### Context

This data item examines endometrial ablation rates for women without gynaecological cancer aged 15 years and over based on their place of residence. The first *Australian Atlas of Healthcare Variation* (first Atlas) examined variation in hysterectomy and endometrial ablation combined, and found that the rate was 5.2 times as high in the area with the highest rate as in the area with the lowest rate.<sup>1</sup> Further analysis to separately explore variation in hysterectomy and endometrial ablation was recommended.

Endometrial ablation is an operation to remove the inner lining (endometrium) of the womb (uterus). The procedure, which leaves the womb in place, is recommended as the first surgical option for heavy menstrual bleeding if pharmaceutical options fail or if symptoms are causing a severe impact on quality of life.<sup>2</sup> It is suitable only for women who no longer wish to conceive, and who have a uterus that is not greatly enlarged and does not contain large fibroids.<sup>2</sup>

#### Endometrial ablation rates and variation in Australia

First introduced in Australia in the late 1980s<sup>3</sup>, techniques for endometrial ablation have included resectoscopic methods and newer non-resectoscopic methods. Resectoscopic methods (for example, heated wire loop) use a device (hysteroscope) to view the endometrium. Newer non-resectoscopic methods (for example, bipolar radiofrequency ablation, thermal balloon) do not require direct viewing of the endometrium.<sup>2</sup>

In the first Atlas, combined rates of hysterectomy and endometrial ablation were markedly higher in inner and outer regional areas than in major cities or remote areas.<sup>1</sup> However, without an analysis of each item separately, it was unclear whether the rates of surgery in these areas were due to greater use of endometrial ablation, hysterectomy or both.

Apart from the first Atlas, there are limited Australian data on patterns of endometrial ablation. Unlike hysterectomy, rates of this procedure are not routinely reported. New South Wales research suggested that the introduction of endometrial ablation resulted in an initial decline in hysterectomy rates, but then rates of both procedures peaked in the mid-1990s and then declined by the end of that decade.<sup>3</sup> The rate of endometrial ablation in New South Wales peaked at 172 per 100,000 women in 1994–95 and declined to 158 per 100,000 women in 1999–2000.<sup>3</sup>

In England, between 2004 and 2006, about 60% of surgical procedures for heavy menstrual bleeding were for endometrial ablation. This proportion varied markedly across different areas, ranging from 46% to 75%.<sup>4</sup> The number of endometrial ablations had increased from the late 1990s after a decline mid-decade; the turnaround was attributed, in part, to the introduction of non-resectoscopic techniques. These techniques, while not suitable for all patients, are equally effective but have fewer risks of complication than resectoscopic methods of ablation.<sup>5-7</sup> In addition, they take less time, are technically easier to perform and can be done in an office setting under local anaesthetic.<sup>6,8,9</sup>

# Place of endometrial ablation in treatment of heavy menstrual bleeding

Guidelines on the management of heavy menstrual bleeding recommend starting with pharmaceutical treatments (hormonal and non-hormonal), once malignancies and large fibroids are ruled out.<sup>2,7,10</sup> In all treatment decisions, patient preference, severity of bleeding, age, contraindications to medical management and desire for future fertility are key considerations.<sup>2</sup>

Of the pharmaceutical options for heavy menstrual bleeding, the levonorgestrel intrauterine system (IUS), a long-acting contraceptive device, is the most effective<sup>11</sup>, reducing menstrual loss by about 90%.<sup>7,12</sup> The device can be inserted by clinicians trained in the technique, including general practitioners and registered nurses, as well as gynaecologists.<sup>13,14</sup>

The device, which requires refitting every five years, releases a low dose of a progesterone hormone, which acts to thin the endometrium and also provides contraception.<sup>7</sup>

Oral treatments, which can also be prescribed in primary care, include cyclic oral progestogen and the combined oral contraceptive pill. Non-hormonal alternatives include non-steroidal anti-inflammatory drugs and tranexamic acid.<sup>2</sup>

