Australasian Sleep Association submission re. Adult Sleep Apnea Surgery

The Australasian Sleep Association (ASA) is the peak body in Australasia representing clinicians, scientists and researchers in the broad area of sleep. The vision of the ASA is to live in a community that recognizes the importance of good sleep to health, public safety, productivity and quality of life. A key mission of the ASA is to lead and promote sleep health and sleep science across Australia. The ASA welcomes the opportunity to contribute to the MSAC review that will consider the best available evidence on surgical services associated with the management of sleep apnoea in adults. We understand that submissions received by the Department of Health and Ageing in recent years have highlighted the need to update the MBS structure to reflect contemporary practice. The Australasian Sleep Association supports the ongoing public funding for OSA surgery as a salvage therapy in OSA, when other treatments such as CPAP are not tolerated or able to be used.

OSA is highly prevalent, has significant health consequences and is costly to the community.

Obstructive sleep apnoea (OSA) is a serious medical disorder with a high public health cost. OSA is characterized by repeated upper airway obstructions during the night, with resultant oxygen desaturations and arousals. Approximately 10% of middle-aged men and 5% of middle-aged women in the general population have OSA (defined as >10 obstructed breathing events/ hour of sleep)\(^1\). OSA is associated with lower health status independent of other major risk factors (e.g. age, body fat, alcohol use, and cardiovascular disease), and large cross-sectional and longitudinal studies suggest
obstructed breathing, snoring and/or hypoxaemia in sleep are independent risk factors for hypertension, cardiac disease, stroke and mortality\textsuperscript{2,3}. OSA is associated with excessive daytime sleepiness and a 1.2 – 4.9 fold increase in road and industrial accidents\textsuperscript{4}. Thus, OSA is a serious and costly public health problem that is growing in prevalence because of population increases in both obesity and ageing.

A recent economic report commissioned by the Sleep Health Foundation revealed sleep disorders cost the Australian economy more than $5.1 billion a year in health care and indirect costs\textsuperscript{5}. In addition, the reduction in life quality caused by sleep disorders has a further cost equivalent of $31.4 billion a year. Obstructive Sleep Apnea was the most common sleep disorder identified in that report.

**Continuous positive airway pressure (CPAP) is a highly effective treatment, but adherence is moderate and many cannot tolerate it**

The gold standard therapy for adults is continuous positive airway pressure (CPAP) which is highly effective and safe\textsuperscript{6}, but only \~50\% of patients prescribed CPAP are able to tolerate it and use it long term\textsuperscript{7}. Therefore alternative treatment options are vitally important otherwise more than 50\% of OSA patients with a very serious medical disorder could remain untreated if they cannot tolerate CPAP.

**Treatment of OSA is highly cost effective**

Treatment of moderate-severe OSA is highly cost effective\textsuperscript{8,9}.\textsuperscript{9} Mar et al conducted a study in the Basque Country, Spain to analyse the long-term cost-effectiveness of nasal continuous positive airway pressure (CPAP) treatment in comparison to conventional null treatment. The incremental cost-effectiveness ratio (ICER) of CPAP treatment was <6,000 Euros (equivalent to $A 5,000) per quality-adjusted life year. Further evidence is needed for the cost effectiveness of surgical procedures for OSA in adults, but even if these surgical procedures were 10 times less cost effective they would still be within an ICER of less than US$50,000 which is usually considered cost effective.

**Surgery for OSA has a crucial role as “salvage therapy” in those who have failed OSA and Oral appliances**

Therapies that could be used if CPAP fails include mandibular advancement devices, weight loss and upper airway surgery. The American Academy of Sleep Medicine Practice Parameters for the
Surgical Modifications of the Upper Airway for Obstructive Sleep Apnea in Adults published in 2010 noted “patients with severe OSA should initially be offered positive airway pressure therapy, while those with moderate OSA should initially be offered either PAP therapy or oral appliances Use of multi-level or stepwise surgery (MLS), as a combined procedure or as stepwise multiple operations, is acceptable in patients with narrowing of multiple sites in the upper airway” if they have failed other therapies.

A variety of surgical procedures are performed for OSA. Individually, these procedures have variable efficacy, but when combined together in contemporary surgical protocols have greater degrees of success, in what is termed multi-level surgery. Some relevant data is presented below. It is important to note that Australian studies dominate the literature and demonstrate that Australia is in many cases leading the world in evolving evidence for surgery for adults with OSA.

**Soft palate and pharyngeal surgeries**

Types of pharyngeal sleep apnoea surgery include uvulopharyngoplatoplasty (UPPP), tonsillectomy, coblation (radiofrequency) channel tongue reduction. Higher, but variable levels of success have been seen in other types of palatal surgery, including (modified) uvulopharyngoplatoplasty (UPPP), with or without tonsillectomy. Modern surgeries which have included multi-level operations and patient centred measures of quality of life and sleepiness have demonstrated significant symptomatic improvements, despite overall incomplete control of OSA. One Adelaide study compared multi-level surgery to CPAP and showed similar improvements in sleepiness (ESS) and quality of life. A recent multi-centre Australian study assessed the effectiveness of modified UPPP plus coblation channel tongue reduction in an observational cohort study. This study demonstrated a dramatic reduction in mean AHI from 23.1/hour to 5.6/hour, as well as a significant improvement in sleepiness with Epworth Sleepiness Scores (ESS) reduced from 10.5 before treatment to a normal level of 5 post treatment.

**Hypoglossal nerve stimulation for OSA**

It is imperative that this MSAC review examines contemporary surgical practice, as surgical techniques and technology continue to evolve and new, exciting therapies for OSA are emerging. One such example is a hypoglossal nerve stimulator to provide electrical stimulation of the genioglossus.
muscle, the largest upper airway dilator muscle. Electrical stimulation causes tongue protrusion and stiffening of the anterior pharyngeal wall, and is therefore a potential therapeutic target for OSA. In an Australian Study, a hypoglossal nerve stimulator was implanted to treat OSA\textsuperscript{14}. There was a significant improvement (all \( P < 0.05 \)) from baseline to 6 months in: AHI (43.1 ± 17.5 to 19.5 ± 16.7), ESS (12.1 ± 4.7 to 8.1 ± 4.4), Functional Outcomes of Sleep Questionnaire (14.4 ± 2.0 to 16.7 ± 2.2), Sleep Apnoea Quality of Life Index (3.2 ± 1.0 to 4.9 ± 1.3), and Beck Depression Inventory (15.8 ± 9.0 to 9.7 ± 7.6). The authors concluded that Hypoglossal nerve stimulation demonstrated favorable safety, efficacy, and compliance and participants experienced a significant decrease in OSA severity and OSA-associated symptoms

**Conclusion**

The Australasian Sleep Association supports ongoing research into the effectiveness of OSA surgery in adults, and supports the ongoing public funding for OSA surgery as a salvage therapy in OSA, when other treatments such as CPAP are not tolerated or able to be used. It agrees that further evidence is needed to assess issues such as patient selection and the longer term efficacy of these procedures, but it is absolutely crucial that there is the option to use surgery to salvage those patients with moderate-severe symptomatic OSA who have failed CPAP and oral appliances. This is consistent with international best practice guidelines, such as those published by the American Academy of Sleep Medicine. Without access to surgery as a salvage therapy for OSA, there will be a significant burden to patients and the community as a result of untreated OSA.

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