Home Oxygen Therapy - Supplement

KCE reports 156S

Belgian Health Care Knowledge Centre
Federaal Kenniscentrum voor de Gezondheidszorg
Centre fédéral d'expertise des soins de santé
2011

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BERTIEN BUYSE, KAROLIEN BENOIT, STEPHAN DEVRIESE,
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Title: Home Oxygen Therapy - Supplement

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Layout: Ine Verhulst

Brussels, June 7th 2011

Study nr 2009-14

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MeSH: Oxygen inhalation therapy ; Heart Failure ; Palliative Care ; Meta-Analysis ; Costs and Cost Analysis ; Cost-Benefit Analysis ; Belgium ; Lung Diseases, Interstitial ; Pulmonary Disease, Chronic Obstructive ; Cystic Fibrosis ; Technology Assessment, Biomedical

NLM Classification: WF 145

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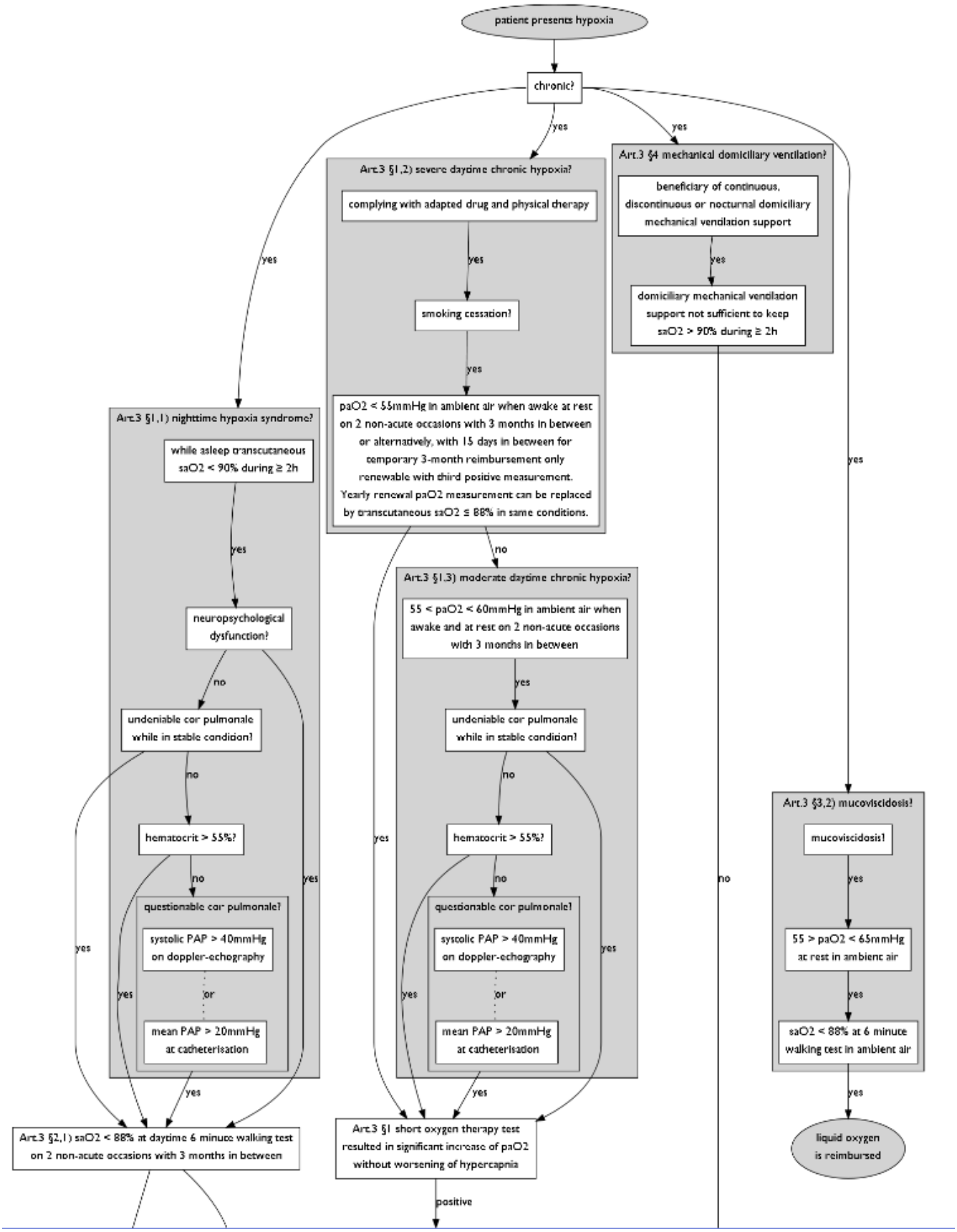
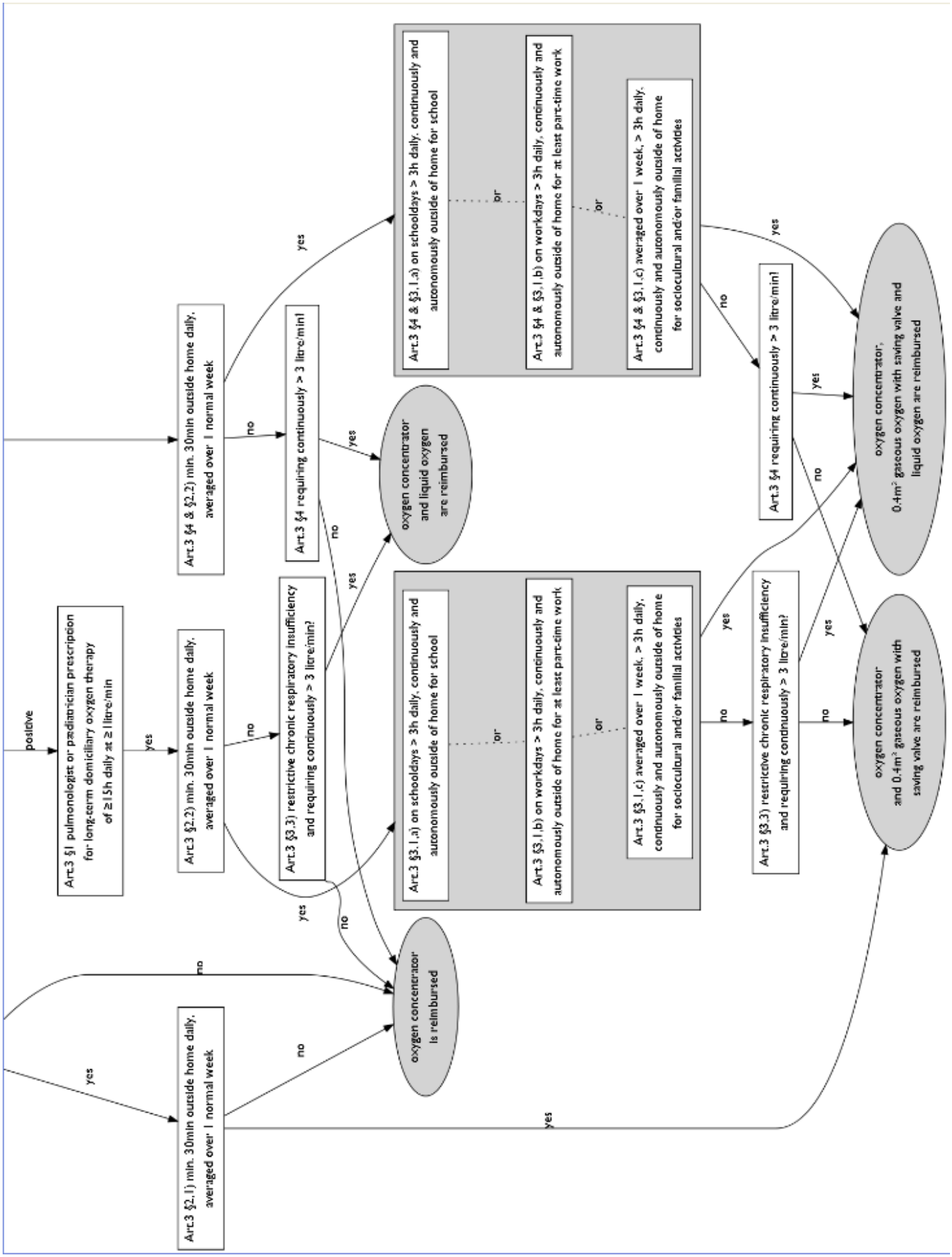
Supplement

