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Appendix A. Delineation of Operational Rules Used to Classify Monitors in Sleep Studies (Balk [AHRQ] 2011, p. 4)

Table 1. Delineation of operational rules used to classify monitors in sleep studies

Type	Portability	Number of Channels	Indicative signals	≥2 airflow/ effort channels	Identifies sleep/ wake	Measures AHI
I	Facility-based	~14–16	EEG, EOG, EMG, ECG/HR, airflow, effort, SaO2	Yes	Yes	Yes
II	Portable	≥7	May have EEG, HR*, EOG, chin EMG, ECG/HR, airflow, effort, SaO2	Yes	Yes	Yes
III	Portable	≥4	Airflow and/or effort, ECG/HR, SaO2	Yes	No	No
IV	Portable	~1-3†	[All monitors not qualifying for Type III]	No	No‡	No

AHI = apnea-hypopnea index, ECG = electrocardiography, EEG = electroencephalography, EMG = electromyography, EOG = electro-oculography, HR = heart rate, SaO2 = arterial O2 saturation.

* Heart rate is allowed instead of EEG in Type II monitors. Essentially, many Type II monitors gather the same signals as Type I monitors.

† May have more than three channels, provided that criteria for Type III are not met

‡ May include monitors that measure signals that are in principle able to identify arousals from sleep.

Appendix B. MEDLINE® Updated Search Strategy for Key Questions #1 to #7

1 exp Sleep Apnea Syndromes/ or exp Sleep Apnea, Obstructive/ (21241)
2 exp Airway Resistance/ (13220)
3 exp snoring/ (3054)
4 Upper airway resistance syndrome.mp. (209)
5 Respiratory disturbance.mp. (1112)
6 obstructive sleep apn?ea.mp. (12664)
7 or/1-6 (36624)
8 randomized controlled trial.pt. (624438)
9 controlled clinical trial.pt. (164845)
10 randomized controlled trials/ (83444)
11 Random Allocation/ (94063)
12 Double-blind Method/ (208379)
13 Single-Blind Method/ (25878)
14 clinical trial.pt. (745804)
15 Clinical Trials.mp. or exp Clinical Trials/ (304009)
16 (clinic$ adj25 trial$).tw. (266710)
17 ((singl$ or doubl$ or trebl$ or tripl$) adj (mask$ or blind$)).tw. (238661)
18 Placebos/ (51007)
19 placebo$.tw. (254532)
20 random$.tw. (850970)
21 trial$.tw. (671735)
22 (randomized control trial or clinical control trial).sd. (232482)
23 (latin adj square).tw. (4051)
24 Comparative Study.tw. or Comparative Study.pt. (1720564)
25 exp Evaluation studies/ (161045)
26 Follow-Up Studies/ (473313)
27 Prospective Studies/ (368553)
28 (control$ or prospectiv$ or volunteer$).tw. (2753840)
29 Cross-Over Studies/ (51308)
30 or/8-29 (5368266)
31 exp Positive-Pressure Respiration/ or exp Continuous Positive Airway Pressure/ (19951)
32 Intermittent Positive-Pressure Ventilation/ or exp Ventilators, Mechanical/ or exp masks/ (17537)
33 general surgery/ or neurosurgery/ or otolaryngology/ or surgery, plastic/ or thoracic surgery/ (89080)
34 Surgical Procedures, Operative/ (49433)
35 oral appliances.mp. (322)
36 Physical Therapy Modalities/ or exp Exercise Therapy/ (54262)
37 positional therapy.mp. (53)
38 exp Weight Loss/ (25902)
39 Exercise/ or exp Exercise Therapy/ (91156)

40 exp Therapeutics/ (3157678)
41 exp Anesthesia/ or Pre-operative screening/ or Anesthetic agents/ (173019)
42 Sleep Apnea, Obstructive/th (2970)
43 *tonsillectomy/ (5137)
44 or/31-43 (3457316)
45 exp Polysomnography/ (13210)
46 exp Oximetry/ (11312)
47 exp Monitoring, Physiologic/ (120899)
48 pulse transit time.mp. (243)
49 exp Monitoring, Ambulatory/ (21000)
50 peripheral Arterial Tonometry.mp. (125)
51 exp Questionnaires/ (264781)
52 exp Diagnostic Tests, Routine/ (5954)
53 exp "Laboratory Techniques and Procedures"/ (1701497)
54 (Epworth or Stanford or Berlin or Pittsburgh or scale).af. (508340)
55 (friedman or surgical or staging).mp. (958978)
56 STOP-Bang.af. (10)
57 Sleep Apnea, Obstructive/di (2853)
58 or/45-57 (3344342)
59 exp "sensitivity and specificity"/ (361319)
60 exp Predictive Value of Tests/ (121991)
61 exp ROC CURVE/ (22218)
62 exp Mass Screening/ (92506)
63 exp diagnosis/ (5821484)
64 exp REPRODUCIBILITY OF RESULTS/ (234228)
65 exp false negative reactions/ or false positive reactions/ (32057)
66 predictive value.tw. (47254)
67 (sensitivity or specificity).tw. (617590)
68 accuracy.tw. (172065)
69 screen$.tw. (380620)
70 diagno$.tw. (1407982)
71 roc.tw. (15152)
72 reproducib$.tw. (92872)
73 (false positive or false negative).tw. (41894)
74 likelihood ratio.tw. (4879)
75 accuracy.tw. (172065)
76 di.fs. (1820639)
77 or/59-76 (7574598)
78 7 and 30 and 44 (6760)
79 limit 78 to english language [Limit not valid in CCTR,CDSR; records were retained] (6100)
80 limit 79 to humans [Limit not valid in CCTR,CDSR; records were retained] (5606)
81 79 and humans.sh. (5589)
82 80 or 81 (5606)

83 remove duplicates from 82 (4344)
84 7 and 44 (12843)
85 84 not 83 (8499)
86 limit 85 to english language [Limit not valid in CCTR,CDSR; records were retained] (6602)
87 limit 86 to humans [Limit not valid in CCTR,CDSR; records were retained] (5581)
88 86 and humans.sh. (5578)
89 87 or 88 (5581)
90 remove duplicates from 89 (5396)
91 limit 90 to (addresses or bibliography or biography or case reports or comment or congresses or consensus development conference or dictionary or directory or festschrift or in vitro or interactive tutorial or interview or lectures or legal cases or legislation or news or newspaper article or overall or patient education handout or periodical index or portraits or "scientific integrity review" or twin study) [Limit not valid in CCTR,CDSR; records were retained] (1119)
92 90 not 91 (4277)
93 7 and 30 and 58 (7187)
94 limit 93 to english language [Limit not valid in CCTR,CDSR; records were retained] (6503)
95 limit 94 to humans [Limit not valid in CCTR,CDSR; records were retained] (6263)
96 94 and humans.sh. (6171)
97 95 or 96 (6263)
98 remove duplicates from 97 [Sets larger than 6000 cannot be de-duped] (6263)
99 98 not (83 or 92) (3516)
100 7 and 58 and 77 (12656)
101 limit 100 to english language [Limit not valid in CCTR,CDSR; records were retained] (10819)
102 limit 101 to humans [Limit not valid in CCTR,CDSR; records were retained] (10356)
103 101 and humans.sh. (10301)
104 102 or 103 (10356)
105 104 not (83 or 92 or 99) (3205)
106 remove duplicates from 105 (3062)
107 limit 7 to (guideline or meta analysis or practice guideline) [Limit not valid in CDSR; records were retained] (223)
108 7 and Cochrane Database of Systematic Reviews.jn. (71)
109 107 or 108 (240)
110 remove duplicates from 109 (217)
111 110 not (83 or 92 or 99 or 106) (59)
112 83 or 92 or 99 or 106 or 111 (15258)
113 exp "costs and cost analysis"/ (167386)
114 (((cost or costs or reimburs$ or expend$ or expens$ or econom$ or expens$ or fiscal$ or financial$ or insured or insurance or medicare or medicaid) adj3 (benefit$ or analy$ or decision$ or decid$ or choos$ or chosen or choic$ or option$)) or cost effect$).mp. (156865)
115 113 or 114 (223215)

116 exp economics/ or (cost or costs or reimburs$ or expend$ or expens$ or econom$ or expens$ or fiscal$ or financial$ or insurance or medicare or medicaid).mp. (786818)
117 112 and 115 (257)
118 remove duplicates from 117 (232)
119 limit 118 to english language [Limit not valid in CCTR,CDSR; records were retained] (230)
120 limit 119 to yr="2001 -Current" (173)
121 systematic review.ti. or meta-analysis.pt. or meta-analysis.ti. or systematic literature review.ti. or (systematic review.ti,ab. and review.pt.) or consensus development conference.pt. or practice guideline.pt. or cochrane database syst rev.jn. or acp journal club.jn. or health technol assess.jn. or evid rep technol assess summ.jn. (74900)
122 evidence based.ti. or exp Evidence-Based Medicine/ or best practice$.ti. or evidence synthesis.ti,ab. (50683)
123 review.pt. or exp "diseases (non mesh)"/ or exp "behavior and behavior mechanisms"/ or exp therapeutics/ or evaluation studies.pt. or validation studies.pt. or guideline.pt. (13360961)
124 122 and 123 (41043)
125 (systematic or systematically).mp. or critical.ti,ab. or study selection.mp. or ((predetermined or inclusion) and criteri$).mp. or exclusion criteri$.mp. or main outcome measures.mp. or standard of care.mp. or standards of care.mp. (595395)
126 (survey or surveys).ti,ab. or overview$.mp. or review.ti,ab. or reviews.ti,ab. or search$.mp. or handsearch.mp. or analysis.ti,ab. or critique.ti,ab. or appraisal.mp. or (reduction.mp. and (exp risk/ or risk.mp.) and (exp death/ or death.mp. or exp recurrence/ or recurrence.mp.)) (3055516)
127 (literature or articles or publications or publication or bibliography or bibliographies or published).ti,ab. or unpublished.mp. or citation.mp. or citations.mp. or database.ti,ab. or internet.ti,ab. or textbooks.ti,ab. or references.mp. or scales.mp. or papers.mp. or datasets.mp. or trials.ti,ab. or meta-analy$.mp. or (clinical and studies).ti,ab. or exp treatment outcome/ or treatment outcome.mp. (1907184)
128 125 and 126 and 127 (99316)
129 121 or 124 or 128 (178715)
130 (letter or newspaper article or comment).pt. (928425)
131 129 not 130 (171905)
132 120 and 131 (27)
133 112 and 129 (427)
134 limit 133 to yr="2010 -Current" (105)
135 remove duplicates from 134 (92)

Appendix C. Excluded Studies for Key Question #1 to #7

Abramson, Z., Susarla, S.M., Lawler, M., Bouchard, C., Troulis, M., & Kaban, L.B. (2011). Three-dimensional computed tomographic airway analysis of patients with obstructive sleep apnea treated by maxillomandibular advancement. *Journal of Oral & Maxillofacial Surgery, 69*(3), 677-86.
Excluded study design

Abrishami, A., Khajehdehi, A., & Chung, F. (2010). A systematic review of screening questionnaires for obstructive sleep apnea. *Canadian Journal of Anaesthesia, 57*(5), 423-38.
Population: > 20% without OSA; Date of Publication < June 2010

Ahrens, A., McGrath, C., & Hagg, U. (2010). Subjective efficacy of oral appliance design features in the management of obstructive sleep apnea: a systematic review. *American Journal of Orthodontics and Dentofacial Orthopedics, 138*(5), 559-76.
Follow-up not > 1 month

Akpinar, M.E., Yigit, O., Kocak, I., & Altundag, A. (2011). Does the length of uvula affect the palatal implant outcome in the management of habitual snoring? *Laryngoscope, 121*(5), 1112-6.
Population: Snoring adults

Alkhalil, M., & Lockey, R. (2011). Pediatric obstructive sleep apnea syndrome (OSAS) for the allergist: Update on the assessment and management. *Annals of Allergy, Asthma, & Immunoogy, 107*(2), 104-9.
Population: Children

Atkinson, M. Clinical Standards Committee at the Royal College of Paediatrics and Child Health. (2010). Sleep, snoring and acute life-threatening events. *Archives of Disease in Childhood Education & Practice, 95*(6), 190-3.
Population: Children

Attal, P., & Chanson, P. (2010). Endocrine aspects of obstructive sleep apnea. *Journal of Clinical Endocrinology & Metabolism,95*(2), 483-95.
Narrative

Aurora, R.N., Casey, K.R., Kristo, D., Auerbach, S., Bista, S.R., Chowdhuri, S., et al. (2010). Practice parameters for the surgical modifications of the upper airway for obstructive sleep apnea in adults. *Sleep, 33*(10), 1408-13.
Conference proceedings

Aurora, R.N., Zak, R.S., Karippot, A., Lamm, C.I., Morgenthaler, T.I., Auerbach, S.H., et al. (2011). Practice parameters for the respiratory indications for polysomnography in children. *Sleep, 34*(3), 379-88.
Narrative guidelines

BaHammam, A. (2010). Acute ventilatory failure complicating obesity hypoventilation: update on a 'critical care syndrome'. *Current Opinion in Pulmonary Medicine, 16*(6), 543-51.
Population: Critical care syndrome

Berry, R.B., Chediak, A., Brown, L.K., Finder, J., Gozal, D., Iber, C., et al. (2010). Best clinical practices for the sleep center adjustment of noninvasive positive pressure ventilation (NPPV) in stable chronic alveolar hypoventilation syndromes. *Journal of Clinical Sleep Medicine, 6*(5), 491-509.
No outcomes of interest

Bhasin, S., Cunningham, G.R., Hayes, F.J., Matsumoto, A.M., Snyder, P.J., Swerdloff, R.S., et al. (2010). Testosterone therapy in men with androgen deficiency syndromes: an Endocrine Society clinical practice guideline. *Journal of Clinical Endocrinology & Metabolism, 95*(6), 2536-59.
No outcomes of interest

Blumen, M., Crampette, L., Fischler, M., Galet de Santerre, O., Jaber, S., Larzul, J.J., et al. (2010). Surgical treatment of obstructive sleep apnea syndrome. *Revue des Maladies Respiratoires, 27*(Suppl 3), S157-65.
Not in English

Boss, E.F., Smith, D.F., & Ishman, S.L. (2011). Racial/ethnic and socioeconomic disparities in the diagnosis and treatment of sleep-disordered breathing in children. *International Journal of Pediatric Otorhinolaryngology, 75*(3), 299-307.
Population: Children

Bourjeily, G., Raker, C.A., Chalhoub, M., & Miller, M.A. (2010). Pregnancy and fetal outcomes of symptoms of sleep-disordered breathing. *European Respiratory Journal, 36*(4), 849-55.
Population: SBD in pregnancy

Brooks, D., Davis, L., Vujovic-Zotovic, N., Boulias, C., Ismail, F, Richardson, D., et al. (2010). Sleep-disordered breathing in patients enrolled in an inpatient stroke rehabilitation program. *Archives of Physical Medicine & Rehabilitation, 91*(4), 659-62.
Population: Stroke

Brown, D.L., Anderson, C.S., Chervin, R.D., Kushida, C.A., Lewin, D.S., Malow, B.A., et al. (2011). Ethical issues in the conduct of clinical trials in obstructive sleep apnea. *Journal of Clinical Sleep Medicine, 7*(1), 103-8.
Letter

Burton, M.J., Pollard, A.J., & Ramsden, J.D. (2011). Tonsillectomy for periodic fever, apthous stomatitis, pharyngitis and cervical adenitis syndrome (PFAPA). *Cochrane Database of Systematic Reviews*, Issue 5.
Population: Children

Capampangan, D.J., Wellik, K.E., Parish, J.M., Aguilar, M.I., Snyder, C.R., Wingerchuk, D., et al. (2010). Is obstructive sleep apnea an independent risk factor for stroke? A critically appraised topic. *Neurologist, 16*(4), 269-73.
Non-OSA patients > 20% of study population

Caples, S.M., Rowley, J.A., Prinsell, J.R., Pallanch, J.F., Elamin, M.B., Katz, S.G., et al. (2010). urgical modifications of the upper airway for obstructive sleep apnea in adults: a systematic review and meta-analysis. *Sleep, 33*(10), 1396-407.
Surgical cohorts < 100 patients

Chack, B., Peter, J.V., Tharyan, P., John, G., & Jeyaseelan, L. (2010). Pressure-controlled versus volume-controlled ventilation for acute respiratory failure dut to acute lung injury (ALI) or acute respiratory distress syndrome (ARDS). *Cochrane Database of Systematic Reviews*, Issue 11.
Population: Acute lung injury; acute respiratory distress syndrome (ARDS)

Chai, L.C., Pathinathan, A., & Smith, B.J. (2011). Continuous positive airway pressure delivery interfaces for obstructive sleep apnea. *Cochrane Database of Systematic Reviews*, Issue 4.
Follow-up not > 1 month

Dauvilliers, Y., Arnulf, I., d'Ortho, M.P., Coste, A., Ducluzeau, P., Grillet, Y., et al. (2010). Which pretherapeutic evaluation of a newly diagnosed patient with obstructive sleep apnea syndrome? *Revue des Maladies Respiratoires, 27*(Suppl 3), S124-36.
Not in English

Davies, G.A., Maxwell, C., McLeod, L., Gagnon, R., Basso, M., Bos, H., et al. (2010). Obesity in pregnancy. *Journal of Obstetrics & Gynaecology Canada, 32*(2), 165-73.
Grey literature review

Deer, T.R., Smith, H.S., Cousins, M., Doleys, D.M., Levy, R.M., Rathmell, J.P., et al. (2010). Consensus guidelines for the selection and implantation of patients with noncancer pain for intrathecal drug delivery. *Pain Physician, 13*(3), E175-213.
No outcomes of interest

De Menis, E., Giustina, A., Colao, A., Degli Uberti, E., Ghigo, E., Minuto, F., et al. (2011). Assessment of the awareness and management of sleep apnea syndrome in acromegaly. The COM.E.TA (Comorbidities Evaluation and Treatment in Acromegaly) Italian Study Group. *Journal of Endocrinological Investigation, 34*(1), 60-4.
Survey narrative

Elphick, H.E., & Mallory, G. (2009). Oxygen therapy for cystic fibrosis. *Cochrane Database of Systematic Reviews*, Issue 1.
Population: Children

Ephros, H.D., Madani, M., & Yalamanchili, S.C. (2010). Surgical treatment of snoring & obstructive sleep apnoea. *Indian Journal of Medical Research, 131*, 267-76.
Date of Publication < June 2010

Escourrou, P., Meslier, N., Raffestin, B., Clavel, R., Gomes, J., Hazouard, E., et al. (2010). Which clinical approach and which diagnostic procedures for obstructive sleep apnea syndrome? *Revue des Maladies Respiratoires, 27*(Suppl 3), S115-23.
Not in English

Ezra, D.G., Beaconsfield, M., & Collin, R. (2010). Floppy eyelid syndrome: stretching the limits. *Survey of Ophthalmology, 55*(1), 35-46.
Narrative

Ezra, D.G., Beaconsfield, M., Sira, M., Bunce, C., Wormald, R., & Collin, R. (2010). The associations of floppy eyelid syndrome: a case control study. *Ophthalmology, 117*(4), 831-8.
OSA diagnosis by questionnaire, not PSG

Fedorowicz, Z., AlMuharraqi, MA., Nasser, M., AlHarthy, N., & Carter, B. (2010). Oral rinses, mouthwashes and sprays for improving recovery following tonsillectomy. *Cochrane Database of Systematic Reviews,* Issue 8.
Population: Adults and children

Feldman, N.T. (2010). Clinical perspective: monitoring sodium oxybate-treated narcolepsy patients for the development of sleep-disordered breathing. *Sleep & Breathing, 14*(1), 77-9.
Population: Narcolepsy

Fleury, B., Cohen-Levy, J., Lacassagne, L., Buchet, I., Geraads, A., & Pegliasco, H. (2010). Treatment of obstructive sleep apnea syndrome using a mandibular advancement device. *Revue des Maladies Respiratoires, 27*(Suppl 3), S146-56.
Not in English

Friedman, M., Wilson, M.N., Pulver, T.M., Golbin, D., Lee, G.P., Gorelick, G., et al. (2010). Measurements of adult lingual tonsil tissue in health and disease. *Otolaryngology – Head & Neck Surgery, 142*(4), 520-5.
No outcomes of interest

Georgalas, C., Garas, G., Hadjihannas, E., & Oostra, A. (2010). ssessment of obstruction level and selection of patients for obstructive sleep apnoea surgery: an evidence-based approach. *Journal of Laryngology & Otology, 124*(1), 1-9.
Date of Publication < June 2010

Gibson, P.G., Chang, A.B., Glasgow, N.J., Holmes, P.W., Katelaris, P., Kemp, A.S., et al. (2010). CICADA: Cough in Children and Adults: Diagnosis and Assessment. Australian cough guidelines summary statement. *Medical Journal of Australia, 192*(5), 265-71.
Population: Children and adults

Gould, J., Ellsmere, J., Fanelli, R., Hutter, M., Jones, S., Pratt, J., et al. (2011). Panel report: Best practices for the surgical treatment of obesity. *Surgical Endoscopy, 25*(6), 1730-40.
Conference proceeding

Grover, D.P. (2010). Obstructive sleep apnea and ocular disorders. *Current Opinion in Ophthalmology, 21*(6), 454-8.
Narrative

Grover, B.T., Priem, D.M., Mathiason, M.A., Kallies, K.J., Thompson, G.P., & Kothari, S.N. (2010). Intensive care unit stay not required for patients with obstructive sleep apnea after laparoscopic Roux-en-Y gastric bypass. *Surgery for Obesity & Related Diseases, 6*(2), 165-70.
OSA not determined by PSG for all subjects

Himpens, J., Cadiere, G.B., Bazi, M., Vouche, M., Cadiere, B., & Dapri, G. (2011). Long-term outcomes of laparoscopic adjustable gastric binding. *Archives of Survery, 146*(7), 802-7.
No outcomes of interest

Holty, J.E., & Guilleminault, C. (2010). Maxillomandibular advancement for the treatment of obstructive sleep apnea: A systematic review and meta-analysis. *Sleep Medicine Reviews*, *14*(5), 287-97.
Surgical cohort < 100

Hu, R., Jiang, X., Chen, J., Zeng, Z., Chen, X.Y., & Li, Y. (2010). Non-pharmacological interventions for sleep promotion in the intensive care unit. *Cochrane Database of Systematic Reviews*, Issue 11.
Population: ICU patients

Ireland, C.J., Chapman, T.M., Herbison, P.G., & Zacharias, M. (2011). Continuous positive airway pressure (CPAP) in the postoperative period for the prevention of postoperative morbidity and mortality following major abdominal surgery. *Cochrane Database of Systematic Reviews*, Issue 1.
Population: Post-op abdominal surgery; no OSA patients

Jones, P., & Greenstone, M. (2010). Carbonic anhydrase inhibitors for hypercapnic ventilator failure in chronic obstructive pulmonary disease. *Cochrane Database of Systematic Reviews*, Issue 8.
Population: COPD; no OSA patients

Johnson, K.G., & Johnson, D.C. (2010). Frequency of sleep apnea in stroke and TIA patients: a meta-analysis. *Journal of Clinical Sleep Medicine, 6*(2), 131-7.
Population: Stroke/TIA

Kim, J.H., & Guilleminault, C. (2011). The nasomaxillary complex, the mandible, and sleep-disordered breathing. *Sleep & Breathing, 15*(2), 185-93.
Population: Children

Kuhl, S., & Urschitx, S.M. (2011). Anti-inflammatory medications for obstructive sleep apnea in children. *Cochrane Database of Systematic Reviews*, Issue 4.
Population: Children

Lam, D.C., Lui, M.M., Lam, J.C., Ong, L.H., Lam, K.S., & Ip, M.S. (2010). Prevalence and recognition of obstructive sleep apnea in Chinese patients with type 2 diabetes mellitus. *Chest, 138*(5), 1101-7.
Non-OSA patients > 20% of patients of study population

Lee, C.H., Kim, S.W., Han, K., Shin, J.M., Hong, S.L., Lee, J.E., et al. (2011). Effect of uvulopalatopharyngoplasty on positional dependency in obstructive sleep apnea. *Archives of Otolaryngology – Head & Neck Surgery, 137*(7), 675-9.
Surgical cohort < 100/intervention

Lee, C.H., Kim, J.W., Lee, H.J., Seo, B.S., Yun, P.Y., Kim, D.Y., et al. (2010). Determinants of treatment outcome after use of the mandibular advancement device in patients with obstructive sleep apnea. *Archives of Otolaryngology – Head & Neck Surgery, 136*(7), 677-81.
No outcomes of interest

Lee, C.H., Mo, J.H., Seo, B.S., Kim, D.Y., Yoon, I.Y., & Kim, J.W. (2010). Mouth opening during sleep may be a critical predictor of surgical outcome after uvulopalatopharyngoplasty for obstructive sleep apnea. *Journal of Clinical Sleep Medicine, 6*(2), 157-62.
Surgical cohort < 100/intervention

Li, X., Dong, Z., Wan, Y., Wang, Z. (2010). Sildenafil versus continuous positive airway pressure for erectile dysfunction in men with obstructive sleep apnea: a meta-analysis. *Aging Male, 13*(2), 82-6.
No intervention of interest

Lim, J., & McKean, M.C. (2011). Adenotonsillectomy for obstructive sleep apnea in children. *Cochrane Database of Systematic Reviews*, Issue 2.
Population: Children

Lloberes, P., Duran-Cantolla, J., Martinez-Garcia, M.A., Marin, J.M., Ferrer, A., Corral, J., et al. (2011). Diagnosis and treatment of slepp apnea-hypopnea syndrome. Spanish Society of Pulmonology and Thoracic Surgery. *Archivos de Bronconeumologia, 47*(3), 143-56.
Population: Adults and children, Narrative guidelines

Martinez-Gonzalez, J.M., Martinez-Rodriguez, N., Arias-Irimia, O., Martin-Ares, M., & Barona-Dorado, C. (2010). Odontostomatological therapeutic possibilities in patients with sleep apnea. *Medicina Oral, Patologia Oral y Cirugia Bucal, 15*(4), e605-10.
Surgical cohort < 100 patients; outcomes not detailed

Nolan, J., & Briezke, S.E. (2011). Systematic review of pediatric tonsil size and polysomnogram-measured obstructive sleep apnea severity. *Otolaryngology – Head & Neck Survery, 144*(6), 844-50.
Population: Children

Oliveira, M.M., Conti, C., Saconato, H., & Fernandes Prado, G. (2010). Pharmacological treatment for Kleine-Levin Syndrome. *Cochrane Database of Systematic Reviews*, Issue 6.
Population: Epilepsy

Peng, L., Wang, J., & Li, F. (2011). Weight reduction for non-alcoholic fatty liver disease. *Cochrane Database of Systematic Reviews,* Issue 10.
No outcomes of interest

Pirklbauer, K., Russmueller, G., Stiebellehner, L., Nell, C., Sinko, K., Millesi, G., et al. (2011). Maxillomandibular advancement for treatment of obstructive sleep apnea syndrome: A systematic review. *Journal of Oral & Maxillofacial Surgery, 69*(6), e165-76.
Non-comparative surgical interventions, all 100 patients in surgical cohorts

Portier, F., Orvoen Frija, E., Chavaillon, J.M., Lerousseau, L., Reybet Degat, O., Leger, D., et al. (2010). Treatment of obstructive sleep apnea syndrome using continuous positive pressure ventilation. *Revue des Maladies Respiratoires, 27*(Suppl 3), S137-45.
Not in English

Raghavendran, S., Bagry, H., Detheux, G., Zhang, X., Brouillette, R.T., & Brown, K.A. (2010). An anesthetic management protocol to decrease respiratory complications after adenotonsillectomy in children with severe sleep apnea. *Anesthesia & Analygesia, 110*(4), 1093-101.
Population: Children

Randerath, W.J., Verbraecken, J., Andreas, S., Bettega, G., Boudewyns, A., Hamans, E., et al. (2011). Non-CPAP therapies in obstructive sleep apnea. *European Respiratory Journal, 37*(5), 1000-28.
Population: Adults and children

Ravesloot, M.J.L., & de Vries, N. (2011). 'A good shephard, but with obstructive sleep apnoea syndrome': Traditional uvulectomy case series and literature review. *Journal of Laryngology & Otology, 125*(9), 982-6.
Population: < 20% sleep apnea

Roland, P.S., Rosenfeld, R.M., Brooks, L.J., Friedman, N.R., Jones, J., Kim, T.W., et al. (2011). Clinical practice guideline: Polysomnography for sleep-disordered breathing prior to tonsillectomy in children. *Otolaryngology – Head & Neck Surgery, 145*(Suppl 1), S1-15.
Population: Children

Rotenberg, B., Theriault, J., & Pang, K. (2011). Is overnight monitoring required for adult patients undergoing surgery for obstructive sleep apnea? *Laryngoscope, 121*(4), 692-3.
No interventions of interest

Ruiter, M.E., DeCoster, J., Jacobs, L., & Lichstein, K.L. (2010). Sleep disorders in African Americans and Caucasian Americans: a meta-analysis. *Behavioral Sleep Medicine, 8*(4), 246-59.
Non-OSA patients > 20% of study population

Savage, J.R., Hall, C., & Hilton, M.P. (2011). Alternative methods of adenoidectomy versus curettage in children. *Cochrane Database of Systematic Reviews,* Issue 11.
Population: Children

Schumann, R. (2011). Anaesthesia for bariatric surgery. *Best Practice & Research. Clinical Anaesthesiology, 25*(1), 83-93.
Excluded study design

Scoriels, L., Barnett, J., & Jones, P.B. (2010). Modafinil for schizophrenia. *Cochrane Database of Systematic Reviews*, Issue 6.
Population: Schizophrenia; no OSA patients

Societe de Pneumologie de Langue Francaise. Societe Francaise d'Anesthesie Reanimation. Societe Francaise de Cardiologie. Societe Francaise de Medecine du Travail. Societe Francaise d'ORL. Societe de Physiologie. Societe Francaise de Recherche et de Medecine du Sommeil. (2010). Recommendations for clinical practice. Obstructive sleep apnea hypopnea syndrome in adults. *Revue des Maladies Respiratoires, 27*(7), 806-33.
Not in English

Stewart, M.G., & Liotta, D.R. (2011). Is partial tonsillectomy equivalent to total tonsillectomy for obstructive symptoms? *Laryngoscope, 121*(1), 6-7.
Population: Children

Stuck, B.A., Abrams, J., de la Chaux, R., Dreher, A., Heiser, C., Hohenhorst, K., et al. (2010). Diagnosis and treatment of snoring in adults – S1 guideline of the German Society of Otorhinolaryngology, Head and Neck Surgery. *Sleep & Breathing, 14*(4), 317-21.
Population: Snoring adults

Stuck, B.A., Abrams, J., de la Chaux, R., Dreher, A., Heiser, C., Hohenhorst, W., et al. (2010). S1 guideline on the "diagnosis and treatment of snoring in adults." *HNO, 58*(3), 272-8.
Not in English

Teoh, L., Hurwitz, M., Acworth, J.P., van Asperen, P., & Change, A.B. (2011). Treatment of obstructive sleep apnea for chronic cough in children. *Cochrane Database of Systematic Reviews*, Issue 4.
Population: Children

Tregear, S., Reston, J., Schoelles, K., & Phillips, B. (2010). Continuous positive airway pressure reduces risk of motor vehicle crash among drivers with obstructive sleep apnea: Systematic review and meta-analysis. *Sleep, 33*(10), 1373-80.
No outcomes of interest

Tufik, S., Santos-Silva, R., Taddei, J.A.,& Bittencourt, L.R. (2010). Obstructive sleep apnea syndrome in the Sao Paulo Epidemiologic Sleep Study. *Sleep Medicine, 11*(5), 441-6.
Date of Publication < June 2010

Vecchierini, M.F., Laaban, J.P., Desjobert, M., Gagnadoux, F., Chabolle, F., Meurice, J.C., Sapene, M., et al. (2010). Therapeutic strategies of obstructive sleep apnea syndrome integrating combined treatments? *Revue des Maladies Respiratoires, 27*(Suppl 3), S166-78.
Not in English

Vignatelli, L., D'Alessandro, R., & Candelise, L. (2010). Antidepressant drugs for narcolepsy. *Cochrane Database of Systematic Reviews*, Issue 11.
Population: Narcolepsy

Waeber, B., Mourad, J.J., & O'Brien, E. (2010). Nighttime blood pressure: A target for therapy? *Current Hypertension Reports, 12*(6), 474-9.
No outcomes of interest

Weaver, T.E., & Sawyer, A.M. (2010). Adherence to continuous positive airway pressure treatment for obstructive sleep apnoea: implications for future interventions. *Indian Journal of Medical Research, 131*, 245-58.
Date of Publication < June 2010

Whitelaw, W.A., & Burgess, K.R. (2010). Diagnosis of sleep apnoea: some critical issues. *Indian Journal of Medical Research, 131*, 217-29.
Date of Publication < June 2010

Wise, M.S., Nichols, C.D., Grigg-Damberger, M.M., Marcus, C.L., Witmans, M.B., Kirk, V.G., et al. (2011). Executive summary of respiratory indications for polysomnography in children: an evidence-based review. *Sleep, 34*(3), 389-98.
Population: Children

Yellon, R.F. (2010). Is polysomnography required prior to tonsillectomy and adenoidectomy for diagnosis of obstructive sleep apnea versus mild sleep disordered breathing in children? *Laryngoscope, 120*(5), 868-9.
Population: Children

Zhang, L., MendozaSassi, R.A., Cesar, J.A., & Chadha, N.K. (2010). Intranasal corticosteroids for nasal airway obstruction in children with moderate to severe adenoidal hypertrophy. *Cochrane Database of Systematic Reviews*, Issue 10.
Population: Children

Appendix D. MEDLINE® Search Strategy for Key Question #8

1 exp Sleep Apnea Syndromes/ or exp Sleep Apnea, Obstructive/ (21241)
2 exp Airway Resistance/ (13220)
3 exp snoring/ (3054)
4 Upper airway resistance syndrome.mp. (209)
5 Respiratory disturbance.mp. (1112)
6 obstructive sleep apn?ea.mp. (12664)
7 or/1-6 (36624)
8 randomized controlled trial.pt. (624438)
9 controlled clinical trial.pt. (164845)
10 randomized controlled trials/ (83444)
11 Random Allocation/ (94063)
12 Double-blind Method/ (208379)
13 Single-Blind Method/ (25878)
14 clinical trial.pt. (745804)
15 Clinical Trials.mp. or exp Clinical Trials/ (304009)
16 (clinic$ adj25 trial$).tw. (266710)
17 ((singl$ or doubl$ or trebl$ or tripl$) adj (mask$ or blind$)).tw. (238661)
18 Placebos/ (51007)
19 placebo$.tw. (254532)
20 random$.tw. (850970)
21 trial$.tw. (671735)
22 (randomized control trial or clinical control trial).sd. (232482)
23 (latin adj square).tw. (4051)
24 Comparative Study.tw. or Comparative Study.pt. (1720564)
25 exp Evaluation studies/ (161045)
26 Follow-Up Studies/ (473313)
27 Prospective Studies/ (368553)
28 (control$ or prospectiv$ or volunteer$).tw. (2753840)
29 Cross-Over Studies/ (51308)
30 or/8-29 (5368266)
31 exp Positive-Pressure Respiration/ or exp Continuous Positive Airway Pressure/ (19951)
32 Intermittent Positive-Pressure Ventilation/ or exp Ventilators, Mechanical/ or exp masks/ (17537)
33 general surgery/ or neurosurgery/ or otolaryngology/ or surgery, plastic/ or thoracic surgery/ (89080)
34 Surgical Procedures, Operative/ (49433)
35 oral appliances.mp. (322)
36 Physical Therapy Modalities/ or exp Exercise Therapy/ (54262)
37 positional therapy.mp. (53)
38 exp Weight Loss/ (25902)
39 Exercise/ or exp Exercise Therapy/ (91156)

40 exp Therapeutics/ (3157678)
41 exp Anesthesia/ or Pre-operative screening/ or Anesthetic agents/ (173019)
42 Sleep Apnea, Obstructive/th (2970)
43 *tonsillectomy/ (5137)
44 or/31-43 (3457316)
45 exp Polysomnography/ (13210)
46 exp Oximetry/ (11312)
47 exp Monitoring, Physiologic/ (120899)
48 pulse transit time.mp. (243)
49 exp Monitoring, Ambulatory/ (21000)
50 peripheral Arterial Tonometry.mp. (125)
51 exp Questionnaires/ (264781)
52 exp Diagnostic Tests, Routine/ (5954)
53 exp "Laboratory Techniques and Procedures"/ (1701497)
54 (Epworth or Stanford or Berlin or Pittsburgh or scale).af. (508340)
55 (friedman or surgical or staging).mp. (958978)
56 STOP-Bang.af. (10)
57 Sleep Apnea, Obstructive/di (2853)
58 or/45-57 (3344342)
59 exp "sensitivity and specificity"/ (361319)
60 exp Predictive Value of Tests/ (121991)
61 exp ROC CURVE/ (22218)
62 exp Mass Screening/ (92506)
63 exp diagnosis/ (5821484)
64 exp REPRODUCIBILITY OF RESULTS/ (234228)
65 exp false negative reactions/ or false positive reactions/ (32057)
66 predictive value.tw. (47254)
67 (sensitivity or specificity).tw. (617590)
68 accuracy.tw. (172065)
69 screen$.tw. (380620)
70 diagno$.tw. (1407982)
71 roc.tw. (15152)
72 reproducib$.tw. (92872)
73 (false positive or false negative).tw. (41894)
74 likelihood ratio.tw. (4879)
75 accuracy.tw. (172065)
76 di.fs. (1820639)
77 or/59-76 (7574598)
78 7 and 30 and 44 (6760)
79 limit 78 to english language [Limit not valid in CCTR,CDSR; records were retained] (6100)
80 limit 79 to humans [Limit not valid in CCTR,CDSR; records were retained] (5606)
81 79 and humans.sh. (5589)
82 80 or 81 (5606)

83 remove duplicates from 82 (4344)
84 7 and 44 (12843)
85 84 not 83 (8499)
86 limit 85 to english language [Limit not valid in CCTR,CDSR; records were retained] (6602)
87 limit 86 to humans [Limit not valid in CCTR,CDSR; records were retained] (5581)
88 86 and humans.sh. (5578)
89 87 or 88 (5581)
90 remove duplicates from 89 (5396)
91 limit 90 to (addresses or bibliography or biography or case reports or comment or congresses or consensus development conference or dictionary or directory or festschrift or in vitro or interactive tutorial or interview or lectures or legal cases or legislation or news or newspaper article or overall or patient education handout or periodical index or portraits or "scientific integrity review" or twin study) [Limit not valid in CCTR,CDSR; records were retained] (1119)
92 90 not 91 (4277)
93 7 and 30 and 58 (7187)
94 limit 93 to english language [Limit not valid in CCTR,CDSR; records were retained] (6503)
95 limit 94 to humans [Limit not valid in CCTR,CDSR; records were retained] (6263)
96 94 and humans.sh. (6171)
97 95 or 96 (6263)
98 remove duplicates from 97 [Sets larger than 6000 cannot be de-duped] (6263)
99 98 not (83 or 92) (3516)
100 7 and 58 and 77 (12656)
101 limit 100 to english language [Limit not valid in CCTR,CDSR; records were retained] (10819)
102 limit 101 to humans [Limit not valid in CCTR,CDSR; records were retained] (10356)
103 101 and humans.sh. (10301)
104 102 or 103 (10356)
105 104 not (83 or 92 or 99) (3205)
106 remove duplicates from 105 (3062)
107 limit 7 to (guideline or meta analysis or practice guideline) [Limit not valid in CDSR; records were retained] (223)
108 7 and Cochrane Database of Systematic Reviews.jn. (71)
109 107 or 108 (240)
110 remove duplicates from 109 (217)
111 110 not (83 or 92 or 99 or 106) (59)
112 83 or 92 or 99 or 106 or 111 (15258)
113 exp "costs and cost analysis"/ (167386)
114 (((cost or costs or reimburs$ or expend$ or expens$ or econom$ or expens$ or fiscal$ or financial$ or insured or insurance or medicare or medicaid) adj3 (benefit$ or analy$ or decision$ or decid$ or choos$ or chosen or choic$ or option$)) or cost effect$).mp. (156865)
115 113 or 114 (223215)

116 exp economics/ or (cost or costs or reimburs$ or expend$ or expens$ or econom$ or expens$ or fiscal$ or financial$ or insurance or medicare or medicaid).mp. (786818)
117 112 and 115 (257)
118 remove duplicates from 117 (232)
119 limit 118 to english language [Limit not valid in CCTR,CDSR; records were retained] (230)
120 limit 119 to yr="2001 -Current" (173)
121 systematic review.ti. or meta-analysis.pt. or meta-analysis.ti. or systematic literature review.ti. or (systematic review.ti,ab. and review.pt.) or consensus development conference.pt. or practice guideline.pt. or cochrane database syst rev.jn. or acp journal club.jn. or health technol assess.jn. or evid rep technol assess summ.jn. (74900)
122 evidence based.ti. or exp Evidence-Based Medicine/ or best practice$.ti. or evidence synthesis.ti,ab. (50683)
123 review.pt. or exp "diseases (non mesh)"/ or exp "behavior and behavior mechanisms"/ or exp therapeutics/ or evaluation studies.pt. or validation studies.pt. or guideline.pt. (13360961)
124 122 and 123 (41043)
125 (systematic or systematically).mp. or critical.ti,ab. or study selection.mp. or ((predetermined or inclusion) and criteri$).mp. or exclusion criteri$.mp. or main outcome measures.mp. or standard of care.mp. or standards of care.mp. (595395)
126 (survey or surveys).ti,ab. or overview$.mp. or review.ti,ab. or reviews.ti,ab. or search$.mp. or handsearch.mp. or analysis.ti,ab. or critique.ti,ab. or appraisal.mp. or (reduction.mp. and (exp risk/ or risk.mp.) and (exp death/ or death.mp. or exp recurrence/ or recurrence.mp.)) (3055516)
127 (literature or articles or publications or publication or bibliography or bibliographies or published).ti,ab. or unpublished.mp. or citation.mp. or citations.mp. or database.ti,ab. or internet.ti,ab. or textbooks.ti,ab. or references.mp. or scales.mp. or papers.mp. or datasets.mp. or trials.ti,ab. or meta-analy$.mp. or (clinical and studies).ti,ab. or exp treatment outcome/ or treatment outcome.mp. (1907184)
128 125 and 126 and 127 (99316)
129 121 or 124 or 128 (178715)
130 (letter or newspaper article or comment).pt. (928425)
131 129 not 130 (171905)
132 7 and 30 (16676)
133 132 not 112 (7582)
134 (ep or co or mo).fs. (2663301)
135 (incidence or longitudinal studies or prospective studies or survival analysis or follow-up studies or logistic models or Proportional Hazards Models or Linear Models or Regression Analysis).sh. (1214462)
136 exp patient compliance/ or exp medication adherence/ or exp treatment refusal/ (61481)
137 134 or 135 or 136 (3425512)
138 133 and 137 (2128)
139 limit 138 to english language [Limit not valid in CCTR,CDSR; records were retained] (1465)
140 limit 139 to humans [Limit not valid in CCTR,CDSR; records were retained] (1337)

141 112 or 140 (16595)
142 exp Orthodontic Appliances, Removable/ (4413)
143 Palate, Soft/su or Pharynx/su or Uvula/su or Sleep Apnea Syndromes/su (4297)
144 Sleep Apnea Syndromes/pc (211)
145 142 or 143 or 144 (8898)
146 7 and 30 and 145 (965)
147 146 not (112 or 137) (118)
148 limit 147 to english language [Limit not valid in CCTR,CDSR; records were retained] (44)
149 limit 148 to humans [Limit not valid in CCTR,CDSR; records were retained] (38)
150 112 or 149 (15296)
151 limit 150 to yr="2001 -Current" (9262)
152 151 and 115 (192)
153 152 and 131 (28)
154 remove duplicates from 153 (27)

Appendix E. Excluded Studies for Key Question #8

Studies are listed in alphabetical order by author. The reason for rejection for each study is indicated after the study in italics.

Ahmed, M., Patel, N.P., & Rosen, I. (2007). Portable monitors in the diagnosis of obstructive sleep apnea. *Chest, 132*, 1672-1677.
Study design: Narrative

AlGhanim, N., Comondore, V.R., Fleetham, J., Marra, C.A., & Ayas, N.T. (2008). The economic impact of obstructive sleep apnea. *Lung, 186*, 7-12.
Study design: Narrative

Al Harakeh, A.B., Burkhamer, K.J., Kallies, K.J., Mathiason, M.A., & Kothari, S.N. (2010). Natural history and metabolic consequences of morbid obesity for patients denied coverage for bariatric surgery. *Surgery for Obesity & Related Diseases, 6*(6), 591-6.
Population: Bariatric surgery patients

Allison, C. (2007). Obstructive sleep apnea: A palatable treatment option*? Issues in Emerging Health Technologies*, (97), 1-4.
No outcomes of interest

Almeida, F.R., & Lowe, A.A. (2009). Principles of oral appliance therapy for the management of snoring and sleep disordered breathing. *Oral & Maxillofacial Surgery Clinics of North America, 21*(4), 413-20.
No outcomes of interest

Ayas, N.T., Fox, J., Epstein, L., Ryan, C.F., & Fleetham, J.A. 2010). Initial use of portable monitoring versus polysomnography to confirm obstructive sleep apnea in symptomatic patients: An economic decision model. *Sleep Medicine, 11*, 320-324
No outcomes of interest

Banno, K., Manfreda, J., Walld, R., Delaive, K., & Kryger, M.H. (2006). Healthcare utilization in women with obstructive sleep apnea syndrome 2 years after diagnosis and treatment. *Sleep, 29*(10), 1307-11.
No outcomes of interest

Boyer, S., & Kapur, V. (2003). Role of portable sleep studies for diagnosis of obstructive sleep apnea. *Current Opinion in Pulmonary Medicine, 9*(6), 465-70.
No outcomes of interest

Brin, Y.S., Reuveni, H., Greenberg, S., Tal, A., & Tarasiuk, A. (2005). Determinants affecting initiation of continuous positive airway pressure treatment. *Israel Medical Association Journal, 7*(1), 13-8.
No outcomes of interest

Brostrom, A., Johansson, P., Albers, J., Wiberg, J., Svanborg, E., & Fridlund, B. (2008). 6-month CPAP-treatment in a young male patient with severe obstructive sleep apnoea syndrome - a case study from the couple's perspective. *European Journal of Cardiovascular Nursing, 7*(2), 103-12.
Single case-study

Brown, D.L., Chervin, R.D., Hickenbottom, S.L., Langa, K.M., & Morgenstern, L.B. (2005). Screening for obstructive sleep apnea in stroke patients: A cost-effectiveness analysis. *Stroke, 36*(6), 1291-3.
Population: Stroke patients

Bruyneel, M., Sanida, C., Art, G., Libert, W., Cuvelier, L., Paesmans, M., et al. (2011). Sleep efficiency during sleep studies: Results of a prospective study comparing home-based and in-hospital polysomnography. *Journal of Sleep Research, 20*, 201-6.
No outcomes of interest

Burton, M. J., & Glasziou, P.P. (2009). Tonsillectomy or adeno-tonsillectomy versus non-surgical treatment for chronic/recurrent acute tonsillitis. *Cochrane Database of Systematic Reviews*, Issue 1.
No outcome of interest

Buskens, E., van Staaij, B., van den Akker, J., Hoes, A.W., & Schilder, A.G. (2007). Adenotonsillectomy or watchful waiting in patients with mild to moderate symptoms of throat infections or adenotonsillar hypertrophy: A randomized comparison of costs and effects. *Archives of Otolaryngology -- Head & Neck Surgery, 133*(11), 1083-8.
No outcomes of interest

Byskiniewicz, K., et al. (2006). Factors determining the decision to initiate nCPAP therapy in patients with obstructive sleep apnea (OSA). *Pneumonologia i Alergologia Polska, 74*(1), 45-50.
No outcomes of interest

Chacko, B., Peter, J., Tharyan, P., John, G., & Jeyaseelan, L. (2010). Pressure-controlled versus volume-controlled ventilation for acute respiratory failure due to acute lung injury (ALI) or acute respiratory distress syndrome (ARDS). *Cochrane Database of Systematic Reviews*, Issue 11.

Population: Acute lung injury; acute respiratory distress syndrome (ARDS)

Chakravorty, I., Cayton, R.M., & Szczepura, A. (2002). Health utilities in evaluating intervention in the sleep apnoea/hypopnoea syndrome. *European Respiratory Journal, 20*(5), 1233-8.
No outcomes of interest

Chakravorty, I., Shastry, M., & Farrington, K. (2007). Sleep apnoea in end-stage renal disease: A short review of mechanisms and potential benefit from its treatment. *Nephrology Dialysis Transplantation, 22*(1), 28-31.
Population: ESRD

Chediak, A.D. (2008). Why CMS approved home sleep testing for CPAP coverage. *Journal of Clinical Sleep Medicine, 4*(1), 16-8.
No outcomes of interest

Cohen, D., Longo, M.F., Williams, J., Cheung, W.Y., Hutchings, H., & Russell, I.T. (2003). Estimating the marginal value of 'better' research output: 'Designed' versus 'routine' data in randomised controlled trials. *Health Economics, 12*(11), 959-74.
No outcomes of interest

Cooney, R.N., Haluck, R.S., Ku, J., Bass, T., MacLeod, J., Brunner, H., et al. (2003). Analysis of cost outliers after gastric bypass surgery: What can we learn? *Obesity Surgery, 13*(1), 29-36.
Population: Gastric bypass patients

Coppola, M.P. (2010). Split decision. *Sleep & Breathing, 14*(2), 91-2.
No outcomes of interest

D'Ambrosio, C., & Hill, N.S. (2004). A low-cost way to manage obstructive sleep apnea: Does it pay? *Chronic Respiratory Disease, 1*(2), 89-91.
No outcomes of interest

Davies, G.A., Maxwell, C., McLeod, L., Gagnon, R., Basso, M., Bos, H., et al. (2010). Obesity in pregnancy. *Journal of Obstetrics & Gynaecology Canada, 32*(2), 165-73.
Population: Obstetrical patients

de Chazal, P., Heneghan, C., & McNicholas, W.T. (2009). Multimodal detection of sleep apnoea using electrocardiogram and oximetry signals. *Philosophical Transactions of the Royal Society London, Series a (Mathematical, Physical & Engineering Sciences), 367*(1887), 369-89.
No outcomes of interest

Deutsch, P.A., Simmons, M.S., & Wallace, J.M. (2006). Cost-effectiveness of split-night polysomnography and home studies in the evaluation of obstructive sleep apnea syndrome. *Journal of Clinical Sleep Medicine, 2*(2), 145-53.
No outcomes of interest

Di Fiore, T. (2005). Use of sleep studies in the neonatal intensive care unit. *Journal of Neonatal Nursing, 24*(1), 23-30.
Population: Neonates

Dolan, D.C., Taylor, D.J., Okonkwo, R., Becker, P.M., Jamieson, A.O., Schmidt-Nowara, W., et al. (2009). The Time of Day Sleepiness Scale to assess differential levels of sleepiness across the day. *Journal of Psychosomatic Research, 67*(2), 127-33.
No outcomes of interest

Dukes, P. (2001). Sleep laboratory testing. The important facts. *Dental Clinics of North America, 45*(4), 839-53.
No outcomes of interest

Dyken, M.E., & Im, K.B. (2009). Obstructive sleep apnea and stroke. *Chest, 136*(6), 1668-77.
No outcomes of interest

Elshaug, A.G., Moss, J.R., Southcott, A.M., & Hiller, J.E. (2007). Redefining success in airway surgery for obstructive sleep apnea: A meta analysis and synthesis of the evidence. *Sleep, 30*(4), 461-7.
No outcomes of interest

Engleman, H.M., & Wild, M.R. (2003). Improving CPAP use by patients with the sleep apnoea/hypopnoea syndrome (SAHS). *Sleep Medicine Reviews, 7*(1), 81-99.
No outcomes of interest

Fietze, I., Penzel, T., Alonderis, A., Barbe, F., Bonsignore, M.R., Calverly, P., et al. (2011). Management of obstructive sleep apnea in Europe. *Sleep Medicine, 12*(2), 190-7.
No outcomes of interest

Fischer, J., Raschke, F., et al. (2003). Cost-benefit analysis in patients with sleep-related breathing disorders - diagnosis and ncpap therapy during medical rehabilitation. *Biomedical engineering, 48*(9), 245-51.
Population: Medical rehab patients

Freed, G.E., Meny, R., Glomb, W.B., & Hageman, J.R. (2002). Effect of home monitoring on a high-risk population. *Journal of Perinatology, 22*(2), 165-7.

