



Service specification for sleep apnoea and CPAP provision

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1. Introduction

The recent (March 2008) NICE Health Technology Appraisal (HTA) of continuous positive airway pressure (CPAP) for obstructive sleep apnoea hypopnoea syndrome (OSAHS) recommends it as a treatment option for adults with moderate or severe symptomatic OSAHS and also for patients with mild disease and disabling symptoms unresponsive to simpler therapies (1). The following service specification, prepared by the British Thoracic Society (BTS) Specialist Advisory Group on sleep apnoea is an interim statement of policy designed to assist both commissioners and providers to implement the NICE recommendations within an overall service for OSAHS. It has been endorsed by the patient support organisation, the Sleep Apnoea Trust Association (SATA) (2) and the General Practice Airways Group (GPIAG) of primary care health professionals (3)

2. Components of service

A full service for patients with suspected OSAHS includes initial clinical assessment, investigation, diagnosis, provision of treatment and clinical and technical follow up with long term supervision of treatment where appropriate.

3. Roles of primary care

Most primary care practitioners have limited experience of the condition; it is not widely taught in medical schools and features only very briefly in the GP training curriculum. The NICE HTA recognises that there are currently insufficient resources and training in primary care for general practitioners to take full responsibility for patients being treated with CPAP for OSAHS. However, GPs clearly have a very important role in the initial suspicion or recognition of the condition. Normally, this leads to referral to secondary care, usually to a respiratory medicine department with an experienced team providing a sleep apnoea service. Depending on local arrangements and geography, "outreach" sessions may be appropriately provided by specialist teams in a primary care setting. Patients not requiring specific treatment are referred back to the general practitioner, who also shares responsibility for the clinical follow up of patients receiving treatment.

4. Role of specialist service

The NICE HTA states that "the diagnosis and treatment of OSAHS and the monitoring of the response, should be carried out by a specialist service with appropriately trained medical and support staff". This point was emphasised because all the randomised controlled data demonstrating the considerable cost / benefit ratio of CPAP in OSAHS come from hospital departments with experienced medical and support staff together with the necessary infrastructure. Other evidence shows that patient support influences compliance with therapy (and therefore, cost / benefit ratio). It cannot be assumed that similar benefit would accrue if CPAP was initiated and monitored in a less expert and supportive environment.

5. Role of clinician responsible for specialist service

The service requires an appropriately experienced medical lead, who will usually be a consultant respiratory physician. In addition to overall supervision of the service, his /her roles include clinical assessment, recognition of relevant comorbidity, differential diagnosis, interpretation of the results of the sleep study in the context of the overall clinical picture, decisions on treatment and availability for advice to other members of the team.

6. Roles of non medical staff

In most departments, the day to day running of the service is by non medical staff. Depending on local circumstances, these include specialist nurses, clinical physiologists and scientists and respiratory physiotherapists. They should have ready access to the physician responsible for the service for clinical advice as required. The roles of individual healthcare professionals vary considerably in different departments. In general, specialist nurses have a more clinical and educational role while technical and scientific staff may be more responsible for diagnostic sleep studies, technical reporting and provision of CPAP but rigid demarcation of responsibilities is not appropriate. Nurse led clinics for follow up of patients on treatment are now the norm in many departments. Secretarial and IT support are also essential.

7. Types of investigation

The technology used for investigating sleep apnoea or other forms of sleep disordered breathing is of secondary importance to the experience and training of those interpreting the results. Most investigations for suspected OSAHS are performed in the patient's home, using either oximetry or a limited sleep study (also known as cardiopulmonary sleep study or respiratory polysomnography). A minority of patients require detailed in hospital polysomnography (PSG), particularly if there is serious doubt about the diagnosis or in the presence of complex comorbidity, eg severe COPD or neuromuscular disease. Depending on local circumstances, limited studies may also be performed in hospital eg if patients have to travel a long distance and / or express a preference for in hospital rather than domiciliary investigation. Oximetry alone can confirm severe OSAHS but has significant rates of both false negatives and false positives such that a domiciliary limited sleep study is now preferred as the primary investigation in many departments. Irrespective of the type of investigation, accurate interpretation and recognition of artefacts is essential, and this requires considerable experience. Reliance on automated analysis to decide potentially lifelong treatment produces too many errors for clinical acceptability and all sleep studies should be subject to detailed manual review of any automated scoring. Quality standards for diagnostic sleep studies are covered in detail by the Association for Respiratory Technology and Physiology (ARTP) (4).

