

Appendix 1 (as supplied by the authors): Literature search

We conducted a comprehensive literature search for peer-reviewed studies on the diagnosis and of sleep disordered breathing in adults. The search included the following databases: PubMed (MEDLINE and non-MEDLINE sources), The Cochrane Library, the Centre for Reviews and Dissemination (DARE, NHS EED and HTA databases), EMBASE, PsycINFO, CINAHL, and Web of Science. The search strategy combined Medical Subject Headings (MeSH), such as Sleep Apnea Syndromes/Diagnosis, Cheyne-Stokes Respiration/Diagnosis, and Polysomnography, and other controlled vocabulary terms, with additional keywords (such as “sleep related breathing disorder*” and “upper airway resistance”). The search was limited to English language studies published in the most recent 5 years (2007 to March 2012), with monthly update searches from PubMed throughout the project (until March 2013). Earlier studies, identified in a 2010 systematic review conducted by our research group, were also included if they met the inclusion criteria, consequently, the date range of the search extended from 2004 to 2013.

To identify grey literature relevant websites were searched for clinical practice guidelines and health technology assessments. The reference lists of published papers and contact with clinical experts were used to identify further sources. Reference Manager (v. 12) bibliographic software was used to collect the search results and remove duplicate citations. Full details of the searches are shown below.

1a. PubMed (www.pubmed.gov; first searched 5 Mar 2012; monthly updates run throughout the project until March 2013)

<u>#98</u>	Search #95 OR #97	<u>3928</u>
<u>#97</u>	Search #94 Limits: English, Publication Date from 2007 to 2012	<u>3924</u>
<u>#96</u>	Search Limits: English, Publication Date from 2007 to 2012	<u>3846363</u>
<u>#95</u>	Search #94 AND (in process[sb] OR publisher[sb] OR pubmednotmedline[sb]) Limits: Publication Date from 2007 to 2012	<u>59</u>
<u>#94</u>	Search #55 OR #92 Limits: Publication Date from 2007 to 2012	<u>4446</u>
<u>#93</u>	Search #55 OR #92	<u>13650</u>
<u>#92</u>	Search #73 AND #91	<u>11647</u>
<u>#91</u>	Search #74 OR #75 OR #76 OR #77 OR #78 OR #79 OR #80 OR #81 OR #82 OR #83 OR #84 OR #85 OR #86 OR #87 OR #88 OR #89 OR #90	<u>7658170</u>
<u>#90</u>	Search CPAP[ti] AND (diagnosis[mh] OR diagnosis[ti] OR diagnosis[sh])	<u>634</u>
<u>#89</u>	Search continuous positive airway pressure[mh] AND (diagnosis[mh] OR diagnosis[ti] OR diagnosis[sh])	<u>1951</u>
<u>#88</u>	Search "cardiopulmonary monitor*" [ti]	<u>2</u>
<u>#87</u>	Search (level[ti] OR type[ti]) AND sleep[ti]	<u>431</u>
<u>#86</u>	Search "cardio-respiratory monitor*" [ti] OR "cardiorespiratory monitor*" [ti]	<u>6</u>
<u>#85</u>	Search portable[ti] AND sleep[ti]	<u>85</u>
<u>#84</u>	Search ambulatory care[mh]	<u>42145</u>