Population: Infants

Ghegan, M.D., Angelos, P.C., Stonebraker, A.C., & Gillespie, M.B. (2006). Laboratory versus portable sleep studies: A meta-analysis. *Laryngoscope, 116*(6), 859-64.
Minimal cost data included without analysis

Gil, E., Mendez, M., Vergara, J.M., Cerutti, S., Bianchi, A.M., & Laguna, P. (2008). *Detection of obstructive sleep apnea in children using decreases in the amplitude fluctuations of PPG signal and HRV*. Conference Proceedings: Annual International Conference of the IEEE Engineering in Medicine & Biology Society, 3479-82.
No outcomes of interest

Giles, T.L., Lasserson, T.J., Smith, B., White, J., Wright, J.J., & Cates, C.J. (2009). Continuous positive airways pressure for obstructive sleep apnoea in adults. *Cochrane Database of Systematic Reviews*, Issue 1.
No outcomes of interest

Gillis, A.M., & Willems, R. (2005). Controversies in pacing: indications and programming. *Current Cardiology Reports, 7*(5), 336-41.
Population: Cardiac pacing patients

Golpe, R., Jimenez, A., & Carpizo, R. (2002). Home sleep studies in the assessment of sleep apnea/hypopnea syndrome. *Chest, 122*(4), 1156-61.
No outcomes of interest

Gozal, D., & Kheirandish-Gozal, L. (2006). Sleep apnea in children--treatment considerations. *Paediatric Respiratory Reviews, 7*(Suppl 1), S58-61.
Population: Children

Greenberg-Dotan, S., Reuveni, H., Simon-Tuval, T., Oksenberg, A., & Tarasiuk, A. (2007). Gender differences in morbidity and health care utilization among adult obstructive sleep apnea patients. *Sleep, 30*(9), 1173-80.
No outcomes of interest

Hailey, D., Jacobs, P., Mayers, I., & Mensinkai, S. (2005). The current status of autotitrating continuous positive airway pressure systems in the management of obstructive sleep apnea. *Canadian Respiratory Journal, 12*(5), 271-6.
No outcomes of interest

Han, S., & Kern, R.C. (2004). Laser-assisted uvulopalatoplasty in the management of snoring and obstructive sleep apnea syndrome. *Minerva Medica, 95*(4), 337-45.

No outcomes of interest

Hastings, P.C., Vazir, A., O'Driscoll, D.M., Morrell, M.J., & Simonds, A.K. (2006). Symptom burden of sleep-disordered breathing in mild-to-moderate congestive heart failure patients. *European Respiratory Journal, 27*(4), 748-55.
No outcomes of interest

Henderson, M.J., Sadlier, K., & Currie, B.G. (2006). Obesity in older adults. A major contributor to chronicity. *Advance for Nurse Practitioners, 14*(5), 63-6.
No outcomes of interest

Herscovici, S., Pe'er, A., Papyan, S., & Lavie, P. (2007). Detecting REM sleep from the finger: An automatic REM sleep algorithm based on peripheral arterial tone (PAT) and actigraphy. *Physiological Measurement, 28*(2), 129-40.
No outcomes of interest

Hertegonne, K., & Bauters, F. (2010). The value of auto-adjustable CPAP devices in pressure titration and treatment of patients with obstructive sleep apnea syndrome. *Sleep Medicine Reviews, 14*(2), 115-9.
No outcomes of interest

Hsu, P.P. (2002). A new method of evaluation of upper airway in patients with obstructive sleep apnoea--computer-assisted quantitative videoendoscopic analysis. *Annals of the Academy of Medicine, Singapore, 31*(3), 393-8.
No outcomes of interest

Hsu, P.P., Han, H.N., Chan, Y.H., Tay, H.N., Brett, R.H., Lu, P.K., et al. (2004). Quantitative computer-assisted digital-imaging upper airway analysis for obstructive sleep apnoea. *Clinical Otolaryngology & Allied Sciences, 29*(5), 522-9.
No outcomes of interest

Hu, R.F., Jiang, X.Y., Chen, J.M., Zeng, Z.Y., Chen, X.Y., & Li, Y. (2010). Non-pharmacological interventions for sleep promotion in the intensive care unit. *Cochrane Database of Systematic Reviews*, Issue 11.
Population: ICU patients

Hui, D.S. (2006). Obstructive sleep apnoea and stroke. *Respirology, 11*(6), 678-80.
No outcomes of interest

Johnson, M.K., Carter, R., Nicol, A., Paton, R., & Banham, S.W. (2004). Long-term continuous positive airway pressure (CPAP) outcomes from a sleep service using limited sleep studies and

daycase CPAP titration in the management of obstructive sleep apnoea/hypopnoea syndrome. *Chronic Respiratory Disease, 1*(2), 83-8.
No outcomes of interest

Kapur, V.K. (2010). Obstructive sleep apnea: Diagnosis, epidemiology, and economics. *Respiratory Care, 55*(9), 1155-67.
Study design: Narrative

Kheirandish-Gozal, L. (2010). What is "abnormal" in pediatric sleep? *Respiratory Care, 55(*10), 1366-74; discussion 1374-6.
Population: Children

Ko, M.T., & Su, C.Y. (2008). Computer-assisted quantitative evaluation of obstructive sleep apnea using digitalized endoscopic imaging with Muller maneuver. *Laryngoscope, 118*(5), 909-14.
No outcomes of interest

Kral, J.G., Christou, N.V., Flum, D.R., Wolfe, B.M., Schauer, P.R., Gagner, M., et al. (2005). Medicare and bariatric surgery. *Surgery for Obesity & Related Diseases, 1*(1), 35-63.
No outcomes of interest

Kristo, D., Eliasson, A.H., Netzer, N.C., & Bigott, T. (2001). Application of telemedicine to sleep medicine. *Sleep & Breathing, 5*(2), 97-9.
No outcomes of interest

Kristo, D.A., Andrada, T., Eliasson, A.H., Poropatich, R.K., Netzer, C.M., Bradley, J.P., et al. (2001). Telemedicine in the sleep laboratory: Feasibility and economic advantages of polysomnograms transferred online. *Telemedicine Journal & E-Health, 7*(3), 219-24.
No outcomes of interest

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No outcomes of interest

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Population: Bariatric surgery patients

Kutty, K. (2004). Sleep and chronic obstructive pulmonary disease. *Current Opinion in Pulmonary Medicine, 10*(2), 104-12.
Population: COPD patients

Kyrmizakis, D.E., Chimona, T.S., Papadakis, C.E., Bizakis, J.G., Velegrakis, G.A., Schiza, S., et al. (2003). Laser-assisted uvulopalatoplasty for the treatment of snoring and mild obstructive sleep apnea syndrome. *Journal of Otolaryngology, 32*(3), 174-9.
No outcomes of interest

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No outcomes of interest

Lettieri, C.F., Lettieri, C.J., & Carter, K. (2011). Does home sleep testing impair continuous positive airway pressure adherence in patients with obstructive sleep apnea? *Chest, 139*(4), 849-54.
No outcomes of interest

Lewis, V.E., & Whitelaw, A. (2009). Furosemide for transient tachypnea of the newborn. *Cochrane Database of Systematic Reviews*, Issue 1.
Population: Newborns

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Population: Children

Li, C.K., & Flemons, W.W. (2003). State of home sleep studies. *Clinics in Chest Medicine, 24*(2), 283-95.
No outcomes of interest

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No outcomes of interest

Lim, J., Lasserson, T.J., Fleetham, J., & Wright, J.J. (2009). Oral appliances for obstructive sleep apnoea. *Cochrane Database of Systematic Reviews*, Issue 1.
No outcomes of interest

Lim, J., & McKean, M.C. (2011). Adenotonsillectomy for obstructive sleep apnoea in children. *Cochrane Database of Systematic Reviews*, Issue 2.
Population: Children

Lindman, R., & Bondemark, L. (2001). A review of oral devices in the treatment of habitual snoring and obstructive sleep apnoea. *Swedish Dental Journal, 25*(1), 39-51.
No outcomes of interest

Littner, M.R. (2005). Portable monitoring in the diagnosis of the obstructive sleep apnea syndrome. *Seminars in Respiratory & Critical Care Medicine, 26*(1), 56-67.
No outcomes of interest

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Population: Non-apnoeic snorers

Marshall, N.S., Wilsmore, B.R., McEvoy, R.D., Wheatley, J.R., Dodd, M.J., & Grunstein, R.R. (2007). Polysomnography in Australia--trends in provision. *Journal of Clinical Sleep Medicine, 3*(3), 281-4.
No outcomes of interest

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Population: Children

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No intervention of interest

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Population: Bariatric surgery patients

Montgomery-Downs, H.E., Crabtree, V.M., & Gozal, D. (2005). Actigraphic recordings in quantification of periodic leg movements during sleep in children. *Sleep Medicine, 6*(4), 325-32. *No outcomes of interest*

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Mull, Y., & Bedder, M. (2002). Obstructive sleep apnea syndrome in ambulatory surgical patients. *AORN Journal, 76*(3), 458-64.
Population: Ambulatory surgical patients

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No outcomes of interest

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No outcomes of interest

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No outcomes of interest

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No outcomes of interest

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Study design: Narrative

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No outcomes of interest

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Population: Children

Patel, M.R., & Davidson, T.M. (2007). Home sleep testing in the diagnosis and treatment of sleep disordered breathing. *Otolaryngologic Clinics of North America, 40*(4), 761-84.
No outcomes of interest

Pelletier-Fleury, N., Gagnadoux, F., Philippe, C., Rakotonanahary, D., Lanoe, J.L., & Fleury, B. (2001). A cost-minimization study of telemedicine. The case of telemonitored polysomnography to diagnose obstructive sleep apnea syndrome. *International Journal of Technology Assessment in Health Care, 17*(4), 604-11.
No outcomes of interest

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No outcomes of interest

Petersen, E.J., & Reiter, E.R. (2004). Hospital use in the treatment of sleep apnea. *Laryngoscope, 114*(3), 460-6.
Population: Hospitalized patients

Phillips, B. (2008). Your tax dollars at work! or the APPLES trial bears fruit. *Journal of Clinical Sleep Medicine, 4*(5), 419-20.
No outcomes of interest

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No outcomes of interest

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No outcomes of interest

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No outcomes of interest

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No outcomes of interest

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No outcomes of interest

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Population: Children

Rodenstein, D. (2009). Sleep apnea: Traffic and occupational accidents--individual risks, socioeconomic and legal implications. *Respiration, 78*(3), 241-8.
No outcomes of interest

Rofail, L.M., Wong, K.K., Unger, G., Marks, G.B., & Grunstein, R.R. (2010). The role of single-channel nasal airflow pressure transducer in the diagnosis of OSA in the sleep laboratory. *Journal of Clinical Sleep Medicine, 6*(4), 349-56.
No outcomes of interest

Savage, J.R., Hall, C., & Hilton, M.P. (2011). Alternative methods of adenoidectomy versus curettage in children. *Cochrane Database of Systematic Reviews*, Issue 11.
No outcomes of interest

Schatz, M., Zeiger, R.S., Chen, W., Yang, S.J., Corrao, M.A., & Quinn, V.P. (2008). The burden of rhinitis in a managed care organization. *Annals of Allergy, Asthma, & Immunology, 101*(3), 240-7.
No outcomes of interest

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No outcomes of interest

Seemann, R.P., DiToppa, J.C., Holm, M.A., & Hanson, J. (2001). Does laser-assisted uvulopalatoplasty work? An objective analysis using pre- and postoperative polysomnographic studies. *Journal of Otolaryngology, 30*(4), 212-5.
No outcomes of interest

Seino, Y., Imai, H., Nakamoto, T., Araki, Y., Sasayama, S., & CHF-HOT. (2007). Clinical efficacy and cost-benefit analysis of nocturnal home oxygen therapy in patients with central sleep apnea caused by chronic heart failure. *Circulation Journal, 71*(11), 1738-43.
Population: Central sleep apnea

Shamsuzzaman, A.S., Gersh, B.J., & Somers, V.K. (2003). Obstructive sleep apnea: Implications for cardiac and vascular disease. *Journal of the American Medical Association, 290*(14), 1906-14.
No outcomes of interest

Sharma, S.K., Kurian, S., Malik, V., Mohan, A., Banga, A., Pandey, R.M., et al. (2004). A stepped approach for prediction of obstructive sleep apnea in overtly asymptomatic obese subjects: A hospital based study. *Sleep Medicine, 5*(4), 351-7.
Population: Obese hospitalized patients

Sigurdson, K., & Ayas, N.T. (2007). The public health and safety consequences of sleep disorders. *Canadian Journal of Physiology & Pharmacology, 85*(1), 179-83.
No outcomes of interest

Smith, C.E., Dauz, E.R., Clements, F., Puno, F.N., Cook, D., Doolittle, G., et al. (2006). Telehealth services to improve nonadherence: A placebo-controlled study. *Telemedicine Journal & E-Health, 12*(3), 289-96.
No outcomes of interest

Smith, I., & Lasserson, T.J. (2009). Pressure modification for improving usage of continuous positive airway pressure machines in adults with obstructive sleep apnoea. *Cochrane Database of Systematic Reviews*, Issue 1.
No outcomes of interest

Smith, I., Nadig, V., & Lasserson, T.J. (2009). Educational, supportive and behavioural interventions to improve usage of continuous positive airway pressure machines for adults with obstructive sleep apnoea. *Cochrane Database of Systematic Reviews*, Issue 1.
No outcomes of interest

Stepnowsky, C., Blair, P., DiNicola, G., & Lenert, L.A. (2006). Shortening the feedback loop for sleep apnea patients via a wireless blood pulse-oximetry system. AMIA Annual Symposium Proceedings/AMIA Symposium, 1111.
No outcomes of interest

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No outcomes of interest

Tarasiuk, A., Greenberg-Dotan, S., Simon-Tuval, T., Freidman, B., Goldbart, A.D., Tal, A., et al. (2007). Elevated morbidity and health care use in children with obstructive sleep apnea syndrome. *American Journal of Respiratory & Critical Care Medicine, 175*(1), 55-61.
Population: Children

Tarasiuk, A., Simon, T., Regev, U., & Reuveni, H. (2003). Willingness to pay for polysomnography in children with obstructive sleep apnea syndrome: A cost-benefit analysis. *Sleep, 26*(8), 1016-21.
Population: Children

Tarasiuk, A., Simon, T., Tal, A., & Reuveni, H. (2004). Adenotonsillectomy in children with obstructive sleep apnea syndrome reduces health care utilization. *Pediatrics, 113*(2), 351-6.
Population: Children

Teoh, L., Hurwitz, M., Acworth, J.P., van Asperen, P., & Chang, A.B. (2011). Treatment of obstructive sleep apnoea for chronic cough in children. *Cochrane Database of Systematic Reviews*, Issue 4.
No outcomes of interest

Thakkar, K., & Yao, M. (2007). Diagnostic studies in obstructive sleep apnea. *Otolaryngologic Clinics of North America, 40*(4), 785-805.
No outcomes of interest

Thong, J.F., & Pang, K.P. (2008). Clinical parameters in obstructive sleep apnea: Are there any correlations? *Journal of Otolaryngology: Head and Neck Surgery, 37*(6), 894-900.
No outcomes of interest

Thurnheer R, Bloch KE, Laube I, Gugger M, Heitz M & Swiss Respiratory Polygraphy Registry. (2007). Respiratory polygraphy in sleep apnoea diagnosis. Report of the Swiss respiratory polygraphy registry and systematic review of the literature. *Swiss Medical Weekly, 137*(5-6), 97-102.
No outcomes of interest

Tibballs J, Henning R, Robertson CF, Massie J, Hochmann M, Carter B, et al. (2010). A home respiratory support programme for children by parents and layperson carers. *Journal of Paediatrics & Child Health, 46*(1-2), 57-62.

Population: Children

To KW, Chan WC, Choo KL, Lam WK, Wong KK, Hui DS, et al. (2008 Jan). A randomized cross-over study of auto-continuous positive airway pressure versus fixed-continuous positive airway pressure in patients with obstructive sleep apnoea. *Respirology (Carlton, Vic.), 13*(1), 79-86.
No outcomes of interest

Tomlinson M & John Gibson G. (2006). Obstructive sleep apnoea syndrome: a nurse-led domiciliary service. *Journal of Advanced Nursing, 55*(3), 391-7.
No outcomes of interest

Tripathi A, Jerrell JM & Stallworth JR. (2011). Cost-effectiveness of adenotonsillectomy in reducing obstructive sleep apnea, cerebrovascular ischemia, vaso-occlusive pain, and ACS episodes in pediatric sickle cell disease. *Annals of Hematology, 90*(2), 145-50.
Population: Children

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No outcomes of interest

Valerio TD. (2009). Much more than a nuisance. Health consequences of sleep disorders. *Advance for Nurse Practitioners, 17*(9), 57-60.
No outcomes of interest

Vardas PE, Auricchio A, Blanc JJ, Daubert JC, Drexler H, Ector H, et al. (2007). Guidelines for cardiac pacing and cardiac resynchronization therapy: The Task Force for Cardiac Pacing and Cardiac Resynchronization Therapy of the European Society of Cardiology. Developed in collaboration with the European Heart Rhythm Association. *European Heart Journal, 28*(18), 2256-95.
No outcomes of interest

Vorona RD & Ware JC. (2002). Sleep disordered breathing and driving risk. *Current Opinion in Pulmonary Medicine, 8*(6), 506-10.
No outcomes of interest

Wang G & Dietz WH. (2002). Economic burden of obesity in youths aged 6 to 17 years: 1979-1999. *Pediatrics, 109*(5), E81-1.
Population: Children

Weatherly, H.L.A., Griffin, S.C., McDaid, C., & Dur'ee, K.H. (2009). An economic analysis of continuous positive airway pressure for the treatment of obstructive sleep apnea-hypopnea syndrome. *International Journal of Technology Assessment in Health Care, 25*(1), 26-34.
This article was a brief publication informed by the systematic review and economic analysis (McDaid 2009) which is included in our report. Both publications are from the NIHR Health Technology Assessment Programme which advise NICE.

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No outcomes of interest

Weaver TE. (2006). Adherence to positive airway pressure therapy. *Current Opinion in Pulmonary Medicine, 12*(6), 409-13.
No outcomes of interest

Wickwire EM & Collop NA. (2010). Insomnia and sleep-related breathing disorders. *Chest, 137*(6), 1449-63.
No outcomes of interest

Wickwire EM, Smith MT, Birnbaum S & Collop NA. (2010). Sleep maintenance insomnia complaints predict poor CPAP adherence: A clinical case series. *Sleep Medicine, 11*(8), 772-6. *No outcomes of interest*

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No outcomes of interest

Williams LS & Holloway RG. (2005). How much is a good night's sleep worth? *Stroke, 36*(6), 1293-4.
No outcomes of interest

Wilson YL, Merer DM & Moscatello AL. (2009). Comparison of three common tonsillectomy techniques: a prospective randomized, double-blinded clinical study. *Laryngoscope, 119*(1), 162-70.
Population: Children

Yagi H, Nakata S, Tsuge H, Yasuma F, Noda A, Morinaga M, et al. (2009). Significance of a screening device (Apnomonitor 5) for sleep apnea syndrome. *Auris, Nasus, Larynx, 36*(2), 176-80.

No outcomes of interest

Zotter H, Schenkeli R, Kurz R & Kerbl R. (2003). Short-term event recording as a measure to rule out false alarms and to shorten the duration of home monitoring in infants. *Wiener Klinische Wochenschrift, 115*(1-2), 53-7.
Population: Infants

Appendix F. Quality Assessment of Included Studies

Reference	Quality Assessment
Key Question #1 – #7	
Balk, E.M., Moorthy, D., Obadan, N.O., Patel, K., Ip, S., Chung, M., et al. (2011). *Diagnosis and treatment of obstructive sleep apnea in adults*. Rockville, MD: Agency for Healthcare Research and Quality.	Good
Key Question #8	
Deutsch, P.A., Simmons, M.S., & Wallace, J.M. (2006). Cost-effectiveness of split-night polysomnography and home sleep studies in the evaluation of obstructive sleep apnea syndrome. *Journal of Clinical Sleep Medicine, 2*(2), 145-153.	Good
Jennum, P., & Kjellberg, J. (2011). Health, social and economic consequences of sleep-disordered breathing: A controlled national study. *Thorax, 66*, 560-566.	Good
Masa, J., Corral, J., Rereira, R., Duran-Cantolla, J., Cabello, M., Hernández-Blasco, L., et al. (2011). Effectiveness of home respiratory polygraphy for the diagnosis of sleep apnoea and hypopnoea syndrome. *Thorax, 66*, 567-573.	Good
McDaid, C., Griffin, S., Weatherly, H., Durée, K., van der Burgt, M., van Hout, S., et al. (2009). Continuous positive airway pressure devices for the treatment of obstructive sleep apnoea-hypopnoea syndrome: A systemic review and economic analysis. *Health Technology Assessment, 13*(4).	Good
Sadatsafavi, M., Marra, C.A., Ayas, N.T., Stradling, J., & Fleetham, J. (2009). Cost-effectiveness of oral appliances in the treatment of obstructive sleep apnoea-hypopnoea. *Sleep Breath, 13,* 241-252.	Good
Tarasiuk, A., Green-Dotan, S., Simon-Twal, T., Oksenberg, A., & Reuveni, H. (2008). The effect of obstructive sleep apnea on morbidity and health care utilization of middle-aged and older adults. *Journal of the American Geriatric Society, 56*, 247-254.	Good

Appendix G. Balk et al (2011) Appendix D (p. D-7 – D-218)

Table of Contents

Abbreviations and Acronyms Used in Tables

Abbreviation/Acronym	Definition
AHI	apnea-hypopnea index in events/hour of sleep
AOP	atrial overdrive pacing
ASA	American Society of Anesthesiologists
AUC	area under the curve
Auto	automated scoring
autoCPAP	autotitrating positive airway pressure
BDI	Beck Depression Inventory
Block Design	Block Design and Digit Symbol Substitution
BMI	body mass index
bpm	beats per minute
Calgary	Calgary Sleep Apnea Quality of Life Index
C-flex™	splinted airway pressure
CHF	congestive heart failure
CI	confidence interval
CM	conservative management (sleep hygiene and weight control)
CMS collar	cervicomandibular support collar
COPD	chronic obstructive pulmonary disease
CPAP	continuous positive airway pressure
CT	conservative treatment
CVD	cardiovascular disease
DBP	diastolic blood pressure
Diff	difference
DM	diabetes mellitus (Type 2 Diabetes)
ED	emergency department
ESS	Epworth Sleepiness Scale (no units)
FOSQ	Functional Outcomes of Sleep Questionnaire
GA	geniotubercle advancement
GAHM	genioglossus advancement with hyoid myotomy/suspension
GERD	gastroesophageal reflux disease
GHQ-28	general health questionnaire
GrenobleSAQOL	Grenoble Sleep Apnea Quality of Life test
HADS	Hospital Anxiety and Depression Scale
HR	hazard ratio
HS	hyoid suspension (hyothyroidopexy)
HTN	hypertension
IQR	interquartile range
ISI	Insomnia Severity Index
LAUP	laser-assisted uvulopalatoplasty
LOA	limits of agreement
MAD	mandibular advancement device
MCS	Mental Component Summary (SF-36)
MLHFQ	Minnesota Living with Heart Failure questionnaire
MMO	maxillomandibular advancement osteotomy

MMSE	Mini Mental Status Examination
MSLT	Multiple Sleep Latency Test
nd	no data
NHP	Nottingham Health Profile
O2 desat	oxygen desaturation
OR	odds ratio
OSA	obstructive sleep apnea
OSLER	Oxford sleep resistance
P Btw	P value of difference between two interventions
PASAT	Paced Auditory Serial Addition Test
PCS	Physical Component Summary (SF-36)
PL	parallel design
PMID	Pubmed identifier (also known as unique identifier)
PSG	polysomnography; STOP
QLSESQ	Quality of Life Enjoyment and Satisfaction Questionnaire
RCT	randomized controlled trial
ROC	Receiver operating characteristics
RDI	respiratory disturbance index
Resp dz	respiratory disease
RFA	radiofrequency ablation
RFVTR	radiofrequency volumetric tissue reduction
RH	reinforced education by the homecare team
ROC	receiver-operator characteristic curve
RP	reinforced education by the prescriber
RR	relative risk
SACS	sleep apnea clinical score
SAHS	sleep apnea-hypopnea syndrome-related symptoms questionnaire
SAQLI	Sleep Apnea Quality of Life Index
SBP	systolic blood pressure
SD	standard deviation
SDB	sleep disordered breathing
SF-36	Short Form (36) Health Survey
SH	standard education by the homecare network
SHEP	shoulder head elevation pillow
SHHS	Sleep Heart Health Study
SP	standard education by the prescriber
SQ	Scottish National Sleep Laboratory symptom questionnaire
STOP	Snoring, tiredness during daytime, observed apnea, and high blood pressure
STOP-Bang	STOP with BMI, age, neck circumference, and gender variables
TAP	transpalatal advancement pharyngoplasty
TASB	thoracic anti-supine band
TC	total cholesterol
TCA	tricyclic antidepressants
TCRFTVR	temperature controlled radiofrequency tissue volume reduction of the soft palate

Tg	triglycerides
TMJ	temporomandibular joint
TSD	tongue stabilizing device
Tx	treatment
UMACL	University of Wales mood adjective list energetic arousal score
UPP	uvulopalatoplasty
UPPP	uvulopalatopharyngoplasty
VLCD	very low calorie diet
WAIS	Wechsler Adult Intelligence Scale
WHR	waist-hip ratio
WMS	Wechsler Memory Scale
WSCS	Wisconsin Sleep Cohort Study
XO	crossover design

Table 1.1.1. Type III monitors vs. PSG: study characteristics

Study PMID	Participants	Country (enrollment years)	N	Baseline AHI (SD) [range]	Baseline ESS (SD)	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Setting	Sleep Apnea Definition	Denominator	Quality Issues
Amir, 2010[70] 20191939	Suspected sleep apnea-hypopnea syndrome patients	USA(nd)	53	15.4 [0,100.0]	nd	48	68%	32	Sleep lab	AHI ≥ 15	Total sleep time (AHI)	
Garcia-Diaz, 2007[66] 17356086	Suspected sleep apnea-hypopnea syndrome patients	Spain (nd)	65	30 (33) [nd]	12 (3.7)	54	87%	30.1	Sleep lab & Home	nd	Total recording time (RDI)	No clear population description
Ng, 2010[71] 20199844	Suspected OSA referred to respiratory clinic	China (nd)	80	21.6 (19.1)	9.7 (5.3)	51	79%	27.1	Sleep lab	nd	Total recording time (RDI)	
Planès, 2010[72] 19533191	Pts with coronary artery disease	France (Apr 2004 – July 2007)	45	23.8 (15.3) [2,67]	8 (6.3)	63	98%	26.4	Home	nd	Total recording time (RDI)	Selection bias
Santos-Silva, 2009[67] 19480230	Suspected OSA and healthy subjects	Brazil (nd)	82	23 (34) [nd]	10.4 (5.8)	47	57%	28	Sleep lab & Home	nd	Total recording time	No clear population description – baseline severity by AHI
To, 2009[68] 19210858	Suspected OSA referred to respiratory clinic	China (2005)	184	40	10.4	49	75%	28.7	Sleep lab	AHI > 5	Total recording time	B-A plots are not interpretable; no clear population description
Tonelli de Oliveira, 2009[65] 19201709	Referred for sleep center	Brazil (2004-2006)	157	30 (28)	11 (5.0)	45	73%	29.1	Sleep lab & Home	AHI ≥ 5	Total recording time	Analytical problem – no adjustment for multiple measures on same patient

Respiratory events across all studies were of at least 10 seconds duration. As mentioned in the header row, respiratory events were defined identically in for the portable monitors as with laboratory-based PSG. Studies are ordered by decreasing number of analyzed people.

Table 1.1.2. Complete list of type III and type IV monitors from our previous report[28] as well as in the update

Name of Monitor	Monitor Classification	No. of studies	Studies
ApneaScreen II	III	2	Quintana-Gallego 2004, Garcia-Diaz 2007
ARES Unicorder	III	1	To 2009
Bedbugg	III	1	Claman 2001
CID102L8 Type III system	III	1	Planès 2010
Edent 4700	III	1	Redline 1991
Edentrace	III	3	Parra 1997, Whittle 1997, Emsellem 1990
Embletta	III	2	Dingli 2003, Ng 2010
Merlin	III	2	Calleja 2002, Fietze 2002
Micro Digitraper-S	III	1	Zucconi 1996
Morpheus Hx bedside computer analysis system	III	1	Amir 2010
Nightwatch	III	2	Ancoli-Israel 1997, White 1995
NovaSom QSG	III	1	Reichert 2003
Poly Mesam	III	2	Marrone 2001, Verse 2000
PolyG	III	1	Man 1995
Sibel Home-300	III	1	Ballester 2000
SNAP	III	1	Su 2004
Somno check	III	2	Ficker 2001, Tonelli de Oliveira 2009,
Stardust II	III	2	Yim 2006, Santos-Silva 2009
Unnamed Monitors - Respiratory Monitoring	III	2	Carasco 1996, Llobres 1996
Apnealink	IV	5	Erman 2007, Ng 2009, Ragette 2010, Chen 2009, Clark 2009
Apnomonitor 5	IV	1	Yagi 2009
Apno screen I	IV	1	Golpe 2002
ARES	IV	2	Ayappa 2008, Westbrook 2005
Autoset	IV	8	Bagnato 2000, Bradley 1995, Gugger 1995, Gugger 1997, Kiely 1996, Mayer 1998, Rees 1998, Fleury 1996
CID102	IV	1	vanSurell 1995
ClearPath	IV	1	Abraham 2006
Embletta	IV	1	Smith 2007
FlowWizard	IV	1	Wong 2008
Holter (with and without ECG)	IV	3	Szyszko 2009, Pepin 2009, Heneghan 2008
Lifeshirt	IV	1	Goodrich 2009
MESAM IV	IV	5	Esnaola 1996, Stoohs 1992, Koziej 1994, Schafer 1997, Rauscher 1991
Oxiflow	IV	2	Baltzan 2000, Ayappa 2004

Table 1.1.2. Complete list of type III and type IV monitors from our previous report[28] as well as in the update (continued)

Name of Monitor	Monitor Classification	No. of studies	Studies
Oximeter with or without snoring sound recording, ECG and actigraphy	IV	22	Adachi 2003, Alvarez 2006, Bonsignore 1990, Bradley 1995, Chiner 1999, Cooper 1991, Douglas 1992, Gurubhagavatula 2004, Gyulay 1987, Heneghan 2008, Issa 1993, Levy 1996, Pepin 1991, Rauscher 1993, Ryan 1995, Series 1993, Vazquez 2000, White 1994, Williams 1991, Wiltshire 2001, Zamarron 1999, Zamarron 2003,
Reggie	IV	1	Overland 2005
RUSleeping RTS	IV	1	Watkins 2009
SD-101 (respiratory effort)	IV	1	Agatsuma 2009
Sleep Strip	IV	2	Shochat 2002, Pang 2006
Sleep Check	IV	1	de Almeida 2006
SNAP	IV	1	Michaelson 2006
SOMNIE	IV	1	Nakano 2008
Watch PAT 100	IV	7	Ayas 2003, Bar 2003, Bar 1995 Penzel 2004, Pittman 2004, Pang 2007, Pillar 2003
WristOx 3100	IV	1	Nigro 2009

Table 1.1.3. Type III monitors vs. PSG: study results

Study PMID	Index Test (vs. PSG)	N	Setting	Bland-Altman Metric	Bland-Altman Result, events/hr	ROC Analysis Threshold, events/hr Index	ROC Analysis Threshold, events/hr PSG	Sensitivity, % (95% CI)	Specificity, % (95% CI)	AUC	Quality
Garcia-Diaz, 2007[66] 17356086	Respiratory Polygraph – Apnoescreen II in Lab (Obs A)	62	Sleep lab (& home)	95% LOA	2.8 (-18, 23)	RDI≥10	AHI≥10	94.6 (87.3,100)	96 (88.3,100)	0.977	A
						RDI≥15	AHI≥15	100	96.7 (90.2,100)	0.998	
						RDI≥30	AHI≥30	95.8 (87.8,100)	94.7 (87.6,100)	0.986	
	Respiratory Polygraph – Apnoescreen II in Lab (Obs B)				1.03 (-19, 21)	RDI≥10	AHI≥10	94.6 (87.3,100)	88 (75.2,100)	0.974	
						RDI≥15	AHI≥15	100	96.7 (90.2,100)	0.997	
						RDI≥30	AHI≥30	95.8 (87.8,100)	94.7 (87.6,100)	0.987	
	Respiratory Polygraph – Apnoescreen II at Home (Obs A)				3.1 (-30, 36)	RDI≥10	AHI≥10	86.4 (75.4,97.5)	100	0.969	
						RDI≥15	AHI≥15	87.5 (76, 98.9)	96.7 (90.2,100)	0.972	
						RDI≥30	AHI≥30	91.7 (80.6,100)	94.7 (87.6,100)	0.986	
	Respiratory Polygraph – Apnoescreen II at Home (Obs B)				1.6 (-31, 34)	RDI≥10	AHI≥10	83.8 (71.9,95.6)	92 (81.3,100)	0.976	
						RDI≥15	AHI≥15	84.4 (71.8, 96.9)	96.7 (90.2,100)	0.977	
						RDI≥30	AHI≥30	95.8 (87.8, 100)	94.7 (87.6,100)	0.985	
Amir, 2010[70] 20191939	Morpheus Hx (bedside computerized analysis system) vs PSG	53	Sleep Lab	95% CI	-0.06 (-14.3, 14.2)	≥ 5	≥ 5	97.2 (nd)	94.1 (nd)		A
						≥ 15	≥ 15	100 (nd)	92.7 (nd)		
Santos-Silva, 2009[67] 19480230	STD at-home vs. PSG in-lab	80	Sleep Lab & Home	95% LOA	-0.7 (-24, 22.6)	≥5	≥5	93 (nd)	59 (nd)	0.90	A
						≥15	≥15	85 (nd)	80 (nd)	0.92	
						≥30	≥30	77 (nd)	93 (nd)	0.95	
	STD in-lab (done with PSG) vs. PSG in-lab				-4.0 (-26.6, 18.6)	≥5	≥5	92 (nd)	48 (nd)	0.91	
						≥15	≥15	94 (nd)	71 (nd)	0.93	
						≥30	≥30	86 (nd)	79 (nd)	0.95	
	STD at-home vs. PSG in-lab (done with STD)				1.6 (-22.2, 25.4)	≥5	≥5	95 (nd)	62 (nd)	0.95	
						≥15	≥15	86 (nd)	78 (nd)	0.95	
						≥30	≥30	74 (nd)	96 (nd)	0.96	
	STD in-lab (done with PSG) vs. PSG in-lab (done with STD)				-1.1 (-24.9, 22.8)	≥5	≥5	98 (nd)	62 (nd)	0.97	
						≥15	≥15	97 (nd)	74 (nd)	0.98	
						≥30	≥30	96 (nd)	92 (nd)	0.98	
Ng, 2010[71] 20199644	Embletta portable diagnostic system vs PSG	80	Sleep lab	95% CI	1.0 (-7, 8.6) **	≥ 5	≥ 5	92.4 (nd)	85.7 (nd)	0.948	B
						≥ 10	≥ 10	90 (nd)	86.7 (nd)	0.975	
						≥ 15	≥ 15	87.8 (nd)	94.9 (nd)	0.985	
						≥ 20	≥ 20	85.3 (nd)	95.7 (nd)	0.984	
Planès, 2010[72] 19533191	Type III device (CID102L8) vs Type II PSG (extended version of CID102L8)	45	Sleep lab	95% CI	-3.4 (-18.4, 11.6) **	≥5	≥5	95 (82, 99)	67 (12, 98)		B
						≥15	≥15	71 (52, 85)	93 (64, 100)		
						≥30	≥30	75 (43, 93)	97 (82, 100)		
To, 2009[68] 19210658	ARES Unicorder vs. PSG	141	Hospital	nd	Data not interpretable from figure	≥5 at 4% O_2 desat	≥ 5	84 (77, 90)	100	0.96	B
						≥5 at 3% O_2 desat	≥5	89 (84, 94)	100	0.97	
						≥5 at 1% O_2 desat	≥5	97 (94, 99)	63 (55, 71)	0.98	
Tonelli de Oliveira, 2009[69] 19201709	Somnocheck-lab vs. PSG	149	Sleep lab & Home	95% LOA	2.6 (-17.7, 22.8)						B
	Somnocheck-Home vs. PSG				3.2 (-28, 34.3)	≥7	AHI≥5	96.15 (92.5, 99.8)	64.7 (42.0, 87.4)	0.96	
						≥9	AHI≥10	90.7 (82.7, 95.2)	82.9 (67.3, 91.9)	0.92	
						>9	AHI>15	81.3 (71.1, 88.5)	88.4 (78.9, 94.0)	0.91	
						≥33	AHI≥30	80 (66.3, 91.7)	92.1 (86, 98.2)	0.92	

Table 1.2.1. Type IV monitors (≥3 channels) vs. PSG: study characteristics

Study PMID	Participants	Country (enrollment years)	N	Baseline AHI (SD) [range]	Baseline ESS (SD)	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Setting	Sleep Apnea Definition	Denominator	Quality Issues
Ayappa, 2008[73] 18350959	Referred to specialized center	US (2005-2006)	80	nd	8.8 (nd)	46	78%	30	Sleep lab & Home	nd	Total sleep time as well as total recording time	Baseline AHI not reported
Goodrich, 2009[79] 18083629	Symptoms suggestive of OSA & GERD	US (nd)	50	[5–105]	nd	44	73%	nd	Sleep lab	nd	Total recording time (RDI)	No data on test reader blinding
Ng, 2009[56] 19220528	Suspected sleep apnea patients	China (nd)	50	nd	10.1 (5.5)	50	88%	27.9	Sleep lab	nd	Total recording time (RDI)	Incomplete reporting of population
Pang, 2007[84] 17903588	Referred to sleep center	US (nd)	37	35 (20) [nd]	13.9	50	32%	34.6	Sleep lab	nd	Total sleep time.*	Unclear results reporting; unclear population description
Schafer, 1997[87] 9154670	Suspected sleep-related breathing disorders	Germany (nd)	114	29 (24) [nd]	nd	56	66%	30.0	Sleep lab & Home	RDI ≥10	Total recording time	Nonconsecutive subjects
Smith, 2007[88] 18036089	Chronic heart failure	UK (nd)	20	26 (22) [nd]	8 (4.0)	61	70%	29	Sleep lab & Home	AHI >20	Total recording time	OSA cut-off different for PSG device
Yagi, 2009[93] 18635324	Suspected sleep apnea syndrome	Japan (2005-2006)	22	44 (21) [nd]	nd	53	77%	25.7	Sleep lab	AHI ≥15	Total recording time	Incomplete reporting of population, OSA severity, methods, or analyses

** Estimated from Figure of plot in the publication, using the Engauge Digitizer software program

Table 1.2.2. Type IV monitors (2 channels) vs. PSG: study characteristics

Study PMID	Participants	Country (enrollment years)	N	Baseline AHI (SD) [range]	Baseline ESS (SD)	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Setting	Sleep Apnea Definition	Denominator	Quality Issues
Abraham, 2006[74] 17033271	Heart failure	US & UK (nd)	50	[0-92]	10.6 (4.4)	56	68%	32.6	Sleep lab & Home	RDI ≥5	Total sleep time	Significant difference among sites; home test data not presented; unclear criteria for tests
Chen, 2009[75] 19052790	Suspected sleep disordered breathing patients	Canada (nd)	54	30 (26) [1–86]	nd	49	64%	32.2	Sleep lab	OSA: AHI≥ 5	Total sleep time	
Clark, 2009[76] 19222876	Suspected sleep disordered breathing patients	UK (nd)	67	22 (23) [0–87]	13.3 (5.2)	51	76%	35.0	Home	CPAP Tx needed: AHI ≥ 15	Total recording time (RDI)	B-A plots are not interpretable; no clear population description
Heneghan, 2008[81] 18853941	Suspected OSA	Ireland (nd)	63	nd	11.3	51	88%	30.9	Sleep lab	AHI≥15	Total recording time	
Pepin, 2009[85] 19028140	Referred for sleep center	France (nd)	34	20 (19) [nd]	10 (6.0)	47	63%	25.4	Sleep lab	AHI >20	Total recording time	Unclear population description
Ragette, 2010[95] 19714380	Referred for sleep lab	Germany (Jul – Oct 2003)	102	nd	nd	54	76%	29.5	Sleep lab	nd	Total recording time	Unclear population description
Ragette, 2010[95] 19714380	Referred for sleep lab day clinic	Germany (Jan 2005 – Feb 2006)	131	nd	nd	59	73%	28	Home	nd	Total recording time	Unclear population description
Szyszko, 2009[89] 18971289	Suspected OSA	Argentina (nd)	20	24 (26) [5–119]	10.9 (5.2)	49	50%	41.3	Sleep lab	AHI ≥10	Total recording time	
White, 1994[91] 7923843	Referred for UPPP	UK (nd)	37	nd	nd	37	68%	nd	Sleep lab	AHI ≥10	Total sleep time	Unclear description of population and tests; discrepancy in results reporting

Table 1.2.3. Type IV monitors (1 channel) vs. PSG: study characteristics

Study PMID	Participants	Country (enrollment years)	N	Baseline AHI (SD) [range]	Baseline ESS (SD)	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Setting	Sleep Apnea Definition	Denominator	Quality Issues
Agatsuma, 2009[94] 19818056	Suspected disordered sleep patients and healthy truck drivers	Japan (Mar 2004 – Aug 2007)	366	19.7[†††]	5.8[‡‡‡]	49[‡‡]	87[‡‡]	25.2[‡‡]	Sleep lab & Home	AHI ≥ 15 w/o symptoms or AHI ≥ 5 - < 15 w/ symptoms	Total recording time (RDI)	Data from two dissimilar groups was combined to estimate sens and sp for the device
de Almeida, 2006[77] 16502297	Patients referred to sleep center for suspected sleep-related breathing disorders	Canada (nd)	35	19 (22) [nd]	nd	44	77%	31.1	Sleep lab	AHI >5	Total recording time (RDI)	16% of sample was excluded without reason
Erman, 2007[78] 17684728	Patients with type 2 diabetes mellitus	USA (nd)	68	nd	nd	57	49%	32.6	Sleep lab & Home	nd	Total recording time (RDI)	
Heneghan, 2008[80] 18595434	Suspected OSA and healthy male subjects	Ireland (nd)	98	33 (nd) [nd]	11.9 (nd)	42	100%	33.9	Sleep lab	AHI≥15	Total recording time	Results not interpretable
Nakano, 2008[82] 18480104	Patients referred for sleep disorders	Japan (nd)	100	30 [10-65]	nd	45.3*	80%	26.9	Sleep lab & Home	nd	Total recording time	
Nigro, 2009[83] 18830731	Suspected OSA	Argentina (nd)	166	14 [4-29]†	nd	51	77%	28.3	Sleep lab	AHI ≥5	Total recording time	Unclear description of population
Watkins, 2008[90] 19786903	Commercial motor drivers at high risk for OSA	USA (Sept 2007 – Oct 2008)	159	19 (nd) [1–117]	nd	nd	nd	nd	Sleep lab & Community	AHI ≥ 5	Total recording time	No clear population description; 78% drop outs; no clear description of PSG
Reda, 2001[86] 11593166	Sleep-related breathing disorders	UK (nd)	59	nd	nd	Range: 20-70	nd	nd	Sleep lab	AHI ≥15	Total recording time	Unclear population description; test readers not blinded
White, 1994[91] 7923843	Referred for UPPP	UK (nd)	37	nd	nd	37	68%	nd	Sleep lab	AHI ≥10	Total sleep time	Unclear description of population and tests; discrepancy in results reporting
Wong, 2008[92] 18411561	Referred for sleep center	Australia (nd)	34	32 (27) [0-100]	11.9 (4.7)	42	97%	30.2	Sleep lab & Home	AHI ≥10	Total recording time	Unclear description of population

[†††] weighted mean; suspected disordered sleep gp: 28.6 ± 23.0; healthy truck drivers group: 8.9 ± 14.3
[‡‡‡] weighted mean

Table1.3.1. Type IV monitors (≥3 channels) vs. PSG: study results

Study PMID	Index Test (vs PSG)	N	Setting	Bland-Altman Metric	Bland-Altman Result, events/hr	ROC Analysis Threshold, events/hr Index	ROC Analysis Threshold, events/hr PSG	ROC Analysis Sensitivity, % (95% CI)	ROC Analysis Specificity, % (95% CI)	AUC	Quality
Ayappa 2008[73] 18350959	ARES* in-Lab vs PSG	73	Sleep lab (& home)	95% LOA	0.7 (-1.2, 2.6)	AHI >5 4% O_2 des	AHI >5 4% O_2 des	0.98 (0.88, 1)	0.76 (0.52, 0.91)		A
						AHI >5 4% O_2 des	AHI >10 4% O_2 des	0.97 (0.84, 1)	0.78 (0.6, 0.89)		
						AHI >5 4% O_2 des	AHI >15 4% O_2 des	0.91 (0.75, 0.98)	0.92 (0.78, 0.98)		
	ARES in-Lab vs PSG (RDI)	73			3.3 (0.8, 5.9)	AHI >10 1% O_2 des	RDI >10	0.95 (0.86, 0.99)	0.73 (0.39, 0.93)		
						AHI ≥15 1% O_2 des	RDI≥15	0.94 (0.84, 0.99)	0.89 (0.65, 0.98)		
	ARES at-home vs PSG	67			5.2 (1.0, 9.4)	AHI >5 4% O_2 des	AHI >5 4% O_2 des	0.92 (0.8, 0.97)	0.67 (0.41, 0.86)		
						AHI >5 4% O_2 des	AHI >10 4% O_2 des	0.89 (0.72, 0.96)	0.72 (0.53, 0.86)		
						AHI >5 4% O_2 des	AHI >15 4% O_2 des	0.76 (0.57, 0.88)	0.82 (0.65, 0.93)		
	ARES at-home vs PSG (RDI)	67			10.3 (5.9, 14.6)	AHI >10 1% O_2 des	RDI >10	0.9 (0.78, 0.96)	0.78 (0.4, 0.96)		
						AHI ≥15 1% O_2 des	RDI≥15	0.84 (0.71, 0.93)	0.81 (0.54, 0.95)		
Goodrich 2009[79] 18083629	Lifeshirt	48	Lab	95% LOA	1.02 (-16.4, 16.4)	≥5	≥5	85 (nd)	67 (nd)	0.76	B
						≥10	≥10	92 (nd)	88 (nd)	0.90	
						≥15	≥15	87 (nd)	82 (nd)	0.84	
						≥20	≥20	85 (nd)	94 (nd)	0.90	
						≥25	≥25	100 (nd)	97 (nd)	0.99	
						≥30	≥30	88 (nd)	100 (nd)	0.94	
Ng, 2009[95] 19220528	ApneaLink (AHI) vs PSG	50	Sleep lab	95% CI	2.0 (-6.7, 10.5) **	≥5	≥5	100 (nd)	100 (nd)	1.000	B
						≥10	≥10	97.7 (nd)	100 (nd)	1.000	
						≥15	≥15	94.7 (nd)	100 (nd)	0.998	
						≥20	≥20	96.9 (nd)	100 (nd)	1.000	
	ApneaLink (ODI) vs PSG	50	Sleep Lab	95% CI	10.9 (-8.6, 30) **	≥5	≥5	95.8 (nd)	50 (nd)	0.964	
						≥10	≥10	88.3 (nd)	85.7 (nd)	0.935	
						≥15	≥15	73.7 (nd)	91.7 (nd)	0.931	
						≥20	≥20	75 (nd)	88.9 (nd)	0.922	
Yagi 2009[93] 18635324	Apnomonitor vs PSG	22	Sleep lab			≥15	≥15	95			C
Pang 2007[84] 17903588	WatchPAT	32	Sleep Lab			>5	>5	94 (nd)	80 (nd)		C
						>15	>15	96 (nd)	79 (nd)		
						>35	>35	83 (nd)	72 (nd)		
Smith 2007[88] 18036089	Embletta in-Lab	20	Sleep lab & Home	95% LOA	6 (-11, 24)						B
	Embletta at-home	20	Sleep lab & Home		12 (-25, 49)	AHI≥10	AHI ≥15	87.5 (nd)	58.3		
						AHI≥20	AHI ≥15	75 (nd)	50		
Schafer 1997[87] 9154670	MESAM 4	114	Sleep lab & Home	nd	Data not interpretable from figure	≥5	≥5	96 (nd)	15 (nd)		B
						≥10	≥10	95 (nd)	41 (nd)		
						≥15	≥15	83 (nd)	62 (nd)		
						≥20	≥20	68 (nd)	74 (nd)		
						≥25	≥25	60 (nd)	85 (nd)		

Table 1.3.2. Type IV monitors (2 channels) vs. PSG: study results

Study PMID	Index Test (vs PSG)	N	Setting	Bland-Altman Metric	Bland-Altman Result, events/hr	ROC Analysis Threshold, events/hr		ROC Analysis Sensitivity, % (95% CI)	ROC Analysis Specificity, % (95% CI)	AUC	Quality
Pepin 2009[85] 19028140	ECG/nasal pressure holter monitoring visual	19	Sleep lab	95% CI	5.8 (-3.9, 15.5)	>35	>20	57 (nd)	100 (nd)	0.97	B
	ECG/nasal pressure holter monitoring automated	19	Sleep lab		2.3 (-18.9, 23.4)	>35	>20	71 (nd)	100 (nd)	0.85	
Chen 2009[75] 19052790	ApneaLink (AASM criteria*)	50	Sleep lab	95% LOA	-6.3 (-25.5, 12.9)	AHI≥5	AHI≥5	97.7 (nd)	66.7 (nd)	0.964	A
						AHI≥10	AHI≥10	95.0 (nd)	90.0 (nd)	0.978	
						AHI≥15	AHI≥15	87.5 (nd)	88.9 (nd)	0.944	
						AHI≥20	AHI≥20	88.0 (nd)	88.0 (nd)	0.944	
						AHI≥30	AHI≥30	88.2 (nd)	93.9 (nd)	0.954	
	ApneaLink (Sandman setting†)				-0.5 (-17.9, 16.9)	AHI≥5	AHI≥5	93.2 (nd)	83.3 (nd)	0.951	
						AHI≥10	AHI≥10	97.5 (nd)	90.0 (nd)	0.983	
						AHI≥15	AHI≥15	90.6 (nd)	77.8 (nd)	0.944	
						AHI≥20	AHI≥20	92.0 (nd)	84.0 (nd)	0.934	
						AHI≥30	AHI≥30	94.1 (nd)	81.8 (nd)	0.955	
Ragette, 2010[95] 19714380	Apnealink-in Lab vs PSG	102	Sleep lab	95% CI	-0.7 (-14,12) **	≥5	≥5	93.9 (nd)	50 (nd)		B
						≥10	≥10	91.9 (nd)	87.5 (nd)		
						≥15	≥15	92 (nd)	88.5 (nd)		
	Apnealink-at Home vs PSG	131	Home	95% CI	1.2 (-18.8,18.7) **	≥5	≥5	91.8 (nd)	76.5 (nd)		
						≥10	≥10	80 (nd)	85.5 (nd)		
						≥15	≥15	73.1 (nd)	84.7 (nd)		
Clark, 2009[76] 19222876	ApneaLink‡	50	Home	nd	Data not interpretable from figure	AHI≥15	AHI≥15	92 (nd)	96.7 (nd)		B
Abraham 2006[74] 17033271	Home Cardiorespiratory system (ClearPath System Nx-301)	50	Sleep lab			RDI≥5	RDI≥5	92 (nd)	52 (nd)		B
						RDI≥10	RDI≥10	88 (nd)	63 (nd)		
						RDI≥15	RDI≥15	67 (nd)	78 (nd)		
Heneghan 2008[81] 18853941	ECG-Oximetry analysis	59	Sleep lab	95% LOA	-0.9 /hr (-18, 16.2)	≥5	≥5	93.8 (86.9, 100)	100		A
						≥10	≥10	81.6 (69.3, 93.9)	90.5 (77.9, 100)		
						≥15	≥15	74.2 (58.8, 89.6)	96.4 (89.6, 100)		
	Oximetry	59	Sleep lab		1.1 /hr (-16.5, 18.4)						

