation* examined rates of hospitalisation for gastroscopy and found that the rate in the area with the highest rate was 7.4 times as high as the rate in the area with the lowest rate.² Rates were higher in major cities and inner regional areas than elsewhere, and generally lower in areas with more socioeconomic disadvantage. Patterns of gastroscopy use did not reflect the prevalence of risk factors for, or burden of, upper GI cancer in Australia. Differences in clinical opinion on the value of gastroscopy for surveillance of people with Barrett's oesophagus and other upper GI conditions were identified as a possible reason for variation.²

This Atlas examines variation in rates of MBS-subsidised short-interval repeat gastroscopy services performed in the same person. The interval of two years and 10 months was chosen to exclude services to people who present early for their three-yearly gastroscopy for surveillance of Barrett's oesophagus or other conditions such as GIM.

About the data

Data are sourced from the MBS dataset. This dataset includes information on MBS claims processed by Services Australia. 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 hospital
- Services for patients in outpatient clinics of public hospitals
- Services covered under Department of Veterans' Affairs arrangements.

The dataset does not allow analysis by Aboriginal or Torres Strait Islander status.

Rates are based on the number of MBS-subsidised services for repeat gastroscopy per 100,000 people of all ages, age and sex standardised, in 2018–19.

Because a record is included for each service rather than for each patient, patients who received the service more than once in the financial year will be counted more than once.

In the patient count analysis, patient counts reflect the number of unique patients, regardless of the number of services the patient may have received in the year.

The analysis and maps are based on the patient's postcode recorded in their Medicare file and not the location of the service.

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

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What do the data show?

Magnitude of variation

In 2018–19, there were 87,933 MBS-subsidised services for repeat gastroscopy performed within two years and 10 months, representing 314 services per 100,000 people of all ages (the Australian rate).

The number of MBS-subsidised services for repeat gastroscopy across 321* local areas (Statistical Area Level 3 – SA3) ranged from 61 to 908 per 100,000 people. The rate was **14.9 times as high** in the area with the highest rate compared with the area with the lowest rate. The number of MBS-subsidised services for repeat gastroscopy varied across states and territories, from 114 per 100,000 people in the Northern Territory to 353 in Queensland (Figures 5.20–5.23).

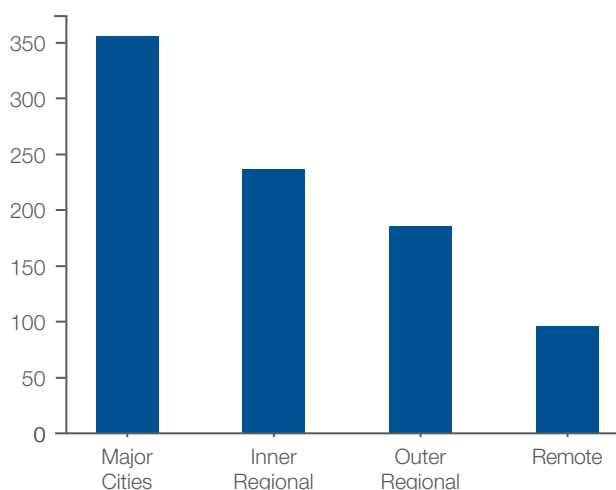
After the highest and lowest 10% of results were excluded and 257 SA3s remained, the number of MBS-subsidised services per 100,000 people was 3.1 times as high in the area with the highest rate compared with the area with the lowest rate.

Analysis by remoteness and socioeconomic status

Rates for MBS-subsidised services for repeat gastroscopy were markedly higher in major cities than elsewhere. The rate for major cities was 3.7 times as high as the rate for remote areas (Figures 5.18 and 5.24).

Rates decreased with socioeconomic disadvantage in major cities, and inner regional and remote areas. Overall, the rate in the highest socioeconomic group was 1.6 times as high as the rate in the lowest (Figures 5.19 and 5.24).

Figure 5.18: Number of MBS-subsidised services for repeat gastroscopy per 100,000 people of all ages, age and sex standardised, by remoteness of patient residence, 2018–19



The data for Figures 5.18 and 5.19 are available at safetyandquality.gov.au/atlas

* There are 340 SA3s. For this item, data were suppressed for 19 SA3s due to a small number of services and/or population in an area, or potential identification of individual patients, practitioners or business entities.

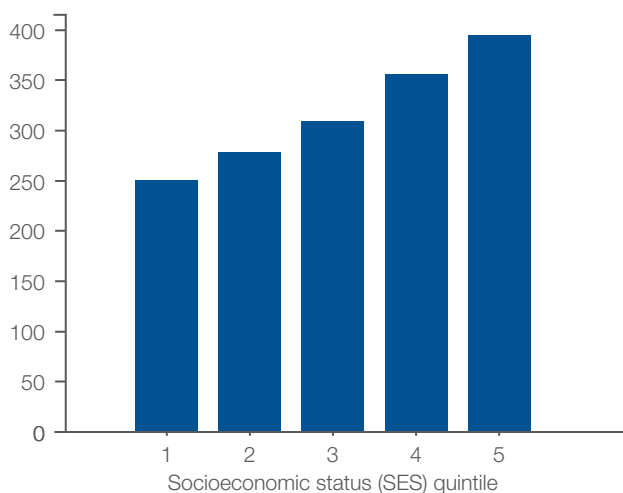
Notes:

Some SA3 rates are 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.

