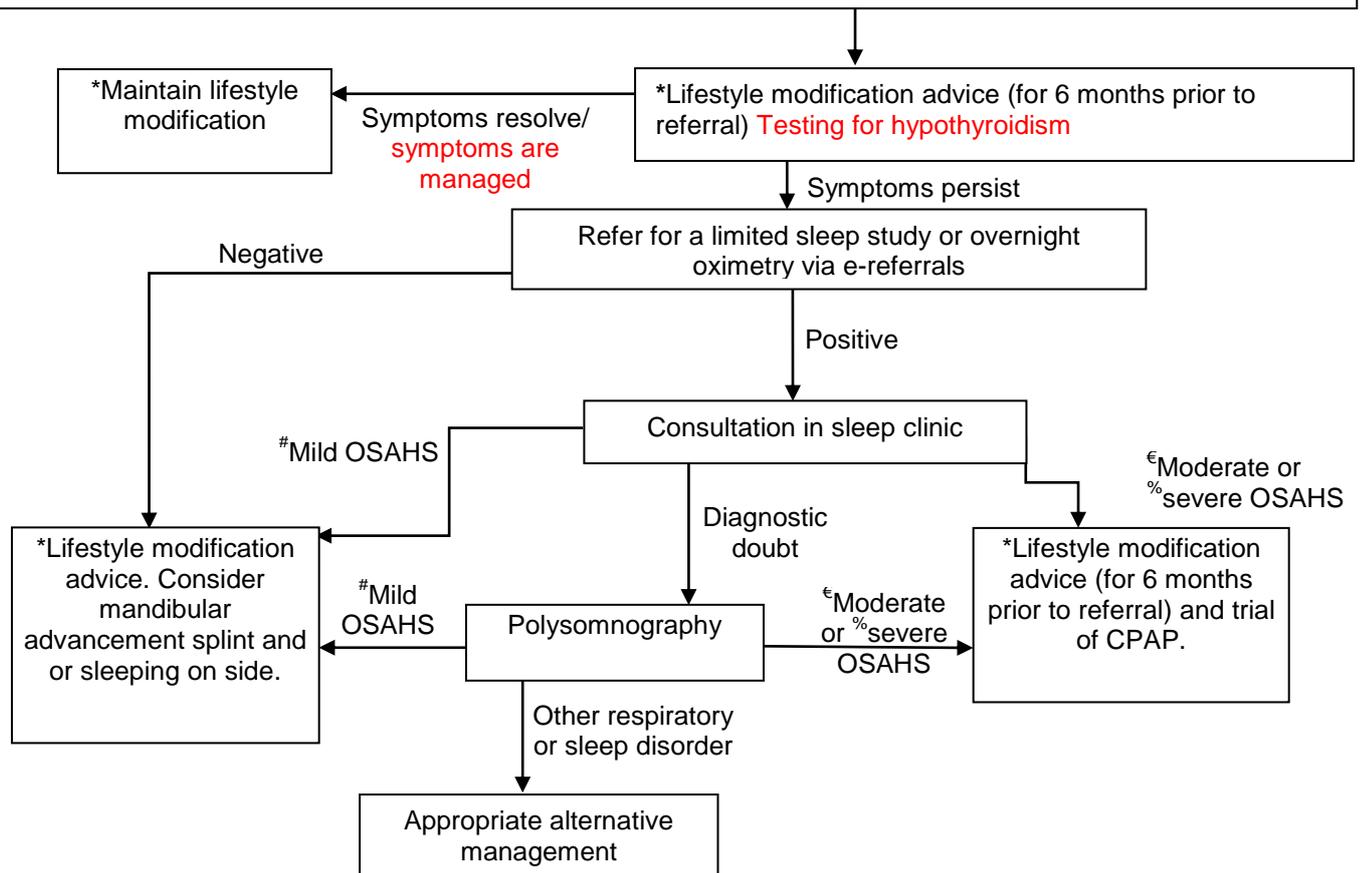


Referral Pathway for Diagnostic Investigations and Treatments in Obstructive Sleep Apnoea/Hypopnoea Syndrome (OSAHS) in Adults

Snoring **AND** excessive daytime sleepiness, sufficient to interfere with quality of life (as opposed to tiredness) for example: Epworth score ≥ 11 (see Appendix), falling asleep in mid conversation, during a meal, or when driving. **AND** one of the following:

- witnessed nocturnal apnoeic episodes (person stops breathing)
- waking from sleep due to sensations of choking/obstruction
- diabetes mellitus
- neck circumference ≥ 17 ins in a man or > 15 ins in a women
- retrognathia
- a crowded oropharynx on visual inspection

AND when other causes of daytime sleepiness have been considered (e.g. insufficient sleep, shift work, psychological conditions and sedating drugs).