Table of contents

APPENDICES OF CHAPTER I

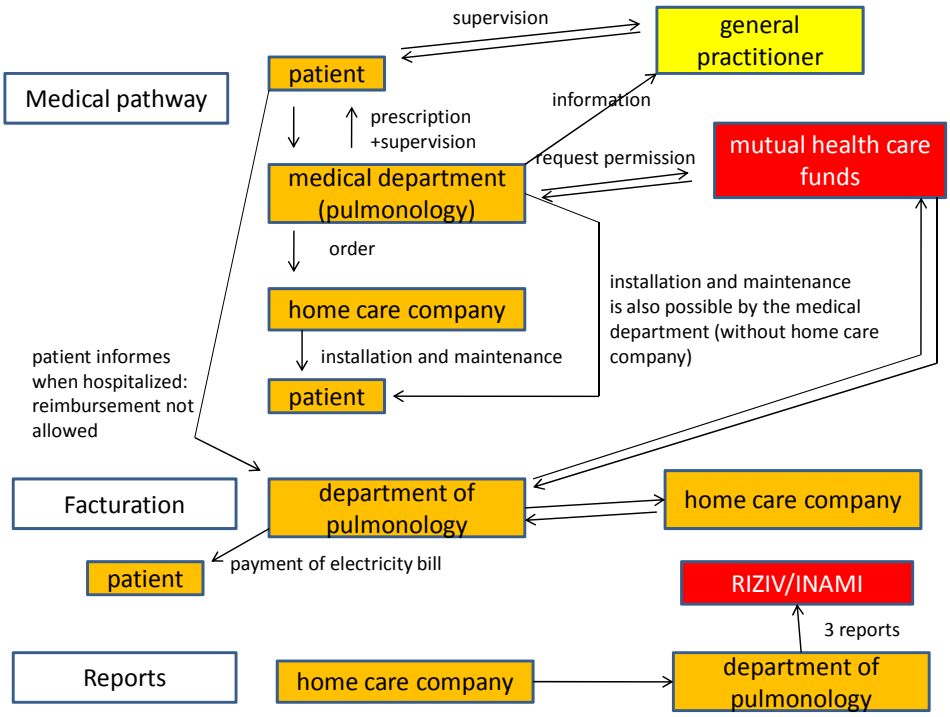
I FLOW CHART OF THE DECISION TREE IN THE RIZIV/INAMI-HOSPITAL CONVENTION


patient presents hypoxia
chronic?
yes
yes
yes
Art.3 §1,2) severe daytime chronic hypoxia?
complying with adapted drug and physical therapy
yes
smoking cessation?
yes
paO2 < 55mmHg in ambient air when awake at rest on 2 non-acute occasions with 3 months in between or alternatively, with 15 days in between for temporary 3-month reimbursement only renewable with third positive measurement. Yearly renewal paO2 measurement can be replaced by transcutaneous saO2 ≤ 88% in same conditions.
Art.3 §4 mechanical domiciliary ventilation?
beneficiary of continuous, discontinuous or nocturnal domiciliary mechanical ventilation support
yes
domiciliary mechanical ventilation support not sufficient to keep saO2 > 90% during ≥ 2h
yes
Art.3 §1,1) nighttime hypoxia syndrome?
while asleep transcutaneous saO2 < 90% during ≥ 2h
yes
neuropsychological dysfunction?
no
undeniable cor pulmonale while in stable condition?
no
hematocrit > 55%?
no
questionable cor pulmonale?
systolic PAP > 40mmHg on doppler-echography
or
mean PAP > 20mmHg at catheterisation
yes
yes
yes
yes
yes
no
Art.3 §1,3) moderate daytime chronic hypoxia?
55 < paO2 < 60mmHg in ambient air when awake and at rest on 2 non-acute occasions with 3 months in between
yes
undeniable cor pulmonale while in stable condition?
no
hematocrit > 55%?
no
questionable cor pulmonale?
systolic PAP > 40mmHg on doppler-echography
or
mean PAP > 20mmHg at catheterisation
yes
yes
yes
yes
yes
no
Art.3 §3,2) mucoviscidosis?
mucoviscidosis?
yes
55 > paO2 < 65mmHg at rest in ambient air
yes
saO2 < 88% at 6 minute walking test in ambient air
yes
liquid oxygen is reimbursed
Art.3 §2,1) saO2 < 88% at daytime 6 minute walking test on 2 non-acute occasions with 3 months in between
Art.3 §1 short oxygen therapy test resulted in significant increase of paO2 without worsening of hypercapnia
positive