Endometrial ablation is recommended as the first surgical option for heavy menstrual bleeding, unless fibroids and polyps are present.<sup>2</sup> It involves removal of the endometrium, but not the uterus itself. It is suitable only for women who no longer wish to conceive, and is recommended if pharmaceutical options have failed or if symptoms are causing a severe impact on quality of life.<sup>2</sup> Use of contraception or tubal occlusion is required because pregnancy is still possible in some women.<sup>2</sup> Although endometrial ablation is effective for most women (73–85%), some require further surgical treatment for persistent bleeding.<sup>6</sup>

Regardless of the method of ablation, recovery time is shorter for endometrial ablation than for hysterectomy, and there are fewer postoperative complications.<sup>12</sup> Following endometrial ablation, most women can be discharged after three to four hours, or sooner if they have a local anaesthetic rather than a general anaesthetic, and can return to work after two to five days.<sup>15</sup> Short-term complications of resectoscopic methods include uterine perforation, haemorrhage, fluid overload and infection. Short-term complications of non-resectoscopic methods include nausea, vomiting, uterine cramping and pain.<sup>12</sup>

Hysterectomy (see page 157) is recommended for heavy menstrual bleeding if other options fail or are inappropriate, or if the woman chooses it.<sup>2,7,16</sup> Although hysterectomy stops menstrual bleeding in all women, it is a major surgical procedure. Hysterectomy is done by a gynaecologist or other surgeon and requires a general anaesthetic. Many women require hospitalisation for three days<sup>17</sup>, and four to six weeks recovery time before they can return to work.<sup>18,19</sup> Short-term complications include infection, bleeding, bowel or urinary tract injury, and general surgery complications.<sup>12,20</sup> Longer-term complications depend partly on the approach to surgery but include urinary incontinence, pelvic organ prolapse and, if the ovaries are removed, early menopause.<sup>2,21,22</sup> Hysterectomy is also associated with the second highest rate of unplanned readmissions to the same hospital after surgery in Australia, of the procedures monitored by the Australian Institute of Health and Welfare.<sup>23</sup>

### 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 endometrial ablation per 100,000 women aged 15 years and over, over the three-year period 2012–13 to 2014–15.

Data are aggregated over three years to provide sufficient numbers to support reporting at the local level. The number of hospitalisations and the summed population over three years are used to provide an average rate. This is comparable to a rate based on data collected over one year. Because a record is included for each hospitalisation for endometrial ablation, rather than for each patient, patients hospitalised for this procedure more than once in these financial years will be counted more than once. The denominator is the total female population of Australia aged 15 years and over, including women who have already had a hysterectomy or endometrial ablation.

The analysis and maps are based on the residential address of the patient and not the location of the hospital. Rates are age standardised to allow comparison between populations with different age 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

Over the three-year period 2012–13 to 2014–15, there were 28,606 hospitalisations for endometrial ablation, representing an average rate of 108 hospitalisations per 100,000 women aged 15 years and over (the Australian rate).

The number of hospitalisations for endometrial ablation across 317<sup>+</sup> local areas (Statistical Area 3 – SA3) ranged from 19 to 390 per 100,000 women aged 15 years and over. The rate was **20.5 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 64 per 100,000 women aged 15 years and over in the Northern Territory to 151 in Western Australia (Figures 3.10–3.13).

After the highest and lowest 10% of results were excluded and 255 SA3s remained, the number of hospitalisations per 100,000 women aged 15 years and over was 4.2 times as high in the area with the highest rate compared to the area with the lowest rate.

# Analysis by remoteness and socioeconomic status

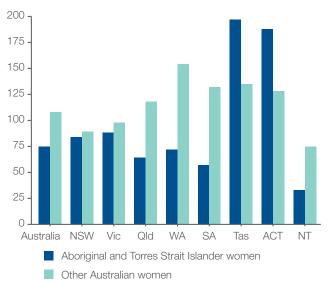
Rates of endometrial ablation were markedly higher in inner and outer regional areas than in major cities or remote areas. The rates in remote areas were lower than in major cities. There was no clear pattern according to socioeconomic disadvantage (Figure 3.14).

