

CADTH Reference List

Diagnosis, Management, and Reassessment of Obstructive Sleep Apnea in Adults

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Key Messages

- Three evidence-based guidelines were identified regarding the diagnosis of obstructive sleep apnea and the use of bilevel or continuous positive airway pressure devices and oral appliances for the treatment of adults with obstructive sleep apnea.
- No evidence-based guidelines were identified regarding the reassessment of adults previously diagnosed with obstructive sleep apnea.

Research Questions

1. What are the evidence-based guidelines regarding the diagnosis of obstructive sleep apnea and the use of bilevel or continuous positive airway pressure devices and oral appliances for the treatment of adults with obstructive sleep apnea?
2. What are the evidence-based guidelines regarding the reassessment of adults previously diagnosed with obstructive sleep apnea?

Methods

Literature Search Methods

A limited literature search was conducted by an information specialist on key resources including MEDLINE, the Cochrane Database of Systematic Reviews, the international HTA database, the websites of Canadian and major international health technology agencies, as well as a focused internet search. The search strategy comprised both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concepts were obstructive sleep apnea and continuous positive airway pressure (CPAP)/bilevel positive airway pressure (BiPAP) machines and oral appliances. Search filters were applied to limit retrieval to health technology assessments, systematic reviews, meta-analyses, or network meta-analyses; randomized controlled trials or controlled clinical trials; and guidelines. Comments, newspaper articles, editorials, and letters were excluded. Where possible, retrieval was limited to the human population. The search was also limited to English-language documents published between January 1, 2016 and March 11, 2021. Internet links were provided, where available.

Selection Criteria and Summary Methods

One reviewer screened literature search results (titles and abstracts) and selected publications according to the inclusion criteria presented in Table 1. Full texts of study publications were not reviewed. The Overall Summary of Findings section was based on information available in the abstracts of selected publications. Open-access, full-text versions of evidence-based guidelines were reviewed when abstracts were not available, and relevant recommendations were summarized.

Table 1: Selection Criteria

Criteria	Description
Population	Adults (with or without comorbidities) diagnosed with any severity of OSA
Intervention	Q1: Treatment decisions regarding the use of BiPAP or CPAP devices and oral appliances including MADs and TRDs based on OSA diagnosis Q2: Criteria for OSA diagnosis reassessment
Comparator	Not applicable
Outcomes	Q1: Recommendations regarding the best practice for treatment decisions based on OSA diagnosis Q2: Recommendations regarding the best practice for OSA diagnosis reassessment
Study Designs	Evidence-based guidelines

BiPAP = bilevel positive airway pressure; CPAP = continuous positive airway pressure; MADs = mandibular advancement devices; OSA = obstructive sleep apnea; Q = question; TRD = tongue-retaining devices.

Results

Three evidence-based guidelines¹⁻³ were identified regarding the diagnosis of obstructive sleep apnea (OSA) and the use of BiPAP or CPAP devices and oral appliances for the treatment of adults with OSA. No evidence-based guidelines were identified regarding the reassessment of adults previously diagnosed with OSA.

Additional references of potential interest that did not meet the inclusion criteria are provided in Appendix 1.

Overall Summary of Findings

Three evidence-based guidelines from the American Academy of Sleep Medicine,¹ Veterans Affairs and the Department of Defense,² and a panel of experts in Amsterdam³ offered recommendations regarding the use of CPAP devices and oral appliances for the treatment of adults with OSA. No evidence-based guidelines were identified regarding the reassessment of adults previously diagnosed with OSA; therefore, no summary can be provided. A summary of relevant recommendations in the included guidelines can be found in Table 2.