Sources: AIHW analysis of Medicare Benefits Schedule data and ABS Estimated Resident Population 30 June 2018.

Figure 5.19: Number of MBS-subsidised services for repeat gastroscopy per 100,000 people of all ages, age and sex standardised, by socioeconomic area of patient residence, 2018–19



Analysis by number of people who had at least one repeat gastroscopy

In 2018–19, there were 81,893 people who had at least one repeat MBS-subsidised service for gastroscopy, representing 292 people per 100,000 people of all ages.

The data and graphs for analysis by number of people who had at least one repeat gastroscopy, and for analysis by Primary Health Network are available at safetyandquality.gov.au/atlas

Interpretation

There is wide variation in repeat gastroscopy use. Rates were higher in major cities and in areas with socioeconomic advantage than elsewhere.

These findings are consistent with those in the third Atlas, which examined hospitalisations for gastroscopy.

Variation in rates of repeat gastroscopy is likely to be due to geographical differences in the factors discussed below.

Variation between areas may not directly reflect the practices of the clinicians who are based in these areas. The analysis is based on where people live rather than where they obtain their health care. People may travel outside their local area to receive health care.

Clinical decision-making

Variation in adherence with available clinical guidelines may influence rates of repeat gastroscopy.

A high proportion of repeat gastroscopies are performed earlier than intervals recommended in guidelines.^{26–28} According to a 2012 multi-centre study in the United States of people with Barrett’s oesophagus at low risk of progression to oesophageal cancer, 65% were recommended a repeat gastroscopy earlier than the recommended three to five year interval, resulting in a mean of 2.3 excess endoscopies per person.²⁶ A more recent study conducted in 2019, also in the United States, found that 30% of people had a repeat gastroscopy too soon.²⁸ A United States retrospective analysis of data from a registry of patients with Barrett’s oesophagus reported that less than 16% of people had gastroscopy repeated at the interval recommended by guidelines.²⁷

Notes:

Areas with a low SES (=1) have a high proportion of relatively disadvantaged people. Areas with a high SES (=5) have a low proportion of relatively disadvantaged people.

For further details 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 2018.

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Differences in clinical opinion on management where the evidence is unclear may contribute to variation. For example, although surveillance is recommended for people with Barrett's oesophagus, whether it is beneficial is unclear, particularly in low-risk groups.¹⁵⁻¹⁷ A multi-centre randomised controlled trial is currently examining the impact of two-yearly surveillance on outcomes such as overall survival, cancer-specific survival, and stage of oesophageal cancer at diagnosis in people with Barrett's oesophagus in low-risk groups. The results will help determine who may benefit most from surveillance.²⁹

Difficulties in keeping up to date with evidence may also influence rates.³⁰

Fear of litigation for not investigating symptoms may influence clinicians' decisions about when and how frequently to repeat a gastroscopy for the same person, particularly if they are unaware of current recommendations, or evidence about the incidence of upper GI cancers or risk of progression to significant disease. The risk of GORD progressing to Barrett's oesophagus is low, as is the risk of Barrett's oesophagus progressing to oesophageal cancer.³

Concerns about late diagnosis and subsequent litigation, as well as few disincentives for over-testing, may also contribute to overuse.³⁰

Consumer expectations

Consumer expectations, perception of cancer risk, and anxiety about developing oesophageal cancer have been highlighted as potentially driving overuse of gastroscopic surveillance.^{31,32}

People often have incorrect beliefs about their cancer risk; for example, people with Barrett's oesophagus often greatly overestimate their risk of developing oesophageal cancer.^{31,33,34} This can influence their perception about the benefits of interventions such as surveillance to detect upper GI cancer, and their preference and demand for investigations, even when their risk of cancer is low.¹¹

Access to services and number of clinicians providing services

Access to clinicians may influence the likelihood of people seeking care and the rates of repeat gastroscopy. The practice styles of individual clinicians may be more likely to affect rates in areas with fewer clinicians, such as rural and regional locations, than in areas with more clinicians.

Availability and affordability of services may also influence patterns of use. Ability to pay out-of-pocket costs for gastroscopy is likely to be lower in areas of socioeconomic disadvantage, and access is likely to be more difficult in areas with fewer services. Open-access endoscopy services, where general practitioners are able to request gastroscopy without specialist review, may also influence patterns of use.

Financial incentives

Greater remuneration for providing a service rather than consultation may lead to variation and over-servicing in some areas.