† There are 333 SA3s. For this item, data were suppressed for 16 SA3s due to a small number of hospitalisations and/or population in an area.

# Analysis by Aboriginal and Torres Strait Islander status

The rate for Aboriginal and Torres Strait Islander women (75 per 100,000 women) was about 30% lower than the rate for other Australian women (108 per 100,000 women) (Figure 3.8).

Figure 3.8: Number of hospitalisations for endometrial ablation per 100,000 women aged 15 years and over, age standardised, by state and territory and Indigenous status, 2012–13 to 2014–15



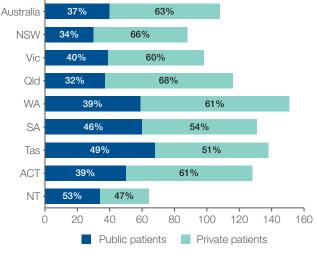
The data for Figure 3.8 are available at

www.safetyandquality.gov.au/atlas.

#### Analysis by patient funding status

Overall, 63% of hospitalisations for endometrial ablation were for privately funded patients. This proportion varied from 47% in the Northern Territory to 68% in Queensland (Figure 3.9).

Figure 3.9: Number of hospitalisations for endometrial ablation per 100,000 women aged 15 years and over, age standardised, by state and territory and patient funding status, 2012–13 to 2014–15



The data for Figure 3.9 are available at www.safetyandquality.gov.au/atlas.

#### Notes:

Rates are age standardised to the Australian female population in 2001.

Rates are based on the number of hospitalisations in public and private hospitals (numerator) and women in the geographic area (denominator). Analysis is based on the patient's area of usual residence, not the place of hospitalisation.

Hospitalisations for public patients do not incur a charge to the patient or to a third-party payer - for example, a private health insurance fund.

Hospitalisations for private patients do incur a charge to the patient and/or a third-party payer. 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.

### Interpretation

Potential reasons for the variation include differences in:

- Patient education and awareness of treatment options
- Patient preferences and values (for example, 'fix the problem for good', a value that may be stronger in regional areas than in metropolitan areas)
- Patient social factors (for example, travel distance, adherence to treatment)
- Patient perception of how heavy menstrual bleeding affects their quality of life
- Patient ability to pay out-of-pocket expenses for other treatments (for example, gap payments for fitting of a levonorgestrel IUS or for endometrial ablation)
- General practitioner training in, and capacity to undertake, levonorgestrel IUS insertion
- Criteria used by general practitioners for referral to specialists
- Clinician preferences
- Specialist training in endometrial ablation techniques
- Specialist uptake of non-resectoscopic methods of endometrial ablation
- Thresholds applied by clinicians to use endometrial ablation – the threshold might be lower for women with private health coverage
- Clinician awareness of guideline-recommended management of heavy menstrual bleeding
- Access to services that can provide the levonorgestrel IUS or endometrial ablation
- Access to primary care services, and to specialists for Aboriginal and Torres Strait Islander women and women living in remote areas
- Access of general practitioners to training in levonorgestrel IUS insertion – rural and regional general practitioners might have less access to such training
- Private health insurance coverage.

Variation between areas in rates of surgery may also be influenced by the number of clinicians providing services to people living in the area. The practices of specific clinicians are likely to have a greater impact on rates in smaller local areas with fewer clinicians, such as rural and regional locations. Specific clinicians may influence rates across several local areas, especially those with small populations. The effects of practice styles of individual clinicians will be diluted in areas with larger numbers of practising clinicians.

As well, variations 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. Patients may travel outside their local area to receive care.

#### Comparison with hysterectomy

In comparing the two items, there are limitations to be kept in mind. Endometrial ablation is used to treat heavy menstrual bleeding. Hysterectomy is used to treat a wider range of benign gynaecological conditions, notably pelvic organ prolapse, that are included in the hysterectomy data item (see page 157). The hysterectomy data item was based on hospitalisations during the year 2014–15, whereas the endometrial ablation data item was based on hospitalisations over the three years 2012–13 to 2014–15. To assist with comparison of the two items, rates by SA3 for hysterectomy for 2012–13 and 2013–14 are available online at www.safetyandquality.gov.au/atlas.