Table 2: Summary of Relevant Recommendation in Included Guideline

Summary of Guideline Recommendations
American Academy of Sleep Medicine (2019)¹
<p>For clinicians using PAP to treat OSA in adults:</p> <ul style="list-style-type: none"> • In adult patients with OSA and excessive sleepiness it is recommended that PAP, compared to no therapy, is used (Strong). (p. 335) • In adult patients with OSA and impaired sleep-related quality of life or comorbid hypertension it is suggested that PAP, compared to no therapy, is used (Conditional). (p. 335) • In adults with OSA and no significant comorbidities it is recommended that PAP therapy be initiated using either APAP at home or in-laboratory PAP titration (Strong). (p. 335) • For ongoing treatment of OSA in adults it is recommended to use either CPAP or APAP (Strong). (p. 335) • For the routine treatment of OSA in adults it is suggested to use CPAP or APAP over BiPAP (Conditional). (p. 335)
Veterans Affairs and the Department of Defense, US (2019)²
<p>Treatment of OSA:</p> <ul style="list-style-type: none"> • For patients with severe OSA (i.e., AHI > 30 events per hour), the recommended initial therapy is PAP. (p.26) • For patients with mild to moderate OSA (i.e., AHI 5 ≤ 30 events per hour), either PAP or MAD therapy can be considered for initial therapy, with the choice of treatment based on clinical evaluation, comorbidities, and patient preference (Weak). (p.26,27) • Patients with OSA on PAP therapy are recommended to use this treatment for the entirety of their sleep period(s) (Strong). (p.27) • Patients using PAP therapy for OSA are recommended to continue therapy even if the patient is using this treatment for < 4 hours per night (Weak). (p.27) • For patients with OSA, including those at high-risk for poor PAP adherence, such as those with posttraumatic stress disorder, anxiety, or insomnia, we recommend educational, behavioural, and supportive interventions to improve PAP adherence (Strong). (p.27) • Patients with OSA and concurrent diagnoses/symptoms of posttraumatic stress disorder, anxiety, or insomnia are recommended to be offered interventions to improve PAP adherence upon initiation of therapy (Weak). (p.27) • In those OSA patients who are not adherent to PAP and/or MAD therapy or have persistent symptoms despite adequate therapy, referral to a physician with expertise in sleep medicine is recommended. (p.26) • There is not enough evidence to recommend for or against: auto-titrating PAP when compared to fixed PAP, or the use of flexible pressure delivery (e.g., C-Flex, expiratory pressure relief) to improve PAP adherence (Neither for or against). (p.28)
de Raaff, et al. (2017)^{3,a}
<ul style="list-style-type: none"> • CPAP is recommended for all patients with moderate and severe OSA

AHI = apnea-hypopnea index; APAP = auto-adjusting positive airway pressure; BiPAP = bilevel positive airway pressure; CPAP = continuous positive airway pressure; MAD = mandibular advancement device; OSA = obstructive Sleep Apnea; PAP = positive airway pressure.

^aThe full-text was unavailable for this guideline; therefore, this summary was based on information presented in the abstract. The updated version of this guideline⁸ can be found in the appendix, as the abstract did not adhere to CADTH criteria as evidence-based and therefore could not be included in the summary.

References

Guidelines and Recommendations

1. Patil SP, Ayappa IA, Caples SM, et al. Treatment of Adult Obstructive Sleep Apnea with Positive Airway Pressure: An American Academy of Sleep Medicine Clinical Practice Guideline. *J Clin Sleep Med*. 2019 02 15;15(2):335-343. <https://jasm.aasm.org/doi/10.5664/jasm.7640> Accessed 2021 Mar 26.
See: PAP therapy; Initiation of PAP therapy.
2. VA/DoD CPG for the Management of Chronic Insomnia Disorder and Obstructive Sleep Apnea. Washington (DC): U.S. Department of Veterans Affairs and Department of Defense; 2019: <https://www.healthquality.va.gov/guidelines/CD/insomnia/VADoDSleepCPGFinal508.pdf> Accessed 2021 Mar 26.
See: Sidebar 9: Treatment of OSA, page 26; VI Recommendations – Treatment and Management of Obstructive Sleep Apnea, page 27 to 28.
3. de Raaff CAL, Gorter-Stam MAW, de Vries N, et al. Perioperative management of obstructive sleep apnea in bariatric surgery: a consensus guideline. *Surg Obes Relat Dis*. 2017 07;13(7):1095-1109. [PubMed](#)

Appendix 1: References of Potential Interest

Previous CADTH Reports

- Interventions for the treatment of obstructive sleep apnea in adults: a health technology assessment. Ottawa: CADTH; 03 2017. (CADTH optimal use report; vol.6, no.1b). <https://cadth.ca/interventions-obstructive-sleep-apnea>

Guidelines and Recommendations

In Progress

- National Institute for Health and Care Excellence. Obstructive sleep apnoea/hypopnoea syndrome and obesity hypoventilation syndrome in over 16s (*Guideline in development GID-NG10098*) 2021; <https://www.nice.org.uk/guidance/indevelopment/gid-ng10098>. Accessed 2021 Mar 26.