#83	Search monitoring, ambulatory[mh]	18622
#82	Search reproducibility of results[mh]	224075
#81	Search predictive value of tests[mh]	116418
#80	Search sensitivity and specificity[mh]	346719
#79	Search diagnosis[ti] OR diagnosing[ti]	295159
#78	Search diagnosis[mh]	5816614
#77	Search diagnosis[sh]	3913314
#76	Search polysomnograph*[ti]	1081
#75	Search polysomnography[mh]	11502
#74	Search "sleep study"[ti] OR "sleep studies"[ti]	258
#73	Search #56 OR #57 OR #58 OR #59 OR #60 OR #61 OR #62 OR #63 OR #64 OR #65 OR #66 OR #67 OR #69 OR #70 OR #71 OR #72	17054
#72	Search "sleep related hypoxemia"[ti]	2
#71	Search OSA[ti]	301
#70	Search apnea*[ti] OR apnoea*[ti]	14346
#69	Search "nocturnal bronchial constriction"[ti]	0
#67	Search "nocturnal bronchospasm"[ti]	2
#66	Search "nocturnal hypoxia"[ti]	37
#65	Search "cheyne stokes"[ti]	274
#64	Search "hypopnea syndrome*[ti]	603
#63	Search "alveolar hypoventilation"[ti]	275
#62	Search uars[ti]	11
#61	Search "upper airway resistance syndrome"[ti]	73
#60	Search "periodic breathing"[ti]	217
#59	Search "sleep related hypoventilation"[ti]	3
#58	Search breathing[ti] AND "sleep disorder*[ti]	2
#57	Search "sleep disordered breathing"[ti]	1469
#56	Search "sleep related breathing"[ti]	285
#55	Search #51 OR #52 OR #53 OR #54	6885
#54	Search cheyne-stokes respiration/di	106
#53	Search sleep apnea, central/di	239

#52	Search sleep apnea, obstructive/di	3236
#51	Search sleep apnea syndromes/di	6833

1b. PubMed (www.pubmed.gov; search refinement to re-examine excluded studies for association or risk factor studies of polysomnography for sleep disordered breathing conditions, i.e., original search strategy plus additional keywords and publication types)

#144	Search #125 OR #138 OR #143	935
#143	Search #124 AND (association[mh] OR association[ti] OR relationship*[ti] OR risk factors[mh] OR risk factor*[ti]) Filters: published in the last 5 years; English; Adult: 19+ years	517
#138	Search #124 Filters: published in the last 5 years; Humans; Evaluation Studies; Guideline; Multicenter Study; Practice Guideline; Review; Systematic Reviews; Meta-Analysis; Validation Studies; English; Adult: 19+ years	307
#125	Search #124 AND (in process[sb] OR publisher[sb] OR pubmednotmedline[sb] OR systematic[sb])	221
#124	Search (((sleep apnea syndromes/di) OR (sleep apnea, obstructive/di) OR (sleep apnea, central/di) OR (cheyne-stokes respiration/di)) OR (("sleep related breathing"[ti] OR ("sleep disordered breathing"[ti] OR (breathing[ti] AND "sleep disorder*" [ti]) OR ("sleep related hypoventilation"[ti] OR ("periodic breathing"[ti] OR ("upper airway resistance syndrome"[ti] OR (uars[ti] OR ("alveolar hypoventilation"[ti] OR ("hypopnea syndrome*" [ti]) OR ("cheyne stokes"[ti] OR ("nocturnal hypoxia"[ti] OR ("nocturnal bronchospasm"[ti] OR ("nocturnal bronchial constriction"[ti] OR (apnea*[ti] OR apnoea*[ti] OR (OSA[ti] OR ("sleep related hypoxemia"[ti])) AND (("sleep study"[ti] OR "sleep studies"[ti] OR (polysomnography[mh] OR (polysomnograph*[ti] OR (diagnosis[sh] OR (diagnosis[mh] OR (diagnosis[ti] OR diagnosing[ti] OR (sensitivity and specificity[mh] OR (predictive value of tests[mh] OR (reproducibility of results[mh] OR (monitoring, ambulatory[mh] OR (ambulatory care[mh] OR (portable[ti] AND sleep[ti] OR ("cardio-respiratory monitor*" [ti] OR "cardiorespiratory monitor*" [ti] OR ((level[ti] OR type[ti]) AND sleep[ti]) OR ("cardiopulmonary monitor*" [ti] OR (continuous positive airway pressure[mh] AND (diagnosis[mh] OR diagnosis[ti] OR diagnosis[sh])) OR (CPAP[ti] AND (diagnosis[mh] OR diagnosis[ti] OR diagnosis[sh]))) AND (("2007"[PDat] : "2012"[PDat]))) AND (in process[sb] OR publisher[sb] OR pubmednotmedline[sb]) AND (("2007"[PDat] : "2012"[PDat]))) OR (((sleep apnea syndromes/di) OR (sleep apnea, obstructive/di) OR (sleep apnea, central/di) OR (cheyne-stokes respiration/di)) OR (("sleep related breathing"[ti] OR ("sleep disordered breathing"[ti] OR (breathing[ti] AND "sleep disorder*" [ti]) OR ("sleep related hypoventilation"[ti] OR ("periodic breathing"[ti] OR ("upper airway resistance syndrome"[ti] OR (uars[ti] OR ("alveolar hypoventilation"[ti] OR ("hypopnea syndrome*" [ti]) OR ("cheyne stokes"[ti] OR ("nocturnal hypoxia"[ti] OR ("nocturnal bronchospasm"[ti] OR ("nocturnal bronchial constriction"[ti] OR (apnea*[ti] OR apnoea*[ti])	