Preliminary analysis conducted by the Commission of hospitalisations over the three-year period 2012–13 to 2014–15, indicates that the magnitude of variation for endometrial ablation across SA3s was much more marked than that for hysterectomy, suggesting less consistent use of endometrial ablation across Australia. For endometrial ablation, the highest SA3 rate was 20.5 times the lowest rate (2012–13 to 2014–15); for hysterectomy, the highest SA3 rate was 6.6 times the lowest rate in 2014–15, and 5.5 times and 4.7 times the lowest rate, respectively, in 2013–14 and 2012–13.

The number of hospitalisations for endometrial ablation (28,606) was about a third of the number of hospitalisations for hysterectomy (81,226) over the three-year period 2012–13 to 2014–15. Similarly, the rate of endometrial ablation (108 per 100,000 women aged 15 years and over) was about a third of the rate for hysterectomy (281, 295 and 290 per 100,000 women aged 15 years and over, for 2012–13, 2013–14 and 2014–15, respectively).

#### Specific populations

The pattern of higher rates of endometrial ablation in inner and outer regions compared with major cities and remote areas was similar to that observed for hysterectomy (see page 157). This suggests that the higher combined rate of these surgical procedures in regional areas seen in the first Atlas might be explained by a higher use of both procedures, rather than endometrial ablation replacing hysterectomy. However, a number of SA3s were exceptions to this pattern, with some having higher rates of endometrial ablation and lower rates of hysterectomy (for example, Mid-West, Western Australia), and some having higher hysterectomy rates and lower endometrial ablation rates (for example, Tamworth–Gunnedah, New South Wales).

Possible explanations for this pattern of higher surgery rates in regional areas include greater access in major cities to pharmaceutical treatments for heavy menstrual bleeding, particularly the levonorgestrel IUS, which requires a clinician trained in insertion. Other potential contributors include differences in access to specialists trained in endometrial ablation techniques, the range of ablative techniques offered, clinician preferences, and patient preferences and values. For example, women in rural areas may be less willing to trial therapies, particularly if they have to travel long distances to access specialist care. This Atlas identified a large discrepancy in rates of endometrial ablation for Aboriginal and Torres Strait Islander women compared with other Australian women. Particularly marked were the gaps in Queensland, South Australia, Western Australia and the Northern Territory, in which rates for Aboriginal and Torres Strait Islander women were about half the rates for other Australian women. The discrepancy was even greater than that seen with hysterectomy (see page 157).

The discrepancy may be a sign of late recognition and undertreatment of gynaecological conditions more broadly for Aboriginal and Torres Strait Islander women, rather than a difference in prevalence of heavy menstrual bleeding. Aboriginal and Torres Strait Islander women have a higher incidence of, and mortality from, gynaecological cancers, and lower rates of cervical screening than non-Indigenous women<sup>24,25</sup>, suggesting that access to appropriate care is a potential contributor to low rates of treatment for gynaecological procedures overall. Similarly, access to appropriate care may partly explain the low rates of endometrial ablation seen in remote areas.

It has also been suggested that Aboriginal and Torres Strait Islander women may have a higher threshold than non-Indigenous women for undergoing hysterectomy for benign gynaecological conditions.<sup>26</sup> It is uncertain whether this may also apply to other surgical interventions for treating heavy menstrual bleeding. If it does, the higher proportion of Aboriginal and Torres Strait Islander women living in remote areas could contribute to the lower rates seen in these areas.

### Addressing variation

Exploring variation in the use of the levonorgestrel IUS and oral treatments for heavy menstrual bleeding, including mapping use against rates of hysterectomy and endometrial ablation, may be helpful in focusing efforts to improve appropriateness of care for this condition.