Promoting appropriate care

Inappropriate use of gastroscopy for monitoring, such as frequent use in people with very low risk of upper GI cancer, contributes to low-value care and can reduce access to the procedure for people who are most in need. Adherence to the recommended intervals for repeating a gastroscopy ensures that the benefits of the procedure outweigh the risk of procedural harms and costs to individuals.

Unwarranted variation in repeat gastroscopy could be addressed in the following ways:

Guideline and resource development

Development of national guidance to support appropriate use of gastroscopy services is a priority. These should incorporate the current guidelines on the diagnosis and management (including surveillance) of Barrett's oesophagus.³ This is consistent with recommendations made by the

Medicare Benefits Schedule Review Taskforce in 2015 to develop guidelines that cover when a repeat gastroscopy is clinically appropriate.²⁵ The guidelines could be used to assess appropriateness of referrals and for clinical audit of clinicians' practices.

Integration of data on cancer incidence and lifestyle into healthcare pathways, training guidelines, and specialist and consumer resources could also support appropriate use of repeat gastroscopy.

Consumer education and reassurance

Informing people about the role of gastroscopy, and reassuring them that their risk of developing upper GI cancer is very low may reduce demand for gastroscopy or repeating gastroscopy earlier than guidelines recommend. Interactive tools that identify a person's cancer risk – such as the Australian Institute of Health and Welfare cancer summary data tool (see 'Resources' on page 298) – may help clinicians when having conversations with their patients about the risk of upper GI cancer.³⁵

Reducing risk factors

Improved consumer awareness of risk factors for GORD and upper GI cancers, and of making lifestyle changes to reduce risk factors, should be the focus for people presenting earlier than the recommended intervals for gastroscopic surveillance. Improving a person's understanding about their cancer risk – particularly in people without additional risk factors for upper GI cancer – is important to reduce anxiety and dispel myths about cancer.³³

Public health initiatives that address risk factors for GORD and upper GI cancer – such as smoking, obesity, excessive alcohol consumption, sedentary lifestyle or uncontrolled symptoms of GORD – should be targeted to areas with a high prevalence of these risk factors before repeating gastroscopy earlier than guidelines recommend.³³ For example, smoking cessation reduces the risk of upper GI cancers – people with Barrett's oesophagus who smoke are twice as likely to progress to oesophageal cancer as people who do not.^{12,36}

Clinical audit and clinician education

Clinical audit is a tool that could be used more widely to support appropriate use of repeat gastroscopy for monitoring upper GI tract cancer.

Guidelines are available outlining which people are most at risk of developing upper GI cancer and how frequently gastroscopic surveillance should be performed. Clinical audit against these guidelines could help determine the value of surveillance and whether it can be stopped, particularly in people at low risk, to achieve more effective use of healthcare resources. Audits in this area could also form part of continuing education requirements for clinicians.

Structured referral forms and checklists outlining appropriate reasons and frequency of repeat gastroscopy for greatest benefit could support appropriate requests. Using guidelines to assess the appropriateness of requests against recommended surveillance intervals could also improve use of healthcare resources.

Educational programs for clinicians could improve the appropriateness of requests for repeat procedures. Education could cover the:

- Conditions that require gastroscopic surveillance, and the timing of surveillance for greatest benefit
- Low prevalence of conditions that require gastroscopic surveillance, such as Barrett's oesophagus, and the low risk of progression to significant disease unless other risk factors are present
- Low likelihood that repeating gastroscopy earlier than guidelines recommend will diagnose significant upper GI disease for most people.

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Appropriate prioritisation of services

Health service organisations need to examine the volume of gastroscopies that may be tying up resources needed to perform colonoscopies. People who need a colonoscopy for a positive faecal occult blood test should be prioritised over those having repeat gastroscopies earlier than recommended, especially when the likelihood of the findings changing management is low – for example, in people without additional risk factors for developing upper GI cancer. Better use of resources according to clinical need would improve the likelihood of diagnosing significant disease and reduce delays in diagnosis.

Triage systems

Many states and territories are introducing evidence-based triage systems for prioritising and allocating people for gastroscopy and colonoscopy, with the aim of reducing variation in use of these procedures:

- Victorian health services require clinicians to refer people for gastroscopy according to the categorisation guidelines – the guidelines specify the appropriate gastroscopic surveillance intervals for people with Barrett's oesophagus³⁷
- Tasmania has adopted the Victorian categorisation guidelines and formed a statewide endoscopy network to monitor the quality of its services³⁸
- Queensland and Western Australia have introduced clinical prioritisation criteria for many clinical areas, including gastroenterology, to triage patients referred to public specialist outpatient services.³⁹⁻⁴¹