Table 1.3.2. Type IV monitors (2 channels) vs. PSG: study results (continued)

Study PMID	Index Test (vs PSG)	N	Setting	Bland-Altman Metric	Bland-Altman Result, events/hr	ROC Analysis Threshold, events/hr		ROC Analysis Sensitivity, % (95% CI)	ROC Analysis Specificity, % (95% CI)	AUC	Quality
Heneghan 2008[80] 18595434	Holter ECG analysis algorithm	92	Sleep lab	nd	Data not interpretable from figure	≥15	≥15	92 (nd)	69 (nd)		B
						≥5 - <15	≥5 - <15	60§ (nd)	86 (nd)		
						< 5	< 5	37 (nd)	95 (nd)		
Szyszko 2009[89] 18971289	Holter Monitor	20	Sleep lab	95% LOA	4.7 (-30.1, 39.4)	RDI ≥10	AHI ≥10	78.5 (48.2, 94.2)	83.3 (25.8, 89.7)	0.81	A
White 1994[91] 7923843	O_2 saturation & snoring sound vs PSG	37	Sleep lab			nd	AHI≥10	62	100		C
						nd	AHI≥15	86	78		
						nd	AHI≥20	100	76		

Table 1.3.3. Type IV monitors (1 channel) vs. PSG: study results

Study PMID	Index Test (vs PSG)	N	Setting	Bland-Altman		ROC Analysis				Quality
				Metric	Result, events/hr	Threshold, events/hr		Sensitivity, % (95% CI)	Specificity, % (95% CI)	AUC	
Erman 2007[78] 17694728	ApneaLink	58	Lab	95% LOA	~ -2 (-22, 18)*	AHI >5	AHI >5	85.4 (nd)	50.0 (nd)	0.883	A
						AHI >10	AHI >10	82.1 (nd)	83.9 (nd)	0.862	
						AHI >15	AHI >15	90.9 (nd)	94.6 (nd)	0.977	
						AHI >20	AHI >20	83.3 (nd)	92.7 (nd)	0.967	
de Almeida 2006[77] 16502297	Sleep Check	30	Sleep lab	95% LOA	0 (-26.6, 26.6)	>5	>5	96.4	75	0.906	B
						>10	>10	85.7	87.5	0.915	
						>15	>15	83.5	83.5	0.898	
						>20	>20	88.9	81	0.910	
Nakano 2008[82] 18480104	SOMNIE single-channel airflow monitor	100	Home	95% LOA	-9.5 (-30.4,11.4)	>5.3	>5	96 (91,100)	82 (59,100)	0.95	A
						>11.4	>15	91 (84, 98)	82 (70, 95)	0.96	
						>19.6	>30	89 (80, 97)	96 (90,100)	0.98	
			Female			>5.3	>5	88 (nd)	67 (nd)	0.88	
						>11.4	>15	75 (nd)	83 (nd)	0.89	
						>19.6	>30	100	94 (nd)	1.0	
			BMI <25 kg/m^2			>5.3	>5	97 (nd)	71 (nd)	0.94	
						>11.4	>15	78 (nd)	89 (nd)	0.92	
						>19.6	>30	91 (nd)	92 (nd)	0.97	
			AHI <15			>5.3	>5	83 (nd)	82 (nd)	0.81	
Watkins 2009[90] 19786903	RUSleeping RTS vs. PSG	34	Sleep lab & Community			>5	>15	100	42		C
						>10	>15	100	71		
						>15	>15	70	83		
						>20	>15	70	83		
						>30	>15	43	96		
	FlowWizard in lab vs PSG	31	Sleep lab		1.8 (-32.4, 36.0)	AHI>18	AHI≥10	96	71	0.95	
Wong 2008[52] 18411561	FlowWizard at home (3 night average) vs PSG	31	Sleep lab & Home	95% LOA	7.1 (-14.8, 29.0)	AHI>8	AHI≥10	100	43	0.96	A
						AHI>12		96	71		
						AHI>18		92	86		
						AHI>21		88	100		
						AHI>21	AHI≥30	100	50	0.85	
						AHI>28		91	75		
						AHI>45		36	90		
						AHI>59		18	100		
						AHI from first night on FlowWizard	AHI≥30			0.89	
	FlowWizard at home (1 night) vs PSG	31	Sleep lab & Home			AHI from first night on FlowWizard	AHI≥10			0.92	
	MAPI v PSG	31	Sleep lab & Home				AHI≥10			0.68	
	Combined FlowWizard (home, 3 night) & MAPI v PSG	31	Sleep lab & Home				AHI≥10			0.96	
Nigro 2009[53] 18830731	O_2 saturation (WristOx 3100)	154	Sleep lab			ADI2† >12.2	AHI ≥5	100 (96.4, 100)	57.69 (43.2, 71.3)	0.959	B
						ADI2 >19.3	AHI ≥5	89.22 (81.5, 94.5)	94.23 (84.0, 98.7)		
						ADI5 >4.3	AHI ≥5	92.75 (52.6, 72.1)	100 (93.1, 100)	0.907	
						ADI2 >12.2	AHI ≥10	100 (95.8, 100)	44.12 (32.1, 56.7)	0.957	
						ADI3 >10.5	AHI ≥10	88.37 (79.6, 94.3)	94.12 (85.6, 98.3)	0.965	
						ADI5 >4.3	AHI ≥10	74.42 (63.9, 83.2)	100 (94.7, 100)	0.930	
						ADI3 >4.4	AHI ≥15	100 (95.0, 100)	49.38 (38.1, 60.7)	0.945	
						ADI3 >13.4	AHI ≥15	87.67 (77.9, 94.2)	90.12 (81.5, 95.6)		
						ADI3 >32	AHI ≥15	42.47 (31.0, 54.6)	100 (95.5, 100)		
White 1994[91] 7923843	O_2 saturation vs PSG	37	Sleep lab			nd	AHI≥10	30	100		C
						nd	AHI≥15	71	94		
						nd	AHI≥20	100	94		
Reda 2001[86] 11593166	Pharyngoesophageal monitoring	59	Sleep lab	95% LOA	0.22 (-8.68, 9.02)	<15	<15	100 (nd)	100 (nd)		C
						15-20	15-20	80 (nd)	96 (nd)		
				95% CI	(0.03, 1.39)	20-40	20-40	90 (nd)	97 (nd)		
						>40	>40	100 (nd)	100 (nd)		
Agatsuma, 2009[94] 19818056‡	SD-101 (Resp. effort) vs PSG	366	Sleep Lab and Home	95% CI	-4.7 (-19.7, 10.4)	12.4	≥ 5	87.5 (nd)	88 (nd)	0.96	C
						18.6	≥ 15	89.7 (nd)	90.5 (nd)	0.97	

Table 1.4.1. Questionnaires vs. PSG: study characteristics

Study PMID	Participants	Country (years)	N	Baseline AHI (SD) [range]	Baseline ESS (SD)	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Setting	Sleep Apnea Definition	Quality issues
Chung, 2008[96] 18431116	Preoperative	Canada (nd)	211	20 (6) [nd]	nd	55	50	30	Hospital	AHI>5	Selection bias
Chung, 2008[97] 18431117	Preoperative	Canada (nd)	211	20 (6) [nd]	nd	55	50	30	Hospital	AHI>5	Selection bias
Kapuniai, 1988[98] 3227223	Sleep disorder center	US (nd)	53	nd	nd	46	79	nd	Sleep lab	AI / AHI >5	PSG results not reported
Netzer, 1999[99] 10507956	General population visiting primary care physician	US (nd)	1008	High-risk group: 21 (18) [0, 101] Low-risk group: 5 (7) [0, 37]	nd	49	42	29	Home	RDI ≥5	Probable selection bias
Sharma, 2006[100] 17085831	Attending the medical outpatient department	India (2000-02)	180	nd	nd	40	80	28.2	Sleep lab and hospital	AHI >5	Modified questionnaire not validated, 42% dropout rate
Drager, 2010[101] 20381666	Patiens attending a hypertension clinic of a hoslital	Brazil (2009)	99	7.9 (2.3,29.1)	9 (5)	46	53	28.8 *	Hospital	AHI > 5	None †

* Median

† No quality issues in reporting. The study was not primarily designed to evaluate the two instruments; the study assessed the association of various clinical factors with the risk for OSA. The sensitivity and specificity for the index tests was reported, along with other anthropometric and clinical indicators.

Table 1.4.2. Questionnaires vs. PSG: study results

Study PMID	Index test	Reference test	N	Setting	Bland-Altman		ROC Analysis					Quality
					Metric[A]	Result	Threshold, events/hr		Sensitivity (95% CI)	Specificity (95% CI)	AUC	
							Index	PSG				
Chung, 2008[96] 18431116	STOP	PSG	177	Sleep lab			High vs. low	>5	65.6 (56.4, 73.9)	60 (45.9, 73.0)	0.703	C
								>15	74.3 (62.4, 84.0)	53.3 (43.4, 63.0)	0.722	
								>30	79.5 (63.5, 90.7)	43.6 (40.0, 63.0)	0.769	
	STOP-Bang						High vs. low	>5	83.6 (75.8, 89.7)	53.4 (42.3, 69.7)	0.808	
								>15	92.9 (84.1, 97.6)	43 (33.5, 52.9)	0.792	
								>30	100 (91.0, 100.0)	37 (28.9, 45.6)	0.822	
Chung, 2008[97] 18431117	Berlin	PSG	211	Sleep lab			High vs. low	>5	68.9 (58.8, 78.9)	53.4 (42.3, 69.7)	0.66	C
								>15	78.6 (67.1, 87.5)	53.5 (40.6, 62.3)	0.672	
								>30	87.2 (72.6, 95.7)	43.4 (37.9, 55.1)	0.668	
	ASA checklist						High vs. low	>5	72.1 (63.3, 79.9)	33.2 (25.4, 52.3)	0.793	
								>15	78.6 (67.1, 87.5)	37.4 (28.2, 47.3)	0.73	
								>30	87.2 (72.6, 95.7)	35.2 (28.2, 44.8)	0.617	
Kapuniai, 1988[98] 3227223	Apnea score derived from the Hawaii Sleep Questionnaire.*	PSG	53	Sleep lab			≥3	>5	59 (nd)	69 (nd)		B
							≥2 (no adenoidectomy score)	>5	70 (nd)	65 (nd)		
							≥2 (no adenoidectomy score)	>10	78 (nd)	67 (nd)		
Netzer, 1999[99] 10507956	Berlin	PSG	100	Home			High-risk (high risk in 2/3 categories) vs. low-risk †	≤ 5	77 (nd)	89 (nd)		C
								>5	86 (nd)	77 (nd)		
								>15	54 (nd)	97 (nd)		
								>30	17 (nd)	97 (nd)		
Sharma, 2006[100] 17085831	Berlin Questionnare,‡ modified	PSG	104	Sleep lab & Hospital			High risk vs. low risk	>5	86 (nd)	95 (nd)		C
Drager, 2010[101] 20381666	Berlin Questionnaire	PSG	99	Hospital			High risk vs. low risk	≥ 5	93 (82,98)	59 (43,73)		A
	ESS						10	≥ 5	49 (35,63)	80 (64,90)		

Table 1.5.1. Clinical prediction rules vs. PSG: study characteristics

Study PMID	Participants	Country (years)	N	Baseline AHI (SD) [range]	Baseline ESS (SD)	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Setting	Sleep Apnea Definition	Quality Issues
Crocker, 1990[102] 2368960	Referred for suspected abnormal breathing	Australia (1987-88)	114	nd	nd	51	82	30.4	Sleep lab	AHI >15	Baseline AHI severity not reported
Gurubhagavatula, 2001[103] 11734444	Referred for suspected OSA	US (nd)	421	26 (30) [nd]	nd	47	68	32.4	Sleep lab	RDI ≥5	
Kushida, 1997[104] 9341055	Referred for sleep disorders	US (nd)	423	35 [nd]	10.9	47	75	32	Sleep lab	RDI ≥5	Selection bias; 29% dropout rate
Onen, 2008[105] 18775037	Elderly (≥70 y) referred to a sleep center	France (2005-06)	121	nd	nd	79	50	29.4	Sleep lab & Hospital	AHI ≥15	Incomplete ROC data; other thresholds not reported
Rodsutti, 2004[106] 15283004	Referred for suspected sleep-disordered breathing	Australia (2003)	243	nd	nd	51	63	32.8	Sleep lab	AHI ≥5	
Rowley, 2000[107] 11083602	Referred for sleep-disordered breathing	US (1996-97)	425	19 (7-52) *	nd	Median 47	52	37.1	Sleep lab	AHI ≥10	
Zerah-Lancner, 2000[108] 11112139	Referred for snoring and suspected sleep apnea	France (nd)	101	Group with AHI <15: 6 (4) Group with AHI≥15: 42 (24)	nd	nd	nd	28.8	Sleep lab	AHI ≥15	Unclear description of population

Table 1.5.2. Clinical prediction rules vs. PSG: study results

Study PMID	Index test	Reference test	N	Setting	Subgroup	ROC Analysis					Quality
						Threshold, events/hr		Sensitivity, % (95% CI)	Specificity, % (95% CI)	AUC	
						Index	PSG				
Crocker, 1990[102] 2368960	Statistical model.*	PSG	105	Sleep lab		Probability of OSA >0.15	>15	92 (nd)	51 (nd)		B
Gurubhagavatula, 2001[103] 11734444	Clinical prediction rule,† derived	PSG	359	Sleep lab		Upper bound= 0.58 Lower bound= 0.14 ODI threshold= 5.02	≥5	94.1 (nd)	66.7 (nd)		A
						Upper bound = 0.9 Lower bound = 0.38 ODI threshold = 21	≥30	83.3 (nd)	94.7 (nd)		
Kushida, 1997[104] 9341055	Morphometric model‡	PSG	300	Sleep lab		≥70	≥5	97.6 (95, 98.9)	100 (92,100)	0.996	C
Onen, 2008[105] 18775037	Observation-based Nocturnal Sleep Inventory (ONSI)§	PSG	115	Hospital		≥2 snoring episodes or ≥1 apnea episode	AHI≥15	89.7 (82, 97)	81.4 (70,93)		B
						≥5 snoring or ≥1 apnea	AHI≥15	56 (44, 68)	100		
						≥3 snoring or ≥1 apnea	AHI≥15	74 (63, 84)	93 (85,100)		
Rodsutti, 2004[106] 15283004	Clinical prediction rule,** derived	PSG	243	Sleep lab		< 2.5	≥5	0 (nd)	89 (nd)		A
						2.5 - < 4.2	≥5	44 (nd)	85 (nd)	0.789	
						≥4.2	≥5	76 (nd)	60 (nd)		
Rowley, 2000[107] 11083602	Model #1 ††	PSG	370	Sleep lab	All	0.15	≥10	84 (nd)	39 (nd)	0.669	A
						0.95	≥20	33 (nd)	90 (nd)	0.7	
					Men	0.15	≥10			0.761	
					Women	0.15	≥10			0.633	
	Model #2 ‡‡				All	0.20	≥10	96 (nd)	13 (nd)	0.695	
						0.95	≥20	34 (nd)	87 (nd)	0.722	
					Men	0.2	≥10			0.801	
					Women	0.2	≥10			0.626	
	Model #3 §§				All	10	≥10	76 (nd)	54 (nd)	0.696	
						35	≥20	34 (nd)	89 (nd)	0.733	
					Men	10	≥10			0.707	
					Women	10	≥10			0.648	
	Model #4 .***				All	0.5	≥10	87 (nd)	35 (nd)	0.736	
						0.85	≥20	39 (nd)	93 (nd)	0.757	
					Men	0.5	≥10			0.801	
					Women	0.5	≥10			0.611	
Zerah-Lancner, 2000[108] 11112139	Based on Pulmonary function data †††	PSG	101	Sleep Lab		0.5	≥15	100 (nd)	84 (nd)		B

Bland-Altman column omitted. No study reported Bland-Altman data.

Table 3.1. Comparative studies of preoperative sleep apnea screening prior to surgical intervention: study characteristics

Study PMID	Interventions	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Other Patient Characteristics	Country (enrollment years)	Other quality issues
Hallowell, 2007[110] 17950355	Mandatory PSG	43	13	51	Patients who have undergone bariatric surgery	US (1998-2005)	Selection bias; discrepancy in reporting of results
	PSG based on ESS or clinical suspicion						
Chung, 2008[37] 18431117	PSG	55	51	30.1	All pre-op patients in general surgery, gynecology, orthopedics, urology, plastic surgery, ophthalmology, or neurosurgery	Canada (nd)	Selection bias in participants who underwent PSG
	No PSG						

Table 3.2. Duration of hospital stay (hr) in comparative studies of preoperative PSG testing

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Diff	95% CI	P Btw	Dropout, %	Study Quality
Hallowell, 2007[110] 17950355	nd	nd	Immediate postoperative (retrospective chart review)	Mandatory PSG	318	nd	74.4 (2.4)	-9.6	nd	nd	0	C
				PSG only after clinical indications	576	nd	84.0 (4.8)					
Chung, 2008[97] 18431117	20 (6) [nd]	nd	30 d (prospective case series)	Accepted preoperative PSG	211	nd	Median 44.8 (IQR: 0.2–352.8)	+15.5 (difference of medians)	nd	NS	0	C
				Refused preoperative PSG	205	nd	Median 29.3 (IQR: 0.1–299.8)					

Table 3.3. Postsurgical outcomes in comparative studies of preoperative screening with PSG

Study PMID	Outcome	Baseline AHI (SD) [range]	Baseline ESS (SD)	Duration (design)	Interventions	n Event	N Total	Outcome metric	Result*	95% CI	P Btw	Dropout, %	Study Quality
Hallowell, 2007[110] 17950355	ICU admission	nd	nd	Immediate post-operative (retro-spective chart review)	Mandatory PSG	11	318	RR	0.62	0.32, 1.22	nd	0	C
					Indicated PSG	32	576						
	Respiratory related ICU admission				Mandatory PSG	1	318	RR	0.16	0.02, 1.27	nd		
					Indicated PSG	11	576						
Chung, 2008[97] 18431117	ICU admission	20 (6) [nd]	nd	30 d (case series)	Preop PSG	13	211	RR	3.16	1.05, 9.52	nd	0	C
					No Preop PSG	4	205						
	Total complications				Preop PSG	48	211	RR	1.55	1.03, 2.35	0.03		
					No Preop PSG	30	205						
	Respiratory complication				Preop PSG	39	211	RR	1.52	0.95, 2.41	0.08		
					No Preop PSG	25	205						
	Cardiac complication				Preop PSG	12	211	RR	1.94	0.74, 5.08	0.11		
					No Preop PSG	6	205						
	Neurologic complication				Preop PSG	2	211	RR	0.65	0.11, 3.84	0.68		
					No Preop PSG	3	205						
	Prolonged O_2 therapy				Preop PSG	24	211	RR	1.46	0.80, 2.66	0.22		
					No Preop PSG	16	205						
	Additional monitoring				Preop PSG	9	211	RR	1.46	0.53, 4.02	0.46		
					No Preop PSG	6	205						
	Readmission within 30 d				Preop PSG	4	211	RR	0.78	0.21, 2.85	0.75		
					No Preop PSG	5	205						
	ED visit within 30 d				Preop PSG	1	211	RR	0.24	0.03, 2.15	0.21		
					No Preop PSG	4	205						

Table 4.1. Multivariable analyses of AHI as a predictor of all-cause mortality: study characteristics

Study PMID	Design Country (study years)	eligibility	N (followup)	Factor	Value	Quality
Lavie 2005[111] 15738297	Retrospective Israel (1991-2000)	Men, >20 yr, OSA symptoms	13,853 (4.7 yr)	Male	100%	A
				Age	48 yr	
				BMI (kg/m^2)	28.8	
Punjabi 2009[2] 19688045	Prospective US (1995-1998)	≥40 yr, no Tx	6441 (8.2 yr)	Male	47%	B
				Age	63 yr	
				BMI	28.4	
Young 2008[1] 18714778	Prospective US (1988-nd)	General population	1522 (14 yr)	Male	55%	A
				Age	48 yr	
				BMI	28.6	
Lavie 1995[112] 7610310	Retrospective Israel (1976-1988)	Men, apnea index ≥10	1140 (2-14 yr)	Male	100%	A
				Age	48 yr	
				BMI	nd	

Table 4.2. Results of multivariable analyses of AHI as a predictor of all-cause mortality

Study PMID	Baseline AHI	n/	N	Adjusted HR	95% CI	P Trend	Other Predictors: Significant	P	NS	nd P*	NS Univariable†	Interactions
Lavie 2005[111] 15738297	≤10	34/	3227	Ref		0.0001				Age BMI (kg/m^2)		nd
	11-20	88/	4154	1.52	NS							
	21-30	65/	2601	1.34	NS							
	31-40	50/	1204	2.13	1.36-3.34							
	>40	126/	2667	2.59	1.73-3.87							
Punjabi 2009[2] SHHS 19688045	**All**						Age	<0.05	Cholesterol	Sex Race BMI Smoking BP HTN Diabetes CVD		No substantive difference with addition of other predictors
	<5	477/	3429	Ref		<0.05‡						
	5-15	320/	1797	0.93	0.80-1.08							
	15-30	165/	727	1.17	0.97-1.42							
	≥30	86/	341	1.46	1.14-1.86							
	Men≤70§											Interaction of Age x AHI significant P<0.005 Interaction of Sex x AHI implied
	<5	91/	985	Ref		<0.05‖						
	5-15	82/	694	1.24	0.90-1.71							
	15-30	47/	322	1.45	0.98-2.14							
	≥30	28/	168	2.09	1.31-3.33							
	Men>70											
	<5	125/	277	Ref		NS						
	5-15	111/	282	0.92	0.70-1.20							
	15-30	67/	140	1.23	0.90-1.68							
	≥30	36/	75	1.27	0.86-1.86							
	Women											
	<5	261/	2167	Ref		NS						
	5-15	126/	821	0.83	0.66-1.04							
	15-30	51/	265	1.01	0.73-1.38							
	≥30	22/	99	1.40	0.89-2.22							
Young, 2008[1] WSCS 18714778	<5	46/	1157	Ref		0.008			Age Sex BMI (kg/m^2)			nd
	5-15	16/	220	1.6	0.9-2.8							
	15-30	6/	82	1.4	0.6-3.3							
	≥30	12/	63	3.0	1.4-6.3							
Lavie 1995[112] 7610310	Per unit††	51/	1140	OR=1.012	1.001 - 1.024	0.04	Older age	0.0001	Diabetes			No substantive difference with addition of comorbidities
							Higher BMI	0.006				
							HTN	0.009				
							CVD	<0.04				
							Lung dz	<0.01				

Table 4.3. Multivariable analyses of AHI as a predictor of cardiovascular events: study characteristics

Study PMID	Design Country (study years)	eligibility	N (followup)	Factor	Value	Quality
CVD Death						
Marin 2005[6] 15781100	Prospective Spain (1992-1994)	Men, healthy w/ SDB	1651 (10 yr)	**Male**	100%	A
				Age	50 yr	
				BMI (kg/m^2)	28.7	
Young, 2008[1] 18714778	Prospective US (1988-nd)	General population	1522 (14 yr)	**Male**	55%	A
				Age	48 yr	
				BMI	28.6	
Nonfatal CVD						
Marin 2005[6] 15781100	Prospective Spain (1992-1994)	Men, healthy w/ SDB	1651 (10 yr)	**Male**	100%	A
				Age	50 yr	
				BMI	28.7	
Stroke						
Arzt 2005[113] 16141444	Prospective US (≥1988)	30-60 yr, no stroke	1475 (4, 8, 12 yr)	**Male**	55%	B
				Age	47 yr	
				BMI	30	

Table 4.4. Results of multivariable analyses of AHI as a predictor of cardiovascular events

Study PMID	Baseline AHI	n/ N	Adjusted HR	95% CI	P trend	Other Predictors: Significant	P	NS	nd P*	NS Univariable†	Interactions
CVD Death											
Marin, 2005[6] 15781100	"Healthy"	12/ 264	Ref		nd	Older age	0.001	HTN Diabetes Dyslipidemia Alcohol use DBP Glucose TC & Tg Prescriptions‡		BMI (implied) (kg/m^2)	No substantive difference in AHI with or without CVD and HTN in model
	<5	22/ 377	1.03	0.31, 1.84		CVD	0.02				
	5-30	36/ 403	1.15	0.34, 2.69		Higher SBP	0.04				
	≥30	50/ 235	2.87	1.17, 7.51		Smoker	0.04				
	CPAP	24/ 372	1.05	0.39, 2.21							
Young, 2008[1] WSCS 18714778	<5	12/ 1157	Ref		0.12			Age Sex BMI (kg/m^2)			nd
	5-15	6/ 220	1.8	0.7, 4.9							
	15-30	2/ 82	1.2	0.3, 5.8							
	≥30	5/ 63	2.9	0.8, 10.0							
Nonfatal CVD											
Marin, 2005[6] 15781100	"Healthy"	8/ 264	Ref		nd	Older age	0.001	HTN Diabetes Dyslipidemia Smoking Alcohol use BP Glucose TC & Tg Prescriptions§		BMI (implied) (kg/m^2)	No substantive difference in AHI with or without CVD and HTN in model
	<5	13/ 377	1.32	0.64, 3.01		CVD	0.005				
	5-30	22/ 403	1.57	0.62, 3.16							
	≥30	25/ 235	3.17	1.12, 7.52							
	CPAP	13/ 372	1.42	0.52, 3.40							
Stroke											
Arzt, 2005[113] 16141444	<5	9/ 1121	Ref		nd				Age Sex BMI		AHI≥20 significant w/o BMI in model
	5-20	1/ 255	0.29	0.04, 2.36							
	≥20	4/ 99	3.08	0.74, 13.0							

Table 4.5. Multivariable analyses of AHI as a predictor of incident HTN: study characteristics

Study PMID	Design Country (study years)	eligibility	N (followup)	Factor	Value	Quality
O'Connor 2009[114] 19264976	Prospective US (1995-1998)	≥40 y	2470 (5 yr)	**Male**	45%	A
				Age	60 yr	
				BMI (kg/m^2)	27.9	
Peppard 2000[11] 10805822	Prospective US (1989-1995)	No CVD	709 (4, 8 yr)	**Male**	46%	B
				Age	47 yr	
				BMI	29	

Table 4.6. Results of multivariable analyses of AHI as a predictor of incident HTN

Study PMID	Baseline AHI	n/	N	Adjusted OR	95% CI	P Trend	Other Predictors Significant P	NS	nd P*	NS Univariable†	Interactions
O'Connor 2009[114] SHHS 19264976	**All**								Age Sex Race BMI WHR Neck girth		AHI significant without BMI in model. No substantive change with WHR or girth
	<5	296/	1510	Ref		NS					
	5-15	156/	629	0.94	0.73-1.22						
	15-30	77/	234	1.09	0.77-1.54						
	≥30	33/	97	1.50	0.91-2.46						
	Men								Age Race BMI (kg/m^2)		AHI x sex interaction term NS P=0.09
	<5	nd	505	Ref		nd					
	5-15	nd	341	0.90	0.68-1.30						
	15-30	nd	155	0.89	0.57-1.39						
	≥30	nd	56	1.10	0.57-2.10						
	Women										
	<5	nd	950	Ref		nd					
	5-15	nd	261	0.83	0.59-1.18						
	15-30	nd	72	1.59	0.95-2.64						
	≥30	nd	31	2.27	1.07-4.80						
	BMI≤27.3								Age Sex Race BMI		AHI x BMI interaction term NS P=0.36
	<5	nd	807	Ref		nd					
	5-15	nd	213	0.89	0.59-1.34						
	15-30	nd	58	0.93	0.46-1.90						
	≥30	nd	21	2.71	1.24-5.93						
	BMI>27.3										
	<5	nd	541	Ref		nd					
	5-15	nd	378	0.92	0.67-1.27						
	15-30	nd	164	1.13	0.76-1.68						
	≥30	nd	65	1.18	0.64-2.19						
	Age≤59 yr								Sex Race BMI		No difference in association stratified by age
	<5	nd	979	Ref		nd					
	5-15	nd	262	1.02	0.70-1.50						
	15-30	nd	98	1.79	1.08-2.95						
	≥30	nd	33	1.47	0.64-3.37						
	Age>59 yr										
	<5	nd	576	Ref		nd					
	5-15	nd	340	0.85	0.62-1.16						
	15-30	nd	131	0.82	0.53-1.26						
	≥30	nd	54	1.53	0.84-2.79						
O'Connor SHHS 2009[114] (cont.)	**ESS≤11**								Age Sex Race BMI (kg/m^2)		AHI x ESS interaction term NS P=0.11
	<5	nd	1189	Ref		nd					
	5-15	nd	472	0.83	0.63-1.09						
	15-30	nd	178	0.90	0.62-1.31						
	≥30	nd	58	1.57	0.87-2.83						
	ESS>11										
	<5	nd	221	Ref		nd					
	5-15	nd	119	1.31	0.72-2.38						
	15-30	nd	47	2.32	1.09-4.97						
	≥30	nd	27	1.50	0.58-3.85						
Peppard, 2000[11] WSCS 10805822	U	32/	187	Ref		0.002			Baseline HT N Age Sex BMI Neck girth Waist girth Alcohol use Smoking		No substantive changes in association with addition of predictors. No interaction terms were significant.
	<5	142/	507	1.42	1.13-1.78						
	5-15	64/	132	2.03	1.29-3.17						
	≥15	40/	67	2.89	1.46-5.64						

Table 4.7. Multivariable analyses of AHI as a predictor in incident type 2 diabetes: study characteristics

Study PMID	Design Country (study years)	eligibility	N (followup)	Factor	Value	Quality
Reichmuth 2005[115] 16192452	Prospective US (1988)	30-60 yr, no DM	978 (4 yr)	**Male**	56%	B
				Age	49 yr	
				BMI (kg/m^2)	28.9	
Botros 2009[116] 19958890	Prospective US (2000-2005)	SDB, no DM	544 (2.7 yr)	**Male**	93%	A
				Age	62 yr	
				BMI	33.2	

Table 4.8. Results of multivariable analyses of AHI as a predictor in incident type 2 diabetes

Study PMID	Baseline AHI	n/	N	Adjusted OR/HR	95% CI	P trend	Other Predictors Significant	P	NS	nd P*	NS Univariable†	Interactions
Reichmuth 2005[115]	<5	nd	nd	Ref (OR)		nd				Age, sex, waist girth		AHI significant w/o waist girth in the model
WSCS 16192452	5-15	nd	nd	1.56	0.80-3.02							
	≥15	nd	nd	1.62	0.67-3.65							
Botros 2009[116] 19958890	<8	6/	142	Ref (HR)		0.008	Glucose	<0.001	Age Sex Race BMI‡			AHI similar with or without adjustment
	≥8	55/	402	1.43	1.10-1.86							

Table 4.9. Multivariable analyses of AHI as a predictor of quality of life SF-36: study characteristics

Study PMID	Design Country (study years)	eligibility	N (followup)	Factor	Value	Quality
Silva 2009[117] 19725256	Prospective US (1995)	All	3078 (5 yr)	Male	45%	A
				Age	62 yr	
				BMI (kg/m^2)	28.7	

Table 4.10. Results of multivariable analyses of AHI as a predictor of quality of life (SF-36)

Study PMID	Baseline AHI	N	Score*	Adjusted RR	95% CI	P Trend	Other Predictors Significant	P	NS	nd P†	NS Univariable‡	Interactions
Silva 2009[117] 19725256	PCS			Continuous			Age, sleeping pills	<0.001 0.003	BMI (kg/m^2) CHD Resp dz Smoking Sex			nd
	<5	1662	49/48	1.008	nd	NS						
	5-15	893	48/46									
	15-30	339	47/45									
	≥30	154	45/44									
	MCS			Continuous			Smoking	0.02	Age BMI CHD Resp dz Sex			
	<5	1662	54/55	0.98	nd	NS						
	5-15	893	54/55									
	15-30	339	55/54									
	≥30	154	55/56									

Table 5.1.1. Randomized clinical trials of CPAP vs. control: study characteristics

Study PMID	Interventions	CPAP Pressure* (type)	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Other Patient Characteristics	Country (enrollment years)	Other quality issues
Ballester 1999[118] 9927363	CPAP +conservative measures Conservative measures	Auto (separate)	53	88	32.7		Spain (nd)	No power calculation
Barbe 2010[130] 20007932	CPAP + conservative treatment Conservative treatment	Auto (Separate)	55	82	32	Hypertensive patients	Spain (2004-2006)	
Barnes 2004[140] 15201136	CPAP Placebo	nd (nd)	47	80	31.1		Australia (nd)	
Barnes 2002[131] 11897643	CPAP Placebo	nd (nd)	46	86	30.9		Australia (nd)	
Chakravorty 2002[119] 12449179	CPAP Lifestyle intervention	Auto (separate)	50	nd	37		UK (1998-1999)	No power calculation
Comondore 2009[132] 18795367	CPAP No treatment	Auto (nd)	56	69	31.1		Canada (nd)	Multiple comparisons in a small pilot study
Drager 2007[120] 17556718	C-flex CPAP No treatment	Manual (separate)	46	100	29.8	Severe OSA patients free of co-morbidities	Brazil (2004-2006)	
Engleman 1994[133] 7906330	CPAP Placebo	Manual (separate)	49	74	33		UK (nd)	Baseline data not reported, no wash out period, nd on blinding
Engleman 1996[134] 8843528	CPAP Placebo	Manual (separate)	51	85	36		UK (nd)	No power calculation
Engleman 1997[135] 9059469	CPAP Placebo	Manual (separate)	52	85	29.8		UK (nd)	Baseline data not reported, no wash out period, nd on blinding
Engleman 1998[136] 9708223	CPAP Placebo	Manual (separate)	47	91	30		UK (nd)	No adverse event data
Engleman 1999[137] 9927358	CPAP Placebo	Manual (separate)	44	62	30		UK (nd)	

Table 5.1.1. Randomized clinical trials of CPAP vs. control: study characteristics (continued)

Study PMID	Interventions	CPAP Pressure † (type)	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Other Patient Characteristics	Country (enrollment years)	Other quality issues
Facenda 2001[138] 11179104	CPAP Placebo	Auto (separate)	50	81	30		UK (nd)	No wash out period, but no measurements were made until 28 days after crossover; no power calculations reported.
Ip 2004[121] 14551167	CPAP No treatment	Manual (unclear)	43	100	29.4	Very healthy	Hong Kong (nd)	
Kajaste 2004[122] 15033131	CPAP No treatment	Manual (separate)	49	100	43.8	Obese male	Finland (nd)	No power calculation
Kaneko 2003[123] 12660387	CPAP Optimal drug treatment	Manual (separate)	56	88	31.4	Symptomatic, stable, optimally treated CHF	Canada (nd)	No power calculation
Lam 2007[129] 17121868	CPAP + conservative measures Conservative measures	nd (nd)	47	79	27.3		Hong Kong (nd)	
Lojander 1996[124] 8681614 Lojander 1999[125] 10188139	CPAP Conservative measures	Manual (separate)	51	93	31.1		Finland (1987-1992)	Large drop out; expert panel decided patients would be more suitable for nasal CPAP but no objective criteria stated
Mansfield 2004[126] 14597402	CPAP No treatment	Manual (separate)	58	95	33.5	Symptomatic, stable, optimally treated CHF	Australia (nd)	No power calculation
McArdle 2001[139] 11704596	CPAP Placebo	nd (separate)	53	87	31		Australia (nd)	
Monasterio 2001[127] 11587974	CPAP + conservative measures Conservative measures	Manual (separate)	54	86	29.4		Spain (nd)	Did not enroll enough to meet power calculations
Redline 1998[128] 9517603	CPAP Conservative measures	Manual (separate)	48	52	33		US (nd)	Power calculation: needed sample size - 112; no. analyzed- 97

Table 5.1.2. AHI (events/hr) in randomized controlled trials of CPAP vs. control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI*	P Btw	Dropout, %	Study Quality
Lam 2007[129] 17121868	19 (17) [>5]	12.0 (8.8)	10 wk (PL)	CPAP + conservative measures	34	23.8 (16.7)	2.8 (9.7)	-22.2	-27.6, -16.7	<0.001	0	B
				Conservative measures	33	19.3 (16.7)	20.5 (21.9)					
Monasterio 2001[127] 11587974	21 (5) [>10]	13.2 (4.3)	6 mo (PL)	CPAP + conservative measures	66	20.0 (6.0)	6.0 (8.0)	-10	-12.8, -7.2	<0.001	12	C
				Conservative measures	59	21 (6.0)	17.0 (10.0)					
Chakravorty 2002[119] 12449179	35 (19) [>15]	14.0 (4.2)	3 mo (PL)	AutoCPAP	32	55 (28.7)	8 (28)	-46	-59.0, -32.9	<0.001	25	C
				Lifestyle intervention	21	35 (19.1)	34 (21)					
Mansfield 2004[126] 14597482	27 (21) [>5]	8.8 (0.9)	3 mo (PL)	CPAP	19	25 (17.9)	2.9 (3.5)	-13.7	-24.4, -3.0	0.012	27	C
				No treatment	21	26.6 (20.6)	18.2 (12.8)					
Ip 2004[121] 14551167	46 (15) [>15]	11.1 (6.2)	1 mo (PL)	CPAP	14	47.7 (15.3)	1.7 (1.8)	-16.8	-27.9, -5.7†	0.003	7	C
				No treatment	14	45.1 (14.3)	15.9 (15.5)					
Kaneko 2003[123] 12660387	45 (5) [>20]	5.7 (0.9)	1 mo (PL)	CPAP	12	37.1 (22.2)	8.3 (9.9)	-28.3	-45.2, -11.4‡	0.001	0	C
				Optimal drug treatment	12	45.2 (18.4)	44.7 (23.6)					
Barnes 2004[140] 15201136	21 (12) [>5]	10.7 (3.5)	3 mo (XO)	CPAP	80	21.3 (11.6)	4.8 (4.5)	-15.5	-18.7, -12.2	<0.001	23	B
				Placebo			20.3 (9.8)					

Table 5.1.3. ESS in randomized controlled trials of CPAP vs. control

Study PMID	Baseline AHI (SD) [min]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI*	P Btw	Dropout, %	Study Quality
Barbe 2010[130] 20007932	43 (19) [>19]	6.4 (2.4)	12 mo (P/L)	CPAP + conservative treatment	178	6.4 (2.3)	4.87 (nd)	-1.26	-1.9, -0.6	nd	4	B
				Conservative treatment	181	6.4 (2.4)	6.13 (nd)					
Ballester 1999[118] 9927363	58 (20) [>15]	11.4 (5.0)	3 mo (P/L)	AutoCPAP + conservative measures	68	12.1 (8.2)	5.6 (nd)	-5.7	-8.1, -3.3	<0.001	0	B
				Conservative measures	37	11.4 (3.6)	10.6 (nd)					
Redline 1998[128] 9517603	12 (10) [>5]	10.6 (5.6)	10 wk (P/L)	CPAP	51	10.4 (4.3)	nd	-1.1	-2.5, 0.3	nd	15	B
				Conservative measures	46	10.6 (5.6)	nd					
Lam 2007[129] 17121868	19 (17) [>5]	12.0 (8.8)	10 wk (P/L)	CPAP + conservative measures	34	12 (8.8)	7 (8.8)	-3	-5.7, -0.2†	0.034	0	B
				Conservative measures	33	12 (8.8)	10 (8.8)					
Drager 2007[120] 17556718	65 (22) [>30]	13.0 (5.0)	4 mo (P/L)	C-Flex	12	14.0 (4.0)	7.0 (2.0)	-7	-10.2, -3.7	<0.001	0	B
				No treatment	12	13.0 (5.0)	13.0 (4.0)					
Monasterio 2001[127] 11587974	21 (5) [>10]	13.2 (4.3)	6 mo (P/L)	CPAP + conservative measures	66	12.1 (4.9)	9.6 (5.5)	-1.1	-2.9, 0.7	NS	12	C
				Conservative measures	59	13.2 (4.3)	11.8 (5.2)					
Chakravorty 2002[119] 12449179	35 (19) [>15]	14.0(4.2)	3 mo (P/L)	AutoCPAP	32	16 (5.6)	8 (6.4)	-5.0	-7.9, -2.1	0.001	25	C
				Lifestyle intervention	21	14 (4.2)	11 (5.0)					
Mansfield 2004[126] 14597482	27 (21) [>5]	8.8 (0.9)	3 mo (P/L)	CPAP	19	9.5 (3.9)	6.9 (4.5)	-4.2‡	-7.4, -1.0§	0.01	27	C
				No treatment	21	8.8 (3.9)	9.9 (4.5)					

Table 5.1.3. ESS in randomized controlled trials of CPAP vs. control (continued)

Study PMID	Baseline AHI (SD) [min]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI**	P Btw	Dropout, %	Study Quality
Barnes 2004[140] 15201136	21 (12) [>5]	10.7 (3.5)	3 mo (XO)	CPAP	80	10.7 (3.6)	9.2 (3.6)	-1	-2.1, 0.1	NS	23	B
				Placebo			10.2 (3.6)					
Faccenda 2001[138] 11179104	35 (15-129) [>15]	15 (6-24)	1 mo (XO)	AutoCPAP	68	nd	10.1 (0.7)	-2.0	-3.2, -0.8††	0.001	5	B
				Placebo			12.5 (0.8)					
Engleman 1999[137] 9927358	10 (nd) [>5]	13.0 (3.0)	4 wk (XO)	CPAP	34	13.0 (3.0)	8.0 (4.0)	-3	-4.8, -1.2‡‡	0.001	8	B
				Placebo			11.0 (4.0)					
Engleman 1998[136] 9708223	43 (nd) [>15]	12.0 (4.0)	4wk (XO)	CPAP	23	12.0 (4.0)	6.0 (3.0)	-6	-9.5, -2.4§§	0.001	0	B
				Placebo			12.0 (4.0)					
Barnes 2002[131] 11897643	13 (6) [>5]	11.3 (5.0)	8 wk (XO)	CPAP	28	11.2 (5.0)	-2.7***	-0.6	nd	NS	33	C
				Placebo			-2.1. †††					
Engleman 1997[135] 9059469	11 (4) [>5]	nd	4 wk (XO)	CPAP	16	nd	10.1 (5.6)	0.1	-3.5, 3.7	NS	11	C
				Placebo			10.0 (4.8)					

Table 5.1.4a. Arousal index (events/hr) in randomized controlled trials of CPAP vs. control

Study PMID	Baseline AHI (SD) [min]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI*	P Btw	Dropout, %	Study Quality
Lam 2007[129] 17121868	19 (17) [>5]	12.0 (8.8)	10 wk (PL)	CPAP + conservative measures	34	21.6 (14.9)	16.3 (15.7)	-10.6	-16.3, -4.83	<0.001	0	B
				Conservative measures	33	23.5 (19.3)	28.8 (21.9)					
Chakravorty 2002[119] 12449179	35 (19) [>15]	14.0 (4.2)	3 mo (PL)	AutoCPAP	32	64.0 (28.0)	38.9 (28.6)	-9.8	-25.4, 4.9	nd	25	C
				Lifestyle intervention	21	52.2 (28.5)	36.9 (21.5)					
Ip 2004[121] 14551167	46 (15) [>15]	11.1 (6.2)	1 mo (PL)	CPAP	14	33.4 (17.2)	17.5 (10.7)	-17.6	-29.3, -5.9	0.003	7	C
				No treatment	14	33.8 (15.0)	35.5 (17.7)					
Kaneko 2003[123] 12660387	45 (5) [>20]	5.7 (0.9)	1 mo (PL)	CPAP	12	31.4 (21.1)	12.6 (5.9)	-18.0	-33.7, -2.3	0.025	0	C
				Optimal drug treatment	12	42.9 (19.1)	42.3 (21.5)					
Barnes 2004[140] 15201136	21 (12) [>5]	10.7 (3.5)	3 mo (XO)	CPAP	80	22.0 (10.7)	18.3 (8.0)	-6.9	-9.9, -3.8	<0.001	23	B
				Placebo			25.2 (9.8)					
McArdle 2001[139] 11704596	40 (25-65) [>15]	14.0 (10-17)	1 mo (XO)	CPAP	22	nd	21.0	-24.0	-38.3, -9.7†	<0.001	4	B
				Placebo			45.0					

Table 5.1.4b. Minimum O_2 saturation (%) in randomized controlled trials of CPAP vs. control

Study PMID	Baseline AHI (SD) [min]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI*	P Btw	Dropout, %	Study Quality
Lam 2007[129] 17121868	19 (17) [>5]	12.0 (8.8)	10 wk (PL)	CPAP + conservative measures	34	75.0 (12.3)	87.2 (25.4)	10.9	4.2, 17.7	0.002	0	B
				Conservative measures	33	76.1 (22.8)	77.4 (17.5)					
Mansfield 2004[126] 14597482	27 (21) [>5]	8.8 (0.9)	3 mo (PL)	CPAP	19	79.6 (11.3)	91.1 (3.9)	11.5	2.9, 20.1	0.008	27	C
				No treatment	21	77.2 (17.8)	77.2 (16.0)					
Ip 2004[121] 14551167	46 (15) [>15]	11.1 (6.2)	1 mo (PL)	CPAP	14	64.9 (11.9)	91.4 (2.6)	26.6	17.4, 35.8	<0.001	7	C
				No treatment	14	66.6 (12.2)	66.5 (15.0)					
Kaneko 2003[123] 12660387	45 (5) [>20]	5.7 (0.9)	1 mo (PL)	CPAP	12	82.3 (4.2)	89.6 (3.8)	8.8	2.2, 15.3	0.009	0	C
				Optimal drug treatment	12	78.4 (7.6)	76.9 (12.4)					
Barnes 2004[140] 15201136	21 (12) [>5]	10.7 (3.5)	3 mo (XO)	CPAP	80	86.7 (5.4)	91.9 (2.7)	6.5	4.9, 8.0	<0.001	23	B
				Placebo			85.4 (5.4)					

Table 5.1.4c. Sleep efficiency (% total sleep time) in randomized controlled trials of CPAP vs. control

Study PMID	Baseline AHI (SD) [min]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI*	P Btw	Dropout, %	Study Quality
Barnes 2004[140] 15201136	21 (12) [>5]	10.7 (3.5)	3 mo (XO)	CPAP	80	79.5 (9.83)	82.1 (7.15)	1.4	-1.4, 4.2	NS	23%	B
				Placebo tablets		79.5 (9.83)	80.7 (8.04)					
Chakravorty 2002[119] 12449179	35 (19) [>15]	14.0 (4.2)	3 mo (PL)	AutoCPAP	32	67.7 (18.2)	67.5 (15.7)	-3	-10.8, 4.8	nd	25	C
				Lifestyle intervention	21	71.0 (12.8)	74.4 (11.1)					

Table 5.1.4d. Slow wave sleep (% total sleep time or minutes) in randomized controlled trials of CPAP vs. control

Study PMID	Baseline AHI (SD) [min]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI*	P Btw	Dropout, %	Study Quality
Chakravorty 2002[119] 12449179	35 (19) [>15]	14.0 (4.2)	3 mo (PL)	AutoCPAP	32	16.6% (nd)	21.0 (nd)	-1	nd	nd	25	C
				Lifestyle intervention	21	18.7% (nd)	22.0 (nd)					
				AutoCPAP	32	64.7 min (50.2)	69.5 (50.1)	0.7	-26.7, 28.1	nd		
				Lifestyle intervention	21	81.2 min (52.5)	85.3 (46.6)					
Mansfield 2004[126] 14597482	27 (21) [>5]	8.8 (0.9)	3 mo (PL)	CPAP	19	5% (4.4)	7.0 (8.7)	4.0	0.1, 7.9	0.046	27	C
				No treatment	21	6% (4.6)	4.0 (4.6)					
Kaneko 2003[123] 12660387	45 (5) [>20]	5.7 (0.9)	1 mo (PL)	CPAP	12	10.0% (9.0)	12.7 (11.4)	3.2	-5.5, 11.9	NS	0	C
				Optimal drug treatment	12	8.5% (10.4)	8.0 (3.5)					
McArdle 2001[139] 11704596	40 (25-65) [>15]	14 (10-17)	1 mo (XO)	CPAP	22	nd (min)	41.0 (nd)	18	4.9, 31.1†	0.007	4	B
				Placebo			23.0 (nd)					
Barnes 2004[140] 15201136	21 (12) [>5]	10.7 (3.5)	3 mo (XO)	CPAP	80	17.9% (10.7)	20.7 (9.8)	2.2	-1.1, 5.5	NS	23	B
				Placebo			18.5 (10.7)					

Table 5.1.4e. REM sleep (% total sleep time or minutes) in randomized controlled trials of CPAP vs. control

Study PMID	Baseline AHI (SD) [min]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI*	P Btw	Dropout, %	Study Quality
Chakravorty 2002[119] 12449179	35 (19) [>15]	14.0 (4.2)	3 mo (PL)	AutoCPAP	32	20.7% (nd)	24.9 (nd)	nd	nd	nd	25	C
				Lifestyle intervention	21	20.1% (nd)	23.9 (nd)					
				AutoCPAP	32	80.0 min (39.3)	81.9 (35.8)	-4.1	-27.2, 19.0	nd		
				Lifestyle intervention	21	87.1 min (40.5)	92.5 (47.8)					
Mansfield 2004[126] 14597482	27 (21) [>5]	8.8 (0.9)	3 mo (PL)	CPAP	19	14.0% (4.4)	13.0 (8.7)	0	-4.8, 4.8	NS	27	C
				No treatment	21	12.0% (9.2)	11.0 (4.6)					
Kaneko 2003[123] 12660387	45 (5) [>20]	5.7 (0.9)	1 mo (PL)	CPAP	12	7.7% (5.5)	12.2 (7.3)	5.9	-0.1, 11.9	NS	0	C
				Optimal drug treatment	12	13.2% (6.2)	11.6 (9.4)					
McArdle 2001[139] 11704596	40 (25-65) [>15]	14 (10-17)	1 mo (XO)	CPAP	22	nd (min)	86.0 (30.0)	12	-2.3, 26.3†	NS	4	B
				Placebo			74.0 (29.0)					
Barnes 2004[140] 15201136	21 (12) [>5]	10.7 (3.5)	3 mo (XO)	CPAP	80	18.8% (6.2)	18.9 (4.4)	0	-1.8, 1.8	NS	23	B
				Placebo			18.9 (5.3)					

Table 5.1.5a. Multiple sleep latency test (min) in randomized controlled trials of CPAP vs. control

Study PMID	Baseline AHI (SD) [min]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI*	P Btw	Dropout, %	Study Quality
Redline 1998[128] 9517603	12 (10) [>5]	10.6 (5.6)	10 wk (PL)	CPAP	51	9.9 (4.8)	nd	0.39	-1.7, 2.5	nd	15	B
				Conservative measures	46	10.3 (5.0)	nd					
Monasterio 2001[127] 11587974	21 (5) [>10]	13.2 (4.3)	6 mo (PL)	CPAP + Conservative measures	40	10.0 (5.0)	10.0 (5.0)	0	-2.2, 2.2	NS	12	C
				Conservative measures		11.0 (5.0)	11.0 (5.0)					
Engleman 1998[136] 9708223	43 (nd) [>15]	12.0 (4.0)	4wk (XO)	CPAP	23	nd	9.2 (3.9)	2.4	0.8, 4.0	<0.001	0	B
				Placebo			6.8 (4.3)					
Engleman 1994[133] 7906330	28 (7-129) [>5]	nd	1 mo (XO)	CPAP	32	nd	7.2 (4.0)	1.1	0.1, 2.1†	0.03	9	C
				Placebo			6.1 (4.0)					
Barnes 2002[131] 11897643	13 (6) [>5]	11.3 (5.0)	8 wk (XO)	CPAP	28	12.5 (4.8)	-1.8‡	-1.0	nd	NS	33	C
				Placebo			-0.8§					
Engleman 1997[135] 9059469	11 (4) [>5]	nd	4 wk (XO)	CPAP	18	nd	10.0 (4.8)	0.1	-3.6, 3.9	NS	11	C
				Placebo			9.9 (6.0)					