More widespread use of pharmaceutical treatments for heavy menstrual bleeding, such as oral treatments or the levonorgestrel IUS, may help address the variation in endometrial ablation rates between metropolitan and non-metropolitan areas. International comparison data indicate that Australia has a low use of intrauterine device contraceptives (for any indication), such as the levonorgestrel IUS, compared with France, Austria and the United States.<sup>27</sup>

Expanding access to practical training in levonorgestrel IUS insertion for general practitioners, particularly those working in regional and remote areas, and introducing further financial incentives may increase use of this device.<sup>28,29</sup> Currently, courses are run by family planning organisations in each state and territory for medical practitioners (and, in some states, for registered nurses) on insertion of intrauterine contraceptive devices, including the levonorgestrel IUS.<sup>30</sup> Even for those who undergo training, insufficient patient numbers to maintain skills and inadequate remuneration for insertion have been identified as barriers to uptake.<sup>29</sup> In the United Kingdom, a financial incentive scheme increased the uptake of long-acting reversible contraceptives, including the levonorgestrel IUS.31

Additional strategies for improving access to the levonorgestrel IUS include<sup>29</sup>:

- Providing training in levonorgestrel IUS insertion at general practices
- Implementing referral pathways within Primary Health Networks to general practitioners trained in levonorgestrel IUS insertion

- Expanding designated intrauterine device clinics at family planning centres, in public hospital outpatient departments and in outreach clinics
- Expanding training in levonorgestrel IUS insertion to eligible registered nurses.

Expanding access to endometrial ablation, particularly to the newer non-resectoscopic (second-generation) methods, may help address the wide variation seen in endometrial ablation between local areas. Comparison of the Australian rate identified in this Atlas (108 hospitalisations per 100,000 women) with available data on rates of endometrial ablation – that is, New South Wales data from 1999–2000 (158 hospitalisations per 100,000 women) – suggests that the use of endometrial ablation has stabilised or declined.<sup>3</sup>

The effectiveness of different endometrial ablation methods is similar.<sup>5</sup> However, compared with resectoscopic methods, newer non-resectoscopic methods have fewer complications, have shorter operative times, are technically easier to perform, and result in patients' quicker return to normal activities.<sup>2,5</sup>

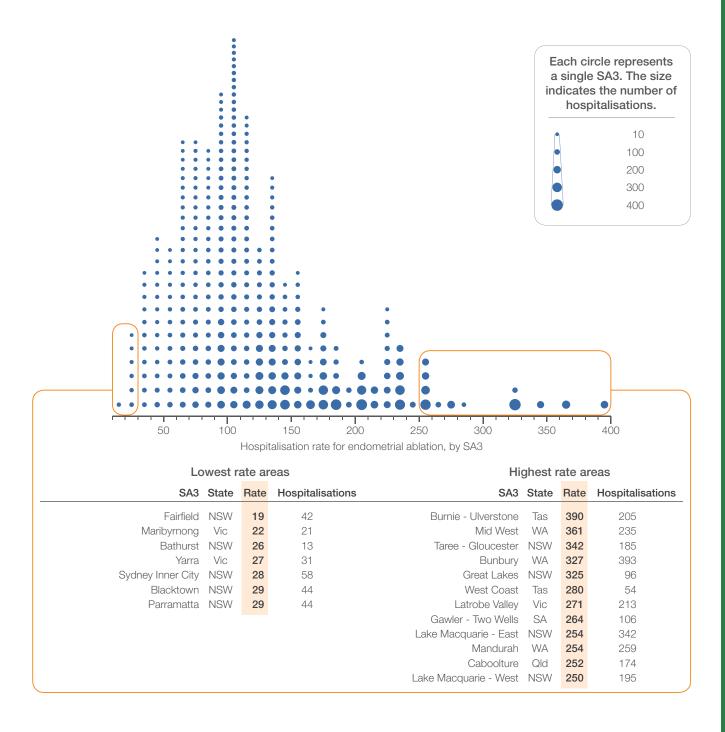
In Australia, endometrial ablation is usually done under general anaesthetic in a day surgery by a gynaecologist, but many non-resectoscopic methods can be done under local anaesthetic as an officebased procedure.<sup>5-9</sup> Undertaking these procedures in outpatient settings for low-risk patients has been found to be cost-effective in the United Kingdom. As a result of the advantages of non-resectoscopic methods, the guidelines of the National Institute for Health and Clinical Excellence (United Kingdom) recommend that all women considering endometrial ablation have access to these methods, and that they are used where no structural or histological pathologies, such as polyps and fibroids, are present.<sup>2</sup> Maintaining access to resectoscopic (first-generation) methods is also important because these methods are recommended for assessment and biopsy if polyps, fibroids or other pathology are present.<sup>2,6</sup>