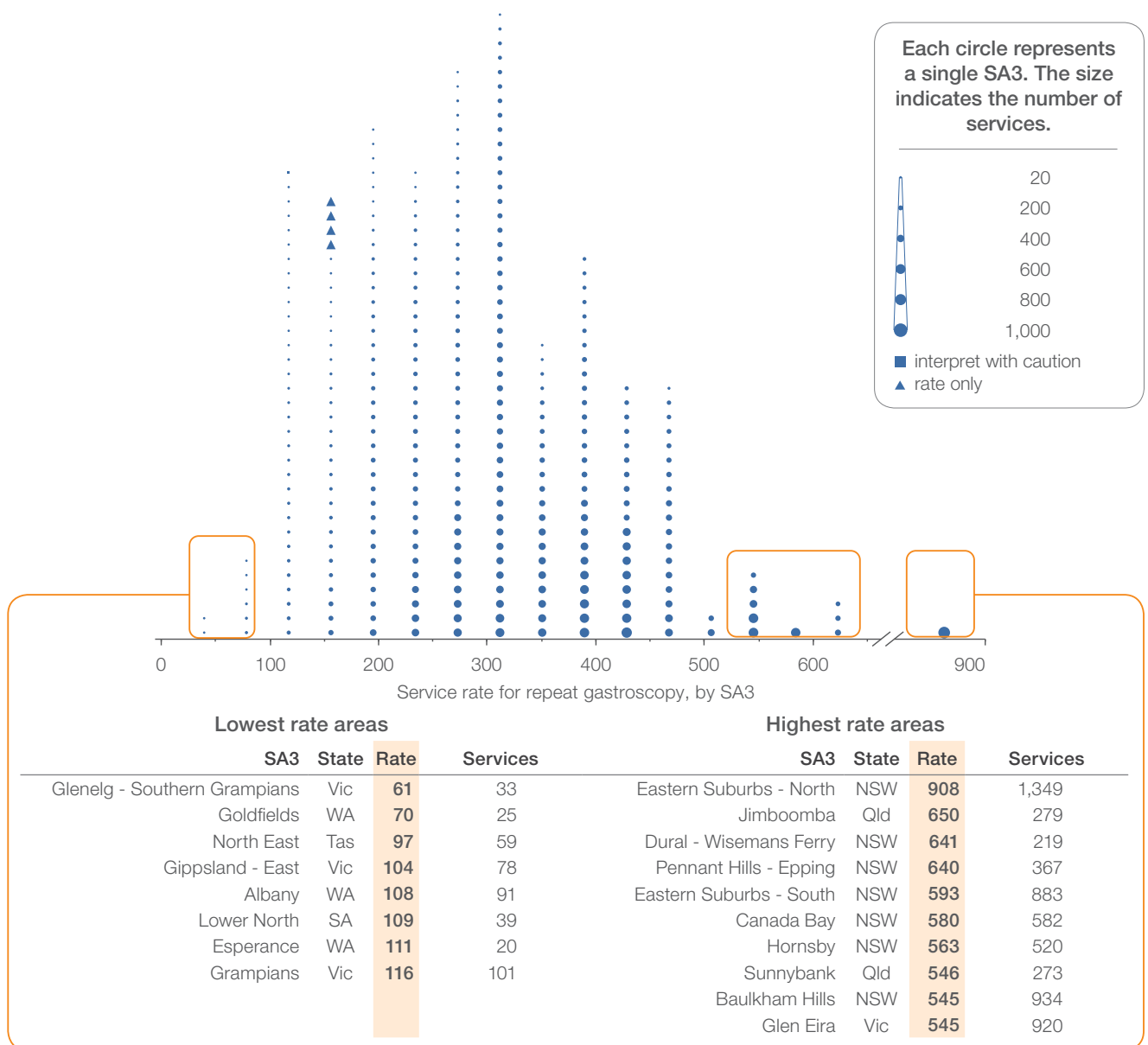
Wider use of these triage systems could result in more appropriate prioritisation of repeat gastroscopy.

Promotion of existing initiatives

In 2016, the Gastroenterological Society of Australia recommended, as part of Australia's Choosing Wisely campaign, that gastroscopy for people with Barrett's oesophagus should be questioned by people if recommended sooner than three years after their last gastroscopy.⁴² This is consistent with the Choosing Wisely campaign in the United States. People with Barrett's oesophagus who have no abnormal cells present have a very low risk of developing oesophageal cancer. In these people, it is not necessary to examine the oesophagus more frequently than every three years because, if cellular changes occur, they do so very slowly. Recommendation 5 states: Do not perform a follow-up endoscopy less than three years after two consecutive findings of no dysplasia from endoscopies with appropriate four quadrant biopsies for patients diagnosed with Barrett's oesophagus.