positive
Art.3 §1 pulmonologist or pediatrician prescription for long-term domiciliary oxygen therapy of ≥15h daily at ≥1 litre/min
yes
Art.3 §2.1) min. 30min outside home daily, averaged over 1 normal week
yes
no
oxygen concentrator is reimbursed
Art.3 §2.2) min. 30min outside home daily, averaged over 1 normal week
no
Art.3 §3.3) restrictive chronic respiratory insufficiency and requiring continuously > 3 litre/min?
yes
no
oxygen concentrator and liquid oxygen are reimbursed
Art.3 §4 & §2.2) min. 30min outside home daily, averaged over 1 normal week
no
Art.3 §4 requiring continuously > 3 litre/min!
yes
no
oxygen concentrator and liquid oxygen are reimbursed
Art.3 §4 & §3.1.a) on schooldays > 3h daily, continuously and autonomously outside of home for school
or
Art.3 §4 & §3.1.b) on workdays > 3h daily, continuously and autonomously outside of home for at least part-time work
or
Art.3 §4 & §3.1.c) averaged over 1 week, > 3h daily, continuously and autonomously outside of home for sociocultural and/or familial activities
yes
no
oxygen concentrator, 0.4m³ gaseous oxygen with saving valve and liquid oxygen are reimbursed
Art.3 §4 requiring continuously > 3 litre/min!
yes
no
oxygen concentrator, 0.4m³ gaseous oxygen with saving valve and liquid oxygen are reimbursed
Art.3 §3.1.a) on schooldays > 3h daily, continuously and autonomously outside of home for school
or
Art.3 §3.1.b) on workdays > 3h daily, continuously and autonomously outside of home for at least part-time work
or
Art.3 §3.1.c) averaged over 1 week, > 3h daily, continuously and autonomously outside of home for sociocultural and/or familial activities
yes
no
oxygen concentrator and 0.4m³ gaseous oxygen with saving valve are reimbursed
Art.3 §3.3) restrictive chronic respiratory insufficiency and requiring continuously > 3 litre/min?
yes
no
oxygen concentrator and 0.4m³ gaseous oxygen with saving valve are reimbursed

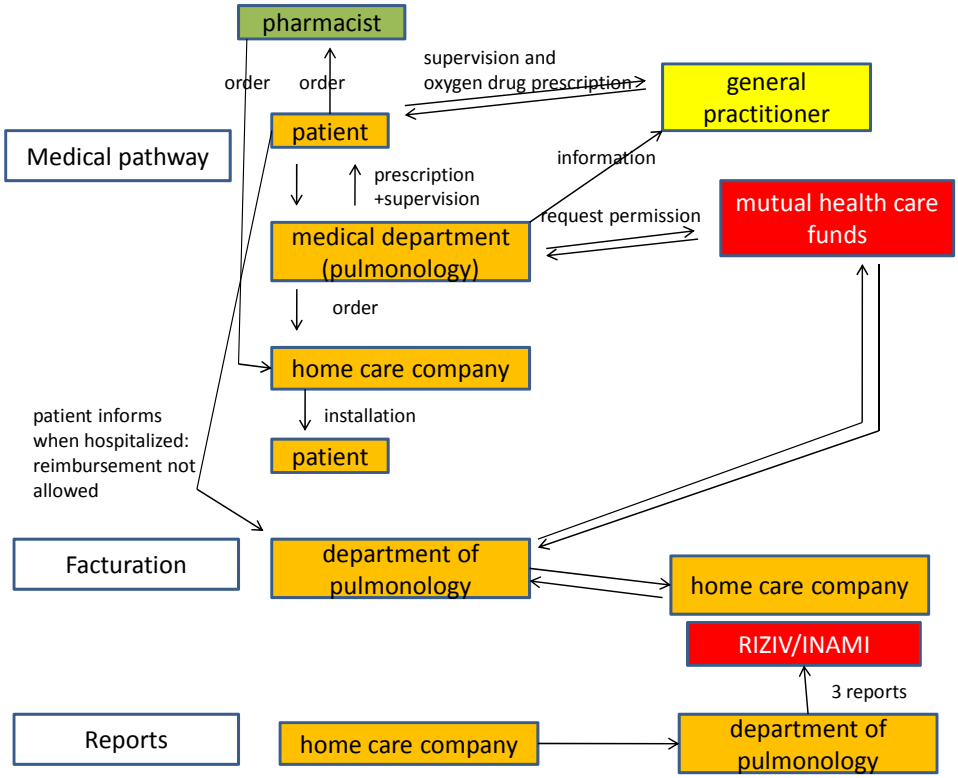
2 OVERVIEW OF THE PATHWAY ~ DISTRIBUTION AND REIMBURSEMENT FOR OXYGEN CONCENTRATOR WITHIN THE RIZIV/INAMI-HOSPITAL CONVENTION