Table 5.1.5b. Maintenance of wakefulness test (min) in randomized controlled trials of CPAP vs. control

Study PMID	Baseline AHI (SD) [min]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Engleman 1999[137] 9927358	10 (nd) [>5]	13.0 (3.0)	4 wk (XO)	CPAP	34	nd	16.2 (10.6)	1.8	-4.2, 7.8*	NS	8	B
				Placebo tablet			14.4 (8.5)					

Table 5.1.6a. FOSQ in randomized controlled trials of CPAP vs. control

Study PMID	Baseline AHI (SD) [min]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI*	P Btw	Dropout, %	Study Quality
Monasterio 2001[127] 11587974	21 (5) [>10]	13.2 (4.3)	6 mo (PL)	CPAP + conservative measures	66	101 (18)†	106 (20) ‡	3	-3.6, 9.6	NS	12	C
				Conservative measures	59	100 (15) §	102 (21) **					
Barnes 2004[140] 15201138	21 (12) [>5]	10.7 (3.5)	3 mo (XO)	CPAP	80	3.1 (0.9)††	3.3 (0.9) ‡‡	0	-0.3, 0.3	NS	27	B
				Placebo			3.3 (0.9) §§					
Faccenda 2001[138] 11179104	35 (15-129) [>15]	15 (6-24)	1 mo (XO)	AutoCPAP	68	nd	12.4 (4.1)***	+0.8	-0.2, 1.4†††	NS	5	B
				Placebo			11.6 (5.7) ‡‡‡					
Barnes 2002[131] 11897643	13 (6) [>5]	11.3 (5.0)	8 wk (XO)	CPAP	28	0.8 (0.1)§§§	+0.07****	+0.01	nd	NS	33	C
				Placebo			+0.06††††					

Table 5.1.6b. Quality of life in randomized controlled trials of CPAP vs. control

Study PMID	Baseline Test (SD)	Duration (design)	Interventions	No. Analyzed	Outcome	Favors	If Significant Difference: Net difference	95% CI*	Test range "Worst"	Test range "Best"	P Btw	Study Quality
Ballester 1999[118] 9927363	AHI 58 (20)	3 mo (PL)	AutoCPAP + CM	68	SAHS-related symptoms questionnaire	AutoCPAP	-12.3	-14.8, -9.9	15	-18	<0.001	B
	ESS 11.4 (5.0)		CM	37	NHP – Emotional reactions	0						
					NHP - Sleep	0						
					NHP - Physical	0						
					NHP – Social isolation	0†	-3.7	-11.2, 3.8	0	100	0.33	
					NHP – Pain	0						
					NHP - Energy	AutoCPAP	-20.6	-33.1, -8.1	0	100	<0.001	
Lam 2007[129] 17121868	AHI 19 (17)	10 wk (PL)	CPAP + CM	34	SAQLI summary score (A-D)[a]	CPAP	1	0.7, 1.2	0	7	<0.001	B
	ESS 12 (8.8)		CM	33	SAQLI summary score (A-E)[a]	CPAP	nd	nd	0	7	<0.05	
					SF-36 Physical function	CPAP	6.9	1.6, 12.1‡	0	100	<0.05	
					SF-36 Bodily Pain	CPAP	11.7		0	100	<0.05	
Monasterio 2001[127] 11587974	AHI 21 (5)	6 mo (PL)	CPAP + CM	66	SAHS related symptoms	CPAP	-5	-6.4, -3.6	8	32	<0.001	C
	ESS 13.2 (4.3)		CM	59	NHP	0					NS	
Mansfield 2004[126] 14597482	AHI 27 (21)	3 mo (PL)	CPAP	19	SF-36 role-physical	0					NS	C
	ESS 8.8 (0.9)		No treatment	21	SF-36 vitality	CPAP	20	5.2, 34.8	0	100	0.008	
					SF-36 mental health	0					NS	

Table 5.1.6b. Quality of life in randomized controlled trials of CPAP vs. control (continued)

Study PMID	Baseline Test (SD)	Duration (design)	Interventions	No. Analyzed	Outcome	Favors	If Significant Difference: Net difference	95% CI§	Test range "Worst"	Test range "Best"	P Btw	Study Quality
Barnes 2002[131] 11897643	AHI 13 (6)	8 wk (XO)	CPAP	28	SF-36 physical functioning	0					NS	B
	ESS 11.3 (5.0)		Placebo		SF-36 mental health	0					NS	
Barnes 2004[140] 15201136	AHI 21 (12) ESS 10.7 (3.5)	3 mo (XO)	CPAP Placebo	80	SF-36 mean score	0					NS.**	B
Engleman 1994[133] 7906330	AHI 28 (7-129) ESS nd	1 mo (XO)	CPAP Placebo	32	GHQ 28 total score	CPAP	-3.4	-5.6, -1.2††	0	28	0.003	C
Engleman 1997[135] 9059469	AHI 11 (4) ESS nd	4 wk (XO)	CPAP Placebo	16	GHQ 28 total score	0					NS	C
Engleman 1998[136] 9708223	AHI 43 (nd)	4 wk (XO)	CPAP Placebo	23	UMACL Energetic Arousal Score	0					NS	B
	ESS 12.0 (nd)				GHQ-28	0					NS	
					NHP Part 2 score	0					NS	
Engleman 1999[137] 9927358	AHI 10 (nd)	4 wk (XO)	CPAP Placebo	34	SF-36 Role-physical	CPAP	17	0.9, 33.0	0	100	0.038	B
	ESS 13.0 (3.0)				SF-36 mental health	0					NS	
					SF-36 Vitality	CPAP	12	2.6, 24.1	0	100	0.014	
					UMACL Energetic Arousal Score	0					NS	
					NHP Part 2 score	0					NS	

Table 5.1.7. Neurocognitive and psychological tests in randomized controlled trials of CPAP vs. control

Study PMID	Baseline Test (SD)	Duration (design)	Interventions	No. Analyzed	Outcome	Favors	If Significant Difference			P Btw	Study Quality
							Net Difference	95% CI	Test Range "Worst" "Best"		
Monasterio 2001[127] 11587974	AHI 21 (5)	6 mo (PL)	CPAP + CM	66	Attention - digit symbol (WAIS) SS	0				NS	C
	ESS 13.2 (4.3)		CM	59	Attention - digits forward and backward (WAIS) SS	0				NS	
					Attention - mental control (WMS) p	0				NS	
					Memory - verbal paired associated (WMS) p	0				NS	
					Memory - visual memory (WMS), SS	0				NS	
					Executive function - Verbal fluency, p	0				NS	
					Executive function - Block Design (WAIS), SS	0				NS	
					Trailmaking A (sec)	0				NS	
					Trailmaking B (sec)	0				NS	
					PASAT 4-s,	0				NS	
					PASAT 3-s	0				NS	
					PASAT 2-s	0				NS	
					PASAT 1-s	0				NS	
					Vigilance - Steer-clear, % hits	0				NS	

Table 5.1.7. Neurocognitive and psychological tests in randomized controlled trials of CPAP vs. control (continued)

Study PMID	Baseline Test (SD)	Duration (design)	Interventions	No. Analyzed	Outcome	Favors	If Significant Difference			P Btw	Study Quality
							Net Difference	95% CI	Test Range "Worst" "Best"		
Lojander 1996, 1999[122,124] 8681614, 10188139	nd	12 mo (PL)	CPAP + CM	23	Wechsler Verbal	0				NS	C
			CM	21	Wechsler Performance	0				NS	
					Wechsler Memory	0				NS	
Barnes 2004[140] 15201138	AHI 21 (12) ESS 10.7 (3.5)	3 mo (XO)	CPAP Placebo	80	Beck Depression Invertory	0				NS	B
Engleman 1999[137] 9927358	AHI 10 (nd) ESS 13 (3)	4 wk (XO)	CPAP Placebo	34	SteerClear	0				NS	B
					Trailmaking A and B	0				NS	
					Digit symbol	CPAP	0.5*	nd		0.004	
					Block Design score	0				NS	
					Performance IQ score	0				NS	
					HADS anxiety score	0				NS	
					HADS depression score	CPAP	0.41†		0 21	0.003	
					PASAT 2-s	CPAP	0.36‡			0.02	

Table 5.1.7. Neurocognitive and psychological tests in randomized controlled trials of CPAP vs. control (continued)

Study PMID	Baseline Test (SD)	Duration (design)	Interventions	No. Analyzed	Outcome	Favors	If Significant Difference				P Btw	Study Quality
							Net Difference	95% CI	Test Range "Worst"	Test Range "Best"		
Barnes 2002[131] 11897643	AHI 13 (6) [>5]	8 wk (XO)	CPAP	28	Word pair memory recall	0					NS	B
	ESS 11.3 (5.0)		Placebo		WMS-R visual reproduction	0					NS	
					Trailmaking A (sec)	0					NS	
					Trailmaking B (sec)	0					NS	
					Digital symbol substitution test	0					NS	
					Controlled oral word association test	CPAP	+2.7	0.43, 4.97.§			0.02	
					Psychomotor vigilance task	0					NS	
					Stroop color association test	0					NS	
					POMS	0					NS	
					Mood- Beck depression inventory	0					NS	

Table 5.1.7. Neurocognitive and psychological tests in randomized controlled trials of CPAP vs. control (continued)

Study PMID	Baseline Test (SD)	Duration (design)	Interventions	No. Analyzed	Outcome	Favors	If Significant Difference				P Btw	Study Quality
							Net Difference	95% CI	Test Range "Worst"	Test Range "Best"		
Engleman 1998[136] 9708223	AHI 43 (nd) ESS 12.0 (nd)	4 wk (XO)	CPAP	23	SteerClear	0					NS	B
			Placebo		Trailmaking B	0					NS	
					Digit symbol substitution	0					NS	
					Block Design	0					NS	
					Performance IQ decrement	0					NS	
					HADS anxiety score	0					NS	
					Rapid visual information processing	0					NS	
					HADS depression score	0					NS	
					PASAT 2-s	0					NS	
Engleman 1994[133] 7906330	AHI 28 (7-129)	1 mo (XO)	CPAP	32	IQ decrement score	CPAP	-3.2	-6.3, -0.1.**	NA	NA	0.04	C
	ESS nd		Placebo		Trailmaking B (sec)	CPAP	-9	-16.5, -1.4. ††	NA	NA	0.02	
					PASAT	0					NS	
					HADS anxiety score	CPAP	-1.2	-2.2, -0.2	0	21	0.02	
					HADS depression score	CPAP	-1.9	-3.1, -0.7. ‡‡	0	21	0.002	

Table 5.1.7. Neurocognitive and psychological tests in randomized controlled trials of CPAP vs. control (continued)

Study PMID	Baseline Test (SD)	Duration (design)	Interventions	No. Analyzed	Outcome	Favors	If Significant Difference				P Btw	Study Quality
							Net Difference	95% CI	Test Range "Worst"	Test Range "Best"		
Engleman 1997[132] 9059469	AHI 11 (4)	4 wk (XO)	CPAP	16	IQ decrement score	0					NS	C
	ESS nd		Placebo		Trailmaking B (sec)	CPAP	-13.6	-25.1, -2.1	NA	NA	0.02	
					PASAT	0					NS	
					Verbal fluency total words	0					NS	
					HADS anxiety score	0					NS	
					HADS depression score	CPAP	-1.6	-3.0, -0.2	0	21	0.03	

Table 5.1.8a. Blood pressure measurements (mm Hg) in randomized controlled trials of CPAP vs. control

Study PMID	Baseline AHI (SD) [min]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI*	P Btw	Dropout, %	Study Quality
Systolic Blood Pressure												
Barbe 2010[130] 20007932	43 (19) [>19]	6.4 (2.4)	12 mo (PL)	CPAP + conservative treatment	178	141 (5)	134.7 (nd)	-2.09	-5.6, 1.4	nd	4	B
				Conservative treatment	181	141 (15)	136.8 (nd)					
Diastolic Blood Pressure												
Barbe 2010[130] 20007932	43 (19) [>19]	6.4 (2.4)	12 mo (PL)	CPAP + conservative treatment	178	85 (11)	82.8 (nd)	0.46	-2.0, 2.9	nd	4	B
				Conservative treatment	181	86 (10)	83.3 (nd)					
Daytime Systolic Blood Pressure												
Drager 2007[120] 17556718	65 (22) [>30]	13.0 (5.0)	4 mo (PL)	C-Flex	12	122 (5)	119 (9)	-1	-8.2, 6.2	NS	0	B
				No treatment	12	124 (11)	122 (9)					
Monasterio 2001[127] 11587974	21 (5) [>10]	13.2 (4.3)	6 mo (PL)	CPAP + conservative measures	66	126.0 (17.0)	122.0 (22.0)	-2	-8.4, 4.4	NS	12	C
				Conservative measures	59	132.0 (17.0)	130.0 (16.0)					
Kaneko 2003[123] 12660387	45 (5) [>20]	5.7 (0.9)	1 mo (PL)	CPAP	12	126 (20.8)	116 (17.3)	-16	-34.4, 2.4	NS	0	C
				Optimal drug treatment	12	128 (24.2)	134 (27.7)					
Barnes 2002[131] 11897643	13 (6) [>5]	11.3 (5.0)	8 wk (XO)	CPAP	28	132.0 (11.0)	-0.7 (25.6)†	-2.1	-11.2, 7.0	0.65	33	C
				Placebo			2.2 (9.8)‡					
Comondore 2009[132] 18795367	28 (nd) [>15]	6.8 (nd)	4 wk (XO)	AutoCPAP	13	139.3 (nd)	131.9 (nd)	-3.6	-18.5, 11.3	0.50	0	C
				No treatment			133.6 (nd)					
Engleman 1996[134] 8843528	49 (32) [>5]	nd	3 wk (XO)	CPAP	13	nd	138.0 (14.4)	-0.1	-10.8, 8.7	nd	19	C
				Placebo			139.0 (10.8)					

Table 5.1.8a. Blood pressure measurements (mm Hg) in randomized controlled trials of CPAP vs. control (continued)

Study PMID	Baseline AHI (SD) [min]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI *	P Btw	Dropout, %	Study Quality
Nightime Systolic Blood Pressure												
Drager 2007[120] 17556718	65 (22) [>30]	13.0 (5.0)	4 mo (PL)	C-Flex	12	108.0 (9.0)	105.0 (10.0)	-4	-11.6, 3.6	NS	0	B
				No treatment		109 (10.0)	113.0 (9.0)					
Daytime Diastolic Blood Pressure												
Drager 2007[120] 17556718	65 (22) [>30]	13.0 (5.0)	4 mo (PL)	C-Flex	12	79.0 (4.0)	75.0 (7.0)	-1	-4.6, 6.6	NS	0	B
				No treatment	12	78.0 (9.0)	75.0 (6.0)					
Kaneko 2003[123] 12660387	45 (5) [>20]	5.7 (0.9)	1 mo (PL)	CPAP	12	62.0 (13.9)	59.0 (6.9)	-1	-10.8, 8.8	NS	0	C
				Optimal drug treatment	12	60.0 (13.9)	58.0 (10.4)					
Monasterio 2001[127] 11587974	21 (5) [>10]	13.2 (4.3)	6 mo (PL)	CPAP + conservative measures	66	81.0 (12.0)	80.0 (10.0)	-1	-4.9, 2.9	NS	12	C
				Conservative measures	59	84.0 (11.0)	84.0 (11v)					
Barnes 2002[131] 11897643	13 (6) [>5]	11.3 (5.0)	8 wk (XO)	CPAP	28	84.0 (7.8)	-0.5 (25.6) †	-2.6	-11.7, -6.5	0.57	33	C
				Placebo			+2.1 (9.8)‡					
Comondore 2009[132] 18795367	28 (nd) [>15]	6.8 (nd)	4 wk (XO)	AutoCPAP	13	82.7 (nd)	79.0 (nd)	-0.7	-8.5, 7.1	0.84	0	C
				No treatment		84.8 (nd)	81.8 (nd)					
Engleman 1996[134] 8843528	49 (32) [>5]	nd	3 wk (XO)	CPAP	13	nd	84.0 (3.0)	-2	-4.3, 0.3	nd	19	C
				Placebo		nd	86.0 (3.0)					
Nightime Diastolic Blood Pressure												
Drager 2007[120] 17556718	65 (22) [>30]	13.0 (5.0)	4 mo (PL)	C-Flex	12	67.0 (8.0)	63.0 (8.0)	-1	-7.7, 5.7	NS	0	B
				No treatment	12	69.0 (7.0)	66.0 (10.0)					

Table 5.1.8b. HbA1C (%) in randomized controlled trials of CPAP vs. control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Comondore 2009[132] 18795367	28 (nd) [>15]	6.8 (nd)	4 wk (XO)	AutoCPAP	13	5.91 (nd)	5.94 (nd)	0.04	-0.27, 0.34	NS	0	C
				No treatment		5.85 (nd)	5.85 (nd)					

Table 5.2.1. Characteristics of randomized controlled trials comparing CPAP with sham control

Study PMID	Interventions	CPAP Pressure* (type)	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Other Patient Characteristics	Country (enrollment years)	Other quality issues
Arias 2005[141] 16009798	CPAP Sham CPAP	Auto (separate)	52	100	30.5		Spain (nd)	
Barbe 2001[142] 11388814	CPAP Sham CPAP	Manual (separate)	53	91	29	Non-sleepy	Spain (1999-2000)	N <30
Becker 2003[143] 12515745	CPAP Sham CPAP	Manual (separate)	53	91	33.4	67% with HTN	Germany (nd)	No power calculation, no allocation concealment, high dropout rate
Campos-Rodriguez 2006[144] 16778262	CPAP Sham CPAP	Manual (separate)	57	60	34.8	30-70 yr with primary HTN and on treatment	Spain (nd)	Unclear randomization
Coughlin 2007[145] 17251237	CPAP Sham CPAP	Auto (split)	49	100	36.1	Healthy obese males	UK (nd)	
Cross 2008[146] 18390635	CPAP Sham CPAP	Auto (separate)	48	96	37	22% on aspirin, statins, or beta blockers	UK (nd)	
Egea 2008[147] 17904420	CPAP Sham CPAP	Manual (split)	64	94	31.1	Stable heart failure patients with sleep apnea	Spain (nd)	PSG results included 17% central sleep apnea subjects, but sleepiness and QoL measures only included OSA subjects
Haensel 2007[148] 17503102	CPAP Sham CPAP	Manual (separate)	49	80	33.4		US (nd)	relatively small samples, no power calculation
Henke 2001[149] 11282765	CPAP Sham CPAP	Manual (separate)	50	56	42.6		US (nd)	No power calculation; one-way cross over
Hui 2006[150] 16928705	CPAP Sham CPAP	Auto (separate)	51	80	27.2		Hong Kong (nd)	Underpowered; Non-ITT analyses; likely selection bias; questionable patient blinding
Jenkinson 1999[151] 10382693 Hack 2000[152] 10679542	CPAP Sham CPAP	Auto (separate)	49	100	35.1		UK (1997-98)	
Lam 2010[153] 19608589	CPAP Sham CPAP	Auto (separate)	46	100	27.5		China (2002-2007)	

Table 5.2.1. Characteristics of randomized controlled trials comparing CPAP with sham control (continued)

Study PMID	Interventions	CPAP Pressure,† (type)	Mean Age, yr	Male, %	Mean BMI, kg/m²	Other Patient Characteristics	Country (enrollment years)	Other quality issues
Loredo 1999[153] 10593774 Yu 1999[154] 10504011 Bardwell 2001[155] 11485111 Profant 2003[156] 12571548	CPAP Sham CPAP	Manual (separate)	48	75	31.3		US (nd)	
Loredo 2006[157] 16676791 Bardwell 2001[155] 11485111	CPAP Sham CPAP	Manual (separate)	48	83	31.8		US (2002-04)	Poorly reported results, with much missing data, incomplete analyses
Marshall 2005[159] 15860720	CPAP Sham CPAP	Manual (separate)	51	76	31.5		New Zealand (2001-03)	Allocation concealment: yes – assessors; no - patients
Mills 2006[160] 16357087 Lim 2007[161] 17694727	CPAP Sham CPAP	Manual (separate)	48	85	31.9		US (nd)	No power calculation
Montserrat 2001[162] 11520724	CPAP Sham CPAP	Manual (separate)	54	91	32.0		Spain (nd)	Needed sample size 48 but had only 45
Norman 2006[163] 16585412	CPAP Sham CPAP	Manual (separate)	50	85	30.8			No power calculation
Robinson 2006[164] 16455835	CPAP Sham CPAP	Auto (split)	54	89	33.2	HTN with significant OSA, but without sufficient daytime hypersomnolence	UK (nd)	
Siccolli 2008[165] 19014075	CPAP Sham CPAP	Auto (separate)	48	100	35.2		UK (nd)	
Smith 2007[166] 17470670	CPAP Sham CPAP	Auto (split)	61	88	31	CHF	UK (nd)	
Spicuzza 2006[167] 16963674	CPAP Sham CPAP	Manual (separate)	56	80	32.1		Italy (nd)	
West 2007[168] 17557769	CPAP Sham CPAP	Auto (split)	56	100	37.8	Diabetes mellitus	UK (2004-05)	
West 2009[170] 19427263	CPAP Sham CPAP	Auto (separate)	55	100	36.7	Type 2 diabetes	UK (nd)	No power calculation; unclear how many patients were randomized

Table 5.2.2. AHI (events/hr) in randomized controlled trials of CPAP vs. sham control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Lam 2010[169] 19608589	39.7 (22.1) [≥15]	10.3 (4.9)	1 wk (PL)	AutoCPAP	30	33.4 (nd)	0.6 (nd)	-24.6	nd*	<0.001	0	A
				Sham CPAP	31	31.3 (nd)	19.7 (nd)					
Egea 2008[147] 17904420	35 (17) [>10]	7.3 (4.5)	3 mo (PL)	CPAP	27	43.7 (22.9)	10.8 (11.4)	-25.6	-36.5, -14.6†	<0.0001‡	18	B
				Sham CPAP	29	35.3 (16.7)	28 (24.8)					
Haensel 2007[148] 17503102	58 (30) [≥15]	nd	2 wk (PL)	CPAP	25	65.9 (28.6)	3.5 (3.4)	-58.3	-74.9, -41.7§	<0.001	0	B
				Sham CPAP	25	57.5 (32.1)	53.4 (32.9)					
Loredo 1999[153] 10593774 Yu 1999[154] 10504011 Bardwell 2001[155] 11485111 Profant 2003[156] 12571548	44 (25) [RDI≥20]	nd	1 wk (PL)	CPAP	23	56.4 (24.1)	3.3 (3.8)	-37.2	-51.6, -22.7**	<0.001	14	B
				Sham CPAP	18	44.2 (25.3)	28.3 (22.7)					
Mills 2006[160] 16357087 Lim 2007[161] 17694727	61 (33) [>15]	nd	2 wk (PL)	CPAP	17	65.0 (34)	2.56 (2.4)	-58.5	-84.0, -33.0††	nd	nd	B
				Sham CPAP	16	61.2 (41)	57.3 (41)					
Loredo 2006[157] 16676791 Bardwell 2001[155] 11485111	57 (32) [≥15]	12.3 (6.7)	2 wk (PL)	CPAP	22	65.9 (28.6)	3.0 (4.7)	-57.9	-76.2, -39.6‡‡	<0.001	nd	C
				Sham CPAP	19	57.5 (32.1)	52.5 (37.5)					

Table 5.2.2. AHI (events/hr) in randomized controlled trials of CPAP vs. sham control (continued)

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Norman 2006[163] 16565412	54 (30) [>15]	12.0 (6.6)	2 wk (PL)	CPAP	18	66.1 (29.1)	3.4 (3.0)	-56.9	-79.2, -38.6§§	<0.05	nd	C
				Sham CPAP	19	53.9 (29.8)	50.1 (32.1)					
Becker 2003[143] 12515745	65.0 (26.7) [≥5]	14.1 (3.2)	9 wk (PL)	CPAP	10	62.5 (17.8)	3.4 (3.1)	-27.5	-43.4, -11.6***	0.001	47	C
				Sham CPAP	10	65.0 (26.7)	33.4 (29.2)					
Spicuzza 2006[167] 16963874	59 (17) [>5]	nd	1 mo (PL)	CPAP	15	55.3 (11.9)	2.1 (0.3)	-51.0	-62.0, -40.0†††	<0.005	nd	C
				Sham CPAP	10	59.2 (17.3)	57.0 (8.6)					

Table 5.2.3. ESS in randomized controlled trials of CPAP vs. sham control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI	P Btw	Drop-out %	Study Quality
West 2007[168] 17557769	nd	14 (3.5)	3 mo (PL)	AutoCPAP	19	15 (3.5)	-6.6 (4.5).*	-4.0	-7.0, -0.9	0.01	5	A
				Sham CPAP	21	17 (3.5)	-2.6 (4.9).†					
Coughlin 2007[145] 17251237	40 (14) [>15]	14 (4.9)	6 wk (XO)	CPAP	34	14 (4.9)	nd	-3.1	-4.5, -1.7	<0.01	3	A
				Sham CPAP	34	14 (4.9)						
Robinson 2006[164] 16455835	nd	5.3 (IRQ 3.0-7.0)	1 mo (XO)	AutoCPAP	32	5.3 (nd)	-1.4 (nd).‡	-1.1	-2.0, -0.17. §	<0.02	9	A
				Sham CPAP	32	5.3 (nd)	-0.3 (nd).**					
Lam 2010[169] 19608589	39.7 (22.1) [≥15]	10.3 (4.9)	1 wk (PL)	AutoCPAP	30	10.3 (4.9)	10.5 (5.2)	+0.7	-0.76, 2.06††	NS	0	A
				Sham CPAP	31	10.8 (5.5)	10.5 (5.6)					
Smith 2007[166] 17470670	36 (23) [≥15]	10 (5)	6 wk (XO)	AutoCPAP	23	10 (5)	7 (4)	-1.0	-1.9, 0	0.04	12	A
				Sham CPAP	23	10 (5)	8 (5)					
Jenkinson 1999[151] 10382693 Hack 2000[152] 10679542	nd	17.0 (nd)	4 wk (PL)	AutoCPAP	52	15.5 (nd)	7.0 (nd)	-7.0	-10.5, -3.5. ‡‡	<0.0001	6	B
				Sham CPAP	49	15.0 (nd)	13.0 (nd)					
Siccoli 2008[165] 19014075	nd	15.2 (4.0)	4 wk (PL)	CPAP	50	15.8 (4.0)	6.8 (5.1)	-5.9	-7.8, -3.95	<0.0001	3	B
				Sham CPAP	49	15.0 (4.0)	11.9 (5.9)					
Campos-Rodriguez 2006[144] 16778262	60 (22) [≥10]	13.6 (3.6)	4 wk (PL)	CPAP	34	15.0 (3.9)	11.2 (3.0)	-2.4	-4.0, -0.81. §§	0.003	6	B
				Sham CPAP	34	13.6 (3.6)	12.2 (2.2)					
Barbe 2001[142] 11388814	57 (15) [≥30]	7.0 (2)	6 wk (PL)	CPAP	29	7 (2.2)	8 (3.2)	+1.0	-1.0, 3.0. ***	NS	2	B
				Sham CPAP	25	7 (2.0)	8 (5.0)					

Table 5.2.3. ESS in randomized controlled trials of CPAP vs. sham control (continued)

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI	P Btw	Drop-out %	Study Quality
Hui 2006[150] 16928705	30 (16) [≥5]	10.7 (3.3)	3 mo (PL)	CPAP	23	10.2 (4.8)	7.0 (4.8)	-0.04	-2.94, 2.86	NS	18	B
				Sham CPAP	23	11.2 (5.5)	8.1 (5.0)					
Egea 2008[147] 17904420	35 (17) [>10]	7.3 (4.5)	3 mo (PL)	CPAP	20	8.6 (3.6)	5.0 (3.6)	-1.9	-4.1, 0.3. †††	NS	18	B
				Sham CPAP	25	6.9 (4.0)	5.2 (4.0)					
Montserrat 2001[162] 11520724	54 (19) [>10]	16.9 (5.6)	6 wk (PL)	CPAP	23	16.1 (4.8)	6.7 (3.4)	-7.21	-10.1, -4.4. ‡‡‡	<0.001	6	B
				Sham CPAP	22	16.9 (6.0)	14 (5.5)					
Loredo 2006[157] 16676791 Bardwell 2001[155] 11485111	58 (32) [≥15]	12.3 (6.7)	2 wk (PL)	CPAP	22	11.6 (4.9)	8.2 (4.4)	-1.7	-5.2, 1.8. §§§	NS	nd	B
				Sham CPAP	19	12.3 (6.7)	10.6 (6.4)					
Marshall 2005[159] 15860720	22 (nd) [nd]	12.5 (4.3)	3 wk (XO)	CPAP	29	12.5 (4.3)	9.7 (3.8)	-2.4	-4.2, -0.6	0.04	6	B
				Sham CPAP	29	12.5 (4.3)	12.0 (3.8)					
West 2009[170] 19427263	nd	13.4 (2.6)	3 mo (PL)	AutoCPAP	16	13.4 (2.6)	-6.1 (4.4) ****	-3.3	-6.5, -0.1††††	0.04	nd	B
				Sham CPAP	20	13.3 (3.4)	-2.8 (5.1) ‡‡‡‡					
Becker 2003[143] 12515745	65 (27) [≥5]	14.1 (3.2)	9 wk (PL)	CPAP	16	14.4 (2.5)	5.1 (3.8)	-4.1	-6.8, -1.4. §§§§	0.009	47	C
				Sham CPAP	16	14.1 (3.2)	8.9 (5.0)					

Table 5.2.4. Arousal index (events/hr) in randomized controlled trials of CPAP vs. sham control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Loredo 1999[153] 10593774 Yu 1999[154] 10504011 Bardwell 2001[155] 11485111 Profant 2003[156] 12571548	44 (25) [RDI≥20]	nd	1 wk (PL)	CPAP	23	55.1 (24.4)	1.4 (9.5)	-38.6	-53.5, -23.7*	0.001	14	B
				Sham CPAP	18	48.6 (28.2)	33.5 (23.2)					
Loredo 2006[157] 16676791 Bardwell 2001[155] 11485111	58 (32) [≥15]	12.3 (6.7)	2 wk (PL)	CPAP	22	41 (28.4)	10.5 (1.0)	-27.2	-45.9, -8.4†	<0.001	nd	C
				Sham CPAP	19	43.8 (32.6)	40.5 (8.0)					
Becker 2003[143] 12515745	65 (27) [≥5]	14.1 (3.2)	9 wk (PL)	CPAP	16	58.7 (21.9)	24.1 (9.8)	-13.8	-30.2, 2.6‡	nd	47	C
				Sham CPAP	16	62.0 (28.0)	41.2 (27.2)					

Table 5.2.5. Sleep efficiency (%TST) in randomized controlled trials of CPAP vs. sham control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or diff	95% CI	P Btw	Dropout, %	Study Quality
Haensel 2007[148] 17503102	58 (30) [≥15]	nd	2 wk (PL)	CPAP	25	80.3 (2.3)	87.5 (1.5)	3.3	2.3, 4.3*	NS	0	B
				Sham CPAP	25	82.0 (1.6)	85.9 (1.6)					
Loredo 1999[153] 10593774 Yu 1999[154] 10504011 Bardwell 2001[155] 11485111 Profant 2003[156] 12571548	44 (25) [RDI≥20]	nd	1 wk (PL)	CPAP	23	83.7 (10.7)	88.1 (8.6)	2.9	-4.1, 9.9†	NS	14	B
				Sham CPAP	18	82.2 (11.8)	83.7 (12.9)					

Table 5.2.6. Slow wave sleep (% TST) in randomized controlled trials of CPAP vs. sham control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or diff	95% CI	P Btw	Dropout, %	Study Quality
Egea 2008[147] 17904420	35 (17) [>10]	7.3 (4.5)	3 mo (PL)	CPAP	27	7.9 (8.3)	7.2 (10.4)	3.2	-1.9, 8.3*	NS	18	B
				Sham CPAP	29	9.7 (10.2)	5.8 (9.7)					
Loredo 1999[153] 10593774 Yu 1999[154] 10504011 Bardwell 2001[155] 11485111 Profant 2003[156] 12571548	44 (25) [RDI≥20]	nd	1 wk (PL)	CPAP	23	7.4 (8.7)	12.5 (10.6)	-1.6	-8.7, 5.5†	NS	14	B
				Sham CPAP	18	6.3 (8.6)	13.0 (14.5)					
Loredo 2006[157] 16676791 Bardwell 2001[155] 11485111	58 (32) [≥15]	12.3 (6.7)	2 wk (PL)	CPAP	22	5.0 (6.9)	7.1 (6.2)	1.5	-2.2, 5.2‡	NS	nd	B
				Sham CPAP	19	4.1 (5.1)	4.7 (5.8)					
Becker 2003[143] 12515745	65 (27) [≥5]	14.1 (3.2)	9 wk (PL	CPAP	16	6.2 (7.2)	15.2 (7.1)	3.4	-1.8, 8.6§	NS	47	C
				Sham CPAP	16	6.0 (8.4)	11.8 (6.7)					

Table 5.2.7. REM sleep (% TST) in randomized controlled trials of CPAP vs. sham control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net Diff or diff*	95% CI	P Btw	Dropout, %	Study Quality
Egea 2008[147] 17904420	35 (17) [>10]	7.3 (4.5)	3 mo (PL)	CPAP	27	15.7 (9.9)	12.2 (6.2)	-2.8	-6.9, 1.3†	NS	18	B
				Sham CPAP	29	12.9 (7.0)	12.2 (7.0)					
Loredo 1999[153] 10593774 Yu 1999[154] 10504011 Bardwell 2001[155] 11485111 Profant 2003[156] 12571548	44 (25) [RDI≥20]	nd	1 wk (PL)	CPAP	23	19.0 (7.9)	26.2 (7.0)	5.7	0.85, 10.6‡	NS	14	B
				Sham CPAP	18	17.7 (8.0)	19.2 (8.3)					
Loredo 2006[157] 16676791 Bardwell 2001[155] 11485111	58 (32) [≥15]	12.3 (6.7)	2 wk (PL)	CPAP	22	14.3 (6.9)	22 (9.4)	7.5	3.5, 11.5§	<0.05	nd	C
				Sham CPAP	19	15.3 (4.8)	15.5 (4.4)					
Becker 2003[143] 12515745	65 (27) [≥5]	14.1 (3.2)	9 wk (PL)	CPAP	18	11.4 (6.8)	22.3 (5.7)	4.1	-0.8, 9.0**	NS	47%	C
				Sham CPAP	16	14.3 (6.3)	21.1 (8.8)					

Table 5.2.8. Maintenance of wakefulness test (min) in randomized controlled trials of CPAP vs. sham control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (SD)	Net diff	95% CI	P Btw	Dropout, %	Study Quality
West 2007[168] 17557769	nd	14 (3.5)	3 mo (PL)	AutoCPAP	19	22 (13)*	+10.6 (14)	+15.3	6.5, 24	0.001	5	A
				Sham	21	32 (11)†	-4.7 (12)					
Jenkinson 1999[151] 10382693 Hack 2000[152] 10679542	nd	17.0 (nd)	4 Wk (PL)	AutoCPAP	52	23 (nd)	32.9 (nd)	+6.8	2.0, 11.5‡	0.005	6	B
				Sham	49	20 (nd)	23.5 (nd)					
Marshall 2005[159] 15860720	22 (nd) [nd]	12.5 (4.3)	3 wk (XO)	CPAP	29	20.9 (2.5)	23.1 (10.8)	+5.2	-0.6, 11	0.09	6	B
				Sham	29	20.9 (2.5)	17.9 (10.8)					
West 2009[170] 19427263	nd	13.4 (2.6)	3 mo (PL)	AutoCPAP	16	23.5 (12.7)	+10.4 (14.4)	+15.4	-2.1, 52.1	NS	nd	B
				Sham CPAP	20	33.9 (9.2)	-5.0 (12.0)					

Table 5.2.9. FOSQ in randomized controlled trials of CPAP vs. sham control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff	95% CI	P Btw	Dropout, %	Study Quality
Barbe 2001[142] 11388814	57 (15) [≥30]	7.0 (2)	6 wk (PL)	CPAP	29	102 (16)	108 (11)	+4.0	-3.3, 11.3*	NS	2	B
				Sham CPAP	25	107 (15)	110 (10)					
Montserrat 2001[162] 11520724	54 (19) [>10]	16.9 (5.6)	6 wk (PL)	CPAP	23	85 (22)	109 (13)	+10.48	-2.6, 23.6†	NS	6	B
				Sham CPAP	22	86 (28)	101 (22)					
Marshall 2005[159] 15860720	22 (nd) [nd]	12.5 (4.3)	3 wk (XO)	CPAP	29	12.6 (1.6)	13.6 (1.8)	-0.3	-1.1, 0.5	NS	6	B
				Sham CPAP	29	12.6 (1.6)	13.3 (1.8)					

Table 5.2.10. Quality of life in randomized controlled trials of CPAP vs. sham control

Study PMID	Baseline AHI (SD)	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Outcome	Favors*	Net Diff	If Significant Difference 95 CI	Test Range "Worst"	Test Range "Best"	P Btw	Dropout, %	Study Quality
Smith 2007[166] 17470670	36 (23) [≥15]	10 (5)	6 wk (XO)	AutoCPAP	23	SF-36 PCS	0					NS	12	A
				Sham	23	SF-36 MCS	0					NS		
Siccolli 2008[165] 19014075	nd	15.2 (4.0)	4 wk (PL)	CPAP	50	SF-36 PCS	CPAP	8.2	0.4, 16.0†	0	100	0.01	3	B
				Sham CPAP	49	SF-36 MCS	CPAP	10.8	2.8, 18.8‡	0	100	0.002		
						Calgary SAQLI total score	CPAP	0.9	0.4, 1.4§	0	7	0.001		
Egea 2008[147] 17904420	35 (17) [>10]	7.3 (4.5)	3 mo (PL)	CPAP	20	SF-36 PCS	0					NS	18	B
				Sham CPAP	25	SF-36 MCS	0					NS		
Barbe 2001[142] 11388814	57 (15) [≥30]	7.0 (2)	6 wk (PL)	CPAP	29	SF-36 PCS	0					NS	2	B
				Sham CPAP	25	SF-36 MCS	0							
Montserrat 2001[162] 11520724	54 (19) [>10]	16.9 (5.6)	6 wk (PL)	CPAP	23	SF-36 PCS	0					NS	6	B
				Sham CPAP	22	SF-36 MCS	0					NS		
Marshall 2005[159] 15860720	22 (nd) [nd]	12.5 (4.3)	3 wk (XO)	CPAP	29	SF-36 PCS	0					NS	6	B
				Sham CPAP	29	SF-36 MCS	0					NS		

Table 5.2.11. Neuropsychological outcomes in randomized controlled trials of CPAP vs. sham control

Study PMID	Baseline AHI (SD)	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Outcome	Favors*	Net Diff	If Significant Difference 95 CI	Test Range "Worst"	Test Range "Best"	P Btw	Dropout, %	Study Quality
Barbe 2001[142] 11388814	57 (15) [≥30]	7.0 (2)	6 wk (PL)	CPAP	29	Trial Making A test	0					NS	2	B
				Sham CPAP	25	Trial Making B test	0					NS		
						WAIS- Digital symbols	0					NS		
						WAIS- block design	0					NS		
						WAIS- digit span	0					NS		
						WMS- mental control	0					NS		
						WMS- verbal paired associated	0					NS		
						PASAT 1	0					NS		
						PASAT 2	0					NS		
						PASAT 3	0					NS		
						PASAT 4	0					NS		
Haensel 2007[148] 17503102	58 (30) [≥15]	nd	2 wk (PL)	CPAP	25	POMS total score	0					NS	0	B
				Sham CPAP	25									
Loredo 1999[153] 10593774 Yu 1999[154] 10504011 Bardwell 2001[155] 11485111 Profant 2003[156] 12571548	44 (25) [RDI≥20]	nd	11 d (PL)	CPAP	23	POMS- TMD	0					NS	14	B
				Sham CPAP	18	All Cognitive tests	0					NS		
						MOS	0					NS		
Loredo 2006[157] 16676791 Bardwell 2001[155] 11485111	58 (32) [≥15]	12.3 (6.7)	2 wk (PL)	CPAP	22	BSI GSI	0					NS	nd	B
				Sham CPAP	19	BSI Depression	0					NS		

Table 5.2.11. Neuropsychological outcomes in randomized controlled trials of CPAP vs. sham control (continued)

Study PMID	Baseline AHI (SD)	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Outcome	Favors†	If Significant Difference Net Diff	95 CI	Test Range "Worst"	Test Range "Best"	P Btw	Dropout, %	Study Quality
Mills 2006[160] 16357087 Lim 2007[161] 17694727	61 (33) [>15]	nd	2 wk (PL)	CPAP	17	All neuropsychological tests except the one below	0					NS	nd	B
				Sham CPAP	14	Digit Vigilance	CPAP	-15.3	nd			0.02		
Marshall 2005[159] 15860720	22 (nd) [nd]	12.5 (4.3)	3 wk (XO)	CPAP	29	Hospital Anxiety and Depression scale	0					NS	6	B
				Sham CPAP										
Henke 2001[149] 11282765	68 (25) [>10]	16.0 (4.8)	2 wk (PL)	CPAP	27	Trial Making A test	0					NS	0	C
				Sham CPAP	18									
						Trial Making B test	0					NS		
						WAIS- Digital symbols	0					NS		
						WAIS- complex figure	0					NS		
						WAIS- digit span	0					NS		
						Hits on steer clear test	0					NS		

Table 5.2.12. Blood pressure outcomes (mm Hg) in randomized controlled trials of CPAP vs. sham control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No Analyzed	Baseline (SD)	Final (SD)	Net diff	95% CI	P Btw	Dropout, %	Study Quality
MAP												
Coughlin 2007[146] 17251237	40 (14) [>15]	14 (4.9)	6 wk (XO)	CPAP	34	nd	103.1 (8.7)	-5.5	-8.2, -2.8	<0.01	3	A
				Sham	34		108.6 (9.9)					
Robinson 2006[164] 16455835	nd	5.3 (IRQ 3.0-7.0)	1 mo (XO)	AutoCPAP	32	106 (14)	105.6 (13.2)	+1.1*	-2.9, +5.1	NS	9	A
				Sham	32	109 (13)	107.6 (13.6)					
Campos-Rodriguez 2006[144] 16778262	60 (22) [≥10]	13.6 (3.6)	4 wk (PL)	CPAP	34	100.8 (10.7)	99.8 (10.1)	-0.8	-3.1, 4.9	NS	6	B
				Sham CPAP	34	98.9 (10.0)	98.9 (11.2)					
Hui 2006[150] 16028706	30 (16) [≥5]	10.7 (3.3)	3 mo (PL)	CPAP	23	98.9 (10.1)	96.9 (10.1)	-2.2	-6.2, +1.9	NS	18	B
				Sham CPAP	23	90.1 (10.1)	90.3 (11.5)					
Norman 2006[163] 16585412	54 (30) [>15]	12.0 (6.6)	2 wk (PL)	CPAP	18	Change (SD): -3.1 (5.5)		-6.4	-11.1, -1.7†	<0.05	nd	C
				Sham CPAP	15	Change (SD): +3.3 (7.2)						
Becker 2003[143] 12515745	65 (27) [≥5]	14.1 (3.2)	9 wk (PL)	CPAP	16	103.0 (16.1)	93.0 (11.3)	-11.3	-20, -2.7	0.01	47	C
				Sham CPAP	16	103.5 (12.1)	104.8 (10.6)					
SBP												
Coughlin 2007[146] 17251237	40 (14) [>15]	14 (4.9)	6 wk (XO)	CPAP	34	nd	135.7 (11.7)	6.7	10, 1.7	<0.01	3	A
				Sham	34		142.4 (14.0)					
Lam 2010[159] 19608569	39.7 (22.1) [≥15]	10.3 (4.9)	1 wk (PL)	AutoCPAP	30	131 (14.7)	127 (15.9)	-0.94	-5.2, 3.3‡	NS	0	A
				Sham CPAP	31	130 (16.5)	127 (15.9)					
Barbe 2001[142] 11388814	57 (15) [≥30]	7.0 (2)	6 wk (PL)	CPAP	29	130 (10.8)	127 (10.8)	-2	-8.5, 4.56	NS	2	B
				Sham CPAP	25	127 (10.0)	124 (10.0)					

Table 5.2.12. Blood pressure outcomes (mm Hg) in randomized controlled trials of CPAP vs. sham control (continued)

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff	95% CI	P Btw	Dropout %	Study Quality
Hui 2006[150] 16928705	30 (16) [≥5]	10.7 (3.3)	3 mo (PL)	CPAP	23	129.1 (14.4)	126.8 (14.4)	-2.5	-8.2, +3.2	NS	18	B
				Sham CPAP	23	127.7 (14.4)	128.0 (16.3)					
Egea 2008[147] 17904420	35 (17) [>10]	7.3 (4.5)	3 mo (PL)	CPAP	20	124.3 (18.8)	124.3 (21.9)	+1.6	-8.9, 12.1**	NS	18	B
				Sham CPAP	25	125.0 (13.5)	123.4 (14)					
Mills 2006[160] 16357087 Lim 2007[161] 17694727	61 (33) [>15]	nd	2 wk (PL)	CPAP	17	155.2 (18.6)	145.1 (21.0)	-8.0	-22.4, 6.4††	nd	nd	B
				Sham CPAP	16	149.0 (23.2)	143.9 (21.2)					
Cross 2008[146] 18390635	63.0 (26) [>15]	nd	6 wk (XO)	AutoCPAP	27	143.0 (17.1)	141 (16.1)	-3.8	-10.5, 2.9‡‡	0.07	13	B
				Sham CPAP	27	143.0 (17.1)	144.8 (19.2)					
Norman 2006[163] 16585412	54 (30) [>15]	12.0 (6.6)	2 wk (PL)	CPAP	10	Change (SD): -2.2 (5.5)		-5.7	-11.2, -0.2§§	<0.05	nd	C
				Sham CPAP	15	Change (SD): +3.5 (9.7)						
Becker 2003[143] 12515745	65 (27) [≥5]	14.1 (3.2)	9 wk (PL)	CPAP	16	140.1 (17.6)	132.1 (15.7)	-10.3	-20.6, 0.1	0.05	47	C
				Sham CPAP	16	141.0 (13.8)	143.2 (11.2)					
Arias 2005[141] 16000798	44 (28) [≥10]	nd	12 wk (XO)	AutoCPAP	25	127 (50)	127 (40)	0	-18, 18***	NS	7	C
				Sham CPAP	25	127 (50)	127 (60)					

Table 5.2.12. Blood pressure outcomes (mm Hg) in randomized controlled trials of CPAP vs. sham control (continued)

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff	95% CI	P Btw	Dropout %	Study Quality
DBP												
Coughlin 2007[145] 17251237	40 (14) [>15]	14 (4.9)	6 wk (XO)	CPAP	34	nd	86.8 (8.7)	-4.9	-8.0, -1.8	<0.01	3	A
				Sham	34		91.7 (9.3)					
Lam 2010[169] 19608589	39.7 (22.1) [≥15]	10.3 (4.9)	1 wk (PL)	AutoCPAP	30	80 (10.8)	76 (8.2)	-0.61	-4.1, 2.9†††	NS	0	A
				Sham CPAP	31	82 (11.6)	79 (11.8)					
Barbe 2001[142] 11388814	57 (15) [≥30]	7.0 (2)	6 wk (PL)	CPAP	29	82(5.4)	81 (5.4)	-1	-5.4, 3.4‡‡‡	NS	2	B
				Sham CPAP	25	80 (10.0)	80 (10.0)					
Hui 2006[150] 16928705	30 (16) [≥5]	10.7 (3.3)	3 mo (PL)	CPAP	23	84.3 (10.1)	82.3 (9.6)	-1.8	-5.3, +1.8	NS	18	B
				Sham CPAP	23	83.6 (10.1)	83.4 (9.1)					
Egea 2008[147] 17904420	35 (17) [>10]	7.3 (4.5)	3 mo (PL)	CPAP	20	75.6 (10.3)	76.0 (12.5)	-0.8	-8.9, 7.3§§§	NS	18	B
				Sham CPAP	25	75.8 (12)	77.0 (18.5)					
Mills 2006[160] 16357087 Lim 2007[161] 17694727	61 (33) [>15]	nd	2 wk (PL)	CPAP	17	84.2 (10.7	79.5 (13.2)	-4.0	-12.5, 4.5****	nd	nd	B
				Sham CPAP	16	83.6 (14.0)	82.9 (12.4)					
Cross 2008[146] 18390635	63.0 (26) [>15]	nd	6 wk (XO)	AutoCPAP	27	80.4 (10.5)	82.3 (9.9)	0	-3.5, 3.5††††	NS	13	B
				Sham CPAP	27	80.4 (10.5)	82.3 (8.8)					
Norman 2006[163] 16585412	54 (30) [>15]	12.0 (6.6)	2 wk (PL)	CPAP	18	Change (SD): -2.6 (4.7)		-5.2	-9.3, -1.1‡‡‡‡	<0.05	nd	C
				Sham CPAP	15	Change (SD): +2.6 (6.5)						
Becker 2003[143] 12515745	65 (27) [≥5]	14.1 (3.2)	9 wk (PL	CPAP	16	86.4 (16.1)	75.8 (11.6)	-11.2	-19.5, -2.8	0.01	47	C
				Sham CPAP	16	85.4 (12.3)	85.9 (10.6)					
Arias 2005[141] 16009798	44 (28) [≥10]	nd	12 wk (XO)	AutoCPAP	25	79 (25)	78 (25)	0	-11, 11§§§§	NS	7	C
				Sham CPAP	25	79 (25)	78 (30)					

Table 5.3.1. Randomized controlled trials of oral vs. nasal CPAP: study characteristics

Study PMID	Interventions	CPAP Pressure* (type)	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Other Patient Characteristics	Country (enrollment years)	Other quality issues
Anderson 2003[171] 14572126	oral CPAP nasal CPAP	manual (both)	46	nd	43	high BMI	New Zealand (nd)	small sample
Mortimore 1998[172] 9741373	oral CPAP nasal CPAP	manual (separate?)	52	nd	32	-	UK (nd)	study inclusion criteria not stated
Khanna 2003[173] 14592306	oral CPAP nasal CPAP	manual (separate)	52	63	34.6	-	US (2000-01)	incomplete reporting

Table 5.3.2. Compliance (mean hr/ night) in randomized controlled trials of oral vs. nasal CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Change (final)	Net diff or diff	95% CI	P Btw	Dropout, %	Study Quality
Anderson 2003[171] 14572126	85 (36) [>20]	17 (2.3)	1 mo (XO)	oral CPAP	21	3.5	-0.3	-1.1, 0.5*	0.50	16	B
				nasal CPAP	21	3.8					
Mortimore 1998[172] 9741373	35 (23) [nd]	nd	1 mo (XO)	oral CPAP	20	4.3	-1.0	-1.8, -0.3	0.01	0	C
				nasal CPAP	20	5.3					
Khanna 2003[173] 14592306	60† (39) [>15]	13.3 (3.6)	1 mo (PL)	oral CPAP	21	5.8	0	-0.73, 0.73‡	NS	29	C
				nasal CPAP	17	5.8					
			2 mo (PL)	oral CPAP	15	5.8	0.1	-1.2, 1.4§	NS		
				nasal CPAP	12	5.7					

Table 5.3.3. ESS in randomized controlled trials of oral vs. nasal CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or diff	95% CI	P Btw	Dropout, %	Study Quality
Anderson 2003[171] 14572126	85 (36) [>20]	17 (2.3)	1 mo (XO)	oral CPAP	21	17 (2.3)	-10.0	0.7	-1.7, 3.1	0.20	16	B
				nasal CPAP	21	17 (2.3)	-11.0					
Mortimore 1998[172] 9741373	35 (23) [nd]	nd	1 mo (XO)	oral CPAP	20	nd	9.8	1.6	0.38, 2.82*	<0.01	0	C
				nasal CPAP	20	nd	8.2					

Table 5.4.1. Randomized controlled trials of autoCPAP vs. CPAP: study characteristics