Rates by local area

Figure 5.20: Number of MBS-subsidised services for repeat gastroscopy per 100,000 people of all ages, age and sex standardised, by Statistical Area Level 3 (SA3) of patient residence, 2018–19



Notes:

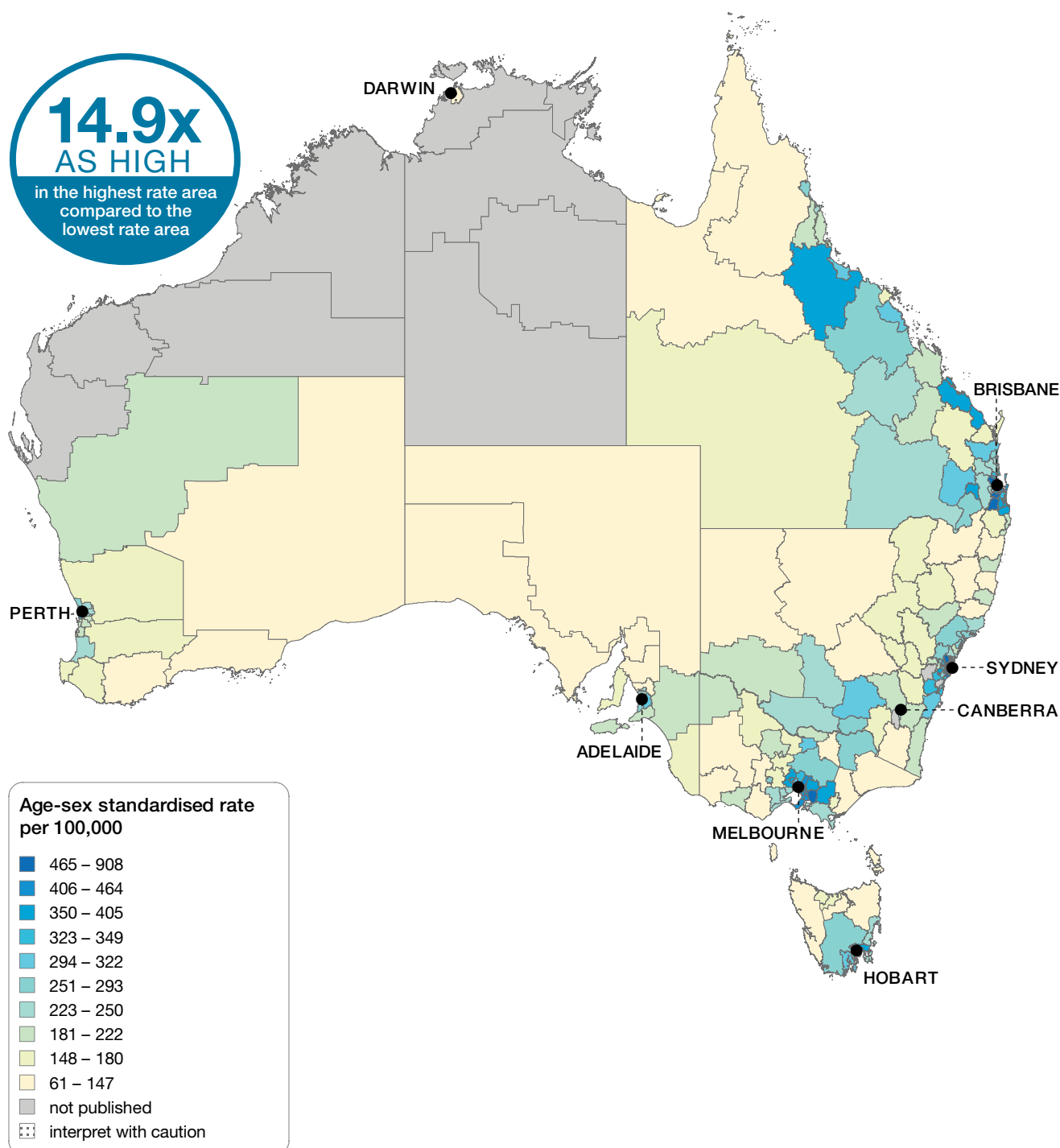
Squares (■) indicate rates that are considered more volatile than other published rates and should be interpreted with caution. Triangles (▲) indicate SA3s where only rates are published. The numbers of services are not published for confidentiality reasons. For further detail about the methods used, please refer to the Technical Supplement.

Sources: AIHW analysis of Medicare Benefits Schedule data and ABS Estimated Resident Population 30 June 2018.