The substantially lower rate of endometrial ablation among Aboriginal and Torres Strait Islander women, compared with other Australian women, could be addressed by providing:

- Culturally appropriate information about heavy menstrual bleeding and its treatments
- Access to culturally safe primary care services, including access to female general practitioners who have undergone cultural awareness training
- Clear referral pathways to specialists.

A lack of a national guideline or standard on management of heavy menstrual bleeding may contribute to variation in criteria used by clinicians to recommend treatment. *Therapeutic Guidelines: Endocrinology* provides guidance on pharmaceutical treatments, but has limited coverage of surgical options.<sup>32</sup> Internationally, the United Kingdom has a quality standard with indicators<sup>33</sup> and a clinical guideline<sup>2</sup>, and the United States and Canada also have clinical guidelines on management of abnormal uterine bleeding.<sup>7,10</sup> The Commission is currently working with clinical experts and consumers, including representatives from the Royal Australian and New Zealand College of Obstetricians and Gynaecologists (RANZCOG) and the Royal Australian College of General Practitioners, to develop a national clinical care standard and associated indicators on heavy menstrual bleeding.

Providing patient information on heavy menstrual bleeding that supports shared decision-making, such as decision tools, structured interviews and option grids, as well as promoting shared decision-making to clinicians, may help some women avoid unnecessary surgery.<sup>34</sup> RANZCOG is currently updating a patient information leaflet on heavy menstrual bleeding, and the Commission is developing a decision support tool to support women's understanding of treatment options for heavy menstrual bleeding. Figure 3.10: Number of hospitalisations for endometrial ablation per 100,000 women aged 15 years and over, age standardised, by Statistical Area Level 3 (SA3), 2012–13 to 2014–15



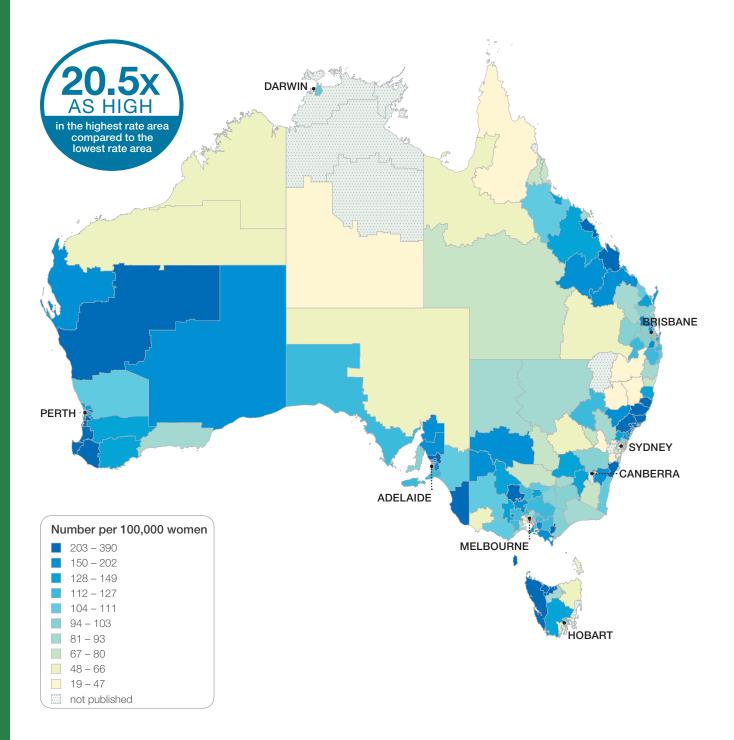
#### Notes:

Rates are age standardised to the Australian female population in 2001.

