

Surgery for Obstructive Sleep Apnoea and Snoring

Scope

This policy covers surgery for patients (children and adults) with obstructive sleep apnoea (OSA) and/or snoring. Other related Cambridgeshire and Peterborough CCG policies cover referral for surgery for [nasal obstruction or deformity](#), [otitis media](#) and [tonsillitis](#) in adults and children. This policy does not include surgery for trauma or suspected malignancy or for complex cases, such as children with Down's syndrome.

Policy

It is the responsibility of referring and treating clinicians to ensure compliance with this policy. Referral proforma should be attached to the patient notes to aid the clinical audit process and provide evidence of compliance with the policy. For patients not meeting the policy criteria, clinicians can apply for funding to the Exceptional Cases Panel by completing the exceptional funding section of the [referral proforma](#).

Surgery for OSA

The CCG will fund tonsillectomy/adenoidectomy in children and adults with:

- obstructive sleep apnoea demonstrated by sleep study or diagnosed clinically; **AND**
- reports of witnessed apnoeic episodes (stopping breathing) or waking from sleep due to sensations of choking/obstruction; **AND**
- excessively large tonsils/adenoids; **AND**
- persistent daytime sleepiness (adults) or a history suggestive of OSA (children); **AND**
- failure of CPAP (adults only).

Surgery for Snoring

Surgery for snoring is a lower clinical priority and will not be funded without application to the Exceptional Case Panel.

Note: Patients who smoke should be advised to attempt to stop smoking and referred to stop-smoking services – see [stop smoking policy](#).

Evidence and Rationale

Tonsillectomy/Adenoidectomy for OSA

Only case series studies of tonsillectomy in adults have been published, showing a 57% cure rate.¹ Similarly, most studies of adenotonsillectomy in children have been case series, showing improvement in measures of obstructive sleep apnoea²⁻⁴ and normalised results on sleep studies in 50-66% of children.

Four RCTs in children have been published. Three of these do not report results for Apnoea-hypopnea index (AHI)⁵⁻⁷ (although this was measured at post-treatment). One RCT compared adenotonsillectomy with watchful waiting in children with mild obstructive sleep apnoea and showed no improvement in attention and executive function scores for adenotonsillectomy compared with control (both groups improved).⁸ Both groups had improved AHI on polysomnography, but the improvement was greater in the children who underwent adenotonsillectomy. There was normalisation of sleep studies in 79% and 46% of children respectively in treatment and control groups. Adenotonsillectomy may give some benefit in reducing apnoea's during sleep, but many patients may normalise with watchful waiting and surgery should only be used in persistent causes, where disturbance to sleep is having deleterious effects.

Other Surgery for OSA

Randomised controlled trials (RCTs) show no overall significant improvement in Apnoea–hypopnea index (AHI) compared with control for laser-assisted uvulopalatoplasty (LAUP)^{9, 10} and radiofrequency ablation (RA)^{11, 12} but surgery was associated with persistent side-effects in about half of patients (commonly difficulty in swallowing, globus sensation and voice changes).¹³ Another RCT showed similar improvements in AHI and Epworth Sleepiness Scale (ESS) for maxillomandibular advancement compared with auto-titrated CPAP¹⁴ and another RCT in patients with OSA due to a deviate septum showed no difference in post-treatment AHI or ESS for septoplasty compared with a sham control.¹⁵

Three RCTs compared uvulopalatopharyngoplasty (UPPP) with control.^{16–18} Two reported better post-treatment AHI compared with a waiting-list control^{16, 17} but, in the other trial, where UPPP was compared with a dental appliance¹⁸, there was no difference at 6 months, and an advantage of the dental appliance at 12 months, compared with surgery. For other surgical interventions, only case series studies have been conducted.^{19–21}

Surgery for Snoring

One RCT of UPPP¹⁶, one of LAUP⁹ and one of RA²² reported reduced rates of post-treatment snoring for surgery compared with control. However, other trials of LAUP¹⁰ and RA^{11, 12} showed no difference in post-treatment snoring. RCTs have shown that oral appliances can effectively reduce snoring frequency and intensity.^{23–25}

Glossary

Adenotonsillectomy:	Removal of the adenoids and tonsils in a single procedure
Apnoea–hypopnea index:	The number of 'absence of breathing' or 'abnormally shallow breathing' episodes recorded during an hour of sleep
Continuous Positive Airway Pressure (CPAP):	A machine that uses mild air pressure to keep breathing airways open
Epworth Sleepiness Scale:	A self-administered questionnaire that is used to assess daytime sleepiness
Laser-assisted uvulopalatoplasty (LAUP):	A procedure that uses a laser to remove part or all of the uvula (the small piece of flesh that hangs at the back of the throat)
Maxillomandibular advancement:	Surgical procedure to move the upper and lower jaw forward
Obstructive sleep apnoea:	Condition where the walls of the throat relax and narrow during sleep, interrupting normal breathing
Pulse oximetry:	Non-invasive method for monitoring a person's peripheral oxygen saturation
Radiofrequency ablation (RA):	The use of heat generated from a medium frequency alternating current to destroy tissue
Septoplasty:	Surgery to straighten or repair the septum of the nose
Sleep studies:	Non-invasive tests that measure how well a person sleeps
Uvulopalatopharyngoplasty (UPPP):	Surgery to remove and/or remodel tissue in the throat