8. Diagnosis of OSAHS

Accurate diagnosis of sleep apnoea and assessment of the likely future benefit from treatment are necessary before long term treatment is initiated. Because both snoring and sleepiness are very common, the two may occur together by chance and identification of other reasons for sleepiness requires an appropriate clinical history in addition to the sleep study. For example, other conditions causing or contributing to sleepiness include narcolepsy and other neurological disorders, depression and periodic limb movements during sleep, in addition to the effects of medication, social factors and shift work. Misdiagnosis and consequent inappropriate use of CPAP are both wasteful economically and potentially harmful to patients. As with any other serious condition, confirmation of diagnosis is necessary before embarking on potentially lifelong treatment. If a patient's care is transferred to a different sleep service (eg due to relocation or seeking a further opinion) the evidence for the diagnosis and appropriateness of the treatment should be fully reviewed. Differential diagnosis also includes the distinction from central

sleep apnoea (eg as seen in patients with congestive heart failure) and the recognition of patients with chronic respiratory failure (eg obesity hypoventilation syndrome or coexistent COPD) who may require alternative treatment such as nocturnal non invasive ventilation. Furthermore, it is important that other health problems associated with OSAHS, such as hypertension, diabetes and the metabolic syndrome are identified and treated appropriately. For all these reasons, the diagnosis of OSAHS should be the responsibility of an experienced physician.

9. Decisions on treatment

The treatment of a patient with obstructive sleep apnoea or other forms of sleep disordered breathing should not be determined solely by the result of a sleep study. The decision requires specialist medical input and depends on the combination of symptoms, clinical assessment, the results of the sleep study and the patient's willingness to accept the treatment proposed. A sleep study is used to identify the presence of sleep disordered breathing, clarify its nature and assess the severity of the functional disturbance but the decision to treat and the long term benefits of treatment depend more on pre-treatment symptoms than precise quantitation of the sleep study. A decision to treat based solely on indices such as the apnoea / hypopnoea index is not appropriate and is not likely to lead to good overall compliance with therapy. Weight reduction advice is important where relevant, but many patients with OSAHS are of normal weight or only mildly overweight. In patients with disabling symptoms it is not appropriate to defer treatment with CPAP pending attempted weight loss. Other forms of treatment which may be relevant to particular individuals include bariatric surgery, tonsillectomy or an intraoral mandibular advancement device.

10. Initiation of CPAP treatment

Some patients struggle at first with CPAP treatment and without appropriate support would not persist. Education of the patient, encouragement, attention to detail and time spent with the patient are essential at the start and during the early period of treatment and have a major influence on long term compliance. Prescription of the equipment alone, without such support, is likely to be unsuccessful. It is common experience in specialist centres that inadequate initial introduction of the treatment can have a negative effect and can lead to individuals being regarded incorrectly as "CPAP intolerant". Although more appropriate subsequent re-introduction with education, encouragement and support may still succeed, the initial experience can seriously prejudice the eventual outcome.

11. CPAP setting

In many departments the pressure is decided after using an auto-titrating device for the first night or few nights, with the optimal fixed pressure inferred from the overall pressure profile recorded eg by setting the pressure at the 95th centile of the auto CPAP recording. Others use an algorithm or a standard pressure with later adjustment as required (eg increasing if the patient reports continued snoring while using CPAP).

12. Patient interfaces

Patient interfaces are more important for comfort and compliance with treatment than the CPAP hardware itself. It is essential that services have a range of interfaces as many patients try three or four before finding one which suits them. A range of such "consumable" items should therefore be available, preferably from several manufacturers.

13. Initial treatment phase

In many centres, the decision about long term treatment with CPAP follows a trial period (often 2-4 weeks). In the early weeks of treatment with CPAP, frequent contact may be required by the patient for

troubleshooting, encouragement, re-fitting or changing interfaces, adding a humidifier etc. Such contact can be either face to face or by telephone but, in either case, it is essential that patients have ready access to experienced staff. Even with optimum encouragement, education, trial of various interfaces etc, a proportion of patients eventually do not persist with it. In some, the symptoms may have been due to other causes such as depression or medication, while a few are genuinely intolerant of the treatment due to problems such as claustrophobia. Early review should allow most of these issues to be clarified and with appropriate choice of patients, the “failure rate” is likely to be no more than 20 %. Health professionals need to be aware that CPAP can have a significant placebo effect, in which case early symptomatic benefit may not be sustained. Follow up with objective monitoring of compliance is therefore essential.

14. Persisting symptoms

A minority of patients remain sleepy despite good compliance with CPAP. This should prompt senior clinical review to consider alternative diagnoses, the need for a more detailed sleep study and/or the need for repeat CPAP titration...

15. Long term supervision of CPAP treatment

Once a patient has been established satisfactorily on regular treatment, many services offer annual review, which combines clinical contact with a check on the machine (interface, headgear, filters, compliance). Some with well controlled OSAHS may not need to be seen as frequently; effective liaison with primary care should ensure that such patients are seen promptly for full clinical review should the need arise. Whether or not patients attend for regular follow up, interim ad hoc contact is frequently necessary, particularly for replacement masks, tubing or headgear. Ready availability of experienced personnel is essential, either with an open access policy during working hours or by telephone contact. Replacement parts need to be dispatched promptly if patients are unable to collect them. On average, masks and other interfaces require replacement about once a year while CPAP pumps usually survive for 5- 7 years. Further clinical attention may be necessary during long term treatment to deal with problems such as major nasal congestion, nasal bridge ulceration and persisting sleepiness. Failure to address these issues will lead to lower compliance and poor resolution of symptoms, or, indeed, to the patient stopping CPAP altogether which clearly represents a waste of the resources expended up to that point. Although the bulk of the follow up is appropriately performed by experienced nonmedical staff, specialist medical advice should be readily available if the cause of problems such as persistent or recurrent sleepiness is not immediately evident. Advice is often required for patients who require hospitalisation for surgical procedures or other reasons, as many medical and nursing staff in other specialties are unfamiliar with OSAHS and its treatment.