Where patients do not meet criteria for referral, but are considered to be exceptional, they should not be referred until there is funding approval from the Individual Funding Request (IFR) panel.

* Behaviour modification, particularly to ensure **weight loss, smoking cessation and moderate alcohol consumption for at least 6 months prior to referral**. Referral to weight management services is required. Screening for hypertension, cholesterol and diabetes is required. Hypothyroidism is a reversible cause of OSAHS. The testing and optimising management of hypothyroidism is a pre-requisite to referral.

Mild OSAHS = $\approx 5 < 15$ events (apnoea or hypopnoea)/hour per night on the ODI or AHI. CPAP is a treatment option for adults with mild OSAHS if they have symptoms that affect their quality of life and ability to go about their daily activities, and lifestyle advice and any other relevant treatment options have been unsuccessful or are considered inappropriate (NICE TA139). This includes the use of intraoral appliances.

€Moderate OSAHS: $\geq 15 < 30$ events/hour per night on the ODI or AHI

%Severe OSAHS: ≥ 30 events/hour per night on the ODI or AHI

NB Patients with ventilatory failure, severe or rapidly deteriorating symptoms, or who are vocational drivers of Heavy Good vehicles or public service vehicles should be referred urgently outside this pathway.

Driving

Untreated OSAHS leads to an increased risk of motor vehicle collisions and driving related incidents are the leading cause of work-related deaths in the UK. It is the responsibility of people who are sleepy during the day (regardless of the cause) to cease driving until their symptoms resolve. If the symptoms are severe enough to affect driving performance and are due or very likely due to a medical condition (including OSAHS) the driver must inform the DVLA. Although clinicians are not required to inform the DVLA about the patient's symptoms, they are responsible for advising the patient appropriately.

Vocational drivers of Heavy Goods Vehicles (HGVs) or Public Service Vehicles (PSVs) can be referred outside of the pathway. For vocational drivers, if a diagnosis of OSAHS has been made or is strongly suspected adequate symptom control should be confirmed by a specialist before driving resumes and annual licensing review is required.

DVLA Referral for OSAHS and Driving: <https://www.gov.uk/obstructive-sleep-apnoea-and-driving>

Evidence and Rationale

Screening

Clinical characteristics have been associated with increased risk of OSAHS^{3,4} and guidance recommends the characteristics listed in this policy as factors to assess through physical examination and the Epworth Sleepiness Scale (ESS) to assess severity in someone with suspected OSAHS.¹ The ESS is a useful tool in population studies but may over estimate sleepiness in patients with low mood and people with chronic fatigue. 'The likelihood of falling asleep' is a difficult concept for some patients and it is useful to follow up a high ESS score with specific questions asking when the patient last actually fell asleep for example in mid conversation, during a meal, or when driving. Similarly where the patient is describing sleepiness but the ESS is <11 such specific questions may raise more concern about their safety and support referral for investigation. Falling asleep after a meal, watching television in the evening, or as a passenger in a car is not necessarily abnormal and would not routinely require further investigation.

Lifestyle modification advice

BMI,⁵ Smoking,⁶ and increased alcohol consumption⁵ have been associated with increased risk of OSAHS. BMI >25 kg/m² is associated with increased risk, and the severity of OSAHS increases with increasing BMI.⁵ SIGN guidance recommends weight loss for all patients with obesity contributing to their OSAHS.¹ Interventions for weight loss through diet and/or exercise, reduce the severity of OSAHS.⁷ The greater the weight reduction, the greater the improvement and, in some patients, symptoms resolve.⁷ Therefore, obese patients should undertake weight loss before referral for suspected OSAHS. Smoking is associated with increased risk of OSAHS though smoking cessation has not been proven to reduce severity it should be attempted in symptomatic patients who should undertake smoking cessation services.

Oral appliances/mandibular advancement devices

Oral appliances have been shown to improve OSAHS^{8,9} and, in comparison with continuous positive airway pressure (CPAP), no conclusive difference in daytime sleepiness was shown.¹⁰⁻¹³ There are large cost, convenience and adherence implications for the use of CPAP and, for some patients, oral appliances may be of benefit. Therefore, oral applications (self-funded) should be promoted in primary care to avoid where possible the need for CPAP.