Study PMID	Interventions	CPAP Pressure* (type)	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Other Patient Characteristics	Country (enrollment years)	Other quality issues
Damjanovic 2009[174] 19129293	autoCPAP CPAP	auto/manual (separate)	57	78	31.1	-	Germany (nd)	
Meurice 2007[177] 17638595	autoCPAP CPAP	auto/manual (separate)	55	nd	30.8	-	France (nd)	pt recruitment unclear
Patruno 2007[180] 17494789	autoCPAP CPAP	manual (separate)	48	81	36.5	some with HTN	Italy (nd)	incomplete reporting
Planes 2003[193] 12683473	autoCPAP CPAP	manual (separate)	54	77	32.4	-	France (1998-99)	pt recruitment unclear
Series 1997[191] 9341056	autoCPAP est./meas. CPAP	manual (separate)	36-65 (range)	nd	36.4	-	Canada (1995-96)	potential selection bias
Fietze 2007[175] 17337881	autoCPAP CPAP	auto/manual (separate)	54	95	30.9	-	Germany (nd)	incomplete reporting; pt selection unclear
Resta 2004[188] 15679008	autoCPAP CPAP	manual (nd)	33	90	36.7	-	Italy (nd)	incomplete reporting
Vennelle 2010[194] 20175411	autoCPAP CPAP	auto/manual (separate)	50	77	34.5	-	UK	-
Hukins 2004[183] 15683142	autoCPAP CPAP	manual (nd)	50	87	35.2	-	Australia (nd)	-
Randerath 2001[190] 11254519	autoCPAP CPAP	manual (separate)	55	87	32.4	-	Germany	-
Massie 2003[186] 12406840	autoCPAP CPAP	manual (both)	49	82	32	-	Australia, UK, U.S.	incomplete reporting
To 2008[181] 18197915	autoCPAP CPAP	auto/manual (separate?)	46	nd	28.7	severe OSA	China (nd)	-
Nussbaumer 2006[179] 16537862	autoCPAP CPAP	manual (separate)	49	90	31.1	-	Switzerland (nd)	-
Senn 2003[189] Switzerland 14525804	autoCPAP (2 modes) CPAP	auto/manual (separate)	53	79	33.3	-	Switzerland (nd)	-
Nolan 2007[176] 17326544	autoCPAP CPAP	auto/manual (separate?)	53	90	29.9	-	Ireland (nd)	-

Table 5.4.1. Randomized controlled trials of autoCPAP vs. CPAP: study characteristics (continued)

Study PMID	Interventions	CPAP Pressure† (type)	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Other Patient Characteristics	Country (enrollment years)	Other quality issues
Noseda 2004[187] 15249439	autoCPAP CPAP	manual (separate)	49	96	32.3	high variability in pressure required during 2 wk autoCPAP run-in	Belgium (nd)	-
Hudgel 2000[182] 10947032	autoCPAP CPAP	auto/manual (both)	46	54	42	-	U.S.	incomplete reporting; 35% drop out
Marrone 2004[185] 15165530	autoCPAP CPAP	auto/manual (separate)	53	95	32.9	-	Italy	small sample & no power calc
Galetke 2008[178] 17148931	autoCPAP CPAP	auto/manual (separate)	56	80	29.3	-	Germany (nd)	incomplete reporting; small sample & no power calc
Hussain 2004[184] 15072173	autoCPAP CPAP	manual (separate)	45	90	35.9	-	Pakistan and Canada (nd)	pt recruitment method unclear; small sample & no power calc
Teschler 2000[192] 10885414	autoCPAP CPAP	manual/auto (separate)	52	100	33.8	-	Germany (nd)	incomplete reporting; small sample; ?power calc

Table 5.4.2. Compliance (mean hr/night) in randomized controlled trials of autoCPAP vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or diff	P Btw	Dropout, %	Study Quality
Damjanovic 2009[174] 19129293	44 (25) [≥15]	9.8 (5.2)	3 mo (PL)	autoCPAP	46	5.4	0	-0.7, 0.7	nd	8	B
				CPAP	46	5.4					
			9 mo (PL)	autoCPAP	34	5.2	0.1	-0.9, 1.1	nd	22	
				CPAP	44	5.1					
Meurice 2007[177] 17638595	55 (10) [nd]	11.8 (4.9)	3 mo (PL)	autoCPAP (AutoSet)	15	6.0	-0.1	-0.786, 0.586	nd	15	B
				CPAP	14	6.1					
			6 mo (PL)	autoCPAP (AutoSet)	15	6.1	-0.4	-1.28, 0.48	nd	15	
				CPAP	14	6.5					
Patruno 2007[180] 17494789	46 (14) [>20]	15 (2.7)	3 mo (PL)	autoCPAP	15	6.2	0.2	-0.25, 0.65	nd	23	C
				CPAP	16	6.0					
Planes 2003[193] 12683473	59 (17) [≥30]	15.1 (3.9)	2 mo (PL)	autoCPAP	16	4.5	-0.8	nd	NS	14	C
				CPAP	14	5.3					
Series 1997[191] 9341056	44 (20) [nd]	15.5 (4.5)	0.75 mo (PL)	autoCPAP est.	12	nd*	-	-	NS	0	C
				CPAP	12	nd					
				autoCPAP meas.	12	nd†	-	-	NS		
				CPAP	12	nd					
Fietze 2007[175] 17337881	42 (26) [≥10]	nd	1.5 mo (PL)	autoCPAP	20	5.0	0.8	nd	NS	0	C
				CPAP	21	4.2					
Resta 2004[199] 15679008	47 (11) [>30]	13.9 (3.2)	1 mo (PL)	autoCPAP	10	5.2	-0.1	-1.12, 0.92	nd	0	C
				CPAP	10	5.3					
Vennelle 2010[194] 20175411	33 (18) [≥15]	14 (3)	6 wk (XO)	autoCPAP	181	4.2	0.2	0.003, 0.397	0.047	9.5	A
				CPAP	181	4.0					
Hukins 2004[183] 15683142	58 (nd)	12.5 (nd)	1–2 mo (XO)	autoCPAP	46	5.05	0.19	-0.062, 0.442‡	0.14	16	B
				CPAP	46	4.86					
Randerath 2001[190] 11254519	35 (26) [≥10]	11.1 (5.1)	1.5 mo (XO)	autoCPAP	52 (46?)	5.26	0	-0.44, 0.44	nd	12	B
				CPAP	52 (46?)	5.26					
Massie 2003[186] 12406840	nd [≥15]	nd	1.5 mo (XO)	autoCPAP	44	5.1	0.58	0.18, 0.996	0.005	4	B
				CPAP	44	4.52					

Table 5.4.2. Compliance (mean hr/night) in randomized controlled trials of autoCPAP vs. CPAP (continued)

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or diff	P Btw	Dropout, %	Study Quality
To 2008[181] 18197915	54 (nd) [>30]	13.4 (nd)	1 mo (XO)	autoCPAP	41	4.3	0.5	0.02, 0.98**	0.04	5	B
				CPAP	41	3.8					
			2 mo (XO)	autoCPAP	41	4.4	0.7	0.17, 1.23††	0.01		
				CPAP	41	3.7					
Nussbaumer 2006[179] 16537862	41 (20) [>10]	12.7 (3.3)	1 mo (XO)	autoCPAP	30	5.1	0.3	-0.29, 0.89	nd	12	B
				CPAP	30	4.8					
Senn 2003[189] Switzerland 14525804	46 (23) [>10]	14.2 (3.8)	1 mo (XO)	autoCPAP (Autoset T)	29	5.5	-0.1	nd	NS	7	B
				autoCPAP (AutoAdjust)	29	5.5	-0.1	nd	NS		
				CPAP	29	5.6					
Nolan 2007[178] 17326544	15 (8) [≥5]	12.3 (4.0)	2 mo (XO)	autoCPAP	29	4.9	0	nd	0.94	15	B
				CPAP	29	4.9					
Noseda 2004[187] 15249439	51 (25) [>20]	10.7 (2.4)	2 mo (XO)	autoCPAP	24	5.3	-0.2	-0.89, 0.49	nd	11	B
				CPAP	24	5.5					
Hudgel 2000[182] 10947032	30 (25) [nd]	16.0 (5.0)	3 mo (XO)	autoCPAP	14	6.0	0.5	0.02, 0.98‡‡	<0.04	35	C
				CPAP	19	5.5					
Marrone 2004[185] 15165530	68 (12) [30]	16.3 (5.0)	1 mo (XO)	autoCPAP	22	4.9	0.5	-0.26, 1.26	nd	0	C
				CPAP	22	4.4					
Galetke 2008[176] 17148831	33 (19) [>10]	10.3 (5.7)	2 mo (XO)	autoCPAP	20	6.37	-0.01	-0.82, 0.8	nd	0?	C
				CPAP	20	6.38					
Hussain 2004[184] 15072173	47 (36) [>15]	11.1 (6.4)	1 mo (XO)	autoCPAP	10	4.3	0.6	-0.84, 2.04	nd	0	C
				CPAP	10	3.7					
Teschler 2000[192] 10885414	53 (26) [>20]	nd	2 mo (XO)	autoCPAP	10	6.3	0.2	-0.7, 1.1	nd	0?	C
				CPAP	10	6.1					

Table 5.4.3. AHI (events/hr) in randomized controlled trials of autoCPAP vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or diff	95% CI*	P Btw	Dropout, %	Study Quality
Damjanovic 2009[174] 19129293	44 (25) [≥15]	8.8 (5.2)	3 mo (PL)	autoCPAP	46	41.8 (23.7)	-37.0	1.8	-7.14, 10.74	nd	8	B
				CPAP	46	45.5 (24.4)	-38.8					
			9 mo (PL)	autoCPAP	34	41.8 (23.7)?	-38.2	1.9	-6.86, 10.66	nd	22	
				CPAP	44	45.5 (24.4)?	-40.1					
Meurice 2007[177] 17638595	55 (10) [nd]	11.8 (4.9)	6 mo (PL)	autoCPAP (AutoSet)	15	53.4 (15.1)	-51.1	2.6	-8.88, 14.08	nd	15	B
				CPAP	14	56.1 (21.4)	-53.7					
Patruno 2007[180] 17494789	46 (14) [>20]	15 (2.7)	3 mo (PL)	autoCPAP	15	47.3 (14.7)	-41.3	2.7	-7.01, 12.41	nd	23	C
				CPAP	16	46.0 (14.6)	-44.0					
Planes 2003[193] 12683473	59 (17) [≥30]	15.1 (3.9)	2 mo (PL)	autoCPAP	16	57.5 (16.5)	-49.9	0.7	-10.06, 11.46	nd	14	C
				CPAP	14	61.0 (17.4)	-50.6					
Series 1997[191] 9341056	44 (20) [nd]	15.5 (4.5)	0.75 mo (PL)	autoCPAP est.	12	61.5 (27.9)	nd†	-	-	NS	0	C
				CPAP	12	50.1 (14.5)	nd					
				autoCPAP meas.	12	46.8 (22.3)	nd‡	-	-	NS		
				CPAP	12	50.1 (14.5)	nd					
Fietze 2007[175] 17337881	42 (26) [≥10]	nd	1.5 mo (PL)	autoCPAP	20	43.3 (30.2)	-38.9	0.5	-1.19, 2.19	nd	0	C
				CPAP	21	40.4 (26.1)	-36.5					
Resta 2004[188] 15679008	47 (11) [>30]	13.9 (3.2)	1 mo (PL)	autoCPAP	10	48.0 (14.3)	-39.7	-2.8	-12.96, 7.36	nd	0	C
				CPAP	10	45.3 (10.7)	-36.9					

Table 5.4.3. AHI (events/hr) in randomized controlled trials of autoCPAP vs. CPAP (continued)

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or diff	95% CI§	P Btw	Dropout, %	Study Quality
Randerath 2001[190] 11254519	35 (26) [≥10]	11.1 (5.1)	1.5 mo (XO)	autoCPAP	52 (46?)	35.1 (26)	-30.1	0.7	-0.88, 2.28	nd	12	B
				CPAP	52 (46?)	35.1 (26)	-30.8					
Massie 2003[186] 12406840	nd [≥15]	nd	1.5 mo (XO)	autoCPAP	44	nd	nd	-1.1	-2.89, 0.69	nd	4	B
				CPAP	44	nd	nd					
Nussbaumer 2006[179] 16537862	41 (20) [>10]	12.7 (3.3)	1 mo (XO)	autoCPAP	30	41.1 (19.7)	-36.5	-0.8	-1.7, 3.3**	nd	12	B
				CPAP	30	41.2 (19.7)	-35.7					
Senn 2003[189] Switzerland 14525804	46 (23) [>10]	14.2 (3.8)	1 mo (XO)	autoCPAP (Autoset T)	29	45.8 (22.6)	-39.8	0.7	-1.26, 2.66	nd	7	B
				autoCPAP (AutoAdjust)	29	45.8 (22.6)	-38.1	2.4	-0.34, 5.14	nd		
				CPAP	29	45.8 (22.6)	-40.5					
Nolan 2007[178] 17326544	15 (8) [≥5)	12.3 (4.0)	2 mo (XO)	autoCPAP	29	14.7 (8)	-12.0	-0.8	-1.89, 0.29††	0.15	15	B
				CPAP	29	14.7 (8)	-11.2					
Galetke 2008[176] 17148931	33 (19) [>10]	10.3 (5.7)	2 mo (XO)	autoCPAP	20	32.9 (19.1)	-27.3	1.0	-0.45, 2.45	nd	0?	C
				CPAP	20	32.9 (19.1)	-28.3					
Hussain 2004[184] 15072173	47 (36) [>15]	11.1 (6.4)	1 mo (XO)	autoCPAP	10	47.2 (35.6)	-34.1	3.5	-1.02, 8.02	nd	0	C
				CPAP	10	47.2 (35.6)	-37.6					
Teschler 2000[192] 10885414	53 (26) [>20]	nd	2 mo (XO)	autoCPAP	10	52.9 (25.6)	-48.9	0.3	-0.29, 0.89	nd	0?	C
				CPAP	10	52.9 (25.6)	-49.2					

Table 5.4.4. ESS in randomized controlled trials of autoCPAP vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or diff	95% CI*	P Btw	Dropout, %	Study Quality
Damjanovic 2009[174] 19129293	44 (25) [≥15]	8.8 (5.2)	3 mo (PL)	autoCPAP	46	8.5 (5.42)	-2.6	-0.3	-2.32, 1.72	nd	8	B
				CPAP	46	9.3 (4.75)	-2.3					
			9 mo (PL)	autoCPAP	34	8.5 (5.42) ?	-2.6	0.1	-1.92, 2.12	nd	22	
				CPAP	44	9.3 (4.75) ?	-2.7					
Meurice 2007[177] 17638595	55 (10) [nd]	11.8 (4.9)	3 mo (PL)	autoCPAP (AutoSet)	15	12.9 (4.3)	-9.1	-3.3	-6.68, 0.08	NS	15	B
				CPAP	14	10.6 (5.2)	-5.8					
			6 mo (PL)	autoCPAP (AutoSet)	15	12.9 (4.3)	-7.7	-3.0	-6.44, 0.44	NS	15	
				CPAP	14	10.6 (5.2)	-4.7					
Patruno 2007[188] 17494789	46 (14) [>20]	15 (2.7)	3 mo (PL)	autoCPAP	15	15.8 (3.5)	nd	nd	nd	NS	23	C
				CPAP	16	14.1 (1.7)	nd					
Planes 2003[193] 12683473	59 (17) [≥30]	15.1 (3.9)	2 mo (PL)	autoCPAP	16	15.5 (4.7)	-8.0	-0.9	-3.72, 1.92	nd	14	
				CPAP	14	14.7 (3.9)	-7.1					
Series 1997[191] 9341056	44 (20) [nd]	15.5 (4.5)	0.75 mo (PL)	autoCPAP est.	12	17.0 (4.1)	-9.1	-0.8	-4.28, 2.69	nd	0	C
				CPAP	12	16.1 (4.5)	-8.3					
				autoCPAP meas.	12	13.5 (4.7)	-6.5	1.8	-1.78, 5.38	nd		
				CPAP	12	16.1 (4.5)	-8.3					
Fietze 2007[175] 17337881	42 (26) [≥10]	nd	1.5 mo (PL)	autoCPAP	20	nd	nd	nd	nd	NS	0	C
				CPAP	21	nd	nd					

Table 5.4.4. ESS in randomized controlled trials of autoCPAP vs. CPAP (continued)

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or diff	95% CI *	P Btw	Dropout, %	Study Quality
Resta 2004[188] 15679008	47 (11) [>30]	13.9 (3.2)	1 mo (PL)	autoCPAP	10	15.7 (5.1)	-10.5	-2.6	-5.84, 0.64	nd	0	C
				CPAP	10	12.0 (3.2)	-7.9					
Vennelle 2010[194] 20175411	33 (18) [≥15]	14 (3)	6 wk (XO)	autoCPAP	181	14 (3)	-4.5	-0.5	-0.95, -0.05	0.031	9.5	A
				CPAP	181	14 (3)	-4					
Hukins 2004[183] 15683142	56 (nd) [≥5]	12.5 (nd)	1 – 2 mo (XO)	autoCPAP	46	12.5 (nd)	-4.5	-0.2	nd	NS	16	B
				CPAP	46	12.5 (nd)	-4.3					
Randerath 2001[190] 11254519	35 (26) [≥10]	11.1 (5.1)	1.5 mo (XO)	autoCPAP	52 (46?)	11.1 (5.1)	-3.3	-1	-2.26, 0.26	nd	12	B
				CPAP	52 (46?)	11.1 (5.1)	-2.3					
Massie 2003[186] 12406840	nd [≥15]	nd	1.5 mo (XO)	autoCPAP	44	nd	nd	-1	-2.06, 0.06†	0.065	4	B
				CPAP	44	nd	nd					
To 2008[181] 18197915	54 (nd) [>30]	13.4 (nd)	1 mo (XO)	autoCPAP	41	13.4 (5.76)	-4.9	0.3	-1.46, 2.06	nd	5	B
				CPAP	41	13.4 (5.76)	-5.2					
			2 mo (XO)	autoCPAP	41	13.4 (5.76)	-4.9	0	-1.76, 1.76	nd		
				CPAP	41	13.4 (5.76)	-4.9					
Nussbaumer 2006[179] 16537862	41 (207) [>10]	12.7 (3.29)	1 mo (XO)	autoCPAP	30	12.7 (0.6)	-6.6	0	-1.6, 1.1	nd	12	B
				CPAP	30	12.7 (0.6)	-6.6					
Senn 2003[189] Switzerland 14525804	46 (23) [>10]	14.2 (3.77)	1 mo (XO)	autoCPAP (Autoset T)	29	14.2 (3.77)	-5.2	0.8	-0.49, 2.09	nd	7	B
				autoCPAP (AutoAdjust)	29	14.2 (3.77)	-6.2	-0.2	-1.68, 1.28	nd		
				CPAP	29	14.2 (3.77)	-6.0					
Nolan 2007[178] 17326544	15 (8) [≥5]	12.3 (4.0)	2 mo (XO)	autoCPAP	29	12.3 (4.0)	-3.7	0.9	-0.99, 2.79‡	0.35	15	B
				CPAP	29	12.3 (4.0)	-4.6					

Table 5.4.4. ESS in randomized controlled trials of autoCPAP vs. CPAP (continued)

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or diff	95% CI *	P Btw	Dropout, %	Study Quality
Noseda 2004[187] 15249439	nd [>20]	10.7 (2.4)	2 mo (XO)	autoCPAP	24	10.7 (2.4)	nd	-1	-1.76, -0.24§	<0.01	11	B
				CPAP	24	10.7 (2.4)	nd					
Hudgel 2000[182] 10947032	30 (25) [nd]	16.0 (5.0)	3 mo (XO)	autoCPAP	39	16.0 (5.0)	-7.0	1	-0.96, 2.96	nd	35	C
				CPAP	39	16.0 (5.0)	-8.0					
Marrone 2004[185] 15165530	68 (12) [30]	16.3 (5.0)	1 mo (XO)	autoCPAP	22	16.3 (5.0)	-12.4	-1	-2.4, 0.4	nd	0	C
				CPAP	22	16.3 (5.0)	-11.4					
Galetke 2008[176] 17148931	33 (19) [>10]	10.3 (5.7)	2 mo (XO)	autoCPAP	20	10.3 (5.7)	-5.4	-1.7	-3.76, 0.36	nd	0	C
				CPAP	20	10.3 (5.7)	-3.7					
Hussain 2004[184] 15072173	47 (36) [>15]	11.1 (6.4)	1 mo (XO)	autoCPAP	10	11.1 (6.4)	-3.1	1.4	-2.2, 5.0	nd	0	C
				CPAP	10	11.1 (6.4)	-4.5					

Table 5.4.5. Arousal index (events/hr) in randomized controlled trials of autoCPAP vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or diff	95% CI*	P Btw	Dropout, %	Study Quality
Damjanovic 2009[174] 19129293	44 (25) [≥15]	8.8 (5.18)	3 mo (PL)	autoCPAP	46	30.6 (22.4)	-18.3	-0.2	-7.92, 7.52	nd	8	B
				CPAP	46	34.5 (21.0)	-18.1					
				autoCPAP	34	30.6 (22.4)?	-17.7	3.6	-4.09, 11.29	nd	22	
				CPAP	44	34.5 (21.0)?	-21.3					
Planes 2003[193] 12683473	59 (17) [≥30]	15.1 (3.9)	2 mo (PL)	autoCPAP	16	44.4 (19.1)		3.3	-7.14, 12.74	nd	14	C
				CPAP	14	48.5 (14.2)						
Series 1997[191] 9341056	44 (20) [nd]	15.5 (4.5)	0.75 mo (PL)	autoCPAP est.	12	nd	nd†	-	-	NS	0	C
				CPAP	12	nd	nd					
				autoCPAP meas.	12	nd	nd‡	-	-	NS		
				CPAP	12	nd	nd					
Resta 2004[188] 15679008	47 (11) [>30]	13.9 (3.2)	1 mo (PL)	autoCPAP	10	43.1 (11.9)	-35.7	0.1	-8.29, 8.49	nd	0	C
				CPAP	10	43.1 (9.1)	-35.8					
Randerath 2001[190] 11254519	35 (26) [≥10]	11.1 (5.1)	1.5 mo (XO)	autoCPAP	52 (46?)	34 (21.7)	-23.1	-1.7	-3.7, 0.3	nd	12	B
				CPAP	52 (46?)	34 (21.7)	-21.4					
Nolan 2007[178] 17326544	15 (8) [≥5]	12.3 (4)	2 mo (XO)	autoCPAP	29	16.0 (14.0)	-14.0	-3.0	-5.7, -0.29§	0.03	15	B
				CPAP	29	16.0 (14.0)	-11.0					
Galetke 2008[176] 17148931	33 (19) [>10]	10.3 (5.7)	2 mo (XO)	autoCPAP	20	17.6 (9.2)	-4.0	1.0	-2.52, 4.52	nd	0?	C
				CPAP	20	17.6 (9.2)	-5.0					
Hussain 2004[184] 15072173	47 (36) [>15]	11.1 (6.4)	1 mo (XO)	autoCPAP	10	17.3 (17.7)	-11.4	1.0	-2.5, 4.5	nd	0	C
				CPAP	10	17.3 (17.7)	-12.4					

Table 5.4.6. Minimum O_2 saturation (%) in randomized controlled trials of autoCPAP vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net Diff or Diff	95% CI*	P Btw	Dropout, %	Study Quality
Meurice 2007[177] 17638595	55 (10) [nd]	11.8 (4.9)	6 mo (PL)	AutoCPAP (AutoSet)	15	82.1 (12.8)	0.2	-2.9	-7.1, 7.5	nd	15	B
				CPAP	14	82.3 (9.9)	0.5					
Patruno 2007[180] 17494789	46 (14) [>20]	15 (2.7)	3 mo (PL)	AutoCPAP	15	71.7 (10.6)	16.4	-4.4	-11.8, 3.0	nd	23	C
				CPAP	16	70.0 (11.7)	20.8					
Resta 2004[188] 15679008	47 (11) [>30]	13.9 (3.2)	1 mo (PL)	AutoCPAP	10	72.4 (10.5)	15.9	0.9	-7.4, 9.2	nd	0	C
				CPAP	10	74.1 (10.8)	15.0					
Randerath 2001[190] 11254519	35 (26) [≥10]	11.1 (5.1)	1.5 mo (XO)	AutoCPAP	52 (46?)	81 (8.0)	7.0	-1.0	-2.1, 0.1	nd	12	B
				CPAP	52 (46?)	81 (8.0)	8.0					
Nolan 2007[178] 17326544	15 (8) [≥5]	12.3 (4)	2 mo (XO)	AutoCPAP	29	79 (11.5)	8.5	4.8	-7.4, 17.0†	0.44	15	B
				CPAP	29	79 (11.5)	3.7					
Galetke 2008[176] 17148931	33 (19) [>10]	10.3 (5.7)	2 mo (XO)	AutoCPAP	20	77.8 (8.4)	8.7	-1.8	-3.8, 0.2	nd	0?	C
				CPAP	20	77.8 (8.4)	10.5					
Hussain 2004[184] 15072173	47 (36) [>15]	11.1 (6.4)	1 mo (XO)	AutoCPAP	10	67.8 (12.5)	14.0	-3.9	-7.3, -0.5	nd	0	C
				CPAP	10	67.8 (12.5)	17.9					

Table 5.4.7. Sleep efficiency (%) in randomized controlled trials of autoCPAP vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or diff	95% CI	P Btw	Dropout, %	Study Quality
Resta 2004[188] 15679008	47 (11) [>30]	13.9 (3.2)	1 mo (PL)	autoCPAP	10	86.9 (8)	-0.5	-2.5	-8.89, 3.89*	nd	0	C
				CPAP	10	84.2 (4.9)	2					
Nolan 2007[178] 17326544	15 (8) [≥5]	12.3 (4)	2 mo (PL)	autoCPAP	29	79 (9)	4	-1	-4.34, 2.34†	0.39	15	B
				CPAP	29	79 (9)	5					

Table 5.4.8. REM sleep (%) in randomized controlled trials of autoCPAP vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or diff	95% CI	P Btw	Dropout, %	Study Quality
Meurice 2007[177] 17638595	55 (10) [nd]	11.8 (4.9)	6 mo (PL)	autoCPAP (AutoSet)	15	18.9 (6.6)	-2.4	-2.9	-7.49, 1.69	nd	15	B
				CPAP	14	19.1 (5.9)	0.5					
Planes 2003[193] 12683473	59 (17) [≥30]	15.1 (3.9)	2 mo (PL)	autoCPAP	16	12.4 (7.0)	4.2	0.5	-5.44, 6.44	nd	14	C
				CPAP	14	13.7 (9.3)	3.7					
Series 1997[191] 9341056	44 (20) [nd]	15.5 (4.5)	0.75 mo (PL)	autoCPAP est.	12	nd	nd*	-	-	NS	0	C
				CPAP	12	nd	nd					
				autoCPAP meas.	12	nd	nd†	-	-	NS		
				CPAP	12	nd	nd					
Resta 2004[188] 15679008	47 (11) [>30]	13.9 (3.2)	1 mo (PL)	autoCPAP	10	15.0 (8.1)	6.7	-2	-10.31, 6.31	nd	0	C
				CPAP	10	15.9 (4.2)	8.7					
Randerath 2001[190] 11254519	35 (26) [≥10]	11.1 (5.1)	1.5 mo (XO)	autoCPAP	52 (46?)‡	11 (8)	6.0	1	-0.63, 2.63	nd	12	B
				CPAP	52 (46?)§	11 (8)	5.0					
Nolan 2007[178] 17326544	15 (8) [≥5]	12.3 (4)	2 mo (XO)	autoCPAP	29	17.6 (5.1)	-0.5	-2.5	-5.11, 0.11**	0.06	15	B
				CPAP	29	17.6 (5.1)	2.0					
Hussain 2004[184] 15072173	47 (36) [>15]	11.1 (6.4)	1 mo (XO)	autoCPAP	10	15 (7.0)	4.0	-1	-4.72, 2.72	nd	0	C
				CPAP	10	15 (7.0)	5.0					

Table 5.4.9. Stage 3 or 4 sleep (%) in randomized controlled trials of autoCPAP vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or diff	95% CI*	P Btw	Dropout, %	Study Quality
Meurice 2007[177] 17638595	55 (10) [nd]	11.8 (4.9)	6 mo (PL)	autoCPAP (AutoSet)	15	25.5 (14.7)	-4.4	-5.2	-13.51, 3.11	nd	15	B
				CPAP	14	17.1 (7)	0.8					
Series 1997[191] 9341056	44 (20) [nd]	15.5 (4.5)	0.75 mo (PL)	autoCPAP est.	12	nd	nd†	-	-	NS	0	C
				CPAP	12	nd	nd					
				autoCPAP meas.	12	nd	nd‡	-	-	NS		
				CPAP	12	nd	nd					
Resta 2004[188] 15679008	47 (11) [>30]	13.9 (3.2)	1 mo (PL)	autoCPAP	10	19.8 (10.9)	14	7.3	-2.35, 16.95	nd	0	C
				CPAP	10	22.8 (12.5)	6.7					
Randerath 2001[190] 11254519	35 (26) [≥10]	11.1 (5.1)	1.5 mo (XO)	autoCPAP	52 (46?)§	14 (11)	0	-1	-3.45, 1.45	NS	12	B
				CPAP	52 (46?)§**	14 (11)	1.0					
Nolan 2007[178] 17326544	15 (8) [≥5]	12.3 (4)	2 mo (XO)	autoCPAP	29	13.7 (7.8)	1.3	0.3	-3.29, 3.89††	0.87	15	B
				CPAP	29	13.7 (7.8)	1.0					
Hussain 2004[184] 15072173	47 (36) [>15]	11.1 (6.4)	1 mo (XO)	autoCPAP	10	14 (25)	-4.0	-8	-18.32, 2.32	nd	0	C
				CPAP	10	14 (25)	4.0					

Table 5.4.10. Quality of life and functional outcomes in randomized controlled trials of autoCPAP vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Outcome	Favors	If significant difference: Net difference	95% CI	Test range "Worst"	Test range "Best"	P Btw	Dropout, %	Study Quality
Vennelle 2010[194] 20175411	33 (18) [≥15]	14 (3)	6 wk (XO)	autoCPAP	181	SF-36-M	0						9.5	A
				CPAP	181	SF-36-P	0							
						Vigilance (OSLER)	0							
						Vigilance (Psychomotor)	0							
Meurice 2007[177] 17638595	55 (10) [nd]	11.8 (4.9)	3 mo (PL)	autoCPAP (AutoSet)	15	SF-36-M	0						15	B
				CPAP	14									
						SF-36-P	0							
			6 mo (PL)	autoCPAP (AutoSet)	15	SF-36-M	0						15	
				CPAP	14									
						SF-36-P	0							
Hukins 2004[183] 15683142	56 (nd) [≥5]	12.5 (nd)	2 mo (XO)	autoCPAP	46	SF-36-M	0						16	B
				CPAP	46									
						SF-36-P	0							
Massie 2003[186] 12406840	nd [≥15]	nd	1.5 mo (XO)	autoCPAP	44	SF-36 - MH	autoCPAP	5	0.16, 9.0*	0	100	<0.05	4	B
				CPAP	44	SF-36 - vitality	autoCPAP	7	0.6, 13.4†	0	100	<0.05		
						SF-36 – remainder	0							
To 2008[181] 18197915	54.3 (nd) [>30]	13.4 (nd)	1 mo (XO)	autoCPAP	41	SAQLI	0						5	B
				CPAP	41									
			2 mo (XO)	autoCPAP	41	SAQLI	0							
				CPAP	41									
Nussbaumer 2006[179] 16537862	41 (20) [>10]	12.7 (3.3)	1 mo (XO)	autoCPAP	30	SF-36 all	0						12	B
				CPAP	30									
Sonn 2003[189] 14525804	46 (23) [>10]	14.2 (3.8)	1 mo (XO)	autoCPAP (Autoset T)	20	SF 36 all	0						7	B
				autoCPAP (AutoAdjust)	29									
				CPAP	29									
						Vigilance (OSLER)	0							
Fietze 2007[175] 17337881	42 (26) [≥10]	nd	1.5 mo (XO)	autoCPAP	20	SF-36 all	0						0	C
				CPAP	21									

Table 5.5.1. Characteristics of randomized controlled trials of bilevel CPAP vs. CPAP or autoCPAP

Study PMID	Interventions	CPAP Pressure* (type)	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Other Patient Characteristics	Country (enrollment years)	Other quality issues
Piper 2008[197] 18203817	Bilevel CPAP CPAP	manual (nd)	50	64	53	morbidly obese	Australia (nd)	unclear % of central apnea
Reeves-Hoche 1995[198] 7842204	Bilevel CPAP CPAP	manual (separate)	47	73	39.4	-	US (nd)	differential drop out
Gay 2003[195] 14655921	Bilevel CPAP CPAP	manual (split)	44	81	35.2	-	US (nd)	unclear conduct of randomization
Khayat 2008[196] 18641111	Bilevel CPAP CPAP	manual? (separate)	53	nd	33.6	AHA II or III	US (2005-07)	small sample; possible selection bias
Randerath 2003[199] 12942031	Bilevel CPAP AutoCPAP	manual (separate)	57	85	33.5	intolerance to CPAP	Germany (nd)	assumptions on missing pts unclear

Table 5.5.2. Compliance (mean hr/night) in randomized controlled trials of bilevel CPAP vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Compliance (hr/night)	Difference	95% CI	P Btw	Dropout, %	Study Quality
Piper 2008[197] 18203817	nd	14.5 (IQR = 12-19)	3 mo (PL)	Bilevel CPAP	18	6.1	0.33	-1.8, 1.2	NS	0	B
				CPAP	18	5.8					
Reeves-Hoche 1995[198] 7842204	52 (3) [≥10]	nd	12 mo (PL)	Bilevel CPAP	26	4.9	-0.1	-0.52, 0.32*	NS	25	C
				CPAP	36	5.0					
Gay 2003[195] 14655921	44 (24) [>10]	12 (3.4)	1 mo (PL)	Bilevel CPAP	12	5.6	0	nd	NS	0	C
				CPAP	15	5.6					
Khayat 2008[196] 18641111	32 (16) [>10]	12.6 (6.3)	3 mo (PL)	Bilevel CPAP	13	4.5	0.9	-1.6, 3.4	NS	4	C
				CPAP	11	3.6					
Randerath 2003[199] 12942031	49 (27) [≥10]	12.1 (5.1)	1.5 mo (XO)	Bilevel CPAP	27 (?)	94.4% days used	4.8	-3.14, 12.74†	NS	26	C
				AutoCPAP	27 (?)	89.6% days used					

Table 5.5.3. ESS in randomized controlled trials of bilevel CPAP vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or diff	95% CI	P Btw	Dropout, %	Study Quality
Piper 2008[197] 18203817	nd	14.5 (IQR = 12-19)	3 mo (PL)	Bilevel CPAP	18	14 (IQR 12-19)	-9.0	-2.89	-7.56, 1.78	NS	0	B
				CPAP	18	15 (IQR 8-17)	-6.0					
Gay 2003[195] 14655921	44 (24) [>10]	12 (3.4)	1 mo (PL)	Bilevel CPAP	12	14.2 (3.4)	-8.4	-0.9	-3.88, 2.08*	NS	0	C
				CPAP	15	13.5 (3.4)	-5.5					
Khayat 2008[196] 18641111	32 (16) [>10]	12.6 (6.3)	3 mo (PL)	Bilevel CPAP	13	11.8 (SE 1.8)	-2.6	2.1	-2.7, 6.9	NS	4	C
				CPAP	11	13.5 (SE 1.8)	-4.7					
Randerath 2003[199] 12942031	49 (27) [≥10]	12.1 (5.1)	1.5 mo (XO)	Bilevel CPAP	27 (?)	12.1 (5.1)	-3.7	1.2	-0.63, 3.03†	NS	26	C
				AutoCPAP	27 (?)	12.1 (5.1)	-4.9					

Table 5.5.4. Quality of life and functional outcomes in randomized controlled trials of bilevel CPAP vs. CPAP

Study PMID	Baseline AHI (SD)	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Outcome measure	Favors	If significant difference: Net difference	95% CI	Test Range "Worst"	Test Range "Best"	P Btw	Dropout, %	Study Quality
Piper 2008[197] 18203817	nd	14.5 (IQR = 12-19)	3 mo (PL)	Bilevel CPAP	18	SF-36 Mental	0						0	B
				CPAP	18									
						SF-36 Physical	0							
Piper 2008[197] 18203817	nd	14.5 (IQR 12-19)	3 mo (PL)	Bilevel CPAP	18	mean of slowest 10% reaction	Bilevel CPAP	net diff of median 0.65				0.03	0	B
				CPAP	18									
						Lapses	0							
						Median (ms)	0							
Gay 2003[195] 14655921	44 (24)	12	1 mo (PL)	Bilevel CPAP	12	FOSQ	0						0	C
				CPAP	15									
Khayat 2008[196] 18641111	32 (16)	12.6 (6.3)	3 mo (PL)	Bilevel CPAP	13	MLHFQ	0						4	C
				CPAP	11									

Table 5.7.1. Characteristics of randomized controlled trials of C-Flex™ vs. CPAP

Study PMID	Interventions	CPAP Pressure* (type)	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Other Patient Characteristics	Country (enrollment years)	Other quality issues
Pepin 2009[203] 19567496	C-Flex	auto/manual (separate)	56	72	31		France (nd)	
	CPAP							
Nilius 2006[202] 17035433	C-Flex	manual (separate)	57	88	32.7		Germany (nd)	Recruitment unclear
	CPAP							
Dolan 2009[201] 18551327	C-Flex	nd (both)	48	75	34.9		US: Germany (nd)	Incomplete reporting
	CPAP							
Leidag 2008[204] 19218664	C-Flex	manual (separate)	55	73	32		Germany	High drop out rate
	CPAP							

Table 5.7.2. Compliance (mean hr/night) in randomized controlled trials of C-Flex™ vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Compliance (hr/night)	Difference	95% CI*	P Btw	Dropout, %	Study Quality
Pepin 2009[203] 19567496	44 (22) [≥15]	11.6 (5.2)	3 mo (PL)	C-Flex	83	4.98	0.07	-0.4, 0.6	NS	24	B
				CPAP	82	4.91					
Nilius 2006[202] 17035433	53 (21) [>20]	10.5 (nd)	1.75 mo (PL)	C-Flex	25	5.3	0.1	-15.5, 15.7†	0.99	2	B
				CPAP	26	5.2					
Dolan 2009[201] 18551327	52 (28) [≥10]	14.9 (3.6)	6 mo (PL)	C-Flex	92	6.23	0.18	-0.03, 0.39	NS	0?	C
				CPAP	92	6.05					
Leidag 2008[204] 19218664	35 (25) [≥5]	nd	1.5 mo (XO)	C-Flex	25	5.78	-0.05	-0.52, 0.42	NS	40	C
				CPAP	23	5.83					

Table 5.7.3. ESS in randomized controlled trials of C-Flex™ vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff	95% CI	P Btw	Dropout, %	Study Quality
Pepin 2009[203] 19567496	44 (22) [≥15]	11.6 (5.2)	3 mo (PL)	C-Flex	83	11.7 (5.1)	-3.9	-0.5	-2.1, 1.1*	NS	24	B
				CPAP	82	11.4 (5.2)	-3.4					
Nilius 2006[202] 17035433	53 (21) [>20]	10.5 (nd)	1.75 mo (PL)	C-Flex	25	10.9 (nd)	-5.1	-1.0	-10.1, 8.1†	NS	2	B
				CPAP	26	10.2 (nd)	-4.1					
Dolan 2009[201] 18551327	52 (28) [≥10]	14.9 (3.6)	6 mo (PL)	C-Flex	92	nd	-6.6	-0.2	-0.7, 0.3‡	NS	0?	C
				CPAP	92	nd	-6.4					

Table 5.8.1. Randomized controlled trials comparing different aspects of humidification with CPAP or autoCPAP: study characteristics

Study PMID	Interventions	CPAP Pressure* (type)	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Other Patient Characteristics	Country (enrollment years)	Other quality issues
Ryan 2009[205] 19961025	Heated humidity + CPAP / CPAP	nd (nd)	49	94	34.4	-	Ireland (nd)	-
Neill 2003[208] 12952257	Heated humidity + CPAP / CPAP	manual (both)	49	89	34.8	-	New Zealand (nd)	-
Massie 1999[209] 10453869	Heated humidity + CPAP / Cold passover humidity + CPAP	manual (both)	44	79	37.6	-	New Zealand (nd)	Differential dropouts between arms; washout period used as control
Mador 2005[206] 16236868	Heated humidity + CPAP / CPAP + heated humidity as needed only	manual (both)	59	97	36	-	US	Unclear analysis
Salgado 2008[207] 18982206	Heated humidity + AutoCPAP / AutoCPAP	manual (nd)	56	74	nd	-	Portugal	Incomplete reporting

Table 5.8.2. Compliance (mean hr/night) in randomized controlled trials comparing different aspects of humidification with CPAP or autoCPAP

Study PMID	Baseline AHI (SD) [minimum]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Compliance (hr/night)	Difference	95% CI	P Btw	Dropout, %	Study Quality
Ryan 2009[205] 19961025	36 (22) [≥10]	12.7 (5)	1 mo (PL)	Heated humidity + CPAP	42	5.21	0	nd	NS	10	B
				CPAP	39	5.21					
Neill 2003[208] 12952257	50 (26) [≥9]	12.1 (5.1)	0.75 mo (XO)	Heated humidity + CPAP	37	5.7	0.4	0.05, 0.76	0.03	12	B
				CPAP	37	5.3					
Massie 1999[209] 10453869	54 (38) [≥10]	nd	0.75 mo (XO)	Heated humidity + CPAP	38	5.52	0.37	nd	NS	19	B
				Cold passover humidity + CPAP	38	5.15					
			0.5 mo (washout as control CPAP)	Heated humidity + CPAP	38	5.52	0.59	0.15, 1.03*	0.008		
				CPAP	38	4.93					
			0.5 mo (washout as control CPAP)	Cold passover humidity + CPAP	38	5.15	0.22	nd	NS		
				CPAP	38	4.93					
Mador 2005[206] 16236868	46 (30) [≥10]	13.5 (5.3)	1 mo (PL)	Heated humidity + CPAP	49	4.3	0	nd	NS	21	C
				CPAP + heated humidity as needed only	49	4.3					
			12 mo	Heated humidity + CPAP	nd	4.3	-0.5	nd	NS		
				CPAP + heated humidity as needed only	nd	4.8					
Salgado 2008[207] 18982206	28 (20) [nd]	11.6 (6.3)	1 mo (PL)	Heated humidity + AutoCPAP	17	5.3	0.1	nd	NS	22	C
				AutoCPAP	22	5.2					

Table 5.8.3. ESS in randomized controlled trials comparing different aspects of humidification with CPAP or autoCPAP

Study PMID	Baseline AHI (SD) [range]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff.*	95% CI	P Btw	Dropout, %	Study Quality
Ryan 2009[205] 19961025	36 (22) [≥10]	12.7 (5)	1 mo (PL)	Heated humidity + CPAP	42	13 (6)	-5	-2	nd	NS	10	B
				CPAP	39	12 (5)	-3					
Neill 2003[208] 12952257	50 (26) [≥9]	12.1 (5.1)	0.75 mo (XO)	Heated humidity + CPAP	37	12.1 (5.1)	-8	-0.4	-1.28, 0.48†	0.37	12	B
				CPAP	37	12.1 (5.1)	-7.6					
Massie 1999[209] 10453869	54 (38) [≥10]	nd	0.75 mo (XO)	Heated humidity + CPAP	38	nd	6.2	-1	nd	NS	19	B
				Cold passover humidity + CPAP	38	nd	7.2					
			0.5 mo (washout as control CPAP)	Heated humidity + CPAP	38	nd	6.2	-0.5	nd	NS		
				CPAP	38	nd	6.7					
			0.5 mo (washout as control CPAP)	Cold passover humidity + CPAP	38	nd	7.2	0.5	nd	NS		
				CPAP	38	nd	6.7					
Mador 2005[206] 16236868	46 (30) [≥10]	13.5 (5.3)	1 mo (PL)	Heated humidity + CPAP	49	12.9 (5.2)	-2.4	0.6	nd	NS	21	C
				CPAP + heated humidity as needed only	49	14.1 (5.3)	-3					
			12 mo	Heated humidity + CPAP	nd	12.9 (5.2)	-3.9	1.4	nd	NS		
				CPAP + heated humidity as needed only	nd	14.1 (5.3)	-5.3					
Salgado 2008[207] 18982206	28 (20) [nd]	11.6 (6.3)	1 mo (PL)	Heated humidity + autoCPAP	17	11.2 (5.8)	-4.3	-0.9	nd	NS	22	C
				autoCPAP	22	11.9 (6.3)	-5.2					

Table 5.9.1. Randomized controlled trials of mandibular devices vs. control: study characteristics

Study PMID	Interventions	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Other Patient Characteristics	Country (enrollment years)	Other quality issues
Bloch 2000[210] 10903249	MAD-1 piece or MAD-2 piece No treatment	51	nd	27.4		Switzerland	Patient not blinded, selection bias likely, compliance not accounted for, power not reported, no washout
Barnes 2004[140] 15201136	Mandibular advancement splint Placebo tablet	47	80	31.1		Australia (nd)	
Kato 2000[211] 10767241	Oral appliance 2 mm, oral appliance 4 mm, or oral appliance 6 mm No oral appliance	49	nd	28.7		Japan (nd)	Interventions not adequately described
Lam 2007[129] 17121868	Conservative management plus MAD Conservative management	47	79	27.3		Hong Kong (nd)	
Petri 2008[212] 18482111	Mandibular advancement appliance No treatment	50	81	31.1		Denmark (nd)	

Table 5.9.2. AHI (events/hr) in randomized controlled trials of mandibular devices vs. control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Bloch 2000[210] 10903249	27 (16) [≥5]	11.9 (3.9)	1 wk (XO)	MAD-1 piece	24	26.7 (3.3)	-18.8	-14.7	-20.0, -9.4*	<0.05	0	B
				No treatment	24	26.7 (3.3)	-4.1					
				MAD-2 piece	24	26.7 (3.3)	-18	-13.9	-19.2, -8.6†	<0.05		
				No treatment	24	26.7 (3.3)	-4.1					
Barnes 2004[140] 15201136	21 (13) [nd]	10.7 (4.1)	3 mo (XO)	Mandibular advancement splint	80	21.3 (1.3, SE)	-16.5	-6.3	-10.1, -2.5‡	0.001	14	B
				Placebo tablet	80	21.3 (1.3, SE)	-7.3					
Lam 2007[129] 17121868	19 (11) [5-40]	12 (5.7)	10 wk (PL)	MAD + conservative management	34	20.9 (1.7, SE)	-10.3	-11.5	-17.0, -6.1§	<0.001	13	B
				Conservative management	33	19.3 (1.9, SE)	1.2					
Petri 2008[212] 18482111	34 (26) [>5]	10.7 (4.6)	4 wk (PL)	Mandibular advancement appliance	27	39.1 (23.8)	-14.1	-13.1	-26.6, 0.4**	nd	9	B
				No treatment	29	34.3 (26.3)	-0.9					
Kato 2000[211] 10767241	nd	nd	8 nights (PL)	Oral appliance 2 mm	37	26.0, ODI	17.3††	-8.7	nd	<0.05	13	C
				No oral appliance	37	26.0	26					
				Oral appliance 4 mm	37	26.0	14.7	-11.3	nd	<0.05		
				No oral appliance	37	26.0	26					
				Oral appliance 6 mm	37	26.0	10.8	-15.2	nd	<0.05		
				No oral appliance	37	26.0	26					

Table 5.9.3. ESS in randomized controlled trials of mandibular devices vs. control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Bloch 2000[210] 10903249	27 (16) [≥5]	11.9 (3.9)	1 wk (XO)	MAD-1 piece	24	11.9 (0.8)	9 median	-4.5*	nd	<0.001	0	B
				No treatment	24	11.9 (0.8)	13.5 median					
				MAD-2 piece	24	11.9 (0.8)	9 median	-4.5	nd	<0.001		
				No treatment	24	11.9 (0.8)	13.5 median					
Barnes 2004[140] 15201136	21 (13) [nd]	10.7 (4.1)	3 mo (XO)	Mandibular advancement splint	80	10.7 (0.4)	-1.5	-1	-1.6, -0.4†	0.001	14	B
				Placebo tablet	80	10.7 (0.4)	-0.5					
Lam 2007[129] 17121868	19 (11) [5-40]	12 (5.7)	10 wk (PL)	MAD + conservative management	34	12 (1)	-3	-1	-1.5, -0.5‡	<0.05	13	B
				Conservative management	33	12 (1)	-2					
Petri 2008[212] 18482111	34 (26) [>5]	10.7 (4.6)	4 wk (PL)	Mandibular advancement appliance	27	11.7 (4.3)	-3.3	-2.6	-3.3, 0.1§	<0.05	9	B
				No treatment	29	10.7 (4.6)	-0.7					

Table 5.9.4a. Minimum oxygen saturation (%) in randomized controlled trials of mandibular devices vs. control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Kato 2000[211] 10767241	nd	nd	8 nights (PL)	Oral appliance 2 mm	37	87.2	(89.2) medians	2.0*	nd	<0.05	13	C
				No oral appliance	37		(87.2) medians					
				Oral appliance 4 mm	37		(89.5)	2.3	nd	<0.05		
				No oral appliance	37		(87.2)					
				Oral appliance 6 mm	37		(89.6)	2.4	nd	<0.05		
				No oral appliance	37		(87.2)					
Lam 2007[129] 17121868	19 (11) [5-40]	12 (5.7)	10 wk (PL)	MAD + conservative management	34	73.8 (1.9, SE)	7.2	5.9	0.1, 11.7†	NS	13	B
				Conservative management	33	76.1 (2.6)	1.3					
Barnes 2004[140] 15201136	21 (13) [nd]	10.7 (4.1)	3 mo (XO)	Mandibular advancement splint	80	86.7 (0.6)	1.1	2.4	1.0, 3.8‡	0.001	14	B
				Placebo tablet	80	86.7 (0.6)	-1.3					

Table 5.9.4b. Arousal index (events/hr) in randomized controlled trials of mandibular devices vs. control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Bloch 2000[210] 10903249	27 (16) [≥5]	11.9 (3.9)	1 wk (XO)	MAD-1 piece	24	36 (4.3)	26.5	-14.5	-22.6, -6.4*	<0.05	0	B
				No treatment	24	36 (4.3)	41					
				MAD-2 piece	24	36 (4.3)	30.9	-10.1	-17.9, -2.3†	NS		
				No treatment	24	36 (4.3)	41					
Barnes 2004[140] 15201136	21 (13) [nd]	10.7 (4.1)	3 mo (XO)	Mandibular advancement splint	80	22.0 (1.2)	1.8	-1.4	-3.6, 0.8‡	NS	14	B
				Placebo tablet	80	22.0 (1.2)	3.2					
Lam 2007[129] 17121868	19 (11) [5-40]	12 (5.7)	10 wk (PL)	MAD + conservative management	34	24.5 (2.2)	-2.9	-8.2	-14.8, -1.6§	<0.05	13	B
				Conservative management	33	23.5 (2.2)	5.3					

Table 5.9.4c. Sleep efficiency (%) in randomized controlled trials of mandibular devices vs. control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Bloch 2000[210] 10903249	27 (16) [≥5]	11.9 (3.9)	1 wk (XO)	MAD-1 piece	24	85 (2)	3	-1	-4.9, 2.9*	NS	0	B
				MAD-2 piece	24	85 (2)	4	0	-3.4, 3.4†	NS		
				No treatment	24	85 (2)	4					
Barnes 2004[140] 15201136	21 (13) [nd]	10.7 (4.1)	3 mo (XO)	Mandibular advancement splint	80	79.5 (1.1)	2.5	1.3	-0.6, 3.2‡	NS	14	B
				Placebo tablet	80	79.5 (1.1)	1.2					

Table 5.9.4d. Slow wave sleep (%) in randomized controlled trials of mandibular devices vs. control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Bloch 2000[210] 10903249	27 (16) [≥5]	11.9 (3.9)	1 wk (XO)	MAD-1 piece	24	nd	18	nd	nd	<0.05	0	B
				MAD-2 piece	24	nd	16	nd	nd	NS		
				No treatment	24	nd	12					
Barnes 2004[140] 15201136	21 (13) [nd]	10.7 (4.1)	3 mo (XO)	Mandibular advancement splint	80	17.9 (1.2)	2.8	0.6	-0.6, 3.8.*	NS	14	B
				Placebo tablet	80	17.9 (1.2)	2.2					