Rates are based on the number of hospitalisations in public and private hospitals (numerator) and women in the geographic area (denominator).

Analysis is based on the patient's area of usual residence, not the place of hospitalisation. For further detail about the methods used, please refer to the Technical Supplement.

Figure 3.11: Number of hospitalisations for endometrial ablation per 100,000 women aged 15 years and over, age standardised, by Statistical Area Level 3 (SA3), 2012–13 to 2014–15: Australia map



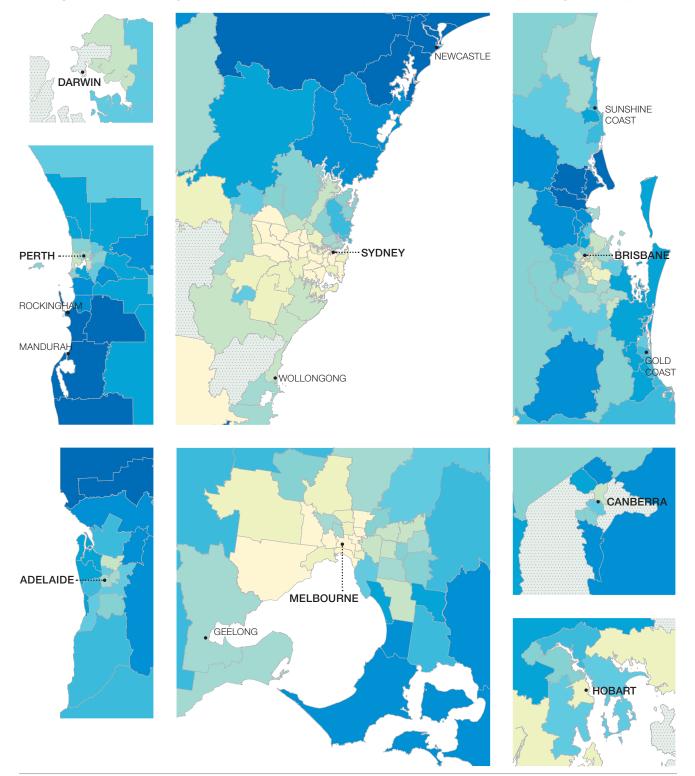
#### Notes:

Rates are age standardised to the Australian female population in 2001.

Rates are based on the number of hospitalisations in public and private hospitals (numerator) and women in the geographic area (denominator). Analysis is based on the patient's area of usual residence, not the place of hospitalisation.

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

Figure 3.12: Number of hospitalisations for endometrial ablation per 100,000 women aged 15 years and over, age standardised, by Statistical Area Level 3 (SA3), 2012–13 to 2014–15: capital city area maps



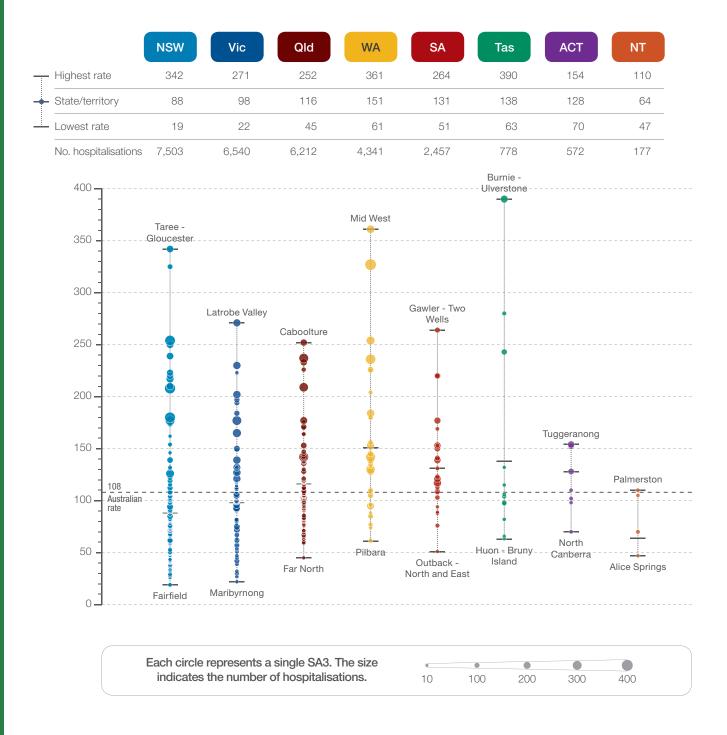
#### Notes:

Rates are age standardised to the Australian female population in 2001.

Rates are based on the number of hospitalisations in public and private hospitals (numerator) and women in the geographic area (denominator). Analysis is based on the patient's area of usual residence, not the place of hospitalisation.

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

Figure 3.13: Number of hospitalisations for endometrial ablation per 100,000 women aged 15 years and over, age standardised, by Statistical Area Level 3 (SA3), state and territory, 2012–13 to 2014–15



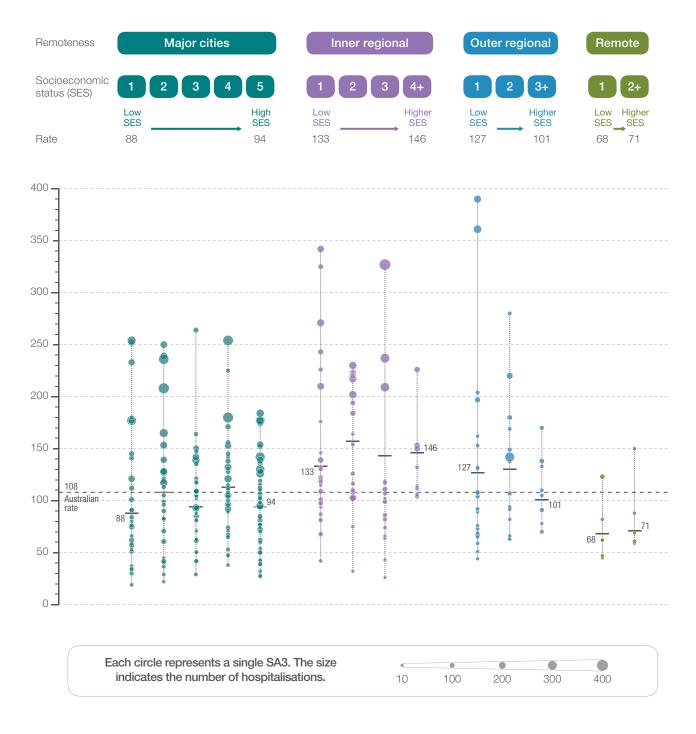
#### Notes:

Rates are age standardised to the Australian female population in 2001.

Rates are based on the number of hospitalisations in public and private hospitals (numerator) and women in the geographic area (denominator). Analysis is based on the patient's area of usual residence, not the place of hospitalisation.

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

# Figure 3.14: Number of hospitalisations for endometrial ablation per 100,000 women aged 15 years and over, age standardised, by Statistical Area Level 3 (SA3), remoteness and socioeconomic status, 2012–13 to 2014–15



#### Notes:

Rates are age standardised to the Australian female population in 2001.

Rates are based on the number of hospitalisations in public and private hospitals (numerator) and women in the geographic area (denominator).

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

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

### Resources

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### Australian initiatives

The information in this chapter will complement work already under way to improve management of heavy menstrual bleeding in Australia. At a national level, this work includes:

- Heavy menstrual bleeding Clinical Care Standard (planned for publication late 2017), Australian Commission on Safety and Quality in Health Care. www.safetyandquality.gov.au/our-work/clinicalcare-standards/heavy-menstrual-bleeding
- Heavy menstrual bleeding patient information leaflet (in development), RANZCOG.

Some states and territory initiatives are also in place, including:

- NSW Clinical Excellence Commission data collection on hysterectomy rates for nonmalignancy (2010–2014)<sup>35</sup>
- NSW Agency for Clinical Innovation Reducing Unwarranted Clinical Variation Taskforce examination of variation in length of stay for key procedures, including hysterectomy.

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