Clinical Practice Guidelines

Unclear Methodology

- Sleep Disorder Management. *Clinical Appropriateness Guidelines*. Chicago (IL): AIM Specialty Health; 2020: https://aimspecialtyhealth.com/wp-content/uploads/2019/11/AIMSleepDisorderManagement_Guidelines.pdf. Accessed 2021 Mar 26.
See: Diagnosis of OSA, page 7; Treatment of OSA, page 8; Clinical Indications, page 8-12.
- Sleep Disorder Management. *Diagnostic & Treatment Guidelines*. Chicago (IL): AIM Specialty Health; 2019: https://aimspecialtyhealth.com/guidelines/PDFs/2019/Jan27/AIMSleepDisorderManagement_Guidelines.pdf. Accessed 2021 Mar 26.
See: Overview, Treatment of OSA, page 6.
- de Raaff CAL, de Vries N, van Wagenveld BA. Obstructive sleep apnea and bariatric surgical guidelines: summary and update. *Curr Opin Anaesthesiol*. 2018 02;31(1):104-109. [PubMed](#)
- Gurubhagavatula I, Sullivan S, Meoli A, et al. Management of Obstructive Sleep Apnea in Commercial Motor Vehicle Operators: Recommendations of the AASM Sleep and Transportation Safety Awareness Task Force. *J Clin Sleep Med*. 2017 06 15;13(5):745-758. [PubMed](#)
- Colvin LJ, Collop NA. Commercial Motor Vehicle Driver Obstructive Sleep Apnea Screening and Treatment in the United States: An Update and Recommendation Overview. *J Clin Sleep Med*. 2016 01;12(1):113-125. [PubMed](#)
- Le Grande MR, Neubeck L, Murphy BM, et al. Screening for obstructive sleep apnoea in cardiac rehabilitation: A position statement from the Australian Centre for Heart Health and the Australian Cardiovascular Health and Rehabilitation Association. *Eur J Prev Cardiol*. 2016 09;23(14):1466-1475. [PubMed](#)
- Malachias MVB, Bortolotto LA, Drager LF, Borelli FAO, Lotaf LAD, Martins LC. 7th Brazilian Guideline of Arterial Hypertension: Chapter 12 - Secondary Arterial Hypertension. *Arq Bras Cardiol*. 2016 09;107(3 Suppl 3):67-74. [PubMed](#)
See: Obstructive Sleep Apnea

Systematic Methodology Not Specified

- Liu CF, Wang T, Zhan SQ, et al. Management Recommendations on Sleep Disturbance of Patients with Parkinson's Disease. *Chin Med J*. 2018 12 20;131(24):2976-2985. [PubMed](#)
See: Sleep-disordered breathing
- Telem DA, Jones DB, Schauer PR, et al. Updated panel report: best practices for the surgical treatment of obesity. *Surg Endosc*. 2018 10;32(10):4158-4164. [PubMed](#)
- Busetto L, Dicker D, Azran C, et al. Practical Recommendations of the Obesity Management Task Force of the European Association for the Study of Obesity for the Post-Bariatric Surgery Medical Management. *Obes Facts*. 2017;10(6):597-632. [PubMed](#)

Not Specific to the Diagnosis, Management, or Reassessment of Obstructive Sleep Apnea

- Force USPST, Bibbins-Domingo K, Grossman DC, et al. Screening for Obstructive Sleep Apnea in Adults: US Preventive Services Task Force Recommendation Statement. *JAMA*. 2017 01s 24;317(4):407-414. [PubMed](#)
- Chung F, Memtsoudis SG, Ramachandran SK, et al. Society of Anesthesia and Sleep Medicine Guidelines on Preoperative Screening and Assessment of Adult Patients With Obstructive Sleep Apnea. *Anesth Analg*. 2016 08;123(2):452-473. [PubMed](#)

Not Specific to Obstructive Sleep Apnea

18. Netzer NCC, Ancoli-Israel SC-C, Bliwise DL, et al. Principles of practice parameters for the treatment of sleep disordered breathing in the elderly and frail elderly: the consensus of the International Geriatric Sleep Medicine Task Force. *Eur Respir J*. 2016 10;48(4):992-1018. [PubMed](#)

Consensus-Based Recommendations

19. Del Pinto R, Grassi G, Ferri C, et al. Diagnostic and Therapeutic Approach to Sleep Disorders, High Blood Pressure and Cardiovascular Diseases: A Consensus Document by the Italian Society of Hypertension (SIIA). *High Blood Press Cardiovasc Prev*. 2021 03;28(2):85-102. [PubMed](#)
20. Giustina A, Barkan A, Beckers A, et al. A Consensus on the Diagnosis and Treatment of Acromegaly Comorbidities: An Update. *J Clin Endocrinol Metab*. 2020 04 01;105(4):01. [PubMed](#)