16. Implications for driving

A diagnosis of the sleep apnoea syndrome has important implications for driving. In the UK, the DVLA states clearly that a patient with the sleep apnoea syndrome should inform them of the condition and that driving should cease until symptoms are controlled (5). It is however, important in this context to differentiate sleep apnoea (the pathophysiological finding) from the sleep apnoea syndrome (which combines sleep disordered breathing with relevant clinical symptoms). The latter requires accurate diagnosis in both technical and clinical terms. Whether the symptoms are sufficiently severe to impair the ability to drive safely, or, indeed, whether they are actually related to the sleep apnoea, requires specialist medical assessment. Neither blanket bans on driving, based solely on the result of a sleep study, nor deliberate evasion of the issue are appropriate. In addition, a diagnosis of sleep apnoea has important implications for motor insurance as companies generally consider that the condition should be declared and they might decline to cover someone who subsequently turns out to have sleep apnoea and who has not told either the DVLA or the insurance company. This is a particularly difficult area and patients need guidance if they are not to run foul of the law and risk the legal consequences. A properly

documented, evidence based, diagnosis of sleep apnoea (or alternative disorder), is therefore essential. In addition, establishing whether resolution of symptoms has been sufficient to allow driving again once the patient has started treatment is often an important component of the follow up and requires specialist medical opinion. This is of particular importance for drivers of heavy goods and public service vehicles, who, after resuming driving, may require annual review of their continued fitness to drive.

17. Information for patients

Appropriate adjunctive support for patients should be freely available. A range of literature and a helpline are provided by the SATA (2). Educational and training videos eg on initiation of CPAP are used in some departments and are strongly recommended.

18. Resource requirements for sleep services (personnel and facilities)

It is difficult to be specific when recommending staffing requirements due to the varying ways in which established units have evolved their services and also to the considerable variation in size of catchment areas. Economies of scale are self evident, not only in terms of equipment provision but also in patient education eg, with group initiation of CPAP as practised in some units. It is also important to recognise the cumulative effect of the inevitably growing number of patients on long term treatment. Consequently, most departments which have been in operation for some years have seen considerable growth in total numbers requiring follow up supervision. This growth is likely to continue for the foreseeable future as best estimates suggest that no more than 1 in 4 patients with symptomatic OSAHS in the UK have so far been identified. Convenient access to specialist facilities for investigation and treatment are therefore needed for the population of each PCT (or equivalent). The BTS view is that these facilities should be provided by each large hospital or group of hospitals

The following suggestions should be taken only as provisional and the numbers of staff required are likely to increase if the recent pattern of accrual of follow up patients continues. As a guideline, an average DGH department serving a population of about half a million with approximately 500 new referrals per annum, 200 new CPAP patients per annum and a cumulative follow up population of 1500 on long term CPAP treatment is likely to need:

- consultant medical staff (usually respiratory physician) 0.5 – 0.8 wte
- nursing / scientific / technical staff 3 - 4 wte
- secretarial / clerical staff 1 wte

Different requirements will apply to services which provide a comprehensive service covering the broad range of sleep disorders.

An accurate database of patients on long term treatment is also an essential component of the service. Most investigations and initiation of CPAP are done in a domiciliary setting with the patients attending the department for instruction, education and demonstration. Access to full PSG is necessary for a minority of patients but this will not be available in every department / service. It should however, be possible for appropriate patients to be referred conveniently to a facility which provides this service without undue delay or lengthy travel.

19. Training requirements – medical staff

Training and experience in sleep disordered breathing is an essential part of the curriculum for all specialist registrars in respiratory medicine, with a minimum of 3 months spent in a service under the supervision of an experienced physician (6). Hence, all respiratory consultants appointed in the last few years have significant experience. A longer period of subspecialty training (12 months) is recommended for those responsible for a large sleep service (7). Sleep apnoea should feature more prominently in the medical undergraduate and general practice curricula.

20. Training requirements – technical and scientific staff

Standards for training in the technical aspects of sleep apnoea and related disorders are covered in detail by the ARTP (4)

21. Training requirements – specialist nurses and physiotherapists

No specific training requirements have been laid down for other health professionals. Most are nurses with several years' clinical experience, usually in associated areas such as general respiratory medicine or a high dependency unit. Others may be experienced respiratory physiotherapists. The training of such individuals is mainly by supervised work experience. We recommend that this should extend for at least 6 months full time in an established sleep apnoea service, plus attendance at a relevant training course such as those provided by the BTS, ARTP and British Sleep Society (or equivalent).

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