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## Audit

# Patient's experience of treatment for sleep apnoea with a mandibular advancement splint



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## ABSTRACT

**Background and aims:** Obstructive sleep apnoea (OSA) is a well recognised clinical disorder in which there is narrowing and repeated collapse of the upper airway during sleep resulting in the cessation of breathing. Patients with mild to moderate sleep apnoea are often provided with mandibular advancement splint (MAS) therapy as a form of first line or definitive treatment. The aims of this audit were to evaluate patient satisfaction and success of MAS therapy.

**Methods:** 93 patients diagnosed with sleep apnoea and suitable for a splint were recruited prospectively at Queen Victoria Hospital, East Grinstead between January 2009 and October 2010. A patient satisfaction questionnaire was developed by health professionals involved in the care of patients with sleep apnoea and assessed for face and content validity and reliability. Participants completed the questionnaire six weeks after the splint was fitted. **Results:** 44% who previously experienced snoring now reported no snoring and 47% reported less snoring since wearing the MAS appliance. 69% reported complete resolution of sleep apnoea symptoms. 37% experienced aching teeth and 33% experienced having a dry throat when wearing the appliance. 86% of sleeping partners felt that their quality of sleep was improved following their partners treatment.

**Conclusions:** The standards set for each criteria in this audit were met. MAS treatment has a key role to play in the management of obstructive sleep apnoea with high rates of patient satisfaction and the majority of patients partners reporting a significant improvement in their own and their partners sleep quality.

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## Introduction

Obstructive sleep apnoea (OSA) is a well recognised clinical disorder in which there is narrowing and repeated collapse of the upper airway during sleep resulting in the cessation of breathing. The prevalence reported in middle-aged males is 4% and in females 2%.<sup>1</sup> The aetiology behind the collapse of the pharyngeal airway is due to a combination of anatomical and patho-physiological factors. The clinical features include excessive daytime sleepiness, impaired cognitive ability especially during driving, headaches and snoring. The diagnosis Obstructive Sleep Apnoea is based on a full comprehensive history from both the patient and sleeping partner, Epworth sleepiness scale, Mallampati classification, examination of the ear, nose and throat to rule out any physical obstructions, Body Mass Index and an overnight polysomnography. Polysomnography assesses the severity of Obstructive sleep apnoea in terms of Apnoea–Hypopnoea Index (AHI) which is the number of apnoeas or cessation of breathing lasting ten or more seconds per hour. Hypopnoea is measured by 50% reduction in the tidal volume with a 4% or greater fall in the oxygen saturation lasting 10 s or more per hour.

Obstructive sleep apnoea is a multi-factorial condition and therefore management is focused on providing a multi-disciplinary team approach. This team includes an ENT surgeon, Orthodontist, Maxillofacial surgeon and Anaesthetist.

Treatment options include behavioural interventions such as advising weight loss and reduced alcohol intake, non-surgical options including continuous positive airway pressure (CPAP) and mandibular advancement splint (MAS) therapy, and surgical options.<sup>2</sup>

## Aims

The aims of the audit are to evaluate patient satisfaction and success of mandibular advancement splints in subjects diagnosed with obstructive sleep apnoea using an outcome questionnaire.

## Objectives

To assess:

1. If participants were able to wear their MAS
2. The number of nights per week participants were able to wear their MAS
3. The effect on snoring when wearing the MAS
4. The experience of sleep apnoea symptoms when wearing a MAS
5. Problems experienced with wearing a MAS
6. Quality of sleep improvement when wearing a MAS
7. How participants felt in general after wearing the MAS
8. How treatment affects the participants partners' quality of sleep
9. The quality of service provided by the department.

## Standards

The standards set for the audit are presented in [Table 1](#).

## Methods and materials

Patients aged 18 years and over were recruited prospectively following referral to the Department of Orthodontics at Queen Victoria Hospital in East Grinstead between January 2009 and October 2010. All patients who were referred and diagnosed with sleep apnoea and suitable for a splint were included in the study. Two types of mandibular advancement splints were fitted, a hard cured acrylic or a vacuum formed appliance. Both provided full occlusal coverage and the choice depended upon the quality of the patient's dentition. All patients received verbal and written instructions on the use of their appliance at their fit appointment.

Health professionals involved in the care of patients with sleep apnoea including Consultant Orthodontist, Anaesthetist and Maxillofacial Surgeon developed the patient satisfaction questionnaire used taking into consideration a

**Table 1 – Standards set for the audit.**

Criteria	Standard set	Source of evidence
Compliance with wearing an MAS	86% compliance	Bates C J, McDonald J P. (2006) <sup>4</sup>
Number of nights per week participants were able to wear their MAS	60% wearing MAS seven nights per week	Ferguson et al. (1996) <sup>5</sup>
Improvement in snoring when wearing the MAS	70% reported improvement in snoring	Bates C J, McDonald J P. (2006) <sup>4</sup>
Improvement in symptoms of sleep apnoea when wearing the MAS	47% reported improvement in sleep apnoea symptoms	Bates C J, McDonald J P. (2006) <sup>4</sup>
Problems experienced with wearing a MAS	Less than 54% reported problems with wearing a MAS	Bates C J, McDonald J P. (2006) <sup>4</sup>
The quality of sleep improvement	70% reported improvement in quality of sleep	Local standard set
How participants felt in general	70% of participants felt better in general	Local standard set
Improvement in participants partners' quality of sleep	64% improvement	Bates C J, McDonald J P. (2006) <sup>4</sup>
Quality of service provided	80% participants rated service as good or excellent	Local standard set

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