



Screening for Obstructive Sleep Apnoea-Hypopnoea Syndrome (OSAHS): Should the patient be referred for a Sleep Study?

Background

Obstructive Sleep Apnoea/Hypopnoea Syndrome (OSAHS) is part of a spectrum of sleep disordered breathing that also includes upper airway resistance syndrome and simple snoring. More than just a matter of disturbing a partner's sleep, OSAHS also leads to impaired daytime function, poor work productivity, irritability, depression and loss of libido. The associated wake-time sleepiness can lead to accidents when driving or operating dangerous machinery. Additionally, there is increasing evidence of an association with the metabolic syndrome including obesity, diabetes, hypertension and increased risk of myocardial infarct and stroke. OSAHS has implications for drivers, both category 1 and 2 (HGV, PSV) licence holders.

Who should be referred for further investigation/management in a Sleep Centre?

Patients who snore need to be assessed to see if they are likely to have OSAHS. In addition to an appropriate history and physical examination, two validated questionnaires should be completed for help in assessment. These are the Berlin Questionnaire (to assess OSAHS risk) and the Epworth Sleepiness Score. All patients considered 'high risk' by the Berlin Score should be referred to a Sleep Centre for further investigation and possible treatment. A high Epworth Score is an indication of impaired daytime function and may suggest a more urgent referral.

The Berlin Questionnaire separates patients into high and low risk for OSAHS. It consists of 3 domains; snoring, sleepiness/fatigue and risk factors. A positive response in 2 or more domains is indicative of high risk for OSAHS. Patients may need some help with this questionnaire since a calculation of BMI is required (see Appendix 1, Berlin Questionnaire).

The Epworth Sleepiness Score assesses the level of daytime sleepiness and can be elevated (abnormal) in a number of different conditions, including OSAHS. All patients suspected of having OSAHS should complete an Epworth Score questionnaire. Where possible, their partner should be asked to give a second opinion. This is because patients do not always fully appreciate the extent to which they are affected (see Appendix 2, Epworth Sleepiness Score). Any elevation in the ESS has implications for the patient's safety, life expectancy and quality of life. If not readily attributable to reduced opportunity for sleep, then a referral to a Sleep Centre may be appropriate. **(Range; 0-10, normal; 11-14, mildly sleepy; 15-18, significantly sleepy; 19-24, grossly sleepy).**

Urgent referral should be considered under the following circumstances:

- The combination of severe OSAHS and COPD
- Patients with symptoms suggestive of OSAHS who are sleepy while driving or working with machinery, or who are employed in hazardous occupations.
- Patients with symptoms suggestive of OSAHS and who have evidence of ventilatory failure.

Patients at low risk for OSAHS

Patients with a normal ESS and low risk on the Berlin Score should not normally be considered for referral to the Sleep Service. They should be provided (where appropriate) with counselling and information leaflets on the self-management of simple snoring, sedative and alcohol avoidance, weight loss, smoking cessation and the use of a mandibular repositioning device (MRD) or mandibular splint. All such patients should also be warned about the dangers of driving while sleepy.

References:

1. Johns MW. A new method for measuring daytime sleepiness: The Epworth Sleepiness Scale. *Sleep* 1991;**14**:540-5
2. Netzer NC, Stoohs RA, Netzer CM, Clark K, Strohl KP. Using the Berlin Questionnaire to identify patients at risk for the Sleep Apnoea Syndrome. *Annals of Internal Medicine* 1999; **131**:485-91
3. Scottish Intercollegiate Guidelines Network (SIGN). Management of Obstructive Sleep Apnoea/Hypopnoea Syndrome in Adults: a national clinical guideline. *SIGN guideline 73*, 2003. www.sign.ac.uk



Screening patients with possible OSAHS:
Appendix 2- The Epworth Sleepiness Score

Patients: How likely are you to doze off or fall asleep in the following situations in contrast to just feeling tired? Give an 'average' response for the last few weeks. Even if you have not done some of these things, it is important that you try to give a score that best reflects what it would be if you did.

Partners: please put down what you think their score is too, patients are not always the best judges of their own sleep problems!

Choose the appropriate score number from this scale:

0 = Would *never* doze

1 = *Slight* chance of dozing

2 = *Moderate* chance of dozing

3 = *High* chance of dozing

	Date:	Date:
	Patient's score	Partner's view
Sitting & reading		
Watching TV		
Sitting inactive in a public place (e.g. a theatre or a meeting)		
As a passenger in a car for an hour without a break		
Lying down to rest in the afternoon (when circumstances permit)		
Sitting & talking to someone		
Sitting quietly after lunch (without alcohol)		
In a car (as the driver) while stopped for a few minutes in traffic		
TOTAL		

**Screening patients with possible OSAHS:
Appendix 1- The Berlin Questionnaire**

Name:
Address:
D.O.B:

Height.....metres

Weight.....Kg

BMI.....Kg/m²

Category 1: Your Snoring

1. Your snoring is: <input type="checkbox"/> Slightly louder than breathing <input type="checkbox"/> As loud as talking <input type="checkbox"/> Louder than talking <input type="checkbox"/> Very loud: can be heard in adjacent rooms	3. Has your snoring ever bothered other people? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know
2. How often do you snore? <input type="checkbox"/> Nearly every day <input type="checkbox"/> 3-4 times a week <input type="checkbox"/> 1-2 times a week <input type="checkbox"/> 1-2 times a month <input type="checkbox"/> Never or nearly never	4. Has anyone noticed that you quit breathing during your sleep? <input type="checkbox"/> Nearly every day <input type="checkbox"/> 3-4 times a week <input type="checkbox"/> 1-2 times a week <input type="checkbox"/> 1-2 times a month <input type="checkbox"/> Never or nearly never

Category 1 is positive if one or more 'boxed' response is given

Category 2: Tiredness & Fatigue

5. How often do you feel tired or fatigued after your sleep? <input type="checkbox"/> Nearly every day <input type="checkbox"/> 3-4 times a week <input type="checkbox"/> 1-2 times a week <input type="checkbox"/> 1-2 times a month <input type="checkbox"/> Never or nearly never	7. Have you ever nodded off or fallen asleep while driving a vehicle? <input type="checkbox"/> Yes <input type="checkbox"/> No
6. During your waking time, do you feel tired, fatigued or not 'up to par'? <input type="checkbox"/> Nearly every day <input type="checkbox"/> 3-4 times a week <input type="checkbox"/> 1-2 times a week <input type="checkbox"/> 1-2 times a month <input type="checkbox"/> Never or nearly never	8. If yes, how often does this occur? <input type="checkbox"/> Nearly every day <input type="checkbox"/> 3-4 times a week <input type="checkbox"/> 1-2 times a week <input type="checkbox"/> 1-2 times a month <input type="checkbox"/> Never or nearly never

Category 2 is positive if 2 or more 'boxed' responses are given

Category 3: Other Risk Factors

9. Do you have high blood pressure (includes all people on treatment for blood pressure)? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Don't know	10. Is your Body Mass Index (BMI) greater than 30 Kg/m² (you may need the help of your doctor or nurse to answer this)? <input type="checkbox"/> Yes <input type="checkbox"/> No
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Category 3 is positive if one or more 'boxed' response is given

Overall Risk Assessment for OSAHS: ...
Low Risk: 0 or 1 positive category.....
High Risk: 2 or more positive categories