Table 5.9.4e. REM sleep (%) in randomized controlled trials of mandibular devices vs. control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Bloch 2000[210] 10903249	27 (16) [≥5]	11.9 (3.9)	1 wk (XO)	MAD-1 piece	24	13 (1)	2	1	-1.0, 3.0.*	NS	0	B
				MAD-2 piece	24	13 (1)	3	2	0.04, 4.0†	NS		
				No treatment	24	13 (1)	1					
Barnes 2004[140] 15201136	21 (13) [nd]	10.7 (4.1)	3 mo (XO)	Mandibular advancement splint	80	18.8 (0.7)	0.1	0.9	-0.3, 2.1‡	NS	14	B
				Placebo tablet	80	18.8 (0.7)	1					
Petri 2008[212] 18482111	34 (26) [>5]	10.7 (4.6)	4 wk (PL)	Mandibular advancement appliance	27	18.4 (5.6)	0.3	-0.7	-2.1, 2.4§	nd	9	B
				No treatment	29	17.5 (6.2)	1					

Table 5.9.5. Quality of life outcomes in randomized controlled trials of mandibular devices vs. control

Study PMID	Baseline AHI (SD)	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Outcome	Favors	If Significant Difference Net Diff	95% CI	Test Range "Worst"	Test Range "Best"	P Btw	Dropout, %	Study Quality
Barnes 2004[140] 15201136	21 (13) [nd]	10.7 (4.1)	3 mo (XO)	Mandibular advancement splint	80	Beck Depression Inventory	0						14	B
				Placebo tablet	80									
						FOSQ social domain outcome	0							
Lam 2007[129] 17121868	19 (11) [5-40]	12 (5.7)	10 wk (PL)	Conservative management plus MAD	34	SAQLI-social interactions, treatment-related symptoms	0						13	B
				Conservative management	33									
						SAQLI score.*	Conservative management plus MAD	0.7	0.6, 0.8†	1	7	<0.001		
						SF-36 All	0							

Table 5.10.1. Randomized controlled trials of mandibular advancement devices vs. inactive oral devices: study characteristics

Study PMID	Interventions	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Other Patient Characteristics	Country (enrollment years)	Major quality issues
Hans 1997[213] 9155816	MAD Sham oral appliance	51	83	29	--	US (nd)	Blinding not reported; no power analysis; dropout rate 30%
Johnston 2002[216] 12143089	MAD MAD Placebo	55	81	32	--	Ireland (nd)	
Mehta 2001[218] 11371418	MAD Lower dental plate	48	79	29	--	Australia (nd)	Blinding not reported
Naismith 2005[217] 17564405 Gotsopoulos 2002[214] 12204875 Gotsopoulos 2004[215] 15453552	MAD Single upper plate	48	81	29	--	Australia (nd)	
Petri 2008[212] 18482111	MAD Non-advancement MAD	50	81	31	--	Denmark (nd)	

Table 5.10.2. AHI (events/hr) in randomized controlled trials of mandibular advancement devices vs. inactive oral devices

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Outcome	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Johnston 2002[216] 12143089	31 (nd) [nd]	30.7 (nd)	4-6 wk (XO)	AHI	MAD	20	31.9 (21.2)	-9.07	-14.8	-26.2, -3.4	0.011	5	B
					MAD Placebo	20	31.9 (21.18)	5.75					
Mehta 2001[218] 11371418	27 (17) [10-68]	nd	1 wk (XO)	AHI	MAD	24	27 (17)	-13	-16	-24.1, -7.9*	<0.0001	14	B
					Lower dental plate	24	27 (17)	3					
Naismith 2005[217] 17564405 Gotsopoulos 2002[214] 12204875 Gotsopoulos 2004[215] 15453552	25 (13) [≥10]	11.0 (5)	4 wk (XO)	AHI	MAD	73	26.9 (15.4)	-14.7	-13.2	-21.1, -5.3†	<0.001	0	B
					Single upper plate	73	26.9 (15.4)	-1.5					
Petri 2008[212] 18482111	35 (nd) [>5]	11.0 (nd)	4 wk (PL)	AHI	MAD	27	39.1 (23.8)	-14.1	-13.1	-26.0, 0.0‡	<0.05	9	B
					Non-advancement MAD	25	32.6 (22)	-0.9					
Hans 1997[213] 9155816	RDI 36 (43) [RDI <30]	12.5 (5.7)	2 wk (XO)	RDI	MAD-A	17	28.4 (21.1)	-14.5	-24.8	-41.9, -7.6§	<0.0045	29	C
					Sham oral	17	43.7 (46.8)	10.3					

Table 5.10.3. ESS in randomized controlled trials of mandibular advancement devices vs. inactive oral devices

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Johnston 2002[216] 12143089	31 (nd) [nd]	30.7 (nd)	4-6 wk (XO)	MAD	18	13.9 (6.39)	-2.29	-0.94	-3.32,1.43	NS	5	B
				MAD Placebo	18	13.9 (6.39)	-1.34					
Naismith 2005[217] 17564405 Gotsopoulos 2002[214] 12204875 Gotsopoulos 2004[215] 15453552	25 (13) [≥10]	11.0 (5.0)	4 wk (XO)	MAD	73	10.9 (4.8)	-3.8	-2	-3.1, -0.8*	<0.001	0	B
				Single upper plate	73	10.9 (4.8)	-1.8					
Petri 2008[212] 18482111	35 (nd) [>5]	11.0 (nd)	4 wk (PL)	MAD	27	11.7 (4.3)	-3.3	-2.1†	-4.4,0.2‡	nd	9	B
				Non-advancement MAD	25	10.8 (4.6)	-1.2					
Hans 1997[213] 9155816	RDI 36 (43) [RDI <30]	12.5 (5.7)	2 wk (XO)	MAD-A	17	12.1 (3.9)	-3.8	-3.3	-6.4,-0.2§	NS	29	C
				Sham oral	17	13.0 (4.5)	-0.5					

Table 5.10.4. Minimum oxygen saturation (%) in randomized controlled trials of mandibular advancement devices vs. inactive oral devices

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Intervention	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Mehta 2001[218] 11371418	27 (17) [10-68]	nd	1 wk (XO)	MAD	24	85 (8)	6	4	1.9, 6.0*	<0.0001	14	B
				Lower dental plate	24	85 (8)	2					
Naismith 2005[217] 17564405 Gotsopoulos 2002[214] 12204875 Gotsopoulos 2004[215] 15453552	25 (13) [≥10]	11.0 (5.0)	4 wk (XO)	MAD	73	85.7 (5.6)	3	2.3	0.5, 4.0†	<0.01	0	B
				Single upper plate	73	85.7 (5.6)	0.7					

Table 5.10.5. Arousal index (events/hr) in randomized controlled trials of mandibular advancement devices vs. inactive oral devices

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Mehta 2001[218] 11371418	27 (17) [10-68]	nd	1 wk (XO)	MAD	24	nd	27	-14	-21.1, -6.6*	<0.0001	14	B
				Lower dental plate	24	nd	41					
Naismith 2005[217] 17564405 Gotsopoulos 2002[214] 12204875 Gotsopoulos 2004[215] 15453552	25 (13) [≥10]	11.0 (5.0)	4 wk (XO)	MAD	73	35 (13.5)	-10	-8.1	-12.4, -3.2†	<0.001	0	B
				Single upper plate	73	35 (13.5)	-1.9					

Table 5.10.6. Sleep efficiency (%) in randomized controlled trials of mandibular advancement devices vs. inactive oral devices

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Mehta 2001[218] 11371418	27 (17) [10-68]	nd	1 wk (XO)	MAD	24	nd	85	-2	nd	nd	14	B
				Lower dental plate	24	nd	87					
Naismith 2005[217] 17564405 Gotsopoulos 2002[214] 12204875 Gotsopoulos 2004[215] 15453552	25 (13) [≥10]	11.0 (5.0)	4 wk (XO)	MAD	73	80.6 (12)	3	1.8	-2.1, 5.6*	nd	0	B
				Single upper plate	73	80.6 (12)	1.2					

Table 5.10.7. Changes in REM and slow wave sleep (%) in randomized controlled trials of mandibular advancement devices vs. inactive oral devices

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Outcome	Interventions	No. Analyzed	Baseline (SD)	Change (Final)	Net diff or Diff	95% CI	P Btw	Dropout %	Study Quality
Mehta 2001[218] 11371418	27 (17) [10-68]	nd	1 wk (XO)	REM	MAD	24	nd	21	5	1.5, 8.5*	<0.005	14	B
					Lower dental plate	24	nd	16					
Petri 2008[212] 18482111	35 (nd) [>5]	11.0 (nd)	4 wk (PL)	REM	MAD	27	18.4 (5.6)	0.3	-0.4	-3.7, 2.9†	nd	9	B
					Non-advancement MAD	25	16.8 (7.5)	0.7					
				Stage 3	MAD	27	7 (5)	2.1	2.9	0.1, 5.7‡	nd		
					Non-advancement MAD	25	9.9 (5.1)	-0.8					
				Stage 4	MAD	27	10.2 (10.5)	2.2	-1.2	-6.6, 4.2§	nd		
					Non-advancement MAD	25	9.6 (10.3)	3.4					

Table 5.10.8. Other outcomes (see 5th column) in randomized controlled trials of mandibular advancement devices vs. inactive oral devices

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Outcome	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Naismith 2005[217] 17564405 Gotsopoulos 2002[214] 12204875 Gotsopoulos 2004[215] 15453552	25 (13) [≥10]	11.0 (5.0)	4 wk (XO)	MSLT	MAD	73	nd	10.3(0.5)	nd	nd	0.01	0	B
					Single upper plate	73	nd	9.1(0.5)					
				24 hour systolic BP	MAD	61	127.3 (1.3)*	-2.1	-1.5	-3.0, -0.0†	0.05		
					Single upper plate	61	127.3 (1.3)‡	-0.6					
				24 hour diastolic BP	MAD	61	77 (0.9)§	-1.3	-1.6	-2.5, -0.6**	0.001		
					Single upper plate	61	77 (0.9)††	0.3					

Table 5.10.9. Functional outcomes in randomized controlled trials of mandibular advancement devices vs. inactive oral devices

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Outcome	Favors	If Significant Difference: Net diff	95% CI	Test Range "Worst"	Test Range "Best"	P Btw	Dropout, %	Study Quality
Petri 2008[212] 18482111	35 (nd) [>5]	11.0 (nd)	4 wk (PL)	MAD	27	SF-36 Vitality.*	MAD	18.7	nd	0	100	0.001	9	B
				Nonadvancement MAD	25									
Naismith 2005[217] 17564405 Gotsopoulos 2002[214] 12204875 Gotsopoulos 2004[215] 15453552	25 (13) [≥10]	11.0 (5.0)	4 wk (XO)	MAD	73	Neuro-psychological† (speed/vigilance-Choice reaction time)	MAD	-0.019	nd			0.001	0	B
				Single upper plate	73									
						Beck Depression Inventory (somatic items);‡	MAD	-0.6	nd			<0.05		

Table 5.11.1. Randomized controlled trials of mandibular advancement devices vs. mandibular advancement devices: study characteristics

Study PMID	Interventions	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Other Patient Characteristics	Country (enrollment years)	Major quality issues
Campbell 2009[219] 18989715	MAD objective.*	47	86	28.0	BMI<35 Kg/m^2	New Zealand (nd)	-
	MAD subjective.†						
Deane 2009[222] 19480232	MAD	49	59	29.3		Australia (nd)	-
	TSD						
Dort 2008[223] 18461376	Suction TRD	48	69	29.4		Canada (nd)	-
	Non suction TRD						
Vanderveken 2008[221] 17673699	MAD_{cm}.‡	47	84	28.0	SDB, history of surgery.§	Belgium (2003-04)	-
	MAD_{tp}.**						
Walker Engstrom 2003[220] 14569523	50% MAD.††	46	100	30.2	--	Sweden 1998-2000)	-
	75% MAD.‡‡						

Table 5.11.2. AHI (events/hr) in randomized controlled trials of mandibular advancement devices vs. mandibular advancement devices

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95 % CI	P Btw	Dropout, %	Study Quality
Campbell 2009[219] 18989715	25 (7) [10-40]	11.6 (4.7)	6 wk (PL)	MAD objective.*	12	26.6 (12)	-14.9	-3.8	-11.4, 3.9†	nd	6	B
				MAD subjective.‡	16	25.4 (7.4)	-11.1					
Vanderveken 2008[221] 17673699	13 (11) [<40]	8.0 (5.0)	4 mo (XO)	MAD_{cm}.§	23	14 (12)	-8	-5	-8.5, -1.5.**	nd	8	B
				MAD_{tp}.††	23	14 (12)	-3					
Walker Engstrom 2003[220] 14569523	50 (4) [≥20]	11.5 (3.1)	6 mo (PL)	50% MAD.‡‡	37	47.0 (5.1)	-29.6	5.2	2.7,7.6.§§	NS	8	B
				75% MAD.***	40	50.4 (4.7)	-34.8					

Table 5.11.3. AHI (events/hr) in randomized controlled trials of mandibular advancement devices vs. mandibular advancement devices

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Outcome	Interventions	n Event	N Total	Outcome Metric	Result*	95% CI	P Btw	Dropout, %	Study Quality
Campbell 2009[219] 18989715	25 (7) [10-40]	11.6 (4.7)	6 wk (PL)	AHI<5	MAD objective.†	3.9	12	%	33.0 vs.12.5	nd	NS	6	B
					MAD subjective.‡	1.9	16						
				Improvement percentage.§	MAD objective.**	5.0	12	%	42.0 vs. 56.2	nd	NS		
					MAD subjective.††	8.9	16						
				Failure percentage.‡‡	MAD objective.§§	3.0	12	%	25.0 vs. 31.2	nd	NS		
					MAD subjective.***	4.9	16						

Table 5.11.4. ESS in randomized controlled trials of mandibular advancement devices vs. mandibular advancement devices

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Campbell 2009[219] 18989715	25 (7) [10-40]	11.6 (4.7)	6 wk (PL)	MAD objective.*	12	11.0(5.3)	-1.5	2.3	-1.4, 6.0†	nd	6	B
				MAD subjective.‡	16	11.6(4.7)	-3.8					
Vanderveken 2008[221] 17673699	13 (11) [<40]	8 (5)	4mo (XO)	MAD_{cm}.§	23	7(5)	-2	0	-1.6, 1.6.**	nd	8	B
				MAD_{tp}.††	23	7(5)	-2					
Walker Engstrom 2003[220] 14569523	50 (4) [≥20]	11.5 (3.1)	6 mo (PL)	50% MAD.‡‡	37	11.7(3.1)	-3.1	0.9	-0.4, 2.2	nd	8	B
				75% MAD.§§	40	11.5(3.1)	-4					

Table 5.11.5. Other outcomes reported in randomized controlled trials of mandibular advancement devices vs. mandibular advancement devices

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Outcome	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Campbell 2009[219] 18989715	25 (7) [10-40]	11.6 (4.7)	6wk (PL)	Arousal index	MAD objective.*	12	33.6(10)	-9.4	0.5	-7.3,8.3†	nd	6	B
					MAD subjective.‡	16	32.1(13.3)	-9.9					
Vanderveken 2008[221] 17673699	13 (11) [<40]	8 (5)	4 mo (XO)	Minimum oxygen saturation	MAD_{cm}.§	23	83 (7)	-1	0	-3.2,3.2**	nd	8	B
					MAD_{tp}.††	23	83 (7)	-1					
				Sleep efficiency	MAD_{cm}.‡‡	23	78(11)	2	-1	-5.7,3.7. §§	nd		
					MAD_{tp}.***	23	78(11)	3					

Table 5.11.6. Outcomes randomized controlled trials of mandibular advancement devices vs. tongue-retaining devices

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Outcome	Interventions	No. Analyzed	Baseline (SD)	Change (Final)	Net Diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Deane 2009[222] 19480232	27.0(nd) [>10]	nd	1 wk (XO)	AHI	MAD	22	27 (17)	-15	-1	-9.7, 7.7.*	nd	19	B
					TSD	22	27 (17)	-14					
				Minimum O_2 sat	MAD	22	84 (7)	3	-1	-4.7, 2.7.†	nd		
					TSD	22	84 (7)	4					
				Arousal index	MAD	22	33 (16)	-12	0	nd	nd		
					TSD	22	33 (16)	-12					
				Sleep efficiency	MAD	22	80 (11)	-2	-1	-8.7, 6.7‡	nd		
					TSD	22	80 (11)	-1					
				REM	MAD	22	nd	18	1	nd	NS		
					TSD	22	nd	17					

Table 5.11.7. Outcomes randomized controlled trials of tongue-retaining devices vs. tongue-retaining devices

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Outcome	Interventions	No. Analyzed	Baseline (SD)	Change (Final)	Net Diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Dort 2008[223] 18461376	nd [RDI 5-30]	12.4 (nd)	1 wk (XO)	SQALI	Suction TRD	32	3.9 (1.2)	0.3	0.28	-0.93,0.31	NS	nd	C
					Non suction TRD	32	3.9 (1.2)	0					
				AHI	Suction TRD	32	15.5(17.6)	-6.6	-4.9	-8.9,-0.85	0.019		
					Non suction TRD	32	15.5(17.6)	-2.0					
				ESS	Suction TRD	32	12.4(4.5)	-1.5	0.65	-0.47, 1.8	NS		
					Non suction TRD	32	12.4(4.5)	-21					

Table 5.12.1. Randomized controlled trials of mandibular advancement devices vs. CPAP: study characteristics

Study PMID	Interventions	CPAP Pressure* (type)	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Other Patient Characteristics	Country (enrollment years)	Major quality issues
Barnes 2004[140] 15201136	MAD (Medical Dental Sleep Appliance)	nd (nd)	47	80	31.1	Excluded diabetes	Australia (nd)	
	CPAP							
Clark 1996[224] 8760497	MAD, custom	nd (separate)	47	100	28.1	--	Israel (1991-92)	Failed crossover design
	CPAP							
Engleman 2002[225] 12231497	MAD, custom	nd (split)	46	75	nd	--	UK (nd)	
	CPAP							
Ferguson 1996[226] 8625679	MAD (Snore-Guard)	nd (separate)	46	88	30.4	--	Canada (1991-94)	
	CPAP							
Gagnadoux 2009[227] 19324954	MAD (AMC)	manual (split)	50	61	26.7	--	France (nd)	
	CPAP							
Hoekema 2007[231] 17081222 Hoekema 2008[230] 18719218	MAD (Thornton Adjustable Positioner)	nd (separate)	49	89	33.3	--	Netherlands (2002-05)	
	CPAP							
Lam 2007[125] 17121868	MAD, custom	nd (nd)	45	78	27.5	Excluded previous surgery	Hong Kong (nd)	
	CPAP							
Randerath 2002[228] 12171833	MAD (Hinz IST)	manual (nd)	57	80	31.2	--	Germany (1999)	
	CPAP							
Skinner 2004[232] 14718430	Cervicomandibular support collar	auto (nd)	49	80	34.1	--	New Zealand (nd)	Study stopped with ½ sample size due to lack of objective benefit
	AutoCPAP							
Tan 2002[229] 12143088	MAD, custom	manual (nd)	51	83	31.9	Excluded recent CVD	UK (nd)	
	CPAP							

Table 5.12.2. Treatment response in randomized controlled trials of mandibular advancement devices vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Outcome (subgroup)	Interventions	n Event	N Total	Metric	Result*	95% CI	P Btw	Dropout, %	Study Quality
Hoekema 2008[230] 18719218	40 (28) [≥5]	14.2 (5.6)	78 d [IQR 60-88 d] (PL)	Effective Treatment† (Total)	MAD	39	51	RD	-6.2%	-22, 9.4	NS	4	B
					CPAP	43	52						
				(AHI≤30)	MAD	21	25	RD	+4.0%	-18, 25	NS		
					CPAP	20	25						
				(AHI>30)	MAD	18	26	RD	-1.6%	-37, 6.8	NS		
					CPAP	23	27						
				AHI<5 (Total)	MAD	29	51	RD	-20.0%	-37, -1.9	0.02‡		
					CPAP	40	52						
				(AHI≤30)	MAD	21	25	RD	+4.0%	-18, 25	NS		
					CPAP	20	25						
				(AHI>30)	MAD	8	26	RD	-43.3%	-62, -17	<0.001§		
					CPAP	20	27						
				AHI<10.** (Total)	MAD	31	44	RD	-4.5%	-23, 14	NS		
					CPAP	33	44						
				(AHI≤30)	MAD	16	18	RD	+18.3%	-8.7, 43	NS		
					CPAP	12	17						
				(AHI>30)	MAD	15	26	RD	-20.1%	-42, 4.9	NS		
					CPAP	21	27						
Gagnadoux 2009[227] 19324954	34 (13) [10-60]	10.6 (4.5)	2 mo (XO)	Complete Response††	MAD	12	28	RD‡‡	-28.6%	-53, -3.8	0.02§§	0	B
					CPAP	20	28						
				Partial*** or Complete Response	MAD	26	28	RD†††	-3.6%	-15, 8.2	NS‡‡‡		
					CPAP	27	28						

Table 5.12.3. AHI (events/hr) in randomized controlled trials of mandibular advancement devices vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Hoekema 2008[230] 18719218	40 (28) [≥5]	14.2 (5.6)	78 d [IQR = 60-88 d] (PL)	MAD	51/47.*	39.4 (30.8)	2.2 (0, 9.5)†	--	--	0.006‡	4	B
				CPAP	52/47	40.3 (27.6)	0 (0, 3.0)					
Barnes 2004[140] 15201136	21 (12) [nd]	10.7 (3.6)	3 mo (XO)	MAD	80	21.3 (11.6)	14.0 (9.8)	9.2	7.3, 11.1§	<0.05	23	B
				CPAP			4.8 (4.5)					
Lam 2007[129] 17121868	24 (6) [5-40]	12 (6)	10 wk (PL)	MAD	34	20.9 (9.9)	10.6 (9.9)	10.7	6.1, 15.4.**	<0.001	0	B
				CPAP	34	23.8 (11.1)	2.8 (6.4)					
Ferguson 1996[226] 8625679	25 (9) [15-50]	nd	4 mo (XO)	MAD	19	19.7 (13.8)	9.7 (7.3)	4.0	-3.7, 11.7††	nd	24	B
				CPAP	20	17.6 (13.2)	3.6 (1.7)					
Gagnadoux 2009[227] 19324954	34 (13) [10-60]	10.6 (4.5)	2 mo (XO)	MAD	28	34.2 (13.0)	6 (nd)	4	1.6, 6.4‡‡	0.001	0	B
				CPAP			2 (nd)					
Tan 2002[229] 12143088	22 (10) [<50]	13.4 (4.6)	2 mo (XO)	MAD	24	22.2 (9.6)	8.0 (10.9)	4.9	1.0, 8.8§§	NS	12	B
				CPAP			3.1 (2.8)					
Randerath 2002[228] 12171833	18 (8) [5-30]	nd	6 wk (XO)	MAD	20	17.5 (7.7)	13.8 (11.1)	10.6	2.5, 18.7.***	0.01	0	B
				CPAP			3.2 (2.9)					
Clark 1999[224] 8769497	34 (14) [≥10]	nd	2 wk (XO)	MAD	21	33.86 (14.30)	19.94 (12.75)	8.8	4.0, 13.6†††	nd	4	C
				CPAP			11.15 (3.93)					
Skinner 2004[232] 14718430	29 (13) [10-60]	13.2 (4.9)	1 mo (XO)	CMS collar	10	29.4 (13.4)	26.9 (17.2)	16.9	6.8, 27.0‡‡‡	0.001	0	C
				AutoCPAP			9.9 (8.0)					

Table 5.12.4. ESS in randomized controlled trials of mandibular advancement devices vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Hoekema 2008[230] 18719218	40 (28) [≥5]	14.2 (5.6)	78 d [IQR = 60-88 d] (PL)	MAD	51/47.*	12.9 (5.6)	6.9 (5.5)	2.3	0.2, 4.4†	0.53‡	4	B
				CPAP	52/47	14.2 (5.6)	5.9 (4.8)					
Barnes 2004[140] 15201136	21 (12) [nd]	10.7 (3.6)	3 mo (XO)	MAD	80	10.7 (3.6)	9.2 (3.6)	0	-0.8, 0.8§	NS	23	B
				CPAP			9.2 (3.6)					
Lam 2007[129] 17121868	24 (5.8) [5-40]	12 (6)	10 wk (PL)	MAD	34	12 (6)	9 (6)	2	-1, 5.**	<0.05	0	B
				CPAP	34	12 (6)	7 (6)					
Engleman 2002[225] 12231497	31 (26) [≥5]	14 (4)	8 wk (XO)	MAD	48	13 (4)	12 (5)	6	4.2, 7.8††	<0.001	6	B
				CPAP		15 (3)	8 (5)					
Gagnadoux 2009[227] 19324954	34 (13) [10-60]	10.6 (4.5)	2 mo (XO)	MAD	28	10.6 (4.5)	7.7 (4.0)	-0.5	-2.0, 1.0‡‡	<0.05	0	B
				CPAP			8.2 (3.9)					
Tan 2002[229] 12143088	22 (10) [<50]	13.4 (4.6)	2 mo (XO)	MAD	24	13.4 (4.6)	9.0 (5.1)	0.9	-1.0, 2.8§§	NS	12	B
				CPAP			8.1 (4.1)					
Skinner 2004[232] 14718430	29 (13) [10-60]	13.2 (4.9)	1 mo (XO)	CMS collar	10	13.2 (4.9)	9.4 (5.5)	-1.9	-4.9, 1.1.***	0.22	0	C
				AutoCPAP			11.3 (4.6)					

Table 5.12.5a. AI (events/hr) in randomized controlled trials of mandibular advancement devices vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Barnes 2004[140] 15201136	21 (12) [nd]	10.7 (3.6)	3 mo (XO)	MAD	80	22.0 (10.7)	23.8 (10.7)	5.5	3.4, 7.6.*	<0.05	23	B
				CPAP			18.3 (8.0)					
Lam 2007[129] 17121868	24 (5.8) [5-40]	12 (6)	10 wk (PL)	MAD	34	24.5 (12.8)	21.6 (14.6)	2.4	-3.4, 8.2†	NS	0	B
				CPAP	34	21.6 (9.9)	16.3 (10.5)					
Tan 2002[229] 12143088	22 (10) [<50]	13.4 (4.6)	2 mo (XO)	MAD	24	19.3 (9.6)	11.6 (5.6)	1.8	-0.7, 4.3‡	NS	12	B
				CPAP			9.8 (6.6)					
Randerath 2002[228] 12171833	18 (8) [5-30]	nd	6 wk (XO)	MAD	20	21.8 (9.9)	17.0 (5.1)	2.9	0.7, 5.1§	NS	0	B
				CPAP			14.1 (5.1)					
Skinner 2004[232] 14718430	29 (13) [10-60]	13.2 (4.9)	1 mo (XO)	CMS collar	10	27.7 (9.0)	31.7 (22.8)	15.2	-1.4, 31.7.**	0.072	0	C
				AutoCPAP			16.5 (5.9)					

Table 5.12.5b. Minimum oxygen saturation (%) in randomized controlled trials of mandibular advancement devices vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Hoekema 2008[230] 18719218	40 (28) [≥5]	14.2 (5.6)	78 d [IQR = 60-88 d] (PL)	MAD	51/47.*	78.0 (8.5)	87.7 (6.3)	-2.1	-5.3, 1.1	NS†	4	B
				CPAP	52/47	77.9 (9.9)	89.7 (5.8)					
Barnes 2004[140] 15201136	21 (12) [nd]	10.7 (3.6)	3 mo (XO)	MAD	80	86.7 (5.4)	87.8 (3.6)	-4.1	-4.9, -3.4‡	<0.05	23	B
				CPAP			91.9 (2.7)					
Lam 2007[129] 17121868	24 (5.8) [5-40]	12 (6)	10 wk (PL)	MAD	34	73.8 (11.1)	81.0 (9.3)	-5.0	-11.0, 1.0§	NS	0	B
				CPAP	34	75.0 (8.2)	87.2 (16.9)					
Ferguson 1996[226] 8625679	25 (9) [15-50]	nd	4 mo (XO)	MAD	19	83.0 (7.4)	83.8 (7.3)	-5.3	-9.3, -1.3**	nd	24	B
				CPAP	20	82.6 (6.0)	88.7 (2.5)					
Randerath 2002[228] 12171833	18 (8) [5-30]	nd	6 wk (XO)	MAD	20	54.5 (25.9)	85.3 (3.1)	-3.7	-5.1, -2.3††	<0.05	0	B
				CPAP			89.0 (3.4)					
Clark 1996[224] 8769497	34 (14) [≥10]	nd	2 wk (XO)	MAD	21	84.3 (6.77)	90.2 (4.36)	-0.9	-3.3, 1.5‡‡	nd	4	C
				CPAP			91.1 (6.40)					
Skinner 2004[232] 14718430	29 (13) [10-60]	13.2 (4.9)	1 mo (XO)	CMS collar	10	84.3 (4.4)	81.0 (12.0)	-9.8	-20.6, 1.0§§	0.076	0	C
				AutoCPAP			90.8 (3.0)					

Table 5.12.5c. Sleep efficiency (%TST) in randomized controlled trials of mandibular advancement devices vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Hoekema 2008[230] 18719218	40 (28) [≥5]	14.2 (5.6)	78 d [IQR = 60-88 d] (PL)	MAD	51/47.*	88.3 (9.7)	86.1 (8.1)	-2.9	-7.4, 1.6†	NS‡	4	B
				CPAP	52/47	85.5 (15.5)	86.2 (10.0)					
Barnes 2004[140] 15201136	21 (12) [nd]	10.7 (3.6)	3 mo (XO)	MAD	80	79.5 (9.8)	82.0 (8.9)	-0.1	-1.9, 1.7§	NS	23	B
				CPAP			82.1 (7.2)					
Ferguson 1996[226] 8625679	25 (9) [15-50]	nd	4 mo (XO)	MAD	19	88.0 (5.4)	86.5 (10.6)	-1.8	-7.1, 3.5**	nd	24	B
				CPAP	20	87.8 (7.7)	88.1 (7.3)					
Tan 2002[229] 12143088	22 (10) [<50]	13.4 (4.6)	2 mo (XO)	MAD	24	81.6 (10.4)	83.2 (8.1)	-4	-7.2, 0.8††	NS	12	B
				CPAP			87.2 (8.1)					
Clark 1996[224] 8769497	34 (14) [≥10]	nd	2 wk (XO)	MAD	21	87.1 (10.7)	89.9 (5.5)	0.4	-2.4, 3.2‡‡	NS	4	C
				CPAP			89.5 (7.3)					
Skinner 2004[232] 14718430	29 (13) [10-60]	13.2 (4.9)	1 mo (XO)	CMS collar	10	81.9 (7.9)	78.6 (11.8)	0.2	-7.1, 7.5§§	0.97	0	C
				AutoCPAP			78.4 (11.6)					

Table 5.12.5d. Slow wave sleep (% TST) in randomized controlled trials of mandibular advancement devices vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Hoekema 2008[230] 18719218	40 (28) [≥5]	14.2 (5.6)	78 d [IQR = 60-88 d] (PL)	MAD	51/47.*	13.7 (9.0)	20.4 (7.7)	-2.1	-5.8, 1.6†	NS‡	4	B
				CPAP	52/47	13.0 (11.5)	21.8 (8.0)					
Barnes 2004[140] 15201136	21 (12) [nd]	10.7 (3.6)	3 mo (XO)	MAD	80	17.9 (10.7)	20.1 (9.8)	-0.6	-2.8, 1.6§	NS	23	B
				CPAP			20.7 (9.8)					
Randerath 2002[228] 12171833	18 (8) [5-30]	nd	6 wk (XO)	MAD	20	14.2 (10.6)	14.1 (10.8)	-2.1	-6.5, 2.3**	NS	0	B
				CPAP			16.2 (9.1)					
Clark 1996[224] 8769497	34 (14) [≥10]	nd	2 wk (XO)	MAD	21	12.4 (7.8)	13.4 (8.0)	-1.8	-4.9, 1.2††	nd	4	C
				CPAP			15.2 (5.6)					
Skinner 2004[232] 14718430	29 (13) [10-60]	13.2 (4.9)	1 mo (XO)	CMS collar	10	20.4 (8.2)	20.1 (13.4)	-3.9	-11.2, 3.4‡‡	0.30	0	C
				AutoCPAP			24.0 (8.9)					

Table 5.12.5e. REM sleep (% TST) in randomized controlled trials of mandibular advancement devices vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Hoekema 2008[230] 18719218	40 (28) [≥5]	14.2 (5.6)	78 d [IQR = 60-88 d] (PL)	MAD	51/47.*	21.0 (7.8)	26.5 (6.7)	0.6	-2.2, 3.4†	NS‡	4	B
				CPAP	52/47	19.2 (7.4)	24.1 (5.7)					
Barnes 2004[140] 15201136	21 (12) [nd]	10.7 (3.6)	3 mo (XO)	MAD	80	18.8 (6.3)	19.8 (5.4)	0.9	-0.2, 2.0§	NS	23	B
				CPAP			18.9 (4.5)					
Ferguson 1996[226] 8625679	25 (9) [15-50]	nd	4 mo (XO)	MAD	19	14.3 (6.5)	20.0 (12.3)	6.1	0.3, 11.9**	nd	24	B
				CPAP	20	16.5 (8.2)	16.1 (6.1)					
Tan 2002[229] 12143088	22 (10) [<50]	13.4 (4.6)	2 mo (XO)	MAD	24	12.7 (5.8)	13.8 (5.6)	-4.7	-7.0, -2.4††	NS	12	B
				CPAP			18.5 (6.1)					
Randerath 2002[228] 12171833	18 (8) [5-30]	nd	6 wk (XO)	MAD	20	15.1 (5.9)	14.8 (7.3)	-0.5	-3.6, 2.6‡‡	NS	0	B
				CPAP			15.3 (6.8)					
Clark 1996[224] 8769497	34 (14) [≥10]	nd	2 wk (XO)	MAD	21	5.9 (5.8)	20.9 (7.5)	0.2	-2.9, 3.3§§	NS	4	C
				CPAP			20.7 (6.7)					
Skinner 2004[232] 14718430	29 (13) [10-60]	13.2 (4.9)	1 mo (XO)	CMS collar	10	20.4 (4.6)	19.7 (5.1)	-0.7	-5.0, 3.6***	0.82	0	C
				AutoCPAP			20.4 (8.0)					

Table 5.12.6. Wakefulness tests in randomized controlled trials of mandibular advancement devices vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Test	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Engleman 2002[225] 12231497	31 (26) [≥5]	14 (4)	8 wk (XO)	MAD	48	MWT (min)	nd	22 (12)	-2	-7.3, 2.7*	0.46	6	B
				CPAP				24 (12)					
Gagnadoux 2009[227] 19324954	34 (13) [10-60]	10.6 (4.5)	2 mo (XO)	MAD	28	OSLER (sec)	2094 (674)	2312 (322)	12	-122, 146†	NS	0	B
				CPAP				2300 (391)					

Table 5.12.7a. FOSQ in randomized controlled trials of mandibular advancement devices vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Final (SD)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Hoekema 2008[230] 18719218	40 (28) [≥5]	14.2 (5.6)	78 d [IQR = 60-88 d] (PL)	MAD	51/49.*	13.7 (3.1)	16.6 (2.8)	0.1	-1.1, 1.3	NS.†	4	B
				CPAP	52/50	13.9 (3.7)	16.7 (3.1)					
Engleman 2002[225] 12231497	31 (26) [≥5]	14 (4)	8 wk (XO)	MAD	48	12 (2)	13 (3)	-3	-4.8, -1.2‡	0.001	6	B
				CPAP		10 (3)	14 (2)					
Skinner 2004[232] 14718430	29 (13) [10-60]	13.2 (4.9)	1 mo (XO)	CMS collar	10	12.2 (3.1)	12.7 (3.1)	-0.1	-1.2, 1.0§	0.85	0	C
				AutoCPAP			12.8 (2.7)					

Table 5.12.7b. Quality of life in randomized controlled trials of mandibular advancement devices vs. CPAP

Study PMID	Baseline AHI (SD)	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Outcome	Favors	If Significant Difference: Net Difference	Estimated 95% CI	Test Range "Worst"	Test Range "Best"	P Btw	Dropout, %	Study Quality
Hoekema 2008[230] 18719218	40 (28) [≥5]	14.2 (5.6)	78 d [IQR = 60-88 d] (PL)	MAD	51/47.*	SF-36 (all 8 components)	0						4	B
				CPAP	52/47	Hospital Anxiety Scale	0							
						Hospital Depression Scale	0							
Barnes 2004[146] 15201136	21 (12) [nd]	10.7 (3.6)	3 mo (XO)	MAD	80	SF-36 (mean score)	0						23	B
				CPAP		Beck Depression Index	0							
Lam 2007[129] 17121868	24 (5.8) [5-40]	12 (6)	10 wk (PL)	MAD	34	SF-36 Bodily Pain	CPAP	-16	-17, -14	0	100	<0.05	0	B
						SF-36 (other components)	0							
						SAQLI (A,B,C,D)†	0							
						SAQLI A-D‡	CPAP	0.3	0.4, -0.2	1	7	<0.05		
				CPAP	34	SAQLI E§	MAD	-0.8	-0.9, -0.7	7	1	<0.05		
						SAQLI A-E	0							
Engleman 2002[225] 12231497	31 (26) [≥5]	14 (4)	8 wk (XO)	MAD	48	SF-36 Health transition	CPAP	0.52	nd	Effect size (SD units)		0.001	6	B
						SF-36 PCS	CPAP	0.35	nd			0.02		
						SF-36 MCS	CPAP	0.34	nd			0.008		
				CPAP		Hospital Anxiety Score	0							
						Hospital Depression Score	0							
Gagnadoux 2009[227] 19324954	34 (13) [10-60]	10.6 (4.5)	2 mo (XO)	MAD	28	Nottingham Health Profile (5 components)	0						0	B
				CPAP										
Tan 2002[226] 12143088	22 (10) [<50]	13.4 (4.6)	2 mo (XO)	MAD	24	General Health††	0						12	B
				CPAP										
Skinner 2004[232] 14718430	29 (13) [10-60]	13.2 (4.9)	1 mo (XO)	CMS collar	10	SF-36 PCS	0						0	C
				AutoCPAP		SF-36 MCS	0							
						SQ	0							

Table 5.12.8. Cognitive function tests in randomized controlled trials of mandibular advancement devices vs. CPAP

Study PMID	Baseline AHI (SD)	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Outcome	Favors.*	If Significant Difference: Net Difference	Estimated 95% CI	Test Range "Worst"	Test Range "Best"	P Btw	Dropout, %	Study Quality
Engleman 2002[225] 12231497	31 (26) [≥5]	14 (4)	8 wk (XO)	MAD	48	Performance IQ	0						6	B
						Trailmaking B	0							
				CPAP		SteerClear	0							
						PASAT 2s	0							
Gagnadoux 2009[227] 19324954	34 (13) [10-60]	10.6 (4.5)	2 mo (XO)	MAD	28	OSLER Errors	0						0	B
				CPAP		Trailmaking A	0							
						Trailmaking B	0							

Table 5.16.1. Randomized controlled trials of positional therapy vs. CPAP: study characteristics

Study PMID	Interventions	CPAP Pressure* (type)	Mean Age, yr	Male, %	Mean BMI, kg/m²	Other Patient Characteristics	Country (enrollment years)	Other quality issues
Jokic 1999[235] 10084491	Positional treatment	Manual (Split)	51	nd	30	nd	Canada (nd)	No washout
	CPAP							
Skinner 2004[233] 15611894	SHEP†	Auto (Split)	54	85	34	nd	New Zealand	Patient not blinded, multicenter not accounted for in analysis, no power analysis reported
	CPAP							
Skinner 2008[234] 18713092	TASB‡	Auto (Separate)	56	nd	30.7	Positional OSA	New Zealand	Patient not blinded
	CPAP							

Table 5.16.2a. AHI (events/hr) in randomized controlled trials of positional therapy vs. CPAP

Study PMID	Baseline AHI (SD) [range]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Difference	95% CI	P Btw	Dropout, %	Study Quality
Jokic 1999[235] 10084491	18 (nd) [4-33]	13.4 (nd)	2 wk (XO)	Positional therapy	13	17.9 (nd)	-8.4	6.1	2, 10.2	0.007	7	B
				CPAP	13		-14.5					
Skinner 2004[233] 15611894	27 (12) [13-50]	11.9 (4.6)	1 mo (XO)	SHEP	14	27 (12)	-6	16	4.2, 27.8*	0.008	7	B
				nCPAP	13		-22					
Skinner 2008[234] 18713092	23 (12) [6-51]	13.6 (50.5)	1 mo (XO)	TASB	20	22.7	-10.7	7.1	1.1, 13.1†	0.02	0	B
				nCPAP	20		-17.8					

Table 5.16.2b. AHI ≤10 events/hr in randomized controlled trials of positional therapy

Study PMID	Baseline AHI (SD) [range]	Baseline ESS (SD)	Duration (design)	Interventions	n Event	N Total	Outcome Metric	Result*	95% CI	P Btw	Dropout, %	Study Quality
Skinner 2008[234] 18713092	23 (12) [6-51]	13.6 (50.5)	1 mo (XO)	TASB	13	18	RR	0.81	0.58, 1.13	0.004†	0	B
				CPAP	16	18						

Table 5.16.3. ESS in randomized controlled trials of positional therapy vs. CPAP

Study PMID	Baseline AHI (SD) [range]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Difference	95% CI	P Btw	Dropout, %	Study Quality
Jokic 1999[235] 10084491	18 (nd) [4-33]	13.4 (nd)	2 wk (XO)	Positional therapy	13	13.4 (nd)	9.5	1.5*	-2.9, 0.8	0.2	7	B
				CPAP	13		8.75					
Skinner 2004[233] 15611894	27 (12) [13-50]	11.9 (4.6)	1 mo (XO)	SHEP	14	10.2 (5.0)	-1.7	0.7	-2.8, 4.2†	0.69	7	B
				nCPAP	14	9.5 (4.0)	-2.4					
Skinner 2008[234] 18713092	23 (12) [6-51]	13.6 (50.5)	1 mo (XO)	TASB	20	13.6	50.5	1.2		NS	0	B
				nCPAP	20		50.5					

Table 5.16.4. Other sleep study and related outcomes in randomized controlled trials of positional therapy vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Outcome	Interventions	No. Analyzed	Baseline (SD)	Change (Final)	Net Diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Jokic 1999[235] 10084491	18 (nd) [4-33]	13.4 (nd)	2 wk (XO)	Arousal index (events/hr)	Positional therapy	13	24.5 (nd)	-5.0	4.5	(-0.7, 9.4)	0.08	7	B
					CPAP	13		-9.5					
				Sleep efficiency (%)	Positional therapy	13	nd	82	-4	nd	0.51		C*
					CPAP	13		84					
				Slow wave sleep (%)	Positional therapy	13	nd	20	-2	nd	0.31		
					CPAP	13		22					
				REM (%)	Positional therapy	13	nd	24	-2	nd	0.71		
					CPAP	13		26					
				MWT (min)	Positional therapy	13	nd	31.2	-1.7	(-1.9, 5.3)	0.32		
					CPAP	13		32.9					

Table 5.16.5. Quality of life in randomized controlled trials of positional therapy vs CPAP

Study PMID	Baseline AHI (SD)	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Outcome	Favors	Net Difference	If Significant Difference 95% CI	Test Range "Worst"	"Best"	P Btw	Dropout, %	Study Quality
Jokic 1999 10084491	17.9 (nd) [4.4-32.8]	13.4	2 wk (XO)	Positional Therapy	13	General Health Questionnaire	0						7%	B
				CPAP	13									
Skinner 2004[233] 15611894	27 (12) [13-50]	11.9 (4.6)	1 mo (XO)	SHEP	14	SF-36 physical	0							
				TASB	14									
						SF-36 mental	0							
Skinner 2008[234] 18713092	23 (12) [6-51]	13.6 (50.5)	1 mo (XO)	SHEP	20	SF-36 physical	0							
				TASB	20									
						SF-36 mental	0							

Table 5.16.6. FOSQ in randomized controlled trials of positional therapy vs. CPAP

Study PMID	Baseline AHI (SD) [range]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (Final)	Difference	95% CI	P Btw	Dropout, %	Study Quality
Skinner 2004[233] 15611894	27 (12) [13-50]	11.9 (4.6)	1 mo (XO)	SHEP*	14	12.1 (1.9)	1.1	-0.3	nd	0.93	7	B
				CPAP	14		1.4					

Table 5.16.7. Neurocognitive tests in randomized controlled trials of positional therapy vs. CPAP

Study PMID	Baseline AHI (SD)	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Outcome	Favors	Net difference	If Significant Difference 95% CI	Test Range "Worst"	"Best"	P Btw	Dropout, %	Study Quality
Jokic 1999[235] 10084491	17.9 (nd) [4.4-32.8]	13.4	2 wk (XO)	Positional Therapy	13	Wechsler Memory Scale	0						7	B
				CPAP	13									
						Purdue Pegboard	0							
						Trail-Making test	0							
						Symbol Digit Modalities	0							
						Consonant Trigram	0							
						Concentration Endurance Test	0							
						Nottingham Health Profile Energy	CPAP	-1		0	3	0.04		
						Nottingham Health Profile Others	0							
						Hospital Anxiety Scale	0							
						Hospital Depression Scale	0							
						UWIST adjective checklist	0							

Table 5.17.1. Randomized controlled trials of weight loss: study characteristics

Study PMID	Interventions	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Other Patient Characteristics	Country (enrollment years)	Other quality issues
Foster 2009[236] 19786682	Intensive lifestyle intervention Diabetes support and education	61	42	36.7	Diabetics	US (nd)	Unclear if outcome data included all initial participants, and if so, unclear how data were imputed.
Johansson 2009[237] 19959590	Low energy diet Usual diet	50	100	34.8	No	Sweden (2009)	
Tuomilehto 2009[238] 19011153	VLCD with lifestyle changes General counseling	51	74	31.4	Obese	Finland (2004-06)	

Table 5.17.2. Patients with OSA cure in 1 year in randomized controlled trials of weight loss

Study PMID	Baseline AHI (SD) [range]	Baseline ESS (SD)	Duration (design)	Interventions	n Event	N Total	Outcome metric	Result*	95% CI†	P Btw	Dropout, %	Study Quality
Tuomilehto 2009[238] 19011153	9 (3) [>5]	9.9 (4.8)	1 yr (PL)	VLCD with lifestyle changes	22	35	OR (adjusted)‡	4.17	(1.41, 12.34)	0.011	11	B
				General counseling	13	37						

Table 5.17.3. AHI (events/hr) in randomized controlled trials of weight loss

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI*	P Btw	Dropout, %	Study Quality
Johansson 2009[237] 19959590	37 (14) [≥15]	7.0 (5.0)	9 wk (PL)	Low energy diet	30	37 (17)	-25	-23	-30, -15	<0.001	3	A
				Usual diet	33	37 (14)	-2					
Foster 2009[236] 19786682	24 (15) [nd]	nd	1 yr (PL)	Intensive lifestyle intervention	125	22.9 (18.0)	-5.4	-9.7	-13.6, -5.7	<0.001	17	B
				Diabetes support and education	139	23.5 (15.0)	4.2					
Tuomilehto 2009[238] 19011153	9 (3) [>5]	9.9 (4.8)	1 yr (PL)	VLCD with lifestyle changes	40	11 (3.6)	-4	-4.3	-7.6, -1.0	0.011	11	B
				General counseling	41	9 (2.7)	0.3					

Table 5.17.4. ESS in randomized controlled trials of weight loss

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Johansson 2009[237] 19959590	37 (14) [≥15]	7.0 (5.0)	9 wk (PL)	Low energy diet	30	9 (5)	-3	-4	-6, -2	<0.001	3	A
				Usual diet	33	7 (5)	1					
Tuomilehto 2009[238] 19011153	9 (3) [>5]	9.9 (4.8)	1 yr (PL)	VLCD with lifestyle changes	40	10.1 (5)	-3.1	-1	-2.7, 0.7†	0.25	11%	B
				General counseling	41	9.9 (4.8)	-2.1					

Table 5.17.5. Minimum oxygen saturation (%) in randomized controlled trials of weight loss

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Johansson 2009[237] 19959590	37 (14) [≥15]	7.0 (5.0)	9 wk (PL)	Low energy diet	30	82 (6)	5	5	2, 7	0.002	3	A
				Usual diet	33	82 (5)	0					

Table 5.17.6. Blood pressure (mm Hg) in randomized controlled trials of weight loss

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI*	P Btw	Dropout, %	Study Quality
Systolic blood pressure												
Tuomilehto 2009[238] 19011153	9 (3) [>5]	9.9 (4.8)	1 yr (PL)	VLCD with lifestyle changes	40	131.2 (10.2)	-1.7	-0.6	-8.4, 7.2	0.88	11	B
				General counseling	41	130.0 (12.8)	-1.9					
Diastolic blood pressure												
Tuomilehto 2009[238] 19011153	9 (3) [>5]	9.9 (4.8)	1 yr (PL)	VLCD with lifestyle changes	40	81.8 (8.9)	-1.9	-1.5	-7.4, 4.4	0.62	11	B
				General counseling	41	80.7 (7.8)	-0.4					

Table 5.17.7. Hemoglobin A1c (%) in randomized controlled trials of weight loss

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI†	P Btw	Dropout, %	Study Quality
Foster 2009[236] 19786682	24 (15) [nd]	nd	1 yr (PL)	Intensive lifestyle intervention	125	7.1 (0.9)	-0.7	-0.5	-0.8, -0.2	<0.001	17	B
				Diabetes support and education	139	7.3 (1.1)	-0.2					

Table 5.17.8. Weight change (kg) in randomized controlled trials of weight loss

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI†	P Btw	Dropout, %	Study Quality
Johansson 2009[237] 19959590	37 (14) [≥15]	7.0 (5.0)	9 wk (PL)	Low energy diet	30	113.4 (14.8)	-18.7	-19.8	-21.4, -18.2	nd	3	A
				Usual diet	33	111.7 (13.7)	1.1					
Foster 2009[236] 19786682	24 (15) [nd]	nd	1 yr (PL)	Intensive lifestyle intervention	125	102.9 (19.6)	-10.8	-10.2	-12.1, -8.3	<0.001	17	B
				Diabetes support and education	139	102.0 (17.1)	-0.6					
Tuomilehto 2009[238] 19011153	9 (3) [>5]	9.9 (4.8)	1 yr (PL)	VLCD with lifestyle changes	40	101.2 (11.9)	-10.7	-8.3	-11.1, -5.5	<0.001	11	B
				General counseling	41	92.3 (11.3)	-2.4					

Table 5.18.1. Randomized controlled trials of oropharyngeal exercises: study characteristics

Study PMID	Interventions	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Other Patient Characteristics	Country (enrollment years)	Other quality issues
Guimaraes 2008[240] 19234106	Oropharyngeal exercise	48	73	31.0	-	Brazil (nd)	
	Sham therapy						
Randerath 2004[241] 15124719	Tongue training	53	66	28.9	-	Germany (2002)	
	Sham training						
Puhan 2005[239] 16377643	Didgeridoo	49	84	25.8	-	Switzerland (2004-05)	
	No intervention						

Table 5.18.2. AHI (events/hr) in randomized controlled trials of oropharyngeal exercises

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Puhan 2005[239] 16377643	20 (5) [≥15]	11.5 (nd)	4 mo (PL)	Didgeridoo	14	22.3 (5.0)	-10.7	-6.2	-12.3, -0.1	0.05	0	A
				No treatment	11	19.9 (4.7)	-4.5					
Guimaraes 2009[240] 19234106	22 (5) [≥15]	14 (7)	3 mo (PL)	Oropharyngeal exercise	16	22.4 (5.4)	-8.7	-12.2	-19, -5.*	<0.001	10	B
				Sham therapy	15	22.4 (5.4)	3.5					
Randerath 2004[241] 15124719	28 (6) [10-40]	9.4 (4.7)	8 wk (PL)	Tongue training	33	24.7 (8.6)	0.6	0.4	-5.6, 6.4.†	NS	8	A
				Sham training	24	27.7 (6.3)	0.2					

Table 5.18.3. ESS in randomized controlled trials of oropharyngeal exercises

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Puhan 2005[239] 16377643	20 (5) [≥15]	11.5 (nd)	4 mo (PL)	Didgeridoo	14	11.8 (3.5)	-4.4	-2.8	-5.7, -0.3	0.04	0	A
				No treatment	11	11.1 (6.4)	-1.4					
Guimaraes 2009[240] 19234106	22 (5) [≥15]	14 (7)	3 mo (PL)	Oropharyngeal exercise	16	14 (5)	-6	-4	-8, -0.02.*	<0.05	10	B
				Sham therapy	15	14 (7)	-2					
Randerath 2004[241] 15124719	28 (6) [10-40]	9.4 (4.7)	8 wk (PL)	Tongue training	33	10.2 (4.9)	-1.5	-0.2	-2.6, 2.4.†	NS	8	A
				Sham training	24	10.5 (5.1)	-1.3					

Table 5.18.4. Minimum oxygen saturation (%) in randomized controlled trials of oropharyngeal exercises

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Guimaraes 2009[240] 19234106	22 (5) [≥15]	14 (7)	3 mo (PL)	Oropharyngeal exercise	16	83 (6)	85 (7)	4	0.2, 7.8.*	NS	10	B
				Sham therapy	15	82 (4)	80 (4)					
Randerath 2004[241] 15124719	28 (6) [10-40]	9.4 (4.7)	8 wk (PL)	Tongue training	33	81.7 (8.8)	-0.3	1.1	-2.4, 4.6.†	NS	8	A
				Sham training	24	82.3 (5.8)	-1.4					

Table 5.18.5. Sleep efficiency (%) in randomized controlled trials of oropharyngeal exercises

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Guimaraes 2009[240] 19234106	22 (5) [≥15]	14 (7)	3 mo (PL)	Oropharyngeal exercise	16	87 (8)	-1	-2	-8.8, 4.8.*	0.58	10	B
				Sham therapy	15	86 (10)	1					

Table 5.18.6. Other sleep study outcomes in randomized controlled trials of positional therapy vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Outcome	Interventions	No. Analyzed	Baseline (SD)	Change (Final)	Net Diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Randerath 2004[241] 15124719	28 (6) [10-40]	9.4 (4.7)	8 wk (PL)	Slow wave sleep	Tongue training	33	19.1 (13.6)	6.8	11	-1.3, 21.5*	NS	8	A
					Sham training	24	23.5 (9.9)	-4.2					
				REM sleep	Tongue training	33	11 (4.7)	1.1	-0.3	-3.0, 2.2†	NS		
					Sham training	24	12.9 (5.2)	1.4					
				Arousal index	Tongue training	33	23.7 (9.5)	-0.7	-1.9	-6.9, 3.5‡	NS		
					Sham training	24	23 (9.8)	1.2					

Note: There is no Table 5.18.7.