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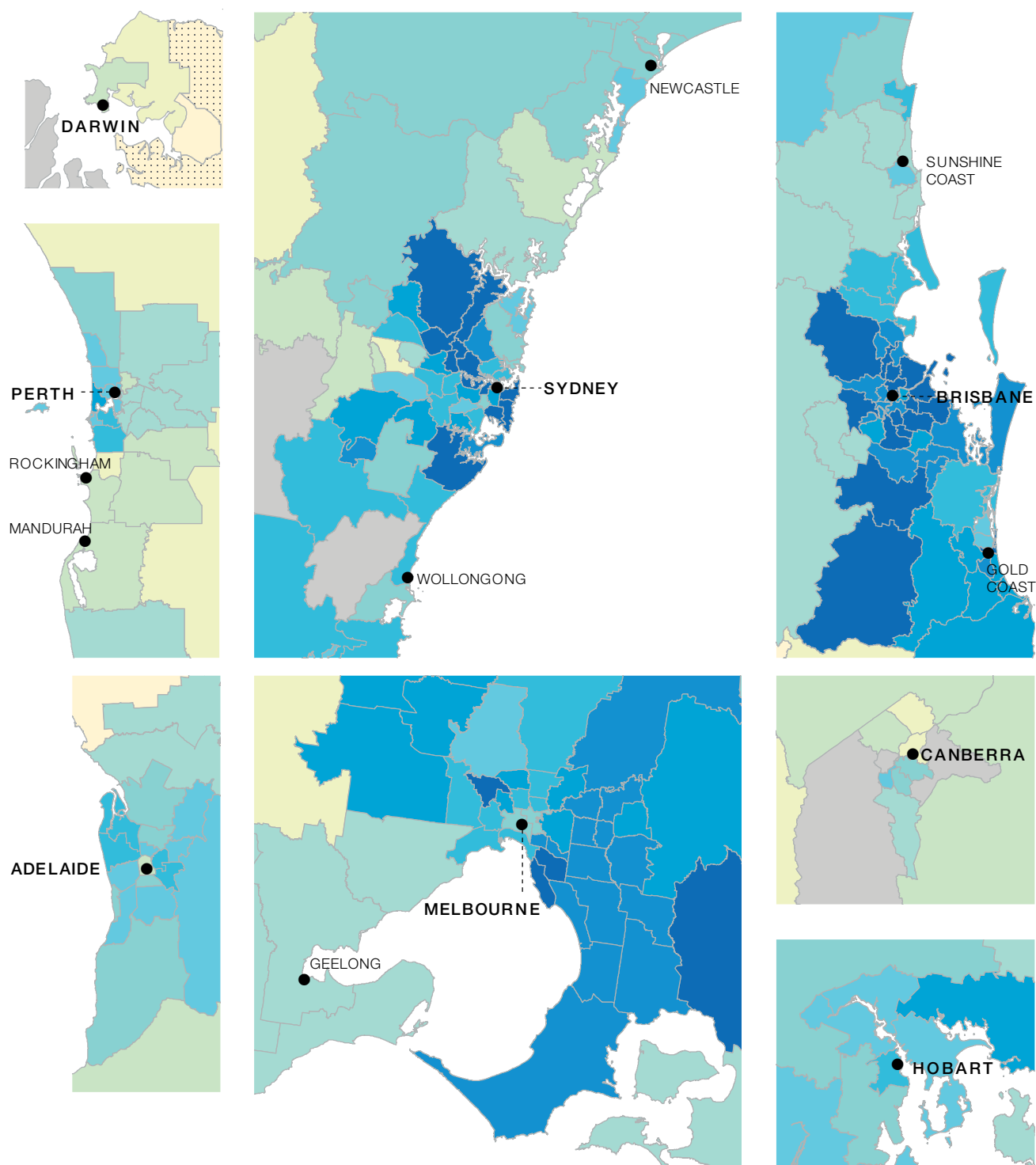
Rates across Australia

Figure 5.21: Number of MBS-subsidised services for repeat gastroscopy per 100,000 people of all ages, age and sex standardised, by Statistical Area Level 3 (SA3) of patient residence, 2018–19



Rates across capital city areas

Figure 5.22: Number of MBS-subsidised services for repeat gastroscopy per 100,000 people of all ages, age and sex standardised, by Statistical Area Level 3 (SA3) of patient residence, 2018–19



Notes:

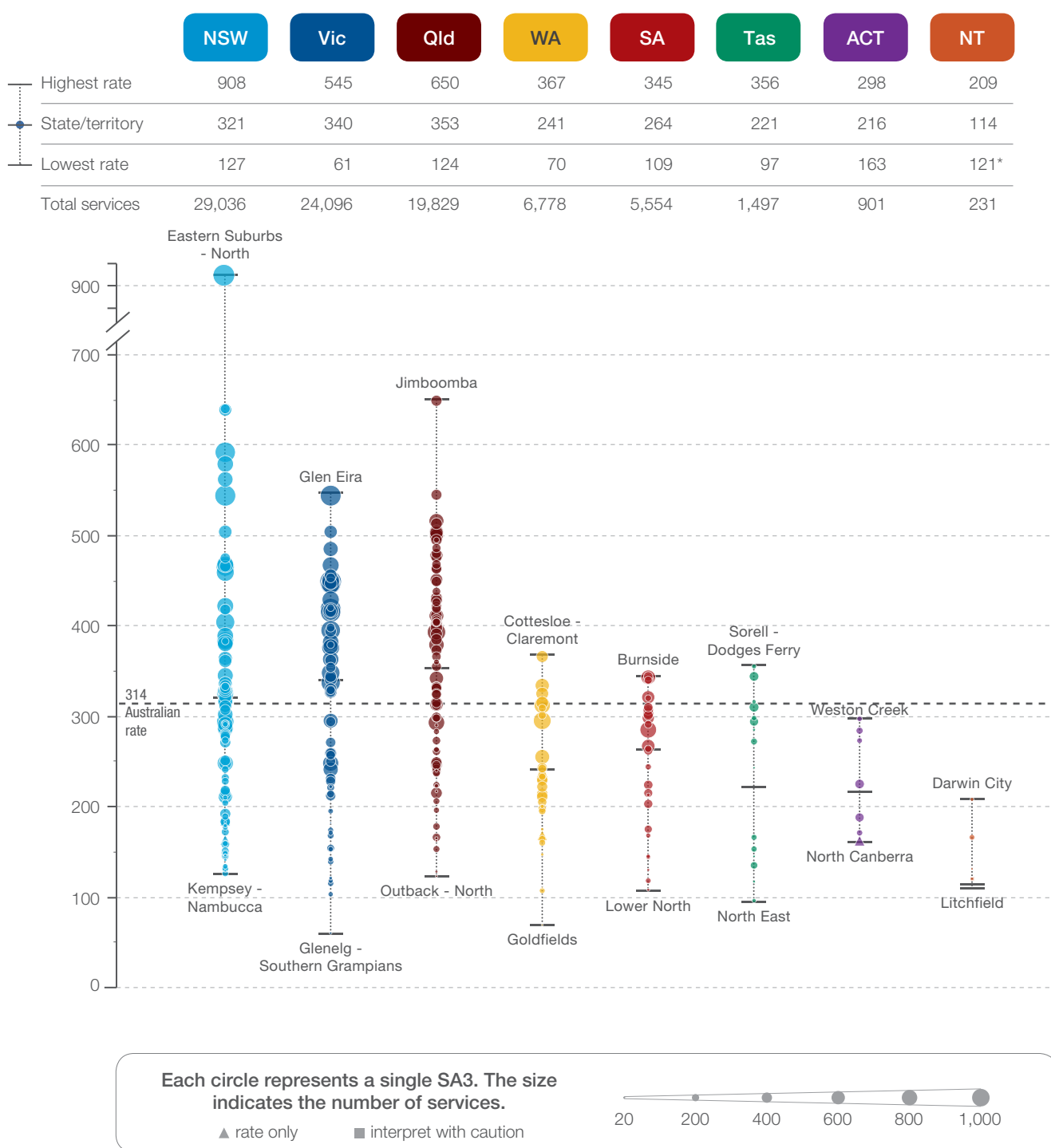
Dotted areas indicate rates that are considered more volatile than other published rates and should be interpreted with caution. For further detail about the methods used, please refer to the Technical Supplement.

Sources: AIHW analysis of Medicare Benefits Schedule data and ABS Estimated Resident Population 30 June 2018.

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Rates by state and territory

Figure 5.23: Number of MBS-subsidised services for repeat gastroscopy per 100,000 people of all ages, age and sex standardised, by Statistical Area Level 3 (SA3) of patient residence, 2018–19