OR (OSA[ti] OR ("sleep related hypoxemia"[ti])) AND (("sleep study"[ti] OR "sleep studies"[ti] OR (polysomnography[mh] OR (polysomnograph*[ti] OR (diagnosis[sh] OR (diagnosis[mh] OR (diagnosis[ti] OR diagnosing[ti] OR (sensitivity and specificity[mh] OR (predictive value of tests[mh] OR (reproducibility of results[mh] OR (monitoring, ambulatory[mh] OR (ambulatory care[mh] OR (portable[ti] AND sleep[ti] OR ("cardio-respiratory monitor*[ti] OR "cardiorespiratory monitor*[ti] OR ((level[ti] OR type[ti]) AND sleep[ti]) OR ("cardiopulmonary monitor*[ti] OR (continuous positive airway pressure[mh] AND (diagnosis[mh] OR diagnosis[ti] OR diagnosis[sh]))) OR (CPAP[ti] AND (diagnosis[mh] OR diagnosis[ti] OR diagnosis[sh]))) AND (("2007"[PDat] : "2012"[PDat]))) AND (English[lang] AND ("2007"[PDat] : "2012"[PDat])))

2. Centre for Reviews & Dissemination (DARE, HTA, NHS EED) databases

<http://www.crd.york.ac.uk/crdweb/HomePage.asp>; searched 6 Mar 2012

1	MeSH DESCRIPTOR Sleep Apnea Syndromes EXPLODE ALL TREES	128
2	MeSH DESCRIPTOR Sleep Apnea, Obstructive EXPLODE ALL TREES	87
3	MeSH DESCRIPTOR Sleep Apnea, Central EXPLODE ALL TREES	1
4	MeSH DESCRIPTOR Cheyne-Stokes Respiration EXPLODE ALL TREES	0
5	("sleep related breathing") OR (hypoventilation) OR ("sleep disorder*") OR ("periodic breathing") OR ("upper airway resistance")	26
6	(uars) OR ("alveolar hypoventilation") OR ("hypopnea syndrome*") OR ("cheyne stokes") OR ("nocturnal hypoxia")	14
7	("nocturnal bronchospasm") OR ("nocturnal bronchial construction") OR (apnea*) OR (apnoea*) OR (osa)	225
8	("sleep related hypoxemia")	0
9	#5 OR #6 OR #7 OR #8	242
10	("sleep stud*") OR (polysomnography) OR (polysomnograph*) OR (diagnosis) OR (diagnosing)	8338
11	MeSH DESCRIPTOR Sensitivity and Specificity EXPLODE ALL TREES	2726
12	MeSH DESCRIPTOR Predictive Value of Tests EXPLODE ALL TREES	667
13	MeSH DESCRIPTOR Reproducibility of Results EXPLODE ALL TREES	560
14	MeSH DESCRIPTOR Monitoring, Ambulatory EXPLODE ALL TREES	109
15	MeSH DESCRIPTOR Ambulatory Care EXPLODE ALL TREES	341
16	(portable AND sleep) OR ("cardio-respiratory monitor*") OR ("cardiorespiratory	183

	monitor*") OR ((level OR type) AND sleep) OR ("cardiopulmonary monitor*"):AU	
17	MeSH DESCRIPTOR Continuous Positive Airway Pressure EXPLODE ALL TREES	44
18	(cpap)	72
19	#17 OR #18	100
20	diagnosis	8232
21	#19 AND #20	24
22	#1 OR #2 OR #3 OR #4 OR #21	132
23	#10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16	10002
24	#9 AND #23	108
25	#22 OR #24	167
26	* FROM 2007 TO 2012	22779
27	#25 AND #26	84