Table 5.18.8. FOSQ in randomized controlled trials of oropharyngeal exercises

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Randerath 2004[241] 15124719	28 (6) [10-40]	9.4 (4.7)	8 wk (PL)	Tongue training	33	84.8 (32.5)	4.2	1.6	-20.4, 13.6*	NS	8	A
				Sham training	24	74.2 (36.9)	2.6					

Table 5.18.9. Quality of life outcomes in randomized controlled trials of oropharyngeal exercises

Study PMID	Baseline AHI (SD)	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Outcome	Favors	If Significant Difference Net Difference	95% CI	Test Range "Worst"	Test Range "Best"	P Btw	Dropout, %	Study Quality
Puhan 2005[239] 16377643	20 (5) [≥15]	11.5 (nd)	4 mo (PL)	Didgeridoo	14	PQoSI	0						0	A
				No treatment	11	SF-36- all domains	0							
Guimaraes 2009[240] 19234106	22 (5) [≥15]	14 (7)	3 mo (PL)	Oropharyngeal exercise	16	Pittsburgh Quality of Sleep Index	Oropharyngeal exercise	-3.4	nd	21	0	<0.01	10	B
				Sham therapy	15									

Table 5.18.10. Neurocognitive tests in randomized controlled trials of oropharyngeal exercises

Study PMID	Baseline AHI (SD)	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Outcome	Favors	If Significant Difference Net Difference	95% CI	Test Range "Worst"	Test Range "Best"	P Btw	Dropout, %	Study Quality
Randerath 2004[241] 15124719	28 (6) [10-40]	9.4 (4.7)	8 wk (PL)	Tongue training	33	Attention Test	0						0	A
				Sham training	24									

Table 5.19.1. Randomized controlled trials of palatal implants vs. control: study characteristics

Study PMID	Interventions	Mean Age (yr)	Male, %	Mean BMI, kg/m^2	Other Patient Characteristics	Country (enrollment years)	Other quality issues
Friedman 2008[242] 18241718	Palatal implants	39 (9)	53	28.7 (2.3)	-	US (2005-06)	-
	Placebo						
Steward 2008[243] 18922335	Soft palate implants	49 (nd)	79	27.6 (nd)	-	US (nd)	-
	Sham implants						

Table 5.19.2a. AHI (events/hr) in randomized controlled trials of palatal implant vs. control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Friedman 2008[242] 18241718	20 (4) [5-40]	11.7 (2.7)	3 mo (PL)	Palatal implants	29	23.8 (5.5)	-7.1	-8.8	5.3, 12.2	<0.0001	11	A
				Placebo	26	20.1 (4.0)	+0.9					
Steward 2008[243] 18922335	17 (nd) [10-40]	10.6 (nd)	3 mo (PL)	Soft palate implants	47	17.2 (nd)	2.9	-6	0.9, -13	NS	1	B
				Sham implants	50	16.7(nd)	8.9					

Table 5.19.2b. Fifty percent reduction in AHI to ≤ 20 events/hr in randomized controlled trials of palatal implant vs. control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	n Event	N Total	Outcome Metric	Result*	95% CI	P Btw	Dropout, %	Study Quality
Steward 2008[243] 18922335	16 (nd) [10-40]	10.6(nd)	3 mo (PL)	Soft palate implants	13	50	RR	2.60	1.00, 6.75	0.04[†]	1	B
				Sham implants	5	50						

Table 5.19.3. ESS in randomized controlled trials of palatal implant vs. control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Friedman 2008[242] 18241718	20 (4) [5-40]	11.7 (2.7)	3 mo (PL)	Palatal implants	31	12.7(2.7)	-2.4	-1.9	1.0, 2.9	0.0002	11	A
				Placebo	31	11.7(2.7)	-0.5					
Steward 2008[243] 18922335	17 (nd) [10-40]	10.6 (nd)	3 mo (PL)	Soft palate implants	47	10.6(nd)	-1.8	-0.3	-1.8, 1.1	NS	1	B
				Sham implants	49	10.7(nd)	-1.5					

Table 5.19.4. Minimum oxygen saturation in randomized controlled trials of palatal implant vs. control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Friedman 2008[242] 18241718	20 (4) [5-40]	11.7 (2.7)	3 mo (PL)	Palatal implants	28	88.3 (3.0)	-1.3	-0.6	-2.2, 1.0	NS	11	A
				Placebo	23	89.6 (2.5)	-0.7					
Steward 2008[243] 18922335	17 (nd) [10-40]	10.6 (nd)	3 mo (PL)	Soft palate implants	48	nd	0.1	-2.9	-0.8, -5.0	0.007	1	B
				Sham implants	48	nd	3					

Table 5.19.5. REM sleep in randomized controlled trials of palatal implant vs. control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Friedman 2008[242] 18241718	20 (4) [5-40]	11.7 (2.7)	3 mo (PL)	Palatal implants	29	16.1 (3.3)	-0.8	-2	-4.0, 0.01	NS	11	A
				Placebo	26	12.9 (3.7)	1.2					

Table 5.19.6. FOSQ total in randomized controlled trials of palatal implant vs. control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Steward 2008[243] 18922335	17 (nd) [10-40]	10.6 (nd)	3 mo (PL)	Soft palate implants	49	15.5(nd)	1.4	0.83	0.0,1.6	NS	1	B
				Sham implants	49	16.1(nd)	0.6					

Table 5.20.1. Studies of surgery vs. control: study characteristics

Study PMID	Interventions	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Other Patient Characteristics	Country (Enrollment years)	Major quality issues
Back 2009[244] 19504550	RFA (Soft palate) Sham surgery	30-65 (range)	100	25.6 (median)	BMI ≤35 kg/m^2	Finland (nd)	
Ferguson 2003[245] 12502473	LAUP No treatment	44	78	31.6	-	Canada (nd)	
Guilleminault 2008[248] 19014072	Surgery combo.* Cognitive behavioral therapy for insomnia	32	40	23.9	-	US (2002-03)	First phase;†
Koutsourelakis 2008[246] 17898015	Surgery‡ Sham surgery	37	59	29.9	Deviated nasal septum	Greece (nd)	
Li 2009[249] 19793414	Nasal surgery Conservative treatment	38	95	26.2	Nasal obstruction	Taiwan (nd)	Not randomized; no data on followup duration
Lojander 1996[124] 8681614 Lojander 1999[125] 10188139	UPPP Conservative treatment	47	97	31.0	BMI ≤40kg/m^2	Finland (1987-92)	
Woodson 2003[247] 12825037	RFA (tongue & palate) Sham RFA RFA (nd where)	46	70	28.5	-	US (nd)	

Table 5.20.2. AHI or oxygen desaturation index (events/hr) in randomized controlled trials of surgery vs. control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Outcomes	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	St Qu
Back 2009[244] 19504550	12 (5–8)* [5-15]	8.0 (3.0-16.0)†	4 mo (PL)	AHI	RFA	17	11 (5-15)‡	2	3	-9.1, 15.1§	NS	0	
					Sham surgery	15	12.0 (5.0-8.0)**	-1					
Woodson 2003[247] 12825037	15 (7) [10-30 or 5-40]††	11.6(3.5)	2 mo (PL)	AHI	RFA	24	21.3 (11.1)	-4.5	-2.7	-9.9,4.5	NS	13	
					Sham RFA	28	15.4 (7.8)	-1.8					
Koutsourelakis 2008[246] 17898015	31 (14) [≥5]	13.7 (4.4)	4 mo (PL)	AHI	Surgery‡‡	27	31.5 (16.7)	0	-1.5	-10.3, 7.3§§	nd	3	
					Sham surgery	22	30.6 (13.8)	1.5					
Ferguson 2003[245] 12502473	16 (4) [10-25]	10.0 (5.2)	8 to15 mo (PL)	AHI	LAUP	21	18.6 (4.3)	-3.9	-10.5	-20.5, -0.4***	nd	1	
					No treatment	23	16.1 (4.0)	6.6					
Lojander, 1996[124] 8681614	nd	(nd)	12 mo (PL)	ODI_4†††	UPPP	16	45	-31	-20	nd	NS	3	
					Conservative treatment	10	34	-11					
				ODI_{10}‡‡‡	UPPP	16	17	-14	-6	nd	NS		
					Conservative treatment	10	14	-8					
Guilleminault 2008[248] 19014072	10 (6) [nd]	6.6 (1.2)	3 mo (XO first phase)	AHI	Surgery combo§§§	15	9.7 (5.7)	-5.2	-6.2	-9.3,-3.1****	<0.0001	33	
					Cognitive behavioral therapy	15	9.7 (5.7)	1					
Li 2009[249] 19793414	26 (27) [≥5]	10.2 (5.2)	nd (PL)	AHI	Nasal surgery	44	36.4 (29.1)	1.1	2.6	-11.0, 16.2††††	NS	0	
					Conservative treatment	22	25.9 (27.0)	-1.5					

Table 5.20.3. ESS in randomized controlled trials of surgery vs. control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Back 2009[244] 19504550	12 (5–8)* [5-15]	8.0 (3.0-16.0)†	4 mo (PL)	RFA	17	10 (3-21)‡	-3	0	nd	NS	0	A
				sham surgery	15	8.0 (3.0–16.0)§	-3					
Koutsourelakis 2008[246] 17898015	31 (14) [≥5]	13.7 (4.4)	4 mo (PL)	Surgery**	27	13.4 (2.9)	-1.7	-0.5	-2.5, 1.5††	nd	3	A
				Sham surgery	22	13.7 (4.4)	-1.2					
Woodson 2003[247] 12825037	15 (7) [10-30 or 5-40]‡‡	11.6(3.5)	2 mo (PL)	RFA	26	11.9 (4.6)	-2.1	-1.2	-3.1,0.8	NS	13	A
				Sham RFA	28	11.6 (3.5)	-1.0					
Ferguson 2003[245] 12502473	16 (4) [10-25]	10.0 (5.2)	8 to15 mo (PL)	LAUP	21	10.7 (3.7)	1.4	-2.2	-5.8, 1.4§§	nd	1	B
				No treatment	23	10.0 (5.2)	-0.8					
Guilleminault 2008[248] 19014072	10 (6) [nd]	6.6 (1.2)	3 mo (XO first phase)	Surgery combo***	15	6.6 (1.2)	-1.8	-1.2	-1.8, -0.5†††	0.005	33	C
				Cognitive behavioral therapy	15	6.6 (1.2)	-0.6					
Li 2009[249] 19793414	26 (27) [≥5]	10.2 (5.2)	nd (PL)	Nasal surgery	44	10.6 (3.9)	-3.0	-3.6	-6.1, -1.1‡‡‡	0.02	0	C
				Conservative treatment	22	10.2 (5.2)	0.6					

Table 5.20.4. Minimum oxygen saturation (%) in randomized controlled trials of surgery vs. control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Back 2009[244] 19504550	12 (5–8)* [5-15]	8.0 (3.0-16.0)†	4 mo (PL)	RFA	17	82.0 (68.0-88.0)‡	0	0	nd	NS	0	A
				sham surgery	15	83.0 (69.0-88.0)§	0					
Woodson 2003[247] 12825037	15 (7) [10-30 or 5-40]**	11.6(3.5)	2 mo (PL)	RFA	24	86.3 (7.6)	-0.6	-1.2	-3.8, 1.4	NS	13	A
				Sham RFA	28	88.3 (3.9)	0.6					
Guilleminault 2008[248] 19014072	10 (6) [nd]	6.6 (1.2)	3 mo (XO first phase)	Surgery combo‡‡	15	91.3 (1.9)	4.7	4.4	2.1,6.6‡‡	<0.0001	33	C
				Cognitive behavioral therapy	15	91.3 (1.9)	0.3					
Li 2009[249] 19793414	26 (27) [≥5]	10.2 (5.2)	nd (PL)	Nasal surgery	44	78.3 (11.6)	0.8	0.3	2.1,6.6§§	NS	0	C
				Conservative treatment	22	82.7 (8.5)	0.5					

Table 5.20.5. Sleep stage changes (%) in randomized controlled trials of surgery vs. control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Outcome	Interventions	No. Analyzed	Baseline (SD)	Change (Final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Guilleminault 2008[248] 19014072	10 (6) [nd]	6.6 (1.2)	3 mo (XO first phase)	REM	Surgery combo*	15	13.1(1.8)	3.7	3.1	1.5, 4.6†	<0.0001	33	C
					Cognitive behavioral therapy	15	13.1(1.8)	0.6					
				Stage 3 and 4	Surgery combo‡	15	11.5(1.5)	4.5	3.5	1.7, 5.3§	<0.0001		
					Cognitive behavioral therapy	15	11.5(1.5)	1					
Li 2009[249] 19793414	26 (27) [≥5]	10.2 (5.2)	nd (PL)	REM	Nasal surgery	44	13.7 (5.7)	0.9	-0.1	-3.9, 1.9**	NS	0	C
					Conservative treatment	22	13.9 (4.6)	1.0					
				Stage 3 and 4	Nasal surgery	44	6.3 (7.0)	-0.2	-1.0	-3.0, 2.8††	NS		
					Conservative treatment	22	2.4 (3.8)	0.8					

Table 5.20.6. FOSQ in randomized controlled trials of surgery vs. control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (Final)	Net Diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Woodson 2003[247] 12825037	15 (7) [10-30 or 5-40]*	11.6(3.5)	2 mo (PL)	RFA	24	16.5(2.0)	1.2	0.9	-0.1, 1.9	0.04	13	A
				Sham RFA	27	16.8(2.1)	0.4					

Table 5.20.7. Functional Outcomes in randomized controlled trials of surgery vs. control

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Outcome	Favors	If Significant Difference: Net Difference	95% CI	Test Range "Worst"	Test Range "Best"	P Btw	Dropout, %	Study Quality
Back 2009[244] 19504550	12 (5–8)* [5-15]	8.0 (3.0-16.0)†	4 mo (PL)	RFA	17	SF-36 (all domains)	0						0	A
				sham surgery	15									
Woodson 2003[247] 12825037	15 (7) [10-30 or 5-40]‡	11.6(3.5)	2 mo (PL)	RFA	24	SF-36 (all domains)	0						13	A
				Sham RFA	27									
Ferguson 2003[245] 12502473	16 (4) [10-25]	10.0 (5.2)	8 to15 mo (PL)	LAUP	21	SAQLI	0						1	B
				No treatment	23									
Lojander, 1999[125] 10188139	nd	(nd)	12 mo (PL)	UPPP	10	Wechsler verbal	0						3	C
				Conservative treatment	10									
						Wechsler performance	0							
						Wechsler memory	0							

Table 5.21.1. Studies of surgery vs. CPAP: study characteristics

Study PMID	Interventions	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Other Patient Characteristics	Country (enrollment years)	Major quality issues
Anand 1991[255] 1945423	UPPP	53 (nd)	60	nd	--	US (1983-90)	No eligibility criteria. Retrospective.
	CPAP						
Ceylan 2009[254] 19770425	TCRFVTR	46 (nd)	89	28.8	--	Turkey (2003-06)	Small sample size. Prospective nonrandomized.
	CPAP						
Conradt 1998[251] 9785277	MMO	42 (10)	100	26.7	Craniofacial abnormalities	Germany (1993-96)	No eligibility criteria. Prospective nonrandomized.
	CPAP						
Katsantonis 1988[256] 327 8184	UPP	49 (19-78).*	81	nd	--	US (1982-86)	No eligibility criteria. Retrospective.
	Orthognathic device						
	Tracheostomy						
	Medication(TCA)						
	Tongue retaining device						
	CPAP						
Keenan 1994[257] 8275724	UPPP	52 (12)	79	36.0	--	Canada (1984-90)	Significant difference between followup durations. Retrospective.
	CPAP						
Lin 2006[258] 16735919	Extended UPP	48 (nd)	nd	27.2	--	Taiwan (2000-01)	Significant differences in baseline characteristics. Retrospective.
	CPAP						
Robinson 2009[259] 19643262	Stepwise surgery	56 (nd)	88	31.6		Australia (2003-04)	Incomplete results. Retrospective.
	CPAP						
Vicini 2010[250] 19944893	MMA	48 (10)	86	30.2	AHI >30 events/hr	Italy (nd)	No exclusion criteria
	CPAP						
Weaver 2004[260] 15195049	UPPP	57 (nd)	98	nd	--	US (1997-2001)	No details on OSA severity. Retrospective.
	CPAP						
Woodson 2001[252] 11593163	TCRFVTR	48 (9)	77	31.2	BMI <35 kg/m^2, Anesthesia risk group ASA class I, II, or III	US (nd)	No eligibility criteria. Prospective nonrandomized.
	CPAP						
Woodson 2003[247] 12825037	RFA (tongue & palate)	53 (nd)	60	nd	--	US (nd)	
	CPAP						
Zorick 1990[253] 2086548	UPPP	46 (nd)	89	28.8	--	US (nd)	Dropout rate >20%. No eligibility criteria. Prospective nonrandomized
	CPAP						

Table 5.21.2. Categorical outcomes in studies of surgery vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Outcome	Interventions	n Event	N Total	Outcome Metric	Result*	95% CI	P Btw	Dropout, %	Study Quality
Weaver 2004[260] 15195049	nd [nd]	nd	6 y (NRCS, retrospective)	Mortality	UPPP	nd	2072	HR	1.31	1.03, 1.67	0.03	NA	C
					CPAP	nd	20826						
Katsantonis 1988[256] 327 8184	70 UPPP 80 CPAP [nd]	nd	18 mo (retrospective)	50% improvement in AHI and 85% improvement in severity index	UPPP	37	98	%	38 vs. 100	nd	nd	NA	C
					CPAP	53	53						
Keenan 1994[257] 8275724	nd [≥5]	nd	28 to 43 mo (NRCS, retrospective)	Survival	UPPP	6	149	%	4 vs. 2	nd	NS	NA	C
					CPAP	3	126						
Anand 1991[255] 1945423	(nd) [nd]	nd	16 d to 87mo (NRCS, retrospective)	Increased MSLT score ≥3 min	UPPP	13	43	%	30 vs. 41	nd	nd	NA	C
					CPAP	12	29						

Table 5.21.3. Survival in studies of surgery vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Outcome	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Keenan 1994[257] 8275724	nd [≥5]	nd	28 to 43 mo (NRCS, retrospective)	Age adjusted 5 yr probability of survival	UPPP	149	nd	0.94 (0.02).*	-0.01	nd	NS	NA	C
					CPAP	126	nd	0.95 (0.03).†					
Weaver 2004[260] 15195049	nd [nd]	nd	4 yr (NRCS, retrospective)	Survival (years)	UPPP	2072	nd	2.81	0.06	0.0, 0.1‡	0.03	NA	C
					CPAP	20, 826	nd	2.75					

Table 5.21.4. AHI or RDI in studies of surgery vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Outcome	Interventions	No. Analyzed	Baseline (SD)	Change (Final)	Net Diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Ceylan 2009[254] 19770425	28 (6) [5-40]	11.1 (3.1)	12 mo (NRCS, prospective)	AHI	TCRFTVR	26	29.6 (7.8)	-13.5	-0.7	-4.8, 3.4.*	NS	0	C
					CPAP	21	28.5 (6.9)	-12.8					
Conradt 1998[251] 9785277	RDI 59 (24) [nd]	nd	3 mo (NRCS, prospective)	RDI	MMA	24	59.4 (24.1)	-53.8	0.3	-11.7, 12.3†	NS	0	C
					CPAP	24	59.4 (24.1)	-54.1					
Katsantonis 1988[256] 327 8184	70 UPPP 80 CPAP [nd]	nd	18 mo (retrospective)	AHI	UPPP	98	~70 (nd)	-20	35	nd	nd	NA	C
					CPAP	53	~80 (nd)	-55					
Lin 2006[258] 16735919	RDI 65 (24) vs. 44 (30) [nd]	14.1 (4.4) vs. 11.8 (5.5)	6 mo (NRCS, retrospective)	RDI	Extended UPP	55	43.6 (29.7)	-31.5	31.1	12.5, 49.6	<0.001	NA	C
					CPAP	54	65.3 (24.7)	-62.6					
Vicini 2010[250] 19944893	50 (12) [>30]	11.2 (1.6)	12 mo (PL RCT)	AHI	MMA	25	56.8 (16.5)	-48.7	-4.7	-11.9, 2.5	NS	12% CPAP	C
					CPAP	25	50.3 (12.4)	-44					

Table 5.21.5. ESS in studies of surgery vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (Final)	Net Diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Woodson 2003[247] 12825037	15 (7) [10-30 or 5-40]*	11.6 (3.5)	2 mo (PL RCT)	RFA	26	11.9 (4.6)	-2.1	-0.2	-2.4, 2.8	NS	13	A
				CPAP	25	12.6 (5.0)	-2.3					
Ceylan 2009[254] 19770425	28 (6) [5-40	11.1 (3.1)	12 mo (NRCS prospective)	TCRFTVR†	26	10.8 (3.2)	-2.6	+0.1	-0.7, 0.9‡	NS	0	C
				CPAP	21	11.1 (3.1)	-2.7					
Lin 2006[258] 16735919	RDI 65 (24) vs. 44 (30) [nd]	14.1 (4.4) vs. 11.8 (5.5)	6 mo (NRCS, retrospective)	Extended UPP	55	11.1 (3.72)	-3.78	+1.09	nd	NS	NA	C
				CPAP	54	14.1 (4.43)	-4.87					
Robinson 2009[259] 19643262	RDI 45 (nd) [>15]	10.5 (8.75)§	20-46 mo (NRCS, retrospective)	Surgery, stepwise approach	77	9 (7)**	-5	1.5	-8.7, 11.7††	NS‡‡	NA	C
				CPAP	89	10.5 (8.75)§§	-6.5					
Vicini 2010[250] 19944893	50 (12) [>30]	11.2 (1.6)	12 mo (PL RCT)	MMA	25	11.6 (2.8)	-3.9	1.4	-0.74, 3.5	NS	12% CPAP	C
				CPAP	25	11.2 (2.6)	-5.3					
Woodson 2001[252] 11593163	40 (21) [15-60]	11.8 (nd)	8-12 wk (NRCS, prospective)	TCRFTVR***	50	11.1 (nd)	-3.7	0.7	nd	nd	15	C
				CPAP	74	11.8 (nd)	-4.4					

Table 5.21.6. Other continuous outcomes in studies of surgery vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Outcome	Interventions	No. Analyzed	Baseline (SD)	Change (Final)	Net Diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Woodson 2003[247] 12825037	15 (7) [10-30 or 5-40]*	11.6 (3.5)	2 mo (PL RCT)	FOSQ↑	RFA	26	16.5 (2.0)	1.2	-0.29	-1.35, 0.77	NS	13	A
					CPAP	25	16.0 (2.6)	1.5					
Conradt 1998[251] 9785277	RDI 59 (24)	nd	3 mo (NRCS, prospective)	Sleep efficiency	MMA	24	80.2 (9.91)	4	-1	-6.2, 4.2†	NS	0	C
					CPAP	24	80.2 (9.91)	5					
				Arousal index	MMA	24	54.3 (20.0)	-34.6	0.4	-10.3, 11.1	NS		
					CPAP	24	54.3 (20.0)	-35					
Ceylan 2009[254] 19770425	28 (6) [5-40	11.1 (3.1)	12 mo (NRCS, prospective)	Minimum O_2 saturation	TCRFTVR	26	86.8 (8.9)	7.8	2.7	-4.7, 10.2‡	NS	0	C
					CPAP	21	88.4 (8.5)	5.1					
Woodson 2001[252] 11593163	40 (21) [15-60]	11.8 (nd)	8-12 wk (NRCS, prospective)	FOSQ↑	TCRFTVR	18	72.3 (13.8)	7.8	-4.4	-10.2, 1.4§	NS	15	C
					CPAP	74	69.9 (19.7)	12.2					
Zorick 1990[253] 2086548	nd [nd]	nd	6 wk (NRCS, prospective)	MSLT	UPPP	46	4.1 (0.9)	1.4	-4.5	-8.9, -0.02**	<0.05	nd	C
					CPAP	46	4.4 (1.1)	5.9					

Table 5.21.7. Sleep stage in randomized controlled trials of surgery vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Outcome	Interventions	No. Analyzed	Baseline (SD)	Change (Final)	Net Diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Conradt 1998[251] 9785277	RDI 59 (24)	nd	3 mo (NRCS, prospective)	REM	MMA	24	19.6 (7.38)	1.7	0.1	-3.7, 3.9*	NS	0	C
					CPAP	24	19.6 (7.38)	1.6					
				Stage 3 and 4	MMA	24	8.0 (6.08)	6.4	-3.8	-8.9,1.3†	NS		
					CPAP	24	8.0 (6.08)	10.2					
Zorick 1990[253] 2086548	nd [nd]	nd	6 wk (NRCS, prospective)	REM	UPPP	46	10 (5)	3	-8	-15.9,-0.03‡	<0.05	nd	C
					CPAP	46	10 (6)	11					
				Stage 3 and 4	UPPP	46	4.0 (6)	1	--7	-13.9, -0.03§	<0.05		
					CPAP	46	1.0 (3)	8					

Table 5.21.8. Quality of life outcomes in randomized controlled trials of surgery vs. CPAP

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Outcome	Favors	If Significant Difference: Net Difference	95% CI	Test Range "Worst"	Test Range "Best"	P Btw	Dropout, %	Study Quality
Woodson 2003[247] 12825037	15 (7) [10-30 or 5-40]*	11.6 (3.5)	2 mo (PL RCT)	RFA (tongue & palate)	24	SF-36 (PCS, MCS)	0						13	A
				CPAP	24									
Lin 2006[258] 16735919	RDI 65 (24) [nd]	14.1 (4.4)	6 mo (NRCS, retrospective)	Extended UPP	55	SF-36 (all domains)	0						NA	C
				CPAP	54									
Woodson 2001[252] 11593163	40 (21) [15-60]	11.8 (nd)	8-12 wk (NRCS, prospective)	TCRFVTR	nd	SF-36 (all domains)	0						NA	C
				nCPAP	nd									

Table 5.23.1. Randomized controlled trials of drug interventions: study characteristics

Study PMID	Interventions	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Other Patient Characteristics	Country (enrollment years)	Other quality issues
Carley 2007[264] 17310863	Mirtazapine 4.5 or 15 mg	41	58	37.8	Most pts with HTN excluded	US (nd)	-
	Placebo						
Clarenbach 2008[269] 18710420	Xylometazoline	49	87	30.7	nd	Switzerland (2004-05)	-
	Placebo						
Kiely 2004[265] 14694248	Fluticasone	47	nd	29.8	Snorers	Ireland (nd)	-
	placebo						
Kraiczi 1999[266] 9889366	Paroxetine	53	100	28.7	No	Sweden (nd)	-
	Placebo						
Suurna 2008[268] 18656731	Pantoprazole	51	42	31	All patients have GERD	US (2004-06)	-
	Placebo						
Ryan 2009[205] 19961025	Steroid + CPAP	48	94	34	nd	Ireland (nd)	-
	Dry CPAP						
Whyte 1988[257] 3067313	Acetazolamide or Protriptyline	nd	80	nd	nd	UK (nd)	No information on exclusion criteria
	Placebo						

Table 5.23.2. AHI (events/hr) in randomized controlled trials of drug interventions

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Carley 2007[264] 17310863	23 (17) [nd]	nd	7 d (XO)	Mirtazapine 4.5 mg	12	nd	13.5	-8.8	-14.8, -2.8*	0.004	0	B
				Mirtazapine 15 mg	12	nd	11.4	-10.9	-18.3, -3.5†	0.004		
				Placebo	12	nd	22.3					
Clarenbach 2008[269] 18710420	33 (25) [>10]	11.8 (4.5)	1 wk (XO)	Xylometazoline	12	32.6 (24.5)	29.3 (32.5)	-2.9	-21.4, 15.6‡	NS	0	A
				Placebo	12	32.6 (24.5)	32.2 (32.8)					
Kiely 2004[265] 14694248	26§ (27)**	12 (nd)	4 wk (XO)	Fluticasone	13	26.5 (26.9)††	23.3	-6.5‡‡	-29.5, 1.8	<0.05	0	B
				Placebo	13	26.5 (26.9)	30.3					
				Fluticasone	18§§	nd	17	-5.6***	-22.6, -0.7	0.01		
				Placebo	13†††	nd	24.3					
Kraiczi 1999[266] 9889366	nd	nd	6 wk (XO)	Paroxetine	17	nd	30.2	-6.1	-17.9, 0.6	0.021	15	B
				Placebo	17	nd	36.3					
Whyte 1988[257] 3067313	nd [>15]	nd	2 wk (XO)	Acetazolamide	10	nd	26	-24	nd	nd	0	C
				Protriptyline	10	nd	46	-4	nd	nd		
				Placebo	10	nd	50					

Table 5.23.3. ESS in randomized controlled trials of drug interventions

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Clarenbach 2008[263] 18710420	33 (24) [>10]	11.8 (4.5)	1 wk (XO)	Xylometazoline	12	nd	10.5 (3.8)	-1.3	-3.6, 1.0*	NS	0	A
				Placebo	12	nd	11.8 (4.4)					
Suuma 2008[268] 18656731	10 (8) [≤30]	14 (3.5)	2 wk (XO)	Pantoprazole	57	14 (3.5)	-1.8	-0.5	-0.98, -0.02†	0.04	16	B
				Placebo	57	14 (3.5)	-1.3					
Ryan 2009[205] 19961025	36 (22) [≥10]	12 (5)	4 wk (PL)	Steroid + CPAP	42	13 (6)	-4	-1	-4.0, 2.0‡	nd	9	B
				Dry CPAP	39	12 (5)	-3					

Table 5.24.4. Arousal index (events/hr) in randomized controlled trials of drug interventions

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Carley 2007[264] 17310863	23 (17) [nd]	nd	7 d (XO)	Mirtazapine 4.5 mg	12	nd	41.9	0.8	nd	NS	0	B
				Mirtazapine 15 mg	12	nd	28.1	-13.0	-24, -2*	0.02		
				Placebo	12	nd	41.1					
Clarenbach 2008[263] 18710420	33 (24) [>10]	11.8 (4.5)	1 wk (XO)	Xylometazoline	12	nd	54	-2	nd	NS	0	A
				Placebo	12	nd	56					
Whyte 1988[267] 3067313	nd [>15]	nd	2 wk (XO)	Acetazolamide	10	nd	16	-10	nd	nd	0	C
				Protriptyline	10	nd	21	-5	nd	nd		
				Placebo	10	nd	26					

Table 5.24.5. Sleep efficiency (%) in randomized controlled trials of drug interventions

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Carley 2007[264] 17310863	23 (17) [nd]	nd	7 d (XO)	Mirtazapine 4.5 mg	12	nd	87.7	4.8	nd	NS	0	B
				Mirtazapine 15 mg	12	nd	90.1	8.2	nd	0.05		
				Placebo	12	nd	82.9					
Clarenbach 2008[263] 18710420	33 (24) [>10]	11.8 (4.5)	1 wk (XO)	Xylometazoline	12	nd	86 (12)	-2	nd	NS	0	A
				Placebo	12	nd	88 (6)					
Kraiczi 1999[266] 9989366	nd	nd	6 wk (XO)	Paroxetine	17	nd	77.2	-2.9	-10.6,4.3	0.411	15	B
				Placebo	17	nd	80.3					
Whyte 1988[267] 3067313	nd [>15]	nd	2 wk (XO)	Acetazolamide	10	nd	82*	12	nd	nd	0	C
				Protriptyline	10	nd	78†	8	nd	nd		
				Placebo	10	nd	70‡					

Table 5.23.6. Slow wave sleep (%) in randomized controlled trials of drug interventions

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Carley 2007[264] 17310863	23 (17) [nd]	nd	7 d (XO)	Mirtazapine 4.5 mg	12	nd	7.5	2.4	nd	NS	0	B
				Mirtazapine 15 mg	12	nd	7.2	2.1	nd	NS		
				Placebo	12	nd	5.1					
Clarenbach 2008[263] 18710420	33 (24) [>10]	11.8 (4.5)	1 wk (XO)	Xylometazoline	12	nd	9 (8)	-2	nd	NS	0	A
				Placebo	12	nd	7 (6)					
Kraiczi 1999[266] 9989366	nd	nd	6 wk (XO)	Paroxetine	17	nd	12.2	-0.6	-6.4, 4.7	0.411	15	B
				Placebo	17	nd	12.8					
Whyte 1988[267] 3067313	nd [>15]	nd	2 wk (XO)	Acetazolamide	10	nd	14*	-1	nd	nd	0	C
				Protriptyline	10	nd	15†	0	nd	nd		
				Placebo	10	nd	15‡					

Table 5.23.7. REM sleep (%) in randomized controlled trials of drug interventions

Study PMID	Baseline AHI (SD) [Eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Carley 2007[264] 17310863	23 (17) [nd]	nd	7 d (XO)	Mirtazapine 4.5 mg	12	nd	15.6	-6.6	nd	NS	0	B
				Mirtazapine 15 mg	12	nd	16.6	-5.6	nd	0.04		
				Placebo	12	nd	22.2					
Clarenbach 2008[265] 18710420	33 (24) [>10]	11.8 (4.5)	1 wk (XO)	Xylometazoline	12	nd	10 (5)	-1	nd	NS	0	A
				Placebo	12	nd	11 (5)					
Kiely 2004[265] 14694248	26.5* (26.9)†	12 (nd)	4 wk (XO)	Fluticasone	13	nd	10.9	0.4‡	nd	NS	0	B
				Placebo	13	nd	10.5					
Kraiczi 1999[266] 9989366	nd	nd	6 wk (XO)	Paroxetine	17	nd	9.7	nd	-7.4, 1.4	0.191	15	B
				Placebo	17	nd	12.9					
Whyte 1988[267] 3067313	nd [>15]	nd	2 wk (XO)	Acetazolamide	10	nd	23	4	nd	nd	0	C
				Protriptyline	10	nd	18	-1	nd	nd		
				Placebo	10	nd	19					

Table 5.23.8. Minimum oxygen saturation (%) in randomized controlled trials of drug interventions

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net Diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Carley 2007[264] 17310863	23 (17) [nd]	nd	7 d (XO)	Mirtazapine 4.5 mg	12	nd	81.1	-0.6	nd	NS	0	B
				Mirtazapine 15 mg	12	nd	80.8	-0.9	nd	NS		
				Placebo	12	nd	81.7					
Kiely 2004[265] 14694248	26.5* (26.9)†	12 (nd)	4 wk (XO)	Fluticasone	13	nd	2.1	-0.1	nd	NS	0	B
				Placebo	13	nd	2.2					
Whyte 1988[267] 3067313	nd [>15]	nd	2 wk (XO)	Acetazolamide	10	nd	72	2	nd	nd	0	C
				Protriptyline	10	nd	77	7	nd	nd		
				Placebo	10	nd	70					

Table 5.23.9. FOSQ in randomized controlled trials of drug interventions

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Suurna 2008[268] 18656731	10 (8) [≤30]	14 (3.5)	2 wk (XO)	Pantoprazole	57	nd	-8.1	-2.6	-5.3, 0.1‡	0.06	16	B
				Placebo	57	nd	-5.5					

Table 5.24.1. Randomized controlled trials of atrial overdrive pacing: study characteristics

Study PMID	Interventions	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Other Patient Characteristics	Country (enrollment years)	Other quality issues
Melzer 2006[270] 17040007	AOP 75 bpm AOP 45 bpm	69	84%	29.5	nd	Germany, Switzerland (nd)	Dropout >20%, patient not blinded.
Simantirakis 2005[271] 16354893	AOP CPAP	60	75%	nd	Bradyarrhythmia (pacer)	Greece	No description of how pressure was titrated.

Table 5.24.2. AHI (events/hr) in randomized controlled trials of atrial overdrive pacing

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Melzer 2006[270] 17040007	27.* (nd) [>15]	9.0 (3.9)	1 wk (XO)	AOP 75 bpm	19	nd	23.0	-3.8	-14.6, 7.0†	0.49	5	A
				AOP 45 bpm	19	nd	26.8					
Simantirakis 2005[271] 16354893	49 (19) [nd]	15.7 (nd)	1 mo (XO)	AOP	16	49.0 (19)	0.2	46.5	-9.8, 27.8‡	nd	0	B
				CPAP	16	49.0 (19)	-46.3					

Table 5.24.3. ESS in randomized Controlled trials of atrial overdrive pacing

Study PMID	Baseline AHI (SD) [range]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Simantirakis 2005[271] 16354893	49.0 (nd)	15.7 (nd)	1 mo (XO)	AOP	16	15.7 (nd)	0.1	10.3	nd	nd	0%	B
				CPAP	16	15.7 (nd)	-10.2					

Table 5.24.4. REM and Slow Wave Sleep (%) in randomized controlled trials of atrial overdrive pacing

Study PMID	Baseline AHI (SD) [eligibility]	Baseline ESS (SD)	Duration (design)	Outcome	Interventions	No. Analyzed	Baseline (SD)	Change (final)	Net Diff or Diff	95% CI	P Btw	Dropout, %	Study Quality
Melzer 2006[270] 17040007	nd	9.0 (3.9)	1 wk (XO)	REM (%)	AOP 75 bpm	19	nd	0	0	nd	0.93	5%	A
					AOP 45 bpm	19	nd	0					
				Slow wave sleep (%)	AOP 75 bpm	19	nd	14	-3.8	-46.0, 38.4*	0.86		
					AOP 45 bpm	19	nd	13					

Table 5.25.1. Positive airway pressure devices, reported major adverse events.*,†

Study PMID	Intervention details	Followup duration	No. Analyzed	Adverse event	n	%
Robinson, 2009[259] 19643262	CPAP	2-4 mo	73	Claustrophobia	1	1.4%
Hukins, 2004[183] 15683142	CPAP	2 mo	55	Pressure intolerance	5	9.2%
	AutoCPAP				2	3.6%
Salgado, 2008[207] 18982206	AutoCPAP, humidified	4 wk	17	Epistaxis	0	0
	AutoCPAP, nonhumidified		22		2	9.1%
Khanna, 2003[173] 14592306	Nasal CPAP	1 mo	17	Excessive nasal dryness	2	12%
			17	Epistaxis	2	12%
		2 mo	15	Excessive pressure	2	13%
			13	Severe claustrophobia	3	23%
	Oral CPAP	1 mo	21	Excessive oral dryness	11	52%
			21	Severe gum pain	3	14%
			21	Excessive pressure	4	19%
Nussbaumer, 2006[179] 16537862	AutoCPAP	1 mo	34	Claustrophobia	1	2.9%
Anderson, 2003[171] 14572126	Nasal CPAP	1 mo	21	Claustrophobia	1	4.8%
	Oral CPAP	1 mo	21	Dry mouth/throat (major problem)	3	14%
				Excess salvation (major problem)	1	4.8%
				Sore gums/lips (major problem)	2	9.5%

Table 5.25.2. Mandibular advancement devices, reported major adverse events.*,†

Study PMID	Intervention details	Followup duration	No. Analyzed	Adverse event	n	%
Engleman, 2002[225] 12231497	Custom-made (80% maximal comfortable mandibular protrusion, 2-4 mm interdental clearance)	8 wk	48	Dental crown damaged	3	6.3%
Walker-Engstrom 2002[262] 11888954	Custom-made (50% maximal mandibular advancement, 5 mm vertical opening)	4 yr	45	Tooth malocclusion and TMJ pain	1	2.2%
				Aphthous ulcer due to acrylic polymer allergy	1	2.2%
Petri, 2008[212] 18482111	Custom-made (maximal comfortable mandibular advancement, 5 mm vertical opening)	4 wk	31	Teeth loosening	1	3.2%
				TMJ pain	1	3.2%
Ferguson 1996[226] 8625679	Snore-Guard (mandible 3 mm posterior to maximal acceptable advance, 7 mm opening)	4 mo	25	Moderate to severe jaw discomfort	1	4.0%
Johnston, 2002[216] 12143089	Custom-made (75% maximal comfortable mandibular protrusion, 4 mm interincisal clearance)	4-6 wk	19	Persistent daytime TMJ discomfort	1	5.2%

Table 5.25.3. Surgical intervention (UPPP primarily), reported major adverse events.*†

Study PMID	Intervention details	Followup duration	No. Analyzed	Adverse event	n	%
Kezirian, 2004[277] 15091217	UPPP ± tonsil, nasal, turbinate surgery	30 days	3130	Death	7	0.2%
				Reintubation	17	0.5%
				Emergency tracheotomy	7	0.2%
				Ventilation >48 hr	6	0.2%
				Pneumonia	11	0.4%
				Cardiovascular complication	8	0.3%
				Hemorrhage	9	0.3%
				Deep vein thrombosis	0	0%
				Kidney failure	0	0%
				Total serious complications (including death)	51	1.6%
Lundkvist 2009[278] 19863325	UPPP (with tonsillectomy)	1 yr	158	Bleeding from tonsillectomy, profuse	2	1.3%
				Laryngeal edema, substantial	2	1.3%
				Long-term sequelae from complications	0	0%
				Death	0	0%
Esclamado 1989[279] 2530406	UPPP ± tonsil, nasal surgery, tracheostomy	24 hr	135	Reintubation (long-term sequelae = 0/135)	7	5.2%
				Death	1	0.7%
				Pulmonary edema	1	0.7%
				Hemorrhage, requiring surgical intervention	3	2.2%
Friedman, 2004[280] 15091218	UPPP	Perioperative	134	Airway complication	0	0%
				Abscess requiring surgical intervention	0	0%
				Rehospitalization	0	0%
Harmon 1989[281] 2916139	UPPP ± nasal, adenoid, tracheostomy	3 mo	126	Oropharyngeal hemorrhage	7	5.5%
				Voice change (rhinolalia)	2	0.6%
				Nasopharyngeal reflux	0	0%
				Pharyngeal infection	0	0%
			132‡	Pneumonia	2	1.5%
				Death	2	1.5%
				Emergency tracheotomy	2	1.5%
				Intubation difficulty and/or pulmonary edema or respiratory arrest	6	4.5%
Haavisto 1994[282] 7923849	UPPP	Postoperative	101	Hemorrhage requiring surgical intervention	5	5.0%
				Tracheostomy	4	4.0%
				Asystole, post-extubation	1	1.0%
				Infection	0	0%
				Arrhythmia	0	0%
		1 yr	91	Nasopharyngeal regurgitation	22	24%
				Difficulty swallowing	9	10%
				Difficulty with speech or change in voice quality	14	15%
				Loss of taste	2	2.2%
				Breathing difficulty	5	5.5%
				Hemorrhage	1	1.1%

Table 5.25.3. Surgical intervention (UPPP primarily), reported major adverse events§** (continued)

Study PMID	Intervention details	Followup duration	No. Analyzed	Adverse event	n	%
Anand 1991[255] 1945423	UPPP ± nose, turbinate, tonsil, epiglottis surgery, tracheostomy	16 d – 7.25 yr	66	Velopharyngeal incompetence >1 mo	8	12%
				Voice change, long term	1	1.5%
				Choanal stenosis, unilateral	1	1.5%
				Bleeding, requiring surgical intervention	1	1.5%
				Reintubation	1	1.5%
				Death	1	1.5%
				Nasal synechiae	2	3.0%
				Tracheal stenosis	1	1.5%
Walker-Engstrom 2002[262] 11888954	UPPP	4 yr	40	Nasopharyngeal regurgitation of fluids (pronounced)	3	8%
				Difficulty swallowing (pronounced)	4	10%
Ferguson, 2003[245] 12502473	LAUP	nd	21	Swallowing difficulty, persistent, moderate	1	4.8%
				Bleeding, requiring medical attention	1	4.8%
Lojander, 1996[124] 8681614	UPPP ± osteotomy	12 mo	18	Tracheotomy × 1 mo	1	5.6%
				Infection, requiring surgical intervention	2	11%
				Velopharyngeal incompetence	2	11%

Table 5.25.4. Radiofrequency ablation, reported major adverse events.*†

Study PMID	Intervention details	Followup duration	No. Analyzed	Adverse event	n	%
Stuck 2003‡[283] 12797590	RFVTR, tongue base or soft palate or turbinates or combination ± other oropharyngeal, nasal, hyoid surgery	3-8 days	497	Tongue base ulceration, requiring surgical intervention	3	0.6%
				Soft palate mucosa ulceration, requiring surgical intervention	1	0.2%
				Dysphagia requiring hospitalization	4	0.8%
				Hypoglossal nerve palsy, temporary	1	0.2%
				Tongue base abscess, requiring surgical intervention	1	0.2%
		>8 days	422	Long-term complications	0	0%
Woodson, 2001[252] 11593163	RFVTR, tongue base	6 wk	73	Severe, suppurative tongue base infection (2 required surgical intervention, 2 drained spontaneously)	4	5.5%
				Tongue abscess	1	1.4%
				Infection or cellulitis	7	9.6%

Table 5.25.5. Combination or various surgeries, reported major adverse events.*†

Study PMID	Intervention details	Followup duration	No. Analyzed	Adverse event	n	%
Riley, 1993[284] 8441535	UPPP + MO/GAHM‡	Postoperative 9 mo	233	Bleeding requiring anesthesia	3	1.3%
				Long-term speech or swallowing problem	0	0%
Riley, 1997[285] 9419093	UPPP + GA + HS§ UPPP ± GA ± HS ± MMO	3-7 days	182**	Bleeding (not described)	4	1.9%
				New onset atrial fibrillation	4	1.9%
				New unstable angina	1	0.5%
				Death	0	0%
Friedman, 2004[280] 15091218	UPPP + Tongue RFA	Perioperative	143	Hypoglossal nerve paralysis	1	0.7%
				Nerve paralysis (transient)	2	1.4%
				Airway complication	0	0%
				Abscess requiring surgical intervention	0	0%
				Rehospitalization	0	0%
Friedman, 2007[286] 17713449	3-level: Tongue RF, Pillar implants, partial uvulectomy, nasal, turbinate surgery	nd	122	Major complication	0	0%
				Nasal septum perforation, tongue mucosal ulceration, & hypoglossal nerve weakness <1 month	1	0.8%
				Turbinate bone exposure	2	1.6%
				Pillar extrusion requiring removal and replacement	5	4.1%
Benazzo, 2008[287] 18568505	HS + nasal, turbinate, palate surgery	6 mo	109	"Major complication"	0	0%
Robinson, 2009[259] 19643262	Stepwise UPPP, GA, TAP, HS, Tongue RFA	nd	64	Paresthesia	11	17%
				Dysphagia	7	11%
				Voice change	2	3.1%
				Taste alteration	1	1.6%
				Wound dehiscence	1	1.6%
				Infection	2	3.1%
				Palatal fistula (transient)	1	1.6%

Table 5.25.6. Surgical implant, reported major adverse events.*

Study PMID	Intervention details	Followup duration	No. Analyzed	Adverse event	n	%
Steward, 2008[243] 18922335	Pillar implant	1 wk	50	Infection	1	2%
				Extrusion	2	4%

Table 5.25.7. Bariatric surgery, reported major adverse events.*

Study PMID	Intervention details	Followup duration	No. Analyzed	Adverse event	n	%
Grunstein, 2007[272] 17580591	Vertical banded gastroplasty (72%) Gastric banding (20%) Gastric bypass (8%)	Perioperative	1592	Perioperative mortality	~3	0.21%
				Bleeding, embolus and/or thrombosis, wound complications, deep infections, pulmonary, and other complications	~207	13.0%

Table 5.25.9. Drugs, reported major adverse events.*

Study PMID	Intervention details	Followup duration	No. Analyzed	Adverse event	n	%
Bradshaw, 2006[288] 17099012	Zolpidem	4 wk	72	Sleep walking	1	1.4%
Kraiczi, 1999[266] 9989366	Paroxetine†	6 wk	20	Ejaculation disturbance	3	15%
				Decreased libido	2	10%
				Headache	1	5%
				Constipation	1	5%
Whyte, 1988[267] 3067313	Protriptyline	2 wk	10	Severe dry mouth requiring discontinuation	2	20%
				Visual upset	1	10%
				Urinary symptoms	1	10%
				Altered sexual potency & testicular discomfort	1	10%
	Acetazolamide	2 wk	10	Paresthesia, intolerable	1	10%
				Paresthesia, any	8	80%

Table 6.1a. Predictors of compliance with CPAP: study characteristics

Study PMID	Design Country (study years)	eligibility	N	Factor	Value	Treatment	CPAP Pressure [A] (type)	Ancillary care	(Lack of) Compliance definition
McArdle 1999[289] 10194153	Prosp Scotland, UK (1986-97)	Starting CPAP	1103	Male Age BMI AHI	86% 50 [C] yr 30 [C] 50 (18-53) [D]	CPAP various	Manual (separate)	2 weeks with nurse specialist [B]	<2 hr/night x 1 mo or voluntarily discontinued
Krieger 1996[290] 9122571	Prosp France (1984-95)	Starting CPAP	608	Male Age BMI AHI	nd 54 yr 31.9 70	CPAP	nd (separate)	Questionnaire: If use <3 hr/night then f/up	<1 hr/night
Pepin 2008[203] 19567496	Prosp (RCT) France (nd)	Starting CPAP	218	Male Age BMI AHI	72% 56 yr 31 44	C-Flex vs. CPAP	Auto (separate)	nd	"Objective compliance" not defined (measured by CPAP)
Wild 2004[291] 15358707	Prosp Scotland, UK (nd)	Starting CPAP	119	Male Age BMI AHI	79% 51 yr 33 45	CPAP	nd (separate)	Pretitration training Support x2 wk	Adherence = >3 hr/night
Hui 2001[292] 11451834	Prosp Hong Kong (1997-98)	Starting CPAP	112	Male Age BMI AHI	90% 46 yr 29.3 48	AutoCPAP	Auto (separate)	Initial education, brochure & training session	hr/night (continuous)

[A] Method for choosing CPAP Pressure: Manual (during sleep study); Auto (determined with AutoCPAP); Algorithm (by an algorithm); nd (no data reported); NA (not applicable, eg if AutoCPAP is the intervention). In parentheses: Split (CPAP introduced in a split night study); Separate (CPAP introduced on a separate full night than the diagnostic sleep study).