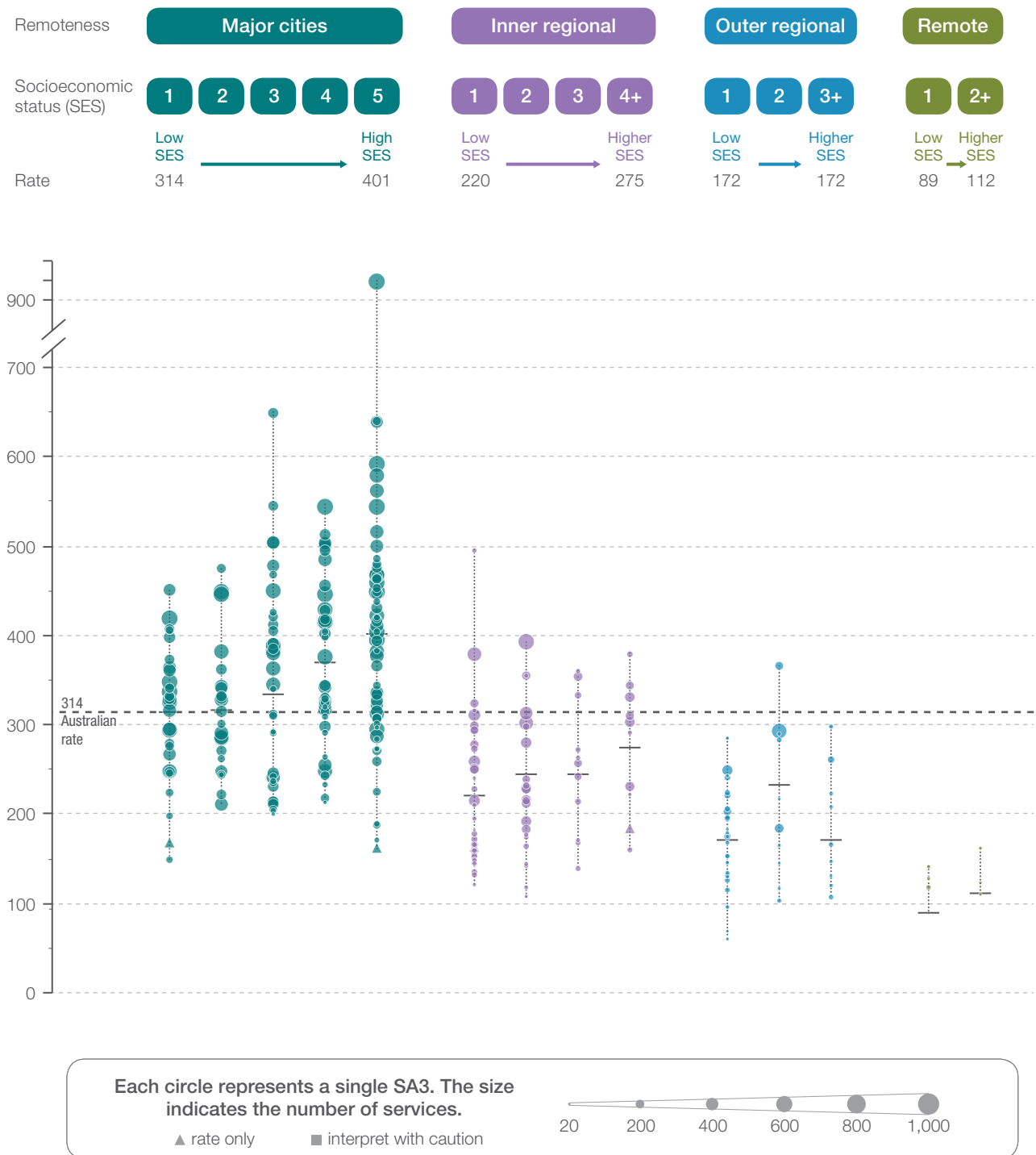
Notes:

Squares (■) and asterisks (*) indicate rates that are considered more volatile than other published rates and should be interpreted with caution. Triangles (▲) indicate SA3s where only rates are published. The numbers of services are not published for confidentiality reasons. For the NT, the territory rate is lower than the minimum SA3 rate as it includes SA3 rates that 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 2018.

Rates by remoteness and socioeconomic status

Figure 5.24: Number of MBS-subsidised services for repeat gastroscopy per 100,000 people of all ages, age and sex standardised, by Statistical Area Level 3 (SA3) of patient residence, 2018–19



Notes:

Squares (■) indicate rates that are considered more volatile than other published rates and should be interpreted with caution.

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

For Remote and SES of 1, the remoteness and SES rate is lower than the minimum SA3 rate as it includes SA3 rates that 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 2018.

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Resources

- Australian Institute of Health and Welfare, Cancer summary data visualisations³⁵, aihw.gov.au/reports/cancer/cancer-data-in-australia/contents/cancer-summary-data-visualisation
- *Gastro-oesophageal Reflux Disease in Adults: Clinical update*⁴³
- *Clinical Practice Guideline for the Diagnosis and Management of Barrett's Oesophagus and Early Oesophageal Adenocarcinoma*³
- *Therapeutic Guidelines: Gastrointestinal*, version 6⁴⁴
- *Suspected Cancer: Recognition and referral – upper gastrointestinal tract cancers*⁴⁵

Australian initiatives

Information in this chapter will complement work already underway to prevent inappropriate repeat gastroscopy in Australia. At a national level, this work includes:

- Gastroenterological Society of Australia, Choosing Wisely recommendation 5: Do not perform a follow-up endoscopy less than three years after two consecutive findings of no dysplasia from endoscopies with appropriate four quadrant biopsies for patients diagnosed with Barrett's oesophagus.⁴²

Many state and territory initiatives are also in place to improve gastroscopy use, including:

- *Upper Gastrointestinal Endoscopy Categorisation Guidelines for Adults*, Victoria³⁷
- *Endoscopy Action Plan*, Queensland⁴⁶
- Clinical prioritisation criteria: endoscopy⁴⁷ and Clinical prioritisation criteria: gastroenterology³⁹, Queensland
- *Referral Guidelines: Direct access gastrointestinal endoscopic procedures*, Western Australia⁴⁰
- *Urgency Categorisation and Access Policy for Public Direct Access Adult Gastrointestinal Endoscopy Services*, Western Australia⁴¹
- State-wide endoscopy care network, which monitors and assesses the quality of endoscopy services, Tasmania.³⁸

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