3. The Cochrane Library (John Wiley & Sons, issue 2 of 12, February 2012)

#1	MeSH descriptor Sleep Apnea Syndromes explode all trees	1041
#2	MeSH descriptor Sleep Apnea, Obstructive explode all trees	604
#3	MeSH descriptor Sleep Apnea, Central explode all trees	22
#4	MeSH descriptor Cheyne-Stokes Respiration explode all trees	28
#5	((#1 OR #2 OR #3 OR #4) AND (diagnosis OR polysomnograph*)), from 2007 to 2012	253
#6	"sleep related breathing" or "sleep disordered breathing" or "periodic breathing" or "upper airway resistance" or (uars)	351
#7	"alveolar hypoventilation" or "hypopnea syndrome*" or "cheyne stokes" or "nocturnal hypoxia" or "nocturnal bronchospasm"	220
#8	"nocturnal bronchial constriction" or (apnea*) or (apnoea*) or (OSA) or "sleep related hypoxemia"	3127
#9	(#6 OR #7 OR #8), from 2007 to 2012	1210
#10	"sleep study" or "sleep studies" or (polysomnography) or (polysomnograph):ti,ab,kw	1653
#11	(sensitivity and specificity):ti,ab,kw or (predictive value of tests) or (reproducibility of results):ti,ab,kw or (monitoring, ambulatory):ti,ab,kw or (ambulatory):ti,ab,kw	57224
#12	(portable):ti,ab,kw or (continuous positive airway pressure):ti,ab,kw and	1549

(cpap):ti,ab,kw	
#13 (#9 AND (#10 OR #11 OR #12)), from 2007 to 2012	506
#14 (#5 OR #13), from 2007 to 2012	529
#15 (diagnosis):ti,ab,kw	49505
#16 (#14 AND #15), from 2007 to 2012	151

4. EMBASE (OvidSP; 1980 to 2012 Week 09)

1 exp sleep disordered breathing/di [Diagnosis]	6246
2 exp sleep apnea syndrome/di [Diagnosis]	5859
3 exp central sleep apnea syndrome/di [Diagnosis]	135
4 exp upper airway resistance syndrome/di [Diagnosis]	36
5 exp Cheyne Stokes breathing/di [Diagnosis]	93
6 exp upper airway resistance syndrome/di [Diagnosis]	36
7 exp lung alveolus hypoventilation/di [Diagnosis]	52
8 1 or 2 or 3 or 4 or 5 or 6 or 7	6333
9 exp polysomnography/	15601
10 exp diagnosis/	3792514
11 exp "sensitivity and specificity"/	151799
12 exp predictive value/	13348
13 exp reproducibility/	114633
14 exp ambulatory monitoring/	7598
15 exp ambulatory care/	32904
16 (portable and sleep).ti.	122
17 (cardio-respiratory monitor or cardiorespiratory monitor*).ti.	38
18 ((level or type) and sleep).ti.	554
19 continuous positive airway pressure.mp. or exp positive end expiratory pressure/	26928
20 cpap.ti.	1613
21 19 or 20	26988
22 10 and 21	7332
23 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18	3960950
24 22 or 23	3960950
25 8 and 24	4581
26 limit 25 to (english language and yr="2007 -Current")	1351

5. CINAHL (EbscoHost; 7 Mar 2012)

S7 S1 or S2 or S3 or S4	181
Limiters - English Language; Published Date from: 20070101-20121231;	