[B] 2 weeks contact with nurse specialist. At reviews, if objective CPAP use <2 h, confronted with usage data to encourage increase use. If still <2 h at 1 month f/up visit, CPAP machine reclaimed.

[C] Median

[D] Median (interquartile range)

Table 6.1b. Predictors of compliance with CPAP, multivariable analyses

Study PMID	Outcome	Overall outcome rate	Follow-up	Predictor	Baseline predictor	HR/OR	95% CI	P	Quality
McArdle [A] 1999[289] 10194153	Discontinue CPAP	16% 32%	(12 mo) (4 yr) 22 mo. mean	ESS ≤10 [B]	40%	1.92	1.41-2.61	<0.001	A
				AHI <15 [C]	nd	2.48	1.79-3.46	<0.001	
				Nonsnorer	2%	2.76	1.29-5.95	0.009	
				CPAP use at 3 mo <2 hr	*nd*	*13.8*	*8.86-21.5*	*<0.001*	
				AHI <30	~50%			NS	
				Arousal Index <32	~50%			NS	
				No witnessed apneas	17%			NS	
				No somnolence	19%			NS	
				No driving problem	64%			NS	
				Coexisting COPD	10%			NS	
				Pressure <8 cm H2O	~50%			NS	
				Female	14%			NS	
				Age ≥50 y	~50%			NS	
				BMI ≤30	~50%			NS	
Krieger [D] 1996[290] 9122571	CPAP withdrawn	14%	3.2 yr	AHI ≤15	5%	nd		<0.05	C
				Age (continuous [E])	50	nd		<0.05	
				MSLT (continuous [E])	16.5 min			NS	
				ESS (continuous [E])	8.8			NS	
				Respiratory symptoms (nd)				NS	
Pepin [F] 2009[203] 19567496	"Objective compliance" [G]	5 hr/night	3 mo	Mean SaO2, per %	93%	1.22	1.03-1.45	0.02	C
				GrenobleSAQOL Sleepiness [H], per scale unit	~15	1.13	1.04-1.24	<0.01	
				Age, per 10 y	56 y	0.9	0.54-1.34	NS	
				GrenobleSAQOL Treatment, efficacy [J] per unit (3 mo)	*nd*	*1.16*	*1.02-1.32*	*0.02*	
				Noise (3 mo, not defined)	*nd*	*0.74*	*0.98-1.02 [K]*	*nd*	
				Feel exhalation resistance (3 mo)	*nd*	*1.02*	*1.00-1.04*	*0.1 [L]*	
Wild [M] 2004[291] 15358707	Adherence [G]	nd	3 mo	AHI (continuous [E])	45	1.02	nd	0.02	B
				CPAP Pressure (continuous [E])	9 cm H_2O	0.82	nd	0.05	
				BMI (continuous [E])	33	1.09	nd	0.02	
				ESS (continuous [E])	13	1.09	nd	0.04	
Hui [N] 2001[292] 11451834	hr/night use	5.4 hr/night	1 mo	AHI (continuous [E])	48	nd	nd	0.006	C
				Snoring		nd	nd	NS	
		5.4 hr/night	3 mo	AHI (continuous [E])	48	nd	nd	0.004	
				Snoring		nd	nd	NS	

Predictors measured after baseline are italicized.

[A] Occupation, referral source, collar size, alcohol consumption, smoking status, diagnostic test type, and CPAP titration method were not associated with discontinuing CPAP by univariable analysis.

[B] Also reported that lower ESS (analyzed as a continuous variable) predicted less compliance across the range of ESS.

[C] Also reported that lower AHI (analyzed as a continuous variable) predicted less compliance across the range of AHI.

[D] No data on which tested variables were not associated with CPAP withdrawal by univariable analysis.

[E] Implied.

[F] No data on which tested variables were not associated with "objective compliance" by univariable analysis.

[G] Note that in contrast to most other studies, the outcome is compliance/adherence, not lack of compliance.

[H] Grenoble Sleep Apnea Quality of Life. 25 point scale (implied), with higher scores indicating worse conditions.

[J] This outcome is not defined or included in the list of domains in Grenoble Sleep Apnea Quality of Life. Higher scores indicate worse conditions.

[K] These illogical OR and confidence interval were what was reported. The reported beta and standard error of the beta did not match any of these values.

[L] Although this P value does not match with the reported beta, standard error of the beta, OR, or 95% CI, it is what was reported.

[M] Also analyzed with psychological variables (Multidimensional locus of control scale). Results for AHI, CPAP Pressure, BMI, and ESS were similar. Higher health value scale (measure of how much patient values his/her health) was associated with increased compliance (OR=1.40, P=0.02). Other psychological tests were not significantly associated. Age, alcohol intake, current cigarette use, marital status, and minimum O2 saturation were not associated with adherence by univariable analysis.

[N] Frequent awakenings, witnessed apneas, and other symptoms were not associated with adherence at 1 or 3 months by univariable analyses.

Table 6.2a. Mandibular advancement device as predictors of compliance: Study characteristics

Study PMID	Design Country (study years)	eligibility	N	Factor	Value	Treatment	Description	Ancillary Care	(Lack of) Compliance Definition
Izci 2005[293] 15733510	Retro Scotland, UK (nd)	MAD after PSG	144	**Male**	79%	Individually fitted mandibular repositioning splint	~80 maximal comfortable mandibular protrusion 2-4 mm interdental clearance	Standard education Adjusted until workable	Compliance hr/night and/or nights/wk (unclear)
				Age	51 yr				
				BMI	nd				
				AHI	23				

Table 6.2b. Pre-treatment predictors of compliance with mandibular advancement device, univariable analysis*

Study PMID	Outcome	Overall Outcome Rate	Follow-up	Predictor	Quality
Izci, 2005[293] 15733510	Compliance	nd	31 mo	Not associated with compliance on univariable analysis (nd): Age, Sex, Occupation, "Marital situation", Snoring, Refreshment after sleep, Daytime somnolence, Driving problems, ESS, AHI, CPAP failure or refusal	C

* No studies performed multivariable analyses.

Table 7.1. Randomized controlled trials of interventions to improve compliance with CPAP use: study characteristics

Study PMID	Interventions	CPAP Pressure* (type)	Mean Age, yr	Male, %	Mean BMI, kg/m^2	Other Patient Characteristics	Country (enrollment years)	Major quality issues
Extra Support or Education								
Chervin 1997[294] 9231954	Telephone calls Literature Standard care	nd (nd)	52	64	nd	Either new to CPAP (31%) or continuous CPAP users (69%)	US (1995)	Different follow-up durations between comparative groups.
Damjanovic 2009[174] 19129293	Intensive support Standard support	Auto and manual (separate)	57	78	31	Newly diagnosed OSA	Germany (nd)	Large dropout rate. Assumed non-compliance for dropout patients.
Fletcher, 1991[296] 2024846	Telephone reinforcement about OSA and CPAP use Usual care	Manual (separate)	52	100	Mean IBW = 158%	New CPAP users	US (nd)	Inconsistent reporting; primarily relying on self-reported readings for CPAP use
Hoy 1999[297] 10194151	Intensive educational programs and nursing support Usual care	Manual (separate)	58	98	33	New CPAP users	UK (nd)	
Hui 2000[298] 10807830	Augmented education and support Basic education and support	Auto (separate)	45	90	30	Newly diagnosed OSA	Hong Kong (nd)	More missing data on objective CPAP use in the intervention group than the control group due to technical problems.
Wiese 2005[299] 15716221	Educational videotape No intervention	nd (nd)	48	53	38	Newly diagnosed OSA	US (nd)	More dropouts in the control group than intervention group. Assumed non-compliance for dropout patients.
Lewis 2006[300] 16564210	Extra early support Usual care	Auto (separate?)	51	86	36	New CPAP users	UK (nd)	More dropouts in the control group than intervention group.
Meurice 2007[301] 17157557	RP+RH RP+SH SP+RH SP+SH	Manual (separate)	58	nd	33	New CPAP users	France (nd)	Potential center effects were not controlled fro in the analyses.
Smith 2009[303] 18829212	Habit-promoting experimental audio intervention: CPAP everyday Placebo control audio-based intervention	Auto (nd)	63	58	82% >30	Newly diagnosed OSA and new CPAP users	US (nd)	Assumed non-compliance for dropout patients.

Table 7.1. Randomized controlled trials of interventions to improve compliance with CPAP use: study characteristics (continued)

Study PMID	Interventions	CPAP Pressure† (type)	Mean Age, yr	Male, %	Mean BMI, kg/m²	Other Patient Characteristics	Country (enrollment years)	Major quality issues
Telehealth or telemonitoring care								
DeMolles 2004[295] 15258478	Telephone-linked communications for CPAP Usual care	nd (nd)	46	nd	38	New CPAP users	US (nd)	How CPAP use data were collected was not described. "Usual care" was not described.
Stepnowsky 2007[304] 17513285	Wireless telemonitoring clinical care Usual care	Auto (nd)	59	98	32	Newly diagnosed OSA and new CPAP users	US (2004-06)	Small sample size
Taylor 2006[305] 16565867	Telemedicine support Usual care	nd (nd)	45	69	nd	New CPAP users	US (2002-03)	Patients who had difficulties to use telemedicine support were excluded from the analyses.
Behavioral interventions								
Richards 2007[302] 17552379	Cognitive behavioral therapy Usual care	Manual (nd)	56	86	30	nd	Australia (2005)	
Miscellaneous interventions								
Bradshaw 2008[288] 17099012	Oral hypnotic agent (zolpidem), 10 mg Placebo pill Standard care (no zolpidem or placebo pill)	nd (both)	38	100	32	New CPAP users	US (2001-03)	Patients in the standard care had more severe OSA based on AHI; not blinded.
Massie 2003[306] 12684301	Nasal pillows Nasal mask	Manual (both)	49	82	36	New CPAP users	US (nd)	
Different care models								
Antic 2009[307] 19136368	Simplified nurse-led model of care Usual care	Auto and manual (separate) manual (nd)	50	74	35	nd	Australia (2004-06)	Different CPAP titrations between groups by study design
Holmdahl 2009[308] 19179111	Simplified nurse-led model of care Usual care	Manual (nd)	58	85	35	CPAP-treated patients with OSAS in a stable condition	Sweden (nd)	More patients dropped out in the control group. How CPAP use data were collected was not reported.
Palmer 2004[309] 14725828	A home visit from a specialist nurse A visit to a consultant led clinic	nd (nd)	55	86	nd	The mean duration of CPAP therapy = 2.99 yr	UK (2001)	Baseline patient characteristics were unclear. Dropout and unusable CPAP use data were excluded form the analyses.

Table 7.2. Compliance (hr/night) in randomized controlled trials of interventions to improve CPAP use

Study PMID	Baseline AHI (SD) [minimum]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Final	SD	Diff	95% CI	P Btw	Dropout, %	Study Quality
Extra Support or Education												
Hoy 1999[297] 10194151	58 (33) [>15]	13 (6)	6 mo (PL)	Intensive support	40	5.4	1.9	+1.6	0.62, 2.58*	0.003	0	A
				Usual care	40	3.8	2.5					
Meurice 2007[301] 17157557	58 (24) [>30]	11.3 (5.4)	3 mo (PL)	RP+RH	27	5.6	2.4	+0.9	-0.38, 2.18†	NS	16	B
				RP+SH	30	4.7	2.2	0	-1.20, 1.20‡			
				SP+RH	28	5.1	2.5	+0.4	-0.90, 1.70§			
				SP+SH	27	4.7	2.4					
			12 mo (PL)	RP+RH	23	5.8	2.8	+0.3	-1.16, 1.76	NS	19	
				RP+SH	22	6.3	2.2	+0.8	-0.49, 2.09			
				SP+RH	21	5.7	2.2	+0.2	-1.09, 1.49			
				SP+SH	25	5.5	2.4					
Damjanovic 2009[174] 19129293	44 (25) [≥15]	8.8 (5.2)	3 mo (PL)	Intensive support	50	5.5	1.4	+0.1	-0.61, 0.81 .**	NS	0††	B
				Standard support	50	5.4	2.1					
			9 mo (PL)	Intensive support	50	5.7	1.4	+1.1	0.22, 1.98 ‡‡	<0.05		
				Standard support	50	4.6	2.8					
Hui 2000[298] 10807830	48 (24) [≥10]	12.5 (5.1)	3 mo (PL)	Augmented support	45	5.3	0.3	0	-0.7, 0.7§§	NS	10	B
				Basic support	52	5.3	0.2					
Lewis 2006[300] 16564210	42 (27) [nd]	15.7 (4.3)	1 mo (PL)	Extra early support	36	5.2	nd	-0.2	nd	nd	6	C
				Usual care	32	5.4	nd					
			12 mo (PL)	Extra early support	30	4.6	nd	-0.5	nd	nd	17	
				Usual care	30	5.1	nd					
Chervin 1997[294] 9231954	49 (39) [nd]	10.9 (5.1)	1-2.5 mo (PL)	Telephone calls	12	5.7	2.3	+1.3	-1.45, 4.05 .***	0.02	18	C
				Literature	14	7.1	1.8	+2.7	0.35, 5.05 .†††			
				Standard care	7	4.4	3.4					
Fletcher, 1991[296] 2024846	40 (28) [nd]	nd	3 mo (XO)	Telephone reinforcement	10	5.95	2.7	-0.05	-1.76, 1.66 ‡‡‡	NS	0	C
				Usual care	10	6.0	2.8					

Table 7.2. Compliance (hr/night) in randomized controlled trials of interventions to improve CPAP use (continued)

Study PMID	Baseline AHI (SD) [minimum]	Baseline ESS (SD)	Duration (design)	Interventions	No. Analyzed	Final	SD	Diff	95% CI	P Btw	Dropout, %	Study Quality
Telehealth or telemonitoring care												
Stepnowsky 2007[304] 17513285	41 (16) [≥15]	12.6 (5.5)	2 mo (PL)	Wireless telemonitoring	20	4.1	1.8	+1.3	-0.05, 2.5 §§§	0.07	12	B
				Usual care	20	2.8	2.2					
Taylor 2006[305] 16565867	41% severe OSA [>4]	14 (4)	30 d (PL)	Telemedicine support	47	4.3	2.2	+0.07	-0.77, 0.91 ****	NS	16	C
				Usual care	49	4.2	2.1					
DeMolles 2004[295] 15258478	42 (38) [nd]	nd	2 mo (PL)	Telephone-linked CPAP communication	15	4.4	3.0	+1.5	-0.53, 3.53 ††††	0.08	0	C
				Usual care	15	2.9	2.4					
Behavioral interventions												
Richards 2007[302] 17552379	26 (22) [>5]	10.5 (5.3)	28 days (PL)	Cognitive behavioral therapy	48	5.4	2.6	+2.8	1.8, 3.9 ‡‡‡‡	<0.0001	4	A
				Usual care	48	2.5	2.7					
Miscellaneous interventions												
Bradshaw 2006[288] 17099012	43 (28) [≥5]	15.4 (3.5)	Days 1-14 (PL)	Zolpidem 10 mg	24	11.1	3.7	+1.6 §§§§	-0.83, 4.03 *****	NS	0	B
				Placebo pill	24	9.5	4.6					
				Standard care††††	24	12.1	3.2					
			Days 15-28 (PL)	Zolpidem 10 mg	24	9.5	4.6	+1.2 ‡‡‡‡	-1.65, 4.05 §§§§§	NS		
				Placebo pill	24	8.3	5.2					
				Standard care******	24	10.8	3.9					
Massie 2003[306] 12684301	47 (35) [≥15]	12.8 (4.9)	3 wk (XO)	Nasal pillows	39	5.6	1.3	+0.2	-3.8, 4.2 ‡‡‡‡‡	NS	7	B
				Nasal mask	39	5.4	1.6					
Different care models												
Antic 2009[307] 19136368	68 (27)	13 (3.9)	3 mo	Simplified nurse-led model of care	94	4.1	2.7	-0.45	-1.26, 0.36	NS	10	B
				Usual care	83	4.6	2.7					
Palmer 2004[309] 14725828	nd [nd]	8.5 (5.5)	12 mo	One home visit by special nurse	63	5.9	2.7	+0.21	-0.40, 0.82 ‡‡‡‡‡	NS	28	C
				One consultant clinic visit	63	5.6	2.5					

Table 7.3. Non-compliance outcome in randomized controlled trials of interventions to improve CPAP use

Study PMID	Baseline AHI (SD) [minimum]	Baseline ESS (SD)	Duration (design)	Definition of non-compliance	Interventions	n Event	N Total	Outcome metric	Result[1]	95% CI[2]	P Btw	Dropout, %	Study Quality
Extra Support or Education													
Hui 2000[298] 10807830	48 (24) [≥10]	12.5 (5.1)	3 mo (PL)	Mean CPAP use ≤4 hr and ≤70% of nights	Augmented support	16	54	RD	-0.04	-0.13, 0.21	NS	10	B
					Basic support	14	54						
Smith 2009[303] 18829212	50 (nd) [≥20]	nd	1 mo (PL)	CPAP use <4 hr/night and less than 80% use rate	Habit-promoting experimental audio intervention	6	55	RD	-0.34	-0.52, -0.17	<0.01	0.4[3]	B
					Placebo control audio-intervention	19	42						
			6 mo (PL)	CPAP use <4 hr/night and less than 80% use rate	Habit-promoting experimental audio intervention	14	55	RD	-0.03	-0.21, 0.15	NS		
					Placebo	12	42						
Wiese 2005[299] 15716221	9 (nd) [>4]	13 (6)	1 mo (PL)	Not return to clinic at 4 weeks	Educational videotape	14	51	RD	-0.24	-0.42, -0.05	0.02	39.4	C
					No intervention	25	49						
Behavioral interventions													
Richards 2007[302] 17552379	26 (22) [>5]	10.5 (5.3)	28 d (PL)	CPAP use <4 hr/night at 28 days	Cognitive behavioral therapy	9	48	Adjusted OR[5]	0.14	0.05, 0.36	<0.0001	4	A
					Usual care	33	48						

Table 7.3. Non-compliance outcome in randomized controlled trials of interventions to improve CPAP use (continued)

Study PMID	Baseline AHI (SD) [minimum]	Baseline ESS (SD)	Duration (design)	Definition of non-compliance	Interventions	n Event	N Total	Outcome metric	Result[6]	95% CI[7]	P Btw	Dropout, %	Study Quality
Miscellaneous interventions													
Bradshaw 2003[288] 17099012	43 (27) [≥5]	15.4 (3.5)	4 wk (PL)	Mean CPAP use ≤4 hr	Zolpidem 10 mg	7	24	RD	-0.17.[8]	-0.44, 0.10	NS	0	B
					Placebo pill	11	24						
					Standard care.[9]	7	24						
			4 wk (PL)	Receiving CPAP ≤70% of nights	Zolpidem 10 mg	8	24	RD	-0.13.[10]	-0.40, 0.15	NS		
					Placebo pill	11	24						
					Standard care.[11]	4	24						
			4 wk (PL)	Mean CPAP use ≤4 hr and ≤70% of nights	Zolpidem 10 mg	10	24	RD	-0.08.[12]	-0.36, 0.20	NS		
					Placebo pill	12	24						
					Standard care.13	9	24						
Different care models													
Holmdahl 2009[308] 19179111	nd [>15]	nd	2 yr (PL)	<6 hr CPAP use per night	Simplified nurse-led model of care	23	95	RD	-0.02	-0.14, 0.11	NS	16	C
					Usual care	23	89						
			2 yr (PL)	<4 hr CPAP use per night	Simplified nurse-led model of care	5	95	RD	-0.02	-0.08, 0.05	NS		
					Usual care	6	89						

* As described, the device should only be capable of using the total recording time
* Average of the mean values of the two centers of the study
† Median and interquartile range
* ARES: Apnea Risk Evaluation System Unicorder
** Estimated from Figure of plot in the publication, using the Engauge Digitizer software program

* Apnea: Reduction of inspiratory airflow by 80% to 100% over 10 secs (max 80 ss); Hypopnea: Reduction of tidal breathing of 50% from baseline tidal breathing lasting (Max100 secs)
† Sandman Sleep Diagnostic System setting - Apnea: 85% or more reduction of normal flow that lasts (max 100 s); Hypopnea: 40% reduction of normal flow lasting 10 s (max 120 s)
‡ Using home-based PSG (Embletta)
§ Calculated from data provided
** Estimated CI from Figure of plot in the publication, using the Engauge Digitizer software program
* Estimated from Figure of plot in the publication, using the Engauge Digitizer software program
† ADI - Adjusted O_2 desaturation index (ADI): mean number of O_2 desaturations per hour of analyzed recording ≥2%, 3%, 5% (ADI2, ADI3, ADI5)
‡ Results from the two separate groups were reported but not presented.
* The HSQ includes questions on characteristics in sleep apnea patients: (a) stopping breathing during sleep, (b) loud snoring, and (c) waking from sleep gasping or short of breath. Additional questions on sex, age, height, weight, sleep history and history of tonsillectomy or adenoidectomy. The final model included self-reports of loud snoring, breathing cessation during sleep and adenoidectomy.
† High Risk: classified as "high risk" in 2 of 3 symptom categories - (a) snoring (b) wake time sleepiness and drowsy driving (c) hr/o high blood pressure or BMI >30 kg/m^2; Low Risk: all others.
‡ The Berlin Questionnaire was customized to the Indian setting (re: questions on driving) but the scoring remained the same. The screening questionnaire used was not a validated one.
* Median and inter-quartile range
* Derived by logistic regression on data from a 24-item questionnaire and clinical features.
† Combination of Multivariable Apnea Prediction (MAP) questionnaire score and oximetry results. MAP score predicts apnea risk using a score between 0 and 1, with 0 representing low risk and 1 representing high risk. Oximetry desaturation index (ODI) using a 3% drop (ODI3) as well as a 4% drop (ODI4) in oxygen saturation. Optimal model parameters obtained by the bootstrapping technique.
‡ Model: P + (Mx - Mn) + 3 X OJ + 3 X [Max (BMI -25, 0)] X (NC / BMI)
P = palatal height (in millimeters); Mx is the maxillary intermolar distance (in millimeters) between the mesial surfaces of the crowns of the maxillary second molars; Mn is the mandibular intermolar distance (in millimeters) between the mesial surfaces of the crowns of the mandibular second molars; OJ is the overjet (in millimeters) or the horizontal overlap of the crowns of the maxillary and mandibular right central incisors; BMI is the body mass index (kg/m2; ideal BMI < 25); Max (BMI -25, 0) refers to the larger of the two quantities: BMI - 25, or zero. If BMI is <= 25, then [Max (BMI - 25, 0)] is zero; if BMI >25, then BMI - 25 is inserted into the formula; NC is neck circumference (in centimeters) measured at the level of the cricothyroid membrane.
§ Nurse observations made in five standardized hourly bedside visits over the course of one night.
** Sum of the individual scores for age, sex, snoring, stops breathing, and BMI; range = 0 -7.3.
†† Clinical prediction model #1: Probability of predicting AHI ≥10 = $1/ (1 + e^{-(-13.9+0.06a+2.98b+0.23c+1.35d)})$ where a = age; b= I if witnessed apneas present, 0 if witnessed apneas absent; c = BMI; d = 1 if patient has hypertension, 0 if hypertension absent.
‡‡ Clinical prediction model #2: Probability of predicting AHI ≥10 = $e^x/ (1+e^x)$ where, x = -10.5132 + 0.9164*sex + 0.0470*age + 0.1869*BMI+1.932*snoring; where sex = 1 for male, 0 for female, snoring = 1 for present, 0 for absent.
§§ Clinical prediction model #3: Probability of predicting AHI ≥10 = $(10^{(-2.132+0.069*NC+0.31*H+0.206*HS+0.224*PR)} + 1)$ where NC=neck circumference; H=1 if hypertension, 0 if hypertension absent, HS=1 if habitual snorer, 0 if not, PR = 1 if reports nocturnal choking/gasping, 0 if no nocturnal choking/gasping.
*** Clinical prediction model #4: Probability of predicting AHI ≥10 = $e^x/ (1+e^x)$ where, x = -8.160+1.299*Index1+0.163*BMI-0.025*BMI*Index1+0.032*age +1.278*sex where, sex=1 if male, 0 if female, index1 = the mean of non-missing values for frequency of snorting/gasping; loud snoring; breathing stops/chokes.
††† Probability (p) of having a polysomnography positive for SAS: logit (p)= -13.6 sGrs + 2.5 (100 - SaO_2) + 4.2 where specific respiratory conductance (sGrs) (in $cmH_2O^{-1} * s^{-1}$) = respiratory conductance (Grs) / functional reserve capacity (FRC) SaO_2 = daytime arterial oxygen saturation in %. The estimated value of p was derived from logit (p)= $\log_e(p/1-p)$, from 0 to 1 range.
* Top row intervention vs. bottom row intervention. Calculated from reported data.

* Included in multivariable analysis. No data on whether statistically significant independent predictor.
† Not statistically significant in univariable analysis. Not included in multivariable analysis.
‡ Implied
§ Results also reported for all men combined, and women divided above and below age 70 yr.
** Implied
†† Analyzed in a multivariable logistic regression with apnea index (continuous) included as a predictor.
* Included in multivariable analysis. No data on whether statistically significant independent predictor.
† Not statistically significant in univariable analysis. Not included in multivariable analysis.
‡ Antihypertensive, lipid-lowering, and antidiabetic drugs.
§ Antihypertensive, lipid-lowering, and antidiabetic drugs.
* Included in multivariable analysis. No data on whether statistically significant independent predictor.
† Not statistically significant in univariable analysis. Not included in multivariable analysis.
‡ Included in multivariable analysis. No data on whether statistically significant independent predictor.
§ Not statistically significant in univariable analysis. Not included in multivariable analysis.
* Included in multivariable analysis. No data on whether statistically significant independent predictor.
† Not statistically significant in univariable analysis. Not included in multivariable analysis.
‡ Change in BMI during follow-up was statistically significant
* Baseline / Final
† Included in multivariable analysis. No data on whether statistically significant independent predictor.
‡ Not statistically significant in univariable analysis. Not included in multivariable analysis.
* Method for choosing CPAP Pressure: Manual (during sleep study); Auto (determined with AutoCPAP); Algorithm (by an algorithm); nd (no data reported); NA (not applicable, e.g. if AutoCPAP is the intervention). In parentheses: Split (CPAP introduced in a split night study); Separate (CPAP introduced on a separate full night than the diagnostic sleep study).
† Method for choosing CPAP Pressure: Manual (during sleep study); Auto (determined with AutoCPAP); Algorithm (by an algorithm); nd (no data reported); NA (not applicable, e.g. if AutoCPAP is the intervention). In parentheses: Split (CPAP introduced in a split night study); Separate (CPAP introduced on a separate full night than the diagnostic sleep study).
* Estimated from reported data.
† Estimated from reported P value.
‡ Estimated from reported P value.
* Estimated from reported data
† Estimated from reported P value.
‡ Based on reported within-group changes.
§ Estimated from reported P value.
** Estimated from reported data
†† Estimated from reported P value.
‡‡ Estimated from reported P value.
§§ Estimated from reported P value.
*** Reported change.
††† Reported change.
* Estimated from reported data.
† Estimated from reported P value.
* Estimated from reported data

‡ Reported change.
[‡] Method for choosing CPAP Pressure: Manual (during sleep study); Auto (determined with AutoPAP); Algorithm (by an algorithm); nd (no data reported); NA (not applicable, eg if AutoPAP is the intervention). In parentheses: split (CPAP introduced in a split night study); separate (CPAP introduced on a separate full night than the diagnostic sleep study).
[†] Method for choosing CPAP Pressure: Manual (during sleep study); Auto (determined with AutoPAP); Algorithm (by an algorithm); nd (no data reported); NA (not applicable, eg if AutoPAP is the intervention). In parentheses: split (CPAP introduced in a split night study); separate (CPAP introduced on a separate full night than the diagnostic sleep study).
* Only IQR were reported.
† Estimated from reported data.
‡ Estimated from reported data.
§ Estimated from reported data.
** Estimated from reported data.
†† Estimated from reported data.
‡‡ Estimated from reported data.
§§ Estimated from reported data.
*** Estimated from reported data
††† Estimated from reported data.
* Change from baseline (SD)
† Change from baseline (SD)
‡ Change from baseline (SD)
§ Estimated from reported P value
** Change from baseline (SD)
†† Estimated from reported data.
‡‡ Estimated from reported data.
§§ Estimated from reported data.
*** Estimated from reported data.
††† Estimated from reported data.
‡‡‡ Estimated from reported data.
§§§ Estimated from reported data.
**** Change from baseline (SD)
†††† Estimated from reported data
‡‡‡‡ Change from baseline (SD)
§§§§ Estimated from reported data
* Estimated from reported data.
† Estimated from reported data.
‡ Estimated from reported data
* Estimated from reported data.
† Estimated from reported data.
* Estimated from reported data.
† Estimated from reported data.
‡ Estimated from reported data.
§ Estimated from reported data
* In crossover studies, if only data on the final values and the difference in final values are reported (as opposed to changes from baseline and net change), these data are italicized.
† Estimated from reported data.

‡ Estimated from reported data.
§ Estimated from reported data.
** Estimated from reported data
* Significantly different between group at baseline
† Significantly different between group at baseline
‡ Estimated from reported data.
* Estimated from reported data.
† Estimated from reported data.
* The noted intervention statistically significantly favors the patient (net better score on test). 0 = no difference.
† Estimated from reported data.
‡ Estimated from reported data.
§ Estimated from reported data.
* The noted intervention statistically significantly favors the patient (net better score on test). 0 = no difference.
† The noted intervention statistically significantly favors the patient (net better score on test). 0 = no difference.
* Median
† Estimated from reported data.
‡ Estimated from reported data.
§ Estimated from reported data.
** Estimated from reported data.
†† Estimated from reported data.
‡‡ Estimated from reported data.
§§ Estimated from reported data.
*** Estimated from reported data.
††† Estimated from reported data.
‡‡‡ Estimated from reported data.
§§§ Estimated from reported data.
**** Estimated from reported data.
†††† Estimated from reported data.
‡‡‡‡ Estimated from reported data.
§§§§ Estimated from reported data.
* Method for choosing CPAP Pressure: Manual (during sleep study); Auto (determined with AutoCPAP); Algorithm (by an algorithm); nd (no data reported); NA (not applicable, eg if AutoCPAP is the intervention). In parentheses: Split (CPAP introduced in a split night study); Separate (CPAP introduced on a separate full night than the diagnostic sleep study).
* Estimated from reported P value
† RDI
‡ Estimated from reported data
§ Estimated from reported data
* Estimated from reported P value
* Method for choosing CPAP Pressure: manual (during sleep study), auto (determined with AutoCPAP); Algorithm (by an algorithm); nd = no data reported; NA = not applicable (e.g., if AutoCPAP is the intervention). In parentheses: Split (CPAP introduced in a split night study), Separate (CPAP introduced on a separate full night than the diagnostic sleep study).

† Method for choosing CPAP Pressure: manual (during sleep study), auto (determined with AutoCPAP); Algorithm (by an algorithm); nd = no data reported; NA = not applicable (e.g., if AutoCPAP is the intervention). In parentheses: Split (CPAP introduced in a split night study), Separate (CPAP introduced on a separate full night than the diagnostic sleep study).
* directions of changes were not reported in the study
† directions of changes were not reported in the study
‡ Estimated from reported P value
§ Estimated from reported P value
** Estimated from reported P value
†† Estimated from reported P value
‡‡ Estimated from reported P value
* Estimated from reported data
† Directions of changes were not reported in the study
‡ Directions of changes were not reported in the study
§ Estimated from reported data
** Actual reported data
†† Estimated from reported P value
* Estimated from reported data
* Estimated from reported data
† Estimated from reported P value
‡ Estimated from reported P value
§ Estimated from reported P value
* Estimated from reported data
† Directions of changes were not reported in the study
‡ Directions of changes were not reported in the study
§ Estimated from reported P value
# Estimated from reported data
† Estimated from reported P value
* Estimated from reported data
† Estimated from reported P value
* Directions of changes were not reported in the study
† Directions of changes were not reported in the study
‡ Unclear
§ Unclear
** Estimated from reported P value
* Estimated from reported data
† directions of changes were not reported in the study
‡ directions of changes were not reported in the study
§ Unclear
** Unclear
†† Estimated from reported P value
* Estimated from reported P value
† Estimated from reported P value

* Method for choosing CPAP Pressure: Manual (during sleep study); Auto (determined with AutoCPAP); Algorithm (by an algorithm); nd (no data reported); NA (not applicable, e.g. if AutoCPAP is the intervention). In parentheses: Split (CPAP introduced in a split night study); Separate (CPAP introduced on a separate full night than the diagnostic sleep study).
* Estimated from reported data
† Estimated from reported data
* Estimated from reported data
† Estimated from reported data
* Method for choosing CPAP Pressure: Manual (during sleep study); Auto (determined with AutoCPAP); Algorithm (by an algorithm); nd (no data reported); NA (not applicable, e.g. if AutoCPAP is the intervention). In parentheses: Split (CPAP introduced in a split night study); Separate (CPAP introduced on a separate full night than the diagnostic sleep study).
* Estimated from reported data
† Estimated from reported P value
* Estimated from reported data
† Estimated from reported P value
‡ Estimated from reported P value
* Method for choosing CPAP Pressure: Manual (during sleep study); Auto (determined with AutoCPAP); Algorithm (by an algorithm); nd (no data reported); NA (not applicable, e.g. if AutoCPAP is the intervention). In parentheses: Split (CPAP introduced on a separate full night than the diagnostic sleep study).
* Estimated from P value
* In crossover studies, if only data on the final values and the difference in final values are reported (as opposed to changes from baseline and net change), these data are italicized.
† Estimated from reported P value
* Estimated from reported data.
† Estimated from reported data.
‡ Estimated from reported P value.
§ Estimated from reported data.
** Estimated from reported data.
†† Median
* Difference of medians
† Estimated from reported P value.
‡ Estimated from reported data.
§ Estimated from reported data.
* Differences between final median values.
† Estimated from reported data
‡ Estimated from reported P value.
* Estimated from reported data.
† Estimated from reported data.
‡ Estimated from reported data.
§ Estimated from reported data.
* Estimated from reported data.
† Estimated from reported data.
‡ Estimated from reported data
* Estimated from reported data

* Estimated from reported data.
† Estimated from repcrted data.
‡ Estimated from repcrted data.
§ Estimated from repcrted data.
* Domain A-D, not including treatment-related symptoms
† Estimated from repcrted data
* Estimated from reported P value
† Estimated from reported P value
‡ Estimated from repcrted P value
§ Estimated from repcrted P value
* Estimated from reported P value
† Estimated from repcrted P value
‡ Estimated from repcrted data
§ Estimated from repcrted P value .our estimates does not match reported NS
* Estimated from reported P value
† Estimated from repcrted P value
* Estimated from reported P value
† Estimated from repcrted P value
* Estimated from reported data
* Estimated from reported P value
† Estimated from repcrted data
‡ Estimated from repcrted P value
§ Estimated from repcrted data
* Mean(SE)
† Estimated from repcrted P value
‡ Mean(SE)
§ Mean(SE)
** Estimated from reported P value
†† Mean(SE)
*P value for all other domains Not Significant
† P value for other Neuropschological tests Not Significant.
‡ P value for other items on Beck Depression Inventory Not significant
* –objective adjustment" at 3 weeks following PSG-based feedback
† self-adjustment of mandibular advancement device during the entire study duration (6 weeks)
‡ Custom made mandibular advancement device
§ Some patients had refused CPAP treatment and others had a history of unsuccessful UPPP
** Pre- molded thermoplastic mandibular advancement device
†† 50% mandibular advancement (mean mandibular advancement 5.0 mm)
‡‡ 75% of mandibular advancement (mean mandibular advancement 7.2 mm)
* objective adjustmen at 3 weeks following PSG-based feedback
† Estimated from repcrted data
‡ self-adjustment of mandibular advancement device during the entire study duration (6 weeks)

§ Custom made mandibular advancement device
** Estimated from reported data
†† Pre- molded thermoplastic mandibular advancement device
‡‡ 50% mandibular advancement (mean mandibular advancement 5.0 mm)
§§ Estimated from reported data; our estimates do not match with reported NS
*** 75% of mandibular advancement (mean mandibular advancement 7.2 mm)
* Top row intervention vs. bottom row intervention.
† objective adjustment at 3 weeks following PSG-based feedback
‡ self-adjustment of mandibular advancement device during the entire study duration (6 weeks)
§ >50% reduction in AHI but still >5/hr
** objective adjustment at 3 weeks following PSG-based feedback
†† self-adjustment of mandibular advancement device during the entire study duration (6 weeks)
‡‡ AHI decreased by <50%
§§ objective adjustment at 3 weeks following PSG-based feedback
*** self-adjustment of mandibular advancement device during the entire study duration (6 weeks)
* objective adjustment at 3 weeks following PSG-based feedback
† Estimated from reported data
‡ self-adjustment of mandibular advancement device during the entire study duration (6 weeks)
§ Custom made mandibular advancement device
** Estimated from reported data
†† Pre- molded thermoplastic mandibular advancement device
‡‡ 50% mandibular advancement (mean mandibular advancement 5.0 mm)
§§ 75% of mandibular advancement (mean mandibular advancement 7.2 mm)
* objective adjustment at 3 weeks following PSG-based feedback
† Estimated from reported data
‡ self-adjustment of mandibular advancement device during the entire study duration (6 weeks)
§ Custom made mandibular advancement device
** Estimated from reported data
†† Pre- molded thermoplastic mandibular advancement device
‡‡ Custom made mandibular advancement device
§§ Estimated from reported data
*** Pre- molded thermoplastic mandibular advancement device
* Estimated from reported data
† Estimated from reported data
‡ Estimated from reported data
* Method for choosing CPAP Pressure: Manual (during sleep study); Auto (determined with AutoCPAP); Algorithm (by an algorithm); nd (no data reported); NA (not applicable, eg if AutoCPAP is the intervention). In parentheses: Split (CPAP introduced in a split night study); Separate (CPAP introduced on a separate full night than the diagnostic sleep study).
* Top row intervention vs. bottom row intervention.
† AHI<5 or >50% reduction to an AHI<20 without symptoms
‡ Estimated from confidence interval
§ Estimated from confidence interval

** Excluding 15 participants who had AHI<10 at baseline.
†† ≥50% reduction in AHI to <5
‡‡ Calculated from reported data
§§ Calculated from reported data
*** ≥50% reduction in AHI to ≥5
††† Calculated from reported data
‡‡‡ Calculated from reported data
* Baseline/Final
† Median (IQR)
‡ Statistical analysis of final values. By Mann-Whitney test. Skewed distribution.
§ Estimated from reported SE's.
** Estimated from reported SE's.
†† Estimated from reported SD's.
‡‡ Estimated from reported P value.
§§ Estimated from reported SD's. Our estimate does not match with reported significance.
*** Estimated from reported P value.
††† Estimated from reported SD's.
‡‡‡ Estimated from reported P value.
* Baseline/Final
† Estimated from reported SD's.
‡ Statistical analysis of comparison of final values.
§ Estimated from reported SD's.
** Estimated from reported SE's Our estimate does not match with reported significance.
†† Estimated from reported SD's.
‡‡ Estimated from reported SD's.
§§ Estimated from reported SD's.
*** Estimated from reported P value.
* Estimated from reported SE's.
† Estimated from reported SE's.
‡ Estimated from reported SD's.
§ Estimated from reported SD's. Our estimate does not match with reported significance.
** Estimated from reported P value.
* Baseline/Final
† Statistical analysis of comparison of final values.
‡ Estimated from reported SE's.
§ Estimated from reported SE's.
** Estimated from reported SD's.
†† Estimated from reported SD's.
‡‡ Estimated from reported SD's.
§§ Estimated from reported P value.
* Baseline/Final
† Estimated from reported SD's.

‡ Statistical analysis of comparison of final values.
§ Estimated from reported SE's.
** Estimated from reported SD's.
†† Estimated from reported SD's.
‡‡ Estimated from reported SD's.
§§ Estimated from reported SD's.
* Baseline/Final
† Estimated from reported SD's.
‡ Statistical analysis of comparison of final values.
§ Estimated from reported SE's.
** Estimated from reported SD's.
†† Estimated from reported SD's.
‡‡ Estimated from reported SD's.
* Baseline/Final
† Estimated from reported SD's.
‡ Statistical analysis of comparison of final values.
§ Estimated from reported SE's.
** Estimated from reported SD's.
†† Estimated from reported SD's. Our estimate does not match with reported significance.
‡‡ Estimated from reported SD's.
§§ Estimated from reported SD's.
*** Estimated from reported SD's.
* Estimated from reported P value.
† Estimated from reported SD's.
* Baseline/Final
† Statistical analysis of comparison of final values.
‡ Estimated from reported P value.
§ Estimated from reported P value.
* Baseline/Final
† A: Daily functioning; B: Social interactions; C: Emotional; D: Symptoms
‡ Summary score for components A-D
§ E: Treatment-related symptoms
** Summary score for components A-E.
†† Flemons WW, Whitelaw WA, Brant R, Remmers JE. 1994. Likelihood ratios for a sleep apnea clinical prediction rule. Am J Resp Crit Care Med. 150: 1279-1285
* The noted intervention statistically significantly favors the patient (net better score on test). 0 = no difference.
* Method for choosing CPAP Pressure. Manual (during sleep study); Auto (determined with AutoCPAP); Algorithm (by an algorithm); nd (no data reported); NA (not applicable, eg if AutoCPAP is the intervention). In parentheses. Split (CPAP introduced in a split night study), Separate (CPAP introduced on a separate full night than the diagnostic sleep study).
† Shoulder-head elevation pillow
‡ Thoracic anti-supine band
* Estimated from reported P value
† Estimated from reported P value

* Top row intervention vs. bottom row intervention. Estimated based on reported data.
† Per article, by Wilcoxin sign-rank test.
* median
† Estimated from reported P value.
* No baseline data
* Shoulder-head elevation pillow
* Top row intervention vs. bottom row intervention.
† Estimated from reported P value
‡ Adjusted OR for age, sex, BMI and baseline AHI.
* Estimated from reported data.
† Estimated from reported data.
* Estimated from reported data.
† Estimated from reported data.
* Estimated from reported data.
* Estimated from reported P value
† Estimated from reported data
* Estimated from reported P value
† Estimated from reported data
* Estimated from reported data
† Estimated from reported data
* Estimated from reported data.
* Estimated from reported data
† Estimated from reported data
‡ Estimated from reported data
* Estimated from reported data
* Top row intervention vs. bottom row intervention.
† Per article, by chi-squared test.
* combinations of pharyngoplasty, tonsillectomy, adenoidectomy, genioglossal advancement septoplasty and RFA of the inferior nasal turbinates
† Paper was presented as a crossover study between behavioral therapy and surgery. Only the first phase (prior to crossover) evaluated here.
‡ Submucous resection of the deviated septum and bilateral resection of inferior turbinates
* Median (range)
† Median (range)
‡ Median (range)
§ Estimated from reported P value
** Median (range)
†† Two parts of methods section disagree with each other
‡‡ Patients had submucous resection of the deviated septum and bilateral resection of inferior turbinates
§§ Estimated from reported data
*** Estimated from reported data
††† no. of desaturation of ≥4% per hr in bed
‡‡‡ no. of desaturation of ≥10% per hr in bed
§§§ combinations of pharyngoplasty, tonsillectomy, adenoidectomy, genioglossal advancement septoplasty and RFA of the inferior nasal turbinates

**** Estimated from reported P value
†††† Estimated from reported data
* Median(range)
† Median(range)
‡ Median(range)
§ Median(range)
** Patients had submucous resection of the deviated septum and bilateral resection of inferior turbinates
†† Estimated from reported data
‡‡ two parts of methods section disagree with each other
§§ Estimated from reported data
*** combinations of pharyngoplasty, tonsillectomy, adenoidectomy, genioglossal advancement septoplasty and RFA of the inferior nasal turbinates
††† Estimated from reported P value
‡‡‡ Estimated from reported data
* Median(range)
† Median(range)
‡ Median(range)
§ Median(range)
** Two parts of methods section disagree with each other
†† combinations of pharyngoplasty, tonsillectomy, adenoidectomy, genioglossal advancement septoplasty and RFA of the inferior nasal turbinates
‡‡ Estimated from reported P value
§§ Estimated from reported data
* combinations of pharyngoplasty, tonsillectomy, adenoidectomy, genioglossal advancement septoplasty and RFA of the inferior nasal turbinates
† Estimated from reported P value
‡ combinations of pharyngoplasty, tonsillectomy, adenoidectomy, genioglossal advancement septoplasty and RFA of the inferior nasal turbinates
§ Estimated from reported P value
** Estimated from reported data
†† Estimated from reported data
* Two parts of methods section disagree with each other
* Median (range)
† Median (range)
† Two parts of methods section disagree with each other
* Range
* Top row intervention vs. bottom row intervention.
* Mean (SE)
† Mean (SE)
‡ Estimated from reported P value
* Estimated from reported P value
† Estimated from reported data
* two parts of methods section disagree with each other
† temperature controlled RF tissue volume reduction and septoplasty ± nasal valve suspension (somnoplasty)
‡ Estimated from reported P value
§ Median (IQR)

** Median (IQR)
†† Estimated from reported P value
‡‡ adjusted for age, EDI, Epworth, length of followup
§§ Median (IQR)
*** temperature controlled radiofrequency tissue volume reduction of the soft palate
* Two parts of methods section disagree with each other
† Estimated from reported data
‡ Estimated from reported P value
§ Estimated from reported P value
** Estimated from reported data
* Estimated from reported data
† Estimated from reported data
‡ Estimated from reported data
§ Estimated from reported data
* Two parts of methods section disagree with each other
* Estimated from reported P value
† Estimated from reported P value
‡ Estimated from reported data
§ Median
** Quartile range
†† Median (quartile range)
‡‡ Median
§§ Using definition of AHI ≥ 5 instead of AHI ≥10
*** Median
††† Using definition of AHI ≥ 5 instead of AHI ≥10
* Estimated from reported data.
† Estimated from reported P value.
‡ Estimated from reported data.
* Estimated from reported P value
* Estimated from Figure 4 in paper
† Estimated from Figure 4 in paper
‡ Estimated from Figure 4 in paper
* Estimated from Figure 4 in paper
† Estimated from Figure 4 in paper
‡ Estimated from Figure 4 in paper
* Median
† Quartile range
‡ Median
* Median
† Quartile range
‡ Estimated from reported P value.
* Estimated from control value

† Estimated from reported P value.
‡ Estimated from reported data.
* Estimated from reported P value.
* Reporting of no events excluded (unless N≥100), except Salgado 2008 because the direct comparison between humidified and nonhumidified CPAP was reported.
† Other adverse events (or side effects or harms) reported by studies included: skin irritation, nasal irritation or obstruction, dry nose or mouth, excess salivation, minor or moderate sore gums or lips, minor aerophagia, abdominal distension, minor chest wall discomfort, pressure discomfort, and transient or minor epistaxis.
* Reporting of no events excluded (unless N≥100).
† Other adverse events (or side effects or harms) reported by studies included: pressure sensation in the mouth, transient morning mouth and TMJ discomfort or sounds, minor sore teeth or jaw, transient mild mucosal erosions, minor excessive salivation, tooth grinding, and sleep disruption.
* Reporting of no events excluded (unless N≥100).
† Other adverse events (or side effects or harms) reported by studies included: unplanned medications, mild transient pain and swallowing difficulty, postoperative (minor) hematomas or ulcerations, mild bleeding, mild and transient tongue deviation, transient swelling sensation, pharyngeal dryness, nasal regurgitation (transient), increased mucus secretion, gagging, cough, infection (self-limited), antibiotic-related diarrhea, burning sensation, anosmia, temporary vocal quality change, and difficulty singing, playing saxophone, etc.
‡ Including patients who received tracheostomy, tonsillectomy, and/or septoplasty without UPPP.
§ Reporting of no events excluded (unless N≥100).
** Other adverse events (or side effects or harms) reported by studies included: unplanned medications, mild transient pain and swallowing difficulty, postoperative (minor) hematomas or ulcerations, mild bleeding, mild and transient tongue deviation, transient swelling sensation, pharyngeal dryness, nasal regurgitation (transient), increased mucus secretion, gagging, cough, infection (self-limited), antibiotic-related diarrhea, burning sensation, anosmia, temporary vocal quality change, and difficulty singing, playing saxophone, etc.
* Reporting of no events excluded (unless N≥100).
† Other adverse events (or side effects or harms) reported by studies included: unplanned medications, mild transient pain and swallowing difficulty, postoperative (minor) hematomas or ulcerations, mild and transient tongue deviation, transient swelling sensation, and asymptomatic fibrotic narrowing.
‡ Complication rate decreased over time, 1999–2002.
* Reporting of no events excluded (unless N≥100).
† Other adverse events (or side effects or harms) reported by studies included: aspiration, neck seroma, transient dysphagia, transient tongue base ulceration, suture removal for foreign body reaction, and transient facial anesthesia.
‡ Small number with only UPPP or only MO/GAHM.
§ Mostly
** 210 procedures in 182 patients
* Reporting of no events excluded (unless N≥100). Other reported adverse events included sore throat and foreign body sensation.
* Reporting of no events excluded (unless N≥100).
* Reporting of no events excluded (unless N≥100). Other reported adverse events included dizziness, dry lips, and constipation.
* Reporting of no events excluded (unless N≥100).
† Other reported adverse events included, fatigue, mouth dryness, somnolence, and dizziness (with both paroxetine and placebo); and sweating, nervousness, infectious pneumonia and Lyme disease (during paroxetine treatment).
* Method for choosing CPAP Pressure: Manual (during sleep study); Auto (determined with AutoCPAP); Algorithm (by an algorithm); nd (no data reported); NA (not applicable, e.g. if AutoCPAP is the intervention). In parentheses: Split (CPAP introduced in a split night study); Separate (CPAP introduced on a separate full night than the diagnostic sleep study).
† Method for choosing CPAP Pressure: Manual (during sleep study); Auto (determined with AutoCPAP); Algorithm (by an algorithm); nd (no data reported); NA (not applicable, e.g. if AutoCPAP is the intervention). In parentheses: Split (CPAP introduced in a split night study); Separate (CPAP introduced on a separate full night than the diagnostic sleep study).

* Estimated from reported SE's
† Estimated from reported SD's
‡ Estimated from reported SD's
§ Estimated from reported SD's
** Estimated from reported SE's
†† Compliance parameters were set to zero when patients did not appear for their follow-up visit (8% and 22% dropout at 3 and 9 mo, respectively)
‡‡ Estimated from reported SE's
§§ Estimated from reported SE's
*** Estimated from reported SD's
††† Estimated from reported SD's
‡‡‡ Estimated from reported SD's
§§§ Estimated from reported SD's
**** Estimated from reported SD's
†††† Estimated from reported SD's
‡‡‡‡ Estimated from reported SD's
§§§§ Compared to placebo
***** Estimated from reported SD's
††††† Patients in the standard care had more severe OSA based on AHI [mean = 54.8 (28 SD), P=0.012 compared to other groups]
‡‡‡‡‡ Compared to placebo
§§§§§ Estimated from reported SD's
****** Patients in the standard care had more severe OSA based on AHI [mean = 54.8 (28 SD), P=0.012 compared to other groups]
†††††† Estimated from reported SD's
‡‡‡‡‡‡ Estimated from reported changes (SD) from baseline
[1] Top row intervention vs. bottom row intervention.
[2] Estimated from the reported number of events and total number of patients, unless otherwise noted.
[3] ITT analysis: all dropouts due to lost to contact were also counted as non-adherent patients
[4] Lost-to follow-up rate were used as measure of non-compliance
[5] Adjusted for sex
[6] Top row intervention vs. bottom row intervention.
[7] Estimated from the reported number of events and total number of patients, unless otherwise noted.
[8] Compared to placebo pill
[9] Patients in the standard care had more severe OSA based on AHI [mean = 54.8 (28 SD), P=0.012 compared to other groups]
[10] Compared to placebo pill
[11] Patients in the standard care had more severe OSA based on AHI [mean = 54.8 (28 SD), P=0.012 compared to other groups]
[12] Compared to placebo pill
[13] Patients in the standard care had more severe OSA based on AHI [mean = 54.8 (28 SD), P=0.012 compared to other groups]