Pulse oximetry

SIGN recommend the use of pulse oximetry as an alternative to full polysomnography (PSG).¹ Pulse oximetry is a naturally specific test, i.e. it is good at correctly identifying patients with OSAHS, and, for patients who test positive, polysomnography can be avoided.¹⁴ SIGN does not recommend a particular cut point. However, a cut point of ≥ 15 desaturations of $\geq 4\%/h$ may be appropriate as this has been shown to give 100% specificity.¹⁵⁻¹⁷ Although pulse oximetry can be specific, it is not a naturally sensitive test (sensitivity of 35-77% at cut point of ≥ 15 desaturations of $\geq 4\%/h$).¹⁵⁻¹⁷ Due to the low sensitivity and the possibility of technical failure, SIGN guidance recommends that it should not be used to exclude the presence of OSAHS.¹ However, for patients with very low pulse oximetry results (<5 desaturations of $\geq 4\%/h$ per night) and no technical failure, it may be possible to exclude OSAHS, as recently suggested.¹⁸

Continuous Positive Airway Pressure

CPAP has been shown to be effective.¹⁹ NICE guidance recommends CPAP as a treatment for adults with moderate or severe OSAHS,^{1,2} but recommend that oral appliances are an alternative for patients unable to tolerate CPAP.¹ NICE only recommend CPAP as a treatment option for mild OSAHS if patients have

undergone lifestyle advice and other treatment options have been attempted unsuccessfully or are considered inappropriate.²

Surgery

Laser-assisted uvulopalatoplasty or radiofrequency ablation for OSAHS did not improve daytime sleepiness or quality of life but surgery was associated with persistent side-effects.²⁰ SIGN does not recommend the use of uvulopalatopharyngoplasty (UPPP) or laser-assisted UPPP (LAUP) for OSAHS.¹ Maxillomandibular advancement did not improve OSAHS compared to CPAP²¹ and for this, along with other surgical approaches (e.g. mandibular advancement, hyoid suspension, pharyngeal surgery) for which there is only case series evidence,²²⁻²⁴ SIGN states that they should not be used outside the context of an RCT.¹ However, SIGN does indicate that tonsillectomy should be considered for patients with large tonsils and OSAHS and that tracheostomy may be a possible intervention when all else fails in carefully selected individuals.¹

Numbers of People Affected

Risk factors associated with OSAHS are male sex, age and obesity. Current estimates suggest that 1.5 million adults in the UK have OSAHS and of these 55% have mild OSAHS.²⁵ In the NICE costing template it is estimated that 90% of patients treated with CPAP will have moderate or severe OSAHS and only 10% mild.

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Glossary

| | |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| AHI | Apnoea Hypopnoea Index- the number of times per hour that a person has apnoea and hypopnoea based on measures of airflow and chest and abdominal movements. |
| Apnoea | Cessation of airflow lasting 10 seconds or longer |
| Hypopnoea | Reduction in airflow (usually due to partial obstruction of the upper airway) during sleep |
| Hyoid suspension | Surgery to adjust the position of the hyoid bone |
| Mandibular advancement | Surgery to move the lower jaw forward |
| Maxillomandibular advancement | Surgery to move the upper and lower jaw forward |
| ODI | Oxygen Desaturation Index - number of times per hour that a person is estimated to have an apnoea or hypopnoea based on blood oxygen levels. |
| Obstructive sleep apnoea | Total obstruction of the upper airway during sleep |
| Pharyngeal surgery | Surgery on the part of the throat where the nasal and oral cavities meet |
| Polysomnography | A complex overnight test used to diagnose sleep disorders |
| Pulse oximetry | Measurement of a person's blood oxygen concentration |
| Radiofrequency ablation | Destruction of tissue with heat from a high frequency current |
| Retrognathia | Abnormal positioning of the lower jaw producing a receding chin and narrowing of the upper airway |

| | |
|---------------------------|------------------------------------------------------------------------|
| Tonsillectomy | Surgical removal of the tonsils |
| Tracheostomy | Surgery to create an opening in the neck at the front of the wind pipe |
| Uvula | Small conical tissue hanging down from the roof of the mouth |
| Uvulopalatoplasty | Surgery to remove all or part of the uvula |
| Uvulopalatopharyngoplasty | Surgery to remove the uvula and other tissue in the throat |

This document is largely based on the work done in Cambridgeshire and we would like to thank colleagues in Cambridgeshire for their help.

The Epworth Sleepiness Scale (ESS)

How likely are you to doze off or fall asleep in the following situations, in contrast to feeling just tired? This refers to your usual way of life in recent times. Even if you have not done some of these things recently try to work out how they would have affected you. Use the following scale to choose the most appropriate number for each situation:

0 = would never doze

1 = slight chance of dozing

2 = moderate chance of dozing

3 = high chance of dozing

| SITUATION | CHANCE OF DOZING (0–3) |
|----------------------------------------------------------------|------------------------|
| Sitting and reading | |
| Watching television | |
| Sitting inactive in a public place (e.g. a theatre or meeting) | |
| As a passenger in a car for an hour without a break | |
| Lying down to rest in the afternoon when circumstances permit | |
| Sitting and talking to someone | |
| Sitting quietly after a lunch without alcohol | |
| In a car, while stopped for a few minutes in the traffic | |
| TOTAL SCORE | |