Exclude MEDLINE records

S6	S1 or S2 or S3 or S4	1611
S5	S1 or S2 or S3 or S4	1611
S4	cheyne stokes	84
S3	(MH "Sleep Apnea, Central/DI")	56
S2	(MH "Sleep Apnea, Obstructive/DI")	703
S1	(MH "Sleep Apnea Syndromes+/DI")	1543

6. PsycINFO (OvidSP; 2002 to February Week 4 2012)

1	exp Polysomnography/	597
2	limit 1 to (english language and yr="2007-Current")	398

7. Web of Science (Thomson Reuters; 8 Mar 2012)

Title=("sleep apnea*" OR "cheyne-stokes" OR "sleep related breathing" OR "upper airway resistance" OR "alveolar hypoventilation" OR "hypopnea syndrome" OR "nocturnal hypoxia" OR "nocturnal bronchospasm" OR "sleep related hypoxmia") AND Title=(diagnosis* OR polysomnograph*)
Timespan=2007-2012. Databases=SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH.

= 166 references

Grey literature (search completed June 2012; *search terms used)

Guidelines

- Canadian Medical Association CMA Infobase

http://www.cma.ca/index.php?la_id=1&ci_id=54294&keywords=barrett *sleep / polysomnography

- Ontario Guidelines Advisory Committee (GAC) <http://www.gacguidelines.ca/> *scanned archived guidelines

- Alberta Medical Association Towards Optimized Practice (TOP) <http://www.topalbertadoctors.org/> *sleep / polysomnography

- BC Ministry of Health Guidelines & Protocols Advisory Committee

<http://www.bcguidelines.ca/gpac/alphabetical.html> *scanned list of guidelines

- Aetna Clinical Policy Bulletins http://www.aetna.com/healthcare-professionals/policies-guidelines/medical_clinical_policy_bulletins.html *sleep / polysomnography

- National Guideline Clearinghouse <http://www.guidelines.gov> *sleep apnea syndromes

- New Zealand Guidelines Group <http://www.nzgg.org.nz/> *sleep

- National Institute for Health and Clinical Excellence (NICE) <http://www.nice.org.uk> *sleep

- Scottish Intercollegiate Guidelines Network (SIGN)

<http://www.sign.ac.uk/guidelines/published/index.html> *scanned list of guidelines

Clinical trials

- ClinicalTrials.gov <http://www.clinicaltrials.gov> *(sleep disordered breathing OR sleep apnea syndromes) AND diagnosis | Adult, Senior received from 01/01/2007 to 05/29/2012 | updated from 01/01/2007 to 05/29/2012

Health Technology Assessment agency web sites

Appendix to: El Shayeb M, Topfer LA, Stafinski T, et al. A comparison of level 3 portable sleep tests to level 1 polysomnography in the diagnosis of sleep-disordered breathing: a systematic review and meta-analysis. *CMAJ* 2013; DOI:10.1503/cmaj.130952.

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Canada

- Institut national d'excellence en santé et en services sociaux (INESSS) www.inesss.qc.ca/ *scanned list of projects in progress & published reports back to 2007
- Canadian Agency for Drugs and Technologies in Health (CADTH) www.cadth.ca *sleep
- Institute for Clinical and Evaluative Sciences (ICES) www.ices.on.ca *sleep
- Institute of Health Economics www.ihe.ca *sleep
- McGill University Health Centre Technology Assessment Unit <http://www.mcgill.ca/tau/publications/>
*scanned list of reports (2007-2012)
- Ontario Health Technology Advisory Committee (OHTAC) & Ontario Medical Advisory Secretariat (MAS) http://www.health.gov.on.ca/english/providers/program/ohtac/tech/recommend/rec_mn.html
*scanned list of reports & recommendations (2007-2012)

Other

- New York Academy of Medicine Grey Literature collection
http://www.nyam.org/library/pages/grey_literature_report
- Google www.google.ca sleep AND (apnoea* OR apnea* OR "disorder*") AND (algorithm OR diagnosis OR polysomnograph*)