Oxygen concentrator



3 OVERVIEW OF THE PATHWAY ~DISTRIBUTION AND REIMBURSEMENT FOR SUPPLEMENTARY PORTABLE OXYGEN CYLINDERS IN ADDITION TO THE OXYGEN CONCENTRATOR WITHIN THE RIZIV/INAMI-HOSPITAL CONVENTION

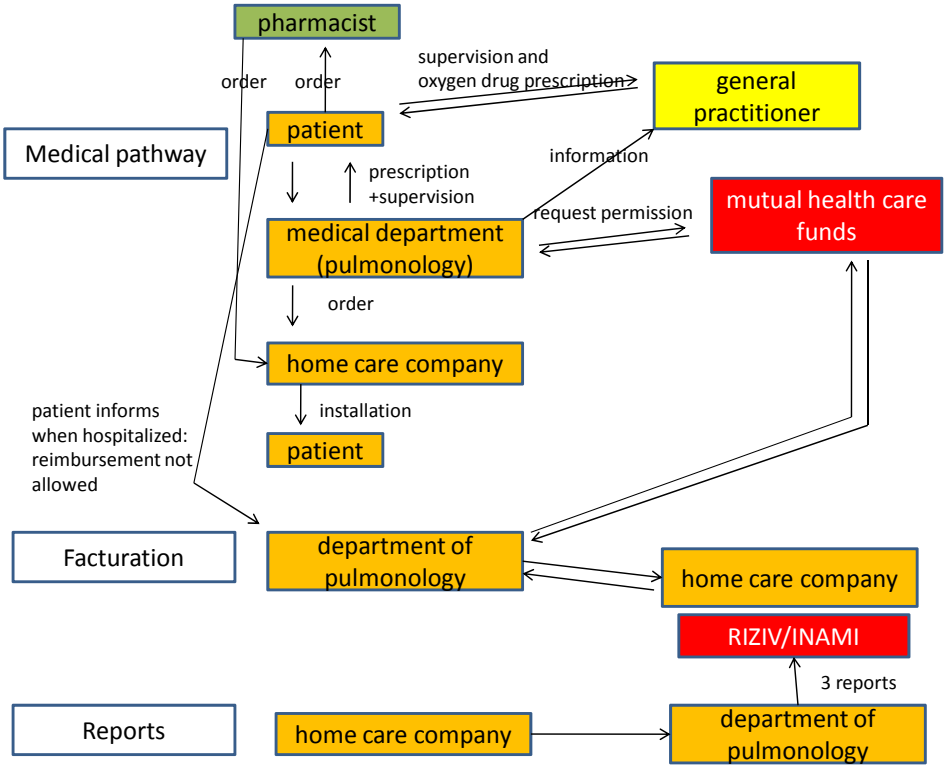
Portable cylinders



The pathway only describes the distribution and reimbursement tree for the medical device (not for the drug oxygen)

4 OVERVIEW OF THE PATHWAY ~ DISTRIBUTION AND REIMBURSEMENT FOR LIQUID OXYGEN WITHIN THE RIZIV/INAMI-HOSPITAL CONVENTION