References

1. Camacho M, et al. Tonsillectomy for adult obstructive sleep apnea: A systematic review and meta-analysis. *Laryngoscope* 126, 2176–2186 (2016).
2. Friedman M, Wilson M, Lin H C & Chang H W. Updated systematic review of tonsillectomy and adenoidectomy for treatment of pediatric obstructive sleep apnea/hypopnea syndrome. *Otolaryngol. - Head Neck Surg.* 140, 800–808 (2009).
3. Brietzke S E & Gallagher D. The effectiveness of tonsillectomy and adenoidectomy in the treatment of pediatric obstructive sleep apnea/hypopnea syndrome: a meta-analysis. *Otolaryngol. neck Surg.* 134, 979–984 (2006).
4. Costa D J & Mitchell R. Adenotonsillectomy for obstructive sleep apnea in obese children: A meta-analysis. *Otolaryngol. - Head Neck Surg.* 140, 455–460 (2009).
5. Cao Y C, Wang X Y, Xu W W, Li J D & Yu Q H. The effects of tonsillectomy by low-temperature plasma on the growth development and psychological behavior in children with obstructive sleep apnea hypopnea syndrome. *Medicine (Baltimore).* 97, 1–5 (2018).

References Cont'd

6. Garetz S L, et al. Quality of Life and Obstructive Sleep Apnea Symptoms After Pediatric Adenotonsillectomy. *Pediatrics* 135, e477–e486 (2015).
7. Liu X, et al. Adenotonsillectomy for childhood obstructive sleep apnoea reduces thoraco-abdominal asynchrony but spontaneous apnoea–hypopnoea index normalisation does not. *Eur. Respir. J.* 49, 1–10 (2017).
8. Marcus C L, et al. A Randomized Trial of Adenotonsillectomy for Childhood Sleep Apnea. *N. Engl. J. Med.* 368, 2366–2376 (2013).
9. Ferguson K A, Heighway K & Ruby R R F. A randomized trial of laser-assisted uvulopalatoplasty in the treatment of mild obstructive sleep apnea. *Am. J. Respir. Crit. Care Med.* 167, 15–19 (2003).
10. Larrosa F, et al. Laser-assisted uvulopalatoplasty for snoring: Does it meet the expectations? *Eur. Respir. J.* 24, 66–70 (2004).
11. Woodson B T, Steward D L, Weaver E M & Javaheri S. A randomized trial of temperature-controlled radiofrequency, continuous positive airway pressure, and placebo for obstructive sleep apnea syndrome. *Otolaryngol. - Head Neck Surg.* 128, 848–861 (2003).
12. Holmlund T, Levring-Jäghagen E, Franklin K A, Lindkvist M & Berggren D. Effects of radiofrequency versus sham surgery of the soft palate on daytime sleepiness. *Laryngoscope* 124, 2422–2426 (2014).
13. Franklin K A, et al. Effects and side-effects of surgery for snoring and obstructive sleep apnea--a systematic review. *Sleep* 32, 27–36 (2009).
14. Vicini C, et al. Surgery vs ventilation in adult severe obstructive sleep apnea syndrome. *Am. J. Otolaryngol. Neck Med. Surg.* 31, 14–20 (2010).
15. Koutsourelakis I, et al. Randomised trial of nasal surgery for fixed nasal obstruction in obstructive sleep apnoea. *Eur. Respir. J.* 31, 110–117 (2008).
16. Sommer U J, et al. Tonsillectomy with Uvulopalatopharyngoplasty in Obstructive Sleep Apnea: A two-center randomised controlled trial. *Dtsch. Arztebl. Int.* 113, 1–8 (2016).
17. Browaldh N, Nerfeldt P, Lysdahl M, Bring J & Friberg D. SKUP3 randomised controlled trial: Polysomnographic results after uvulopalatopharyngoplasty in selected patients with obstructive sleep apnoea. *Thorax* 68, 846–853 (2013).
18. Wilhelmsson B, et al. A prospective randomized study of a dental appliance compared with uvulopalatopharyngoplasty in the treatment of obstructive sleep apnoea. *Acta Otolaryngol.* 119, 503–509 (1999).
19. Pang K, et al. Palate surgery for obstructive sleep apnea: a 17-year meta-analysis. *Eur Arch Otorhinolaryngol* 275, 1697–1707 (2018).
20. Camacho M, et al. Tracheostomy as treatment for adult obstructive sleep apnea: A systematic review and meta-analysis. *Laryngoscope* 124, 803–811 (2014).
21. Handler E, Hamans E, Goldberg A & Mickelson S. Tongue Suspension: An evidence-based review and comparison to hypopharyngeal surgery for OSA. *Laryngoscope* 124, 329–336 (2014).
22. Stuck B A, Sauter A, Hörmann K, Verse T & Maurer J T. Radiofrequency Surgery of the Soft Palate in the Treatment of Snoring. A Placebo-Controlled Trial. *Sleep* 28, 847–850 (2005).
23. Mehta A, Qian J, Petocz P, Darendeliler M & Cistulli P. A randomized, controlled study of a mandibular advancement splint for obstructive sleep apnea. *Am. J. Respir. Crit. Care Med.* 163, 1457–1461 (2001).
24. Gotsopoulos H, Chen C, Qian J & Cistulli P. Oral appliance therapy improves symptoms in obstructive sleep apnea: a randomized, controlled trial. *Am. J. Respir. Crit. Care Med.* 166, 743–748 (2002).
25. Blanco J, Zamarron C, Abeleira P M, Lamela C & Suarez Q D. Prospective evaluation of an oral appliance in the treatment of obstructive sleep apnea syndrome. *Sleep Breath.* 9, 20–25 (2005).
26. NHS England Evidence-Based Interventions Guidance for CCGs. Published 28 November 2018 and updated 11 January 2019. Version 2. <https://www.england.nhs.uk/wp-content/uploads/2018/11/evidence-based-interventions-guidance-v2.pdf>

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