

# Ambulatory Diagnosis and Management of Obstructive Sleep Apnea

## Screening Questionnaires, Diagnostic Tests, and the Care Team



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### KEYWORDS

• Obstructive sleep apnea • Ambulatory care • Self-care

### KEY POINTS

- The prevalence of obstructive sleep apnea (OSA) is increasing, and there is currently a large, unmet community burden of disease.
- There is a need to involve a wider range of health professionals in the identification and care of patients with OSA, using simplified diagnostic and treatment systems.
- With the appropriate sleep training, nurses and primary care physicians can achieve patient outcomes that are comparable with those of sleep physicians.
- An integrated multidisciplinary approach to care is needed and patients with OSA should be empowered to engage more actively in their own care.

Referral to specialist services for the diagnosis and management of obstructive sleep apnea (OSA) has increased markedly in the last 2 decades. This increase has been driven by increased public awareness and greater appreciation by health professionals of the importance of OSA (ie, its potential to negatively affect quality of life because of daytime fatigue and sleepiness and to increase the risk of accidents and cardiovascular disease) and by the increasing prevalence of the disease caused by the global obesity epidemic. In Australia, where almost all sleep apnea diagnostic tests are charged to the national insurer,

Medicare, the number of polysomnography (PSG) tests increased by 150% more than population growth in the decade 1995 to 2004<sup>1</sup> and this growth trend has continued unabated since then.<sup>2</sup> Despite this increased clinical activity there is evidence of considerable residual undiagnosed symptomatic and/or severe OSA in the Australian community. For example, a recent community cohort study of adult men aged more than 45 years in South Australia showed that although 10% indicated they had been previously diagnosed with OSA by sleep study, PSG studies on the remaining participants uncovered 26% who had moderate to

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severe OSA (apnea-hypopnea index [AHI]  $\geq 20$ ).<sup>3</sup> This high, unmet burden of disease is unlikely to be limited to Australia. This observation, and the already rapidly increasing cost of sleep apnea investigations and treatment, has led to a reexamination of how patients might be more efficiently identified and managed.

Evidence-based sleep apnea practice guidelines have been produced in several countries.<sup>4,5</sup> These guidelines have helped establish evidence-based pathways for diagnosis and care in specialist practice, but the extent to which these have been promulgated and found to be useful in primary care is less certain.

With the community prevalence of moderate to severe OSA (defined as an AHI  $>15$  events per hour of sleep) now reported to be as high as 10% to 25%,<sup>6,7</sup> sleep specialists alone are not able to assess and manage every case of OSA. The authors and others think that there is a need to involve primary care physicians (PCPs) and other health professionals in the care of patients, while facilitating connections to specialist sleep services in a hub-and-spoke fashion. It would also be advantageous if the large numbers of people with simple snoring or mild to moderate, minimally symptomatic OSA could be directed toward preventive and self-care programs that encourage lifestyle changes (eg, weight loss, alcohol avoidance) and simple treatment strategies (eg, avoidance of supine sleep), perhaps supported by nurses or other suitably trained professionals.

### **THE IMPORTANCE OF PATIENT HISTORY, EXAMINATION, AND CLINICAL JUDGEMENT**

The identification of patients at high risk of OSA requires that an appropriate history and examination be undertaken and an assessment made as to the likelihood not only that the patient has OSA but of whether it is adversely affecting their daytime functioning and/or increasing their long-term risk of accidents or cardiovascular disease, and might therefore benefit from treatment. The initial clinical assessment is often followed by a diagnostic sleep study, either full PSG or a limited-channel overnight respiratory or cardiorespiratory recording. However, the clinical diagnosis and assessment of patients suspected of OSA is imprecise. For example, a great deal of weight is often placed on a single-night measurement of the AHI and a specific AHI diagnostic cut-point value, but there is significant night-to-night variability in the severity of OSA, such that, when patients are retested, 20% or more move from one diagnostic category to another.<sup>8</sup>

Also, assessing the degree of daytime sleepiness and the extent to which OSA is the cause of the sleepiness, and advising on long-term accident and cardiovascular risk, is not straightforward. Although OSA is associated with a 2.5-fold increased risk of accidents,<sup>9</sup> many patients with OSA, even those with severe OSA (AHI $>30$ ), do not report excessive daytime sleepiness, and do not show hypersomnolence on objective testing, including during driving simulation.<sup>10</sup> In contrast, in some patients with OSA who report daytime sleepiness, alternative causes of sleepiness can be identified (eg, chronic sleep restriction caused by lifestyle factors, co-occurring medical disorders, or concomitant use of sedating medication). Observational studies point to a strong association between severe OSA and increased risk of stroke and cardiovascular mortality, but weaker associations between OSA and ischemic heart disease.<sup>11–13</sup> Few studies support that mild or moderate OSA increases cardiovascular risk. At present there are no adequately powered randomized controlled studies showing that continuous positive airway pressure (CPAP) treatment reduces cardiovascular risk<sup>14</sup> and, with the exception of patients with OSA with resistant hypertension,<sup>15</sup> randomized controlled trials (RCTs) of CPAP treatment show only small reductions in blood pressure.<sup>16</sup> Thus, advising patients with OSA on the likelihood of long-term adverse sequelae can be difficult because of the marked phenotypic variation between patients with OSA and a scarcity of level 1 evidence supporting the role of treatment to influence long-term outcomes.

It is critically important therefore that attending health professionals have adequate training and knowledge of OSA, including the treatment options available to patients, how overlapping sleep disorders can affect patients' symptoms, the limitations of diagnostic sleep studies, and the evidence as it relates to the effects of OSA and its treatment on long-term health outcomes.

### **OBSTRUCTIVE SLEEP APNEA SCREENING QUESTIONNAIRES AND CLINICAL PREDICTION TOOLS**

There has been considerable recent interest in the value of questionnaires and simple clinical prediction tools to assist PCPs and sleep specialists in the identification and management of OSA. Such tools also have the potential to be useful for occupational screening (eg, truck drivers) and to help people in the general community assess and manage their own risk.

The clinical usefulness of an OSA questionnaire or clinical prediction tool depends on (1) the extent

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