Why is this important?

Tonsillectomy is one of the most common procedures performed in children in Australia.¹ The rate of tonsillectomy in people of all ages is higher in Australia than in New Zealand or the United Kingdom.² Tonsillectomy is used to treat recurrent throat infections that affect the tonsils (tonsillitis) and obstructive sleep apnoea (OSA), but there are uncertainties about its benefits. There is moderate-quality evidence to support tonsillectomy over watchful waiting in children with recurrent tonsillitis.³ There is also evidence that tonsillectomy benefits some children with OSA, but some children get better without surgery.⁴ Uncertainties about benefits of tonsillectomy can make it difficult for parents to make decisions about treatment.

What did we find?

In 2017–18, the rate of hospitalisation for tonsillectomy in people aged 17 years and under was **6.0 times as high** in the area with the highest rate compared with the area with the lowest rate. Between 2012–13 and 2017–18, the rate of tonsillectomy hospitalisations increased by 3%.

What can be done?

There is an urgent need for information about the short- and long-term outcomes of tonsillectomy. Further developing the ear, nose and throat (ENT) data registry of the Australian Society of Otolaryngology Head and Neck Surgery could capture information on eligible patients, provide information for effective peer review of tonsillectomy and add to the knowledge base about outcomes for specific patient groups. All parents who decide their children should have tonsillectomy should be informed about the registry. If the child meets the registration criteria, parents should be asked if they are willing for the child to be included. Surgeons should contribute data on all consenting patients, and regularly audit and review patient outcome data with their peers.

Other actions to address variation include updating the 2008 Australian clinical practice guidelines, providing information to parents about the risks and benefits of surgery, and encouraging shared decision making.

Context

The first Australian Atlas of Healthcare Variation identified substantial variation in age-standardised hospitalisations for tonsillectomy in children and young people. This variation – 6.5 times as high in the local area (Statistical Area Level 3 – SA3) with the highest rate as in the area with the lowest rate – warrants further investigation.⁵

Tonsillectomy is a surgical procedure to remove the tonsils, which are soft tissue masses on each side at the back of the throat. Tonsils are prone to infection and inflammation that can lead to enlargement. In some children, significant enlargement of the tonsils may cause a range of breathing problems during sleep, including OSA.⁶

Tonsillectomy can be performed with or without surgical removal of the adenoids (adenoidectomy).⁶ Adenoids are glands that sit in the back of the throat behind the nose. Like tonsils, adenoids help defend the body against harmful bacteria and viruses that enter the body through the mouth and nose. An adenotonsillectomy is when the tonsils and the adenoids are removed.

Tonsillectomy is one of the most common procedures performed in children in Australia.¹ The rate of tonsillectomies is higher in Australia than in many reporting Organisation for Economic Co-operation and Development (OECD) countries. In an analysis of OECD data on tonsillectomies per 100,000 people of all ages between 1993 and 2014, the rate in Australia was 1.7 times and 1.9 times as high as the rates in New Zealand and the United Kingdom, respectively.²

Tonsillectomy has traditionally been used to treat recurrent throat infections that affect the tonsils (tonsillitis). In the United States in the past 30 years, there has been a decline in the use of tonsillectomy to treat recurrent tonsillitis and a gradual increase in the use of tonsillectomy to treat OSA.⁶

In Australia, a multi-centre Victorian study of almost 60,000 patients showed that tonsillectomy for OSA had driven an increase in the number of tonsillectomies between 2010 and 2015.⁷ An accompanying small decline in the rate of tonsillectomies for recurrent tonsillitis led to OSA overtaking throat infections as the main reason for tonsillectomy in Victoria in 2014–15.⁷ The reason for the increase in tonsillectomies for OSA is unclear but could involve greater awareness of the possible links between OSA and learning and behavioural problems.⁷

Recurrent tonsillitis

Compared with no surgery, in children who have frequent tonsillitis, tonsillectomy reduces the number of throat infections, visits to the doctor and school absences in the first year after the procedure, but the benefits do not last.⁸

A Cochrane systematic review of adenotonsillectomy for recurrent tonsillitis in children found that children who had surgery had fewer episodes of sore throat in the first year than those who had non-surgical treatment. However, the effect was small, and many children improved spontaneously without surgery. The authors concluded that the potential benefit of surgery must be weighed against the risks of the procedure, particularly bleeding.³

There are no current Australian or United Kingdom evidence-based guidelines for the role of tonsillectomy in managing recurrent throat infections in children.

A 2018 United States guideline advises that clinicians may recommend tonsillectomy as an option for children who have frequent tonsillitis (seven or more episodes per year, five or more per year for two years, or three or more per year for three years).⁶ The guideline states that patient preference should have a substantial role in the decision.

Obstructive sleep apnoea

Children with OSA have repeated episodes of partial or complete blockage of the upper airways, which can cause problems during sleep, including snoring, gasping or choking, and pauses in breathing.⁶ Untreated OSA in some children may lead to impaired growth, cognitive and behavioural problems, and cardiovascular effects.⁹ OSA is thought to be usually caused by large tonsils and adenoids (adenotonsillar hypertrophy).⁶ It is common in children, with peak incidence between 2 and 8 years of age, most likely due to the large size of tonsils and adenoids compared with the size of the airway.⁹

OSA is more common in obese children, and in children who have Down syndrome, abnormalities of the brain and facial bones, or neuromuscular disorders.¹⁰

General practitioners (GPs) use snoring and sleeprelated symptoms to identify children with possible moderate to severe OSA who should be referred for consideration of adenotonsillectomy. Overnight sleep studies that measure obstructive respiratory events per hour are the gold standard for diagnosing OSA.^{6,11} In Australia, sleep studies can only be ordered and assessed by a sleep specialist.¹² OSA can be categorised by this type of sleep study as mild, moderate or severe.

Adenotonsillectomy is generally considered the first-line intervention for children with moderate or severe OSA and enlarged tonsils.⁹ Watchful waiting for six months may be an acceptable option for some otherwise-healthy children with mild or moderate OSA and tolerable symptoms.⁹

A Cochrane systematic review found mixed evidence about the impact of adenotonsillectomy in otherwisehealthy children aged 5–9 years with mild to moderate OSA (diagnosed by sleep study) up to 12 months after the surgery.⁴ It found:

- High-quality evidence that the procedure has no benefit in terms of objective measures of attention and cognitive function compared with watchful waiting
- High-quality evidence that it improves sleep study scores compared with watchful waiting
- Moderate-quality evidence that it is beneficial in terms of symptoms, behaviour and quality of life (as rated by caregivers).

The review noted that, in one key randomised trial (the CHAT study)¹³, sleep study findings returned to normal in 46% of the non-surgical group within seven months, compared with 79% of the surgical group.

Two recent randomised controlled trials examined a gap in evidence - the impact of adenotonsillectomy on young children with OSA. A Swedish study compared surgery with watchful waiting in 60 children aged 2-4 years with mild to moderate OSA. It found no statistically significant difference between the groups in changes in sleep study scores (the primary outcome of the study). However, surgery was more effective than watchful waiting in improving sleep study scores in a small group of children with moderate OSA (n = 24). The study also found a statistically significant difference in quality-of-life scores after adenotonsillectomy at six months compared with watchful waiting. The researchers concluded that otherwise-healthy children aged 2-4 years with mild OSA and mild effect on quality of life would benefit from watchful waiting, whereas children with moderate OSA should be considered for surgery.¹⁴

The other study, in Australia, compared outcomes in preschool children with mild to moderate OSA who had early adenotonsillectomy with children on the waiting list who had no surgery. At 12 months, no differences were seen in cognitive function between the two groups. However, children who had adenotonsillectomy had reduced obstructive respiratory events (measured by sleep study) and improved behaviour (rated by parents) compared with children who did not have surgery.¹⁵

Uncertainties about the benefits of tonsillectomy for children with OSA and limited access to formal diagnostic testing can make it difficult for clinicians and parents to make appropriate decisions about treatment. These uncertainties include a lack of evidence about the long-term impact of tonsillectomy¹⁶, and how parents and clinicians can distinguish between simple snoring and OSA in the absence of sleep studies.⁴ The Cochrane review summarised above found that there was inconclusive evidence that children who had been diagnosed with OSA based on clinical grounds alone benefit from tonsillectomy.⁴

Given the uncertainties around the procedure to treat OSA, the Cochrane review authors suggested that doctors and parents should carefully consider the benefits and risks of surgery versus watchful waiting, because children could get better without treatment.⁴

OSA and children with obesity

OSA is more common in children who are obese: prevalence is 19–61% in children with obesity, compared with 1–6% in children with a healthy weight.¹⁷ Children with obesity are more likely to have severe OSA.⁶

With the prevalence of childhood OSA expected to increase in line with rising obesity levels in many developed countries⁴, the management of obesityrelated OSA is a key issue.

A systematic review found that children with OSA who are obese benefited from tonsillectomy. However, the outcome was less satisfactory than in normal-weight children, and there was a higher risk of persistent OSA after surgery (33–76% in children who are obese, compared with 15–37% in normal-weight children).¹⁷ Children with obesity also have a higher risk of respiratory complications immediately after surgery.¹⁸

There is evidence that weight loss can significantly improve OSA symptoms in children and adolescents with obesity, although few studies have been conducted.¹⁷ More research is needed into the effectiveness of weight loss as a treatment for OSA in children.^{4,17} Weight loss is also recommended for children who are obese who still have OSA symptoms after adenotonsillectomy.⁹

Potential harms of tonsillectomy

Tonsillectomy has the highest rate of postoperative complications of all childhood surgical procedures.¹⁹ Complications include respiratory compromise, pain, bleeding, dehydration, nausea and vomiting, speech disorders and, rarely, death.^{6,20} Postoperative bleeding is the most common complication of tonsillectomy and can be life-threatening. Rates of readmission due to bleeding vary in studies from 2% to 5%.¹

Rates of unplanned readmission after tonsillectomy are high in Australia²¹ and internationally.¹⁹ In Australia, in 2015–16, the rate of unplanned readmission after adenotonsillectomy (34.7 per 1,000 separations) was the highest for selected procedures in public hospitals.²²

Why revisit variation in tonsillectomy?

The first Atlas examined age-standardised hospitalisations for tonsillectomy for children aged 17 years and under.

It found that, in 2012–13, the number of tonsillectomy hospitalisations was 6.5 times higher in the area with the highest rate compared with the area with the lowest rate. Rates were highest in inner regional areas and lowest in remote areas. There were no patterns in hospitalisation rates for tonsillectomy according to socioeconomic status.

However, since the first Atlas, there has been evidence of differences in rates of tonsillectomy according to socioeconomic advantage. In 2017–18, people living in the most socioeconomically disadvantaged areas had the lowest rate of separations for tonsillectomy (2.1 per 1,000 population), compared with rates of 2.5–2.7 per 1,000 population for areas with higher socioeconomic status.²³

Given the wide variation seen in the first Atlas, and evidence of differences in access to tonsillectomy according to socioeconomic status, it is important to revisit the item to provide a comparison over time, particularly to see whether local variations continue.

It is also important to revisit variation in tonsillectomy because Australia continues to have a higher rate than New Zealand or the United Kingdom², and because of uncertainties about the benefits of tonsillectomy and the lack of current Australian guidelines.

About the data

Data are sourced from the National Hospital Morbidity Database, and include admitted patients in both public and private hospitals.

Rates are based on the number of hospitalisations for tonsillectomy per 100,000 people aged 17 years and under in 2012–13, 2015–16 and 2017–18.

Because a record is included for each hospitalisation for the procedure, rather than for each patient, patients hospitalised for the procedure more than once in the financial year will be counted more than once.

The analysis and maps are based on the usual residential address of the patient and not the location of the hospital.

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

Data quality issues – for example, the extent of identification of Aboriginal and Torres Strait Islander status in datasets – could influence the variation seen.

Some private hospitals in Tasmania admit public patients under a contractual arrangement. There is a small over-count of hospitalisations for the procedure in Tasmania because hospitalisations were recorded by both contracting hospital and contracted hospital.

What do the data show?

Magnitude of variation

In 2017–18, there were 42,509 hospitalisations for tonsillectomy, representing 750 hospitalisations per 100,000 people aged 17 years and under (the Australian rate). The median age for patients was 5 years, and this was similar across Australia.

The number of hospitalisations for tonsillectomy across 320* local areas (Statistical Area Level 3 – SA3) ranged from 305 to 1,836 per 100,000 people. The rate was **6.0 times as high** in the area with the highest rate compared with the area with the lowest rate. The number of hospitalisations varied across states and territories, from 387 per 100,000 people in the Northern Territory to 850 per 100,000 people in the Australian Capital Territory (Figures 3.3–3.6).

After the highest and lowest 10% of results were excluded and 256 SA3s remained, the number of hospitalisations per 100,000 people was 2.2 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 tonsillectomy hospitalisations were higher in inner regional areas than outer regional areas, major cities and remote areas (Figure 3.7). There was no clear pattern according to socioeconomic status in major cities and inner regional areas. In outer regional areas, rates were higher in areas of socioeconomic disadvantage. In remote areas, rates were lower in areas of socioeconomic disadvantage.

* There are 340 SA3s. For this item, data were suppressed for 20 SA3s due to a small number of hospitalisations and/or population in an area.

Analysis by Aboriginal and Torres Strait Islander status

In 2017–18, the rate for Aboriginal and Torres Strait Islander children (620 per 100,000 people) was 18% lower than the rate for other Australians (759 per 100,000 people) (Figure 3.1).

Figure 3.1: Number of hospitalisations for tonsillectomy per 100,000 people aged 17 years and under, age and sex standardised, by state and territory of patient residence, by Aboriginal and Torres Strait Islander status, 2017–18



The data for Figures 3.1 and 3.2, and the data and graphs for analysis by Primary Health Networks are available at safetyandquality.gov.au/atlas

Analysis by patient funding status

Overall, 60% of hospitalisations for tonsillectomy were for privately funded patients. This proportion varied from 52% in Victoria to 76% in Western Australia (Figure 3.2).

Figure 3.2: Number of hospitalisations for tonsillectomy per 100,000 people aged 17 years and under, age and sex standardised, by state and territory of patient residence, by patient funding status, 2017–18



Notes:

Data by Aboriginal and Torres Strait Islander status should be interpreted with caution as hospitalisations for Aboriginal and Torres Strait Islander people are under-enumerated, with variation among states and territories.

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

Population estimates as at 31 December 2017 are calculated as the average of the 30 June populations in 2017 and 2018.

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

Trends over time

Between 2012–13 and 2017–18, the rate of tonsillectomy hospitalisations per 100,000 people nationally increased by 3% (Figure 3.8).

For Aboriginal and Torres Strait Islander children, the rate of tonsillectomy hospitalisations per 100,000 people nationally increased by 58% during this period (Figure 3.9).

Interpretation

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

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.

Rates of underlying disease

Variation is warranted and desirable when it reflects variation in the underlying need for care. However, use of tonsillectomy may not match patterns of patient need.

There are indications that rates of sore throat and rates of obstructive sleep symptoms may be higher in areas of severe socioeconomic disadvantage.⁷ Indigenous children from the Torres Strait and Northern Peninsula Area had a relatively high prevalence of symptoms suggestive of obstructive sleep problems in a 2004 study²⁴, although research in this area is lacking.²⁵

Clinical decision-making

High or low rates of tonsillectomy in some areas may be related to clinical practice that is not supported by evidence.

A recent Australian study found that around one-quarter of patients with serious recurrent episodes of tonsillitis were not referred for a tonsillectomy.²⁶ A similar pattern has been observed in the United Kingdom, where a study found that selection for tonsillectomy did not regularly follow evidence-based criteria.²⁷

There is no current Australian evidence-based guideline for the use of tonsillectomy in managing recurrent throat infections and OSA in children. The most recent national document is a 2008 position paper on indications for tonsillectomy and adenotonsillectomy.²⁸

Differences in diagnosing OSA may contribute to variation. The gold standard for diagnosing OSA before tonsillectomy is an overnight inpatient sleep study.^{1,6,10} The test is expensive, and there is growing demand for use of the limited facilities that provide sleep studies for children in Australia^{1,10,29}, demonstrating the need for appropriate patient selection.

The referral process for sleep studies may also contribute to variation. Under the Medicare Benefits Schedule, a paediatric sleep specialist is required to review a child with OSA symptoms before and after the sleep study. These requirements may reduce appropriate access to sleep studies and increase waiting times for review of ENT symptoms – for example, in rural and remote areas.³⁰

Access to tonsillectomy services

Ability to pay out-of-pocket costs for tonsillectomy is likely to be lower in areas of socioeconomic disadvantage.

Research has identified increasing rates of adenotonsillectomy in children who live in areas of socioeconomic advantage, suggesting increasing demand for tonsillectomy in more advantaged areas and lack of access to surgery in disadvantaged groups.⁷

This pattern was not reflected across all Atlas data, apart from remote areas, where the rate was lower in areas of socioeconomic disadvantage.

Distance to travel to see ENT surgeons may affect clinical decision-making. Remote and rural patients often have to travel a long way to see a specialist. This may influence a surgeon to recommend surgery earlier, because of difficulties for the patient in returning for follow-up visits.

For metropolitan patients, healthcare access may depend on cost as well as health literacy (which may be influenced by cultural and language barriers).

Parents of Aboriginal and Torres Strait Islander children may not seek care for OSA because of lack of awareness of potential implications for the child's health. Support from family and friends is an important factor in influencing the uptake of therapy.³¹ Improved access to ENT surgeons through government programs may have contributed to the increase in tonsillectomy rates for Aboriginal and Torres Strait Islander children between 2012–13 and 2017–18.

Rates of private health insurance and waiting times

Access to a hospital bed is likely to be one of the largest influences on variation in care.

Having private health insurance allows affordable access to the procedure in private hospitals. Atlas data found that, overall, 60% of hospitalisations for tonsillectomy were for privately funded patients. This aligns with other admitted patient data that showed that, in 2017–18, 50% more tonsillectomies were performed in private hospitals than in public hospitals (1.5 operations per 1,000 population in private hospitals, compared with 1.0 per 1,000 population in public hospitals).²³

In 2017–18, the median waiting time for elective tonsillectomy in a public hospital was 121 days, ranging from 23 days in the Northern Territory to 293 days in New South Wales and 326 days in the Australian Capital Territory.³² Having private health insurance significantly reduces waiting time for a tonsillectomy in a public hospital. In 2015–16, public patients waited almost three times longer than privately insured patients to have a tonsillectomy in a public hospital (median waiting times 138 days and 49 days, respectively).³³ However, shorter waiting times for private patients may reflect severe OSA or other medical problems.

Long waits for surgery in public hospitals may mean that some parents choose to pay for their child's operation in the private system rather than having the child continue to have OSA or tonsillitis.

Lower rates of tonsillectomy among Aboriginal and Torres Strait Islander children may reflect lower rates of private health insurance cover in this population.

Parents' preference

Consumers' understanding of the options, and risks and benefits of tonsillectomy may affect variation. Parents may not understand that symptoms might resolve without treatment. They may also have unrealistic beliefs that tonsillectomy will always cure OSA.⁶ (Tonsillectomy does not resolve around 17–40% of uncomplicated cases of OSA.²¹)

The first Atlas recommended that the Australian Commission on Safety and Quality in Health Care review patient information about tonsillectomy in Australia.⁵ The review found that most (37 out of 50) resources examined did not include a description of what would occur if recurrent tonsillitis and OSA were not treated.³⁴ Similarly, an Australian study found that most online consumer health information about adenotonsillectomy for children with OSA was highly favourable about the potential benefits of surgery and downplayed potential complications or non-surgical options.³⁵ Since this study, Safer Care Victoria has published a fact sheet to help GPs and families discuss the risks and benefits of tonsillectomy.³⁶

Addressing variation

More information is needed to ensure that evidencebased care is provided to children with recurrent tonsillitis or OSA. There is an urgent need for information about the short- and long-term outcomes of tonsillectomy for different indications.

Further developing the ENT data registry of the Australian Society of Otolaryngology Head and Neck Surgery could capture information on eligible patients, provide comparative feedback to ENT surgeons on their rates of tonsillectomy and add to the knowledge base about outcomes for specific groups of patients. All parents who decide that their children should have tonsillectomy should be informed about the ENT data registry and, if their child meets the registration criteria, should be asked if they are willing for them to be included. Surgeons undertaking this procedure should contribute data on eligible patients to the ENT data registry and participate in routine peer review.

Other options to address variation include the following:

Improve evidence base, and access to diagnosis and appropriate treatment

- Improve the evidence behind the indications for surgery and non-surgical options to inform clinical practice
- Update Australian clinical practice guidelines, although in the United Kingdom variation in rates of tonsillectomy increased despite publication of guidelines³⁶
- Disseminate the guidelines and promote uptake, including through parent-focused education and an awareness strategy using fact sheets, social media and other channels

- Ensure that the updated guidelines include specific and targeted recommendations to increase access to tonsillectomy among Aboriginal and Torres Strait Islander children who need the procedure
- Prioritise public health, clinical research and intervention programs that aim to address disparity and improve Aboriginal and Torres Strait Islander children's access to surgery and other treatments
- Ensure that culturally capable and publicly funded ENT services are embedded in the Aboriginal and Torres Strait Islander community care sector, and that there are processes to ensure appropriate selection and triage for remote Aboriginal and Torres Strait Islander children to have ENT surgery in public hospitals.

Improve data about access

• Improve data about access to tonsillectomy, such as ENT surgeon distribution, rates of private health insurance by SA3 and waiting lists.

Improve shared decision making

- Encourage shared decision making so that rates of the procedure are based on patients' needs and assessment of benefits and risks³⁷
- Support shared decision making by giving patients accurate information, and informing GPs to avoid over- or underestimating the risks and benefits of tonsillectomy, which could drive variation in referral to an ENT surgeon; Safer Care Victoria's decision-making tools for GPs and parents for tonsillectomy (see 'Australian initiatives' on page 190) provide this opportunity for shared decision making and could be disseminated nationally
- Raise awareness of the health risks of untreated OSA and the benefits of treatment as an important first step for Aboriginal and Torres Strait Islander people to seek treatment.³¹

Rates by local area

Figure 3.3: Number of hospitalisations for tonsillectomy per 100,000 people aged 17 years and under, age and sex standardised, by Statistical Area Level 3 (SA3) of patient residence, 2017–18



Notes:

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

Population estimates as at 31 December 2017 are calculated as the average of the 30 June populations in 2017 and 2018.

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

Tonsillectomy hospitalisations, 17 years and under Rates across Australia

Figure 3.4: Number of hospitalisations for tonsillectomy per 100,000 people aged 17 years and under, age and sex standardised, by Statistical Area Level 3 (SA3) of patient residence, 2017–18



Notes:

Population estimates as at 31 December 2017 are calculated as the average of the 30 June populations in 2017 and 2018.

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

Rates across capital city areas

Figure 3.5: Number of hospitalisations for tonsillectomy per 100,000 people aged 17 years and under, age and sex standardised, by Statistical Area Level 3 (SA3) of patient residence, 2017–18



Notes:

Population estimates as at 31 December 2017 are calculated as the average of the 30 June populations in 2017 and 2018.

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

Tonsillectomy hospitalisations, 17 years and under Rates by state and territory

Figure 3.6: Number of hospitalisations for tonsillectomy per 100,000 people aged 17 years and under, age and sex standardised, by Statistical Area Level 3 (SA3) of patient residence, 2017-18

Notes:

Triangles (a) indicate SA3s where only rates are published. The numbers of hospitalisations 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 reasons. Population estimates as at 31 December 2017 are calculated as the average of the 30 June populations in 2017 and 2018. For further detail about the methods used, please refer to the Technical Supplement.

Rates by remoteness and socioeconomic status

Figure 3.7: Number of hospitalisations for tonsillectomy per 100,000 people aged 17 years and under, age and sex standardised, by Statistical Area Level 3 (SA3) of patient residence, 2017–18

Notes:

Triangles (a) indicate SA3s where only rates are published. The numbers of hospitalisations are not published for confidentiality reasons. Population estimates as at 31 December 2017 are calculated as the average of the 30 June populations in 2017 and 2018.

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

Rates across years

Figure 3.8: Number of hospitalisations for tonsillectomy per 100,000 people aged 17 years and under, age and sex standardised, by state and territory of patient residence, 2012–13, 2015–16 and 2017–18

Notes:

Population estimates as at 31 December of the relevant year are calculated as the average of the 30 June populations before and after the relevant December. For further detail about the methods used, please refer to the Technical Supplement. **Sources:** AlHW analysis of National Hospital Morbidity Database and ABS Estimated Resident Populations 30 June of 2012, 2013 and 2015 to 2018.

Rates for Aboriginal and Torres Strait Islander people across years

Figure 3.9: Number of hospitalisations for tonsillectomy per 100,000 people aged 17 years and under, age and sex standardised, by state and territory of patient residence, by Aboriginal and Torres Strait Islander status, 2012–13, 2015–16 and 2017–18

Notes:

Data by Aboriginal and Torres Strait Islander status should be interpreted with caution as hospitalisations for Aboriginal and Torres Strait Islander people are under-enumerated among states and territories, with variation among states and territories.

Population estimates as at 31 December of the relevant year are calculated as the average of the 30 June populations before and after the relevant December. For further detail about the methods used, please refer to the Technical Supplement.

Resources

- Clinical practice guideline: tonsillectomy in children (update), American Academy of Otolaryngology – Head and Neck Surgery⁶
- Plain language summary for patients: tonsillectomy in children, American Academy of Otolaryngology – Head and Neck Surgery³⁸
- Tonsillectomy for obstructive sleep-disordered breathing or recurrent throat infection in children, Agency for Healthcare Research and Quality⁸

Resources for GPs

Resources to support GPs in shared decision making with families were introduced in November 2018, as part of the Statewide Paediatric HealthPathways Project, under the Victorian and Tasmanian Primary Health Network Alliance partnership (vtphna.org.au/ our-work/best-practice-prevention-managementand-support/statewide-paediatric-healthpathwaysproject). The clinical pathways and associated referral pages cover:

- Snoring and obstructive sleep apnoea in children
- Sore throat in children.

Australian initiatives

ENT surgical registry

The Australian Society of Otolaryngology Head and Neck Surgery operates a surgical registry that collects data on ENT surgical procedures. The registry, which has been operating for two years, collects data on tonsillectomy, insertion of grommets and septoplasty.

Shared decision-making resources

Safer Care Victoria has developed a suite of consumer resources to support patient decision-making for tonsillectomy (bettersafercare.vic.gov.au/resources/ tools/making-a-decision-about-tonsillectomy), including a fact sheet.³⁵

HealthPathways

HealthPathways is a free online health information portal with evidence-based guidance on the assessment, management and referral of common clinical conditions.³⁹ These resources, which have been developed locally across Australia, have the potential to improve the standardisation of treatment.⁴⁰

Paediatric sleep unit in Darwin

A paediatric sleep service was established as part of the local Darwin adult sleep clinic in 2016. The service, which provides telehealth consultations by paediatric sleep physicians, and diagnostic and treatment services, has improved the management of sleep issues, including OSA, in Aboriginal and Torres Strait Islander children.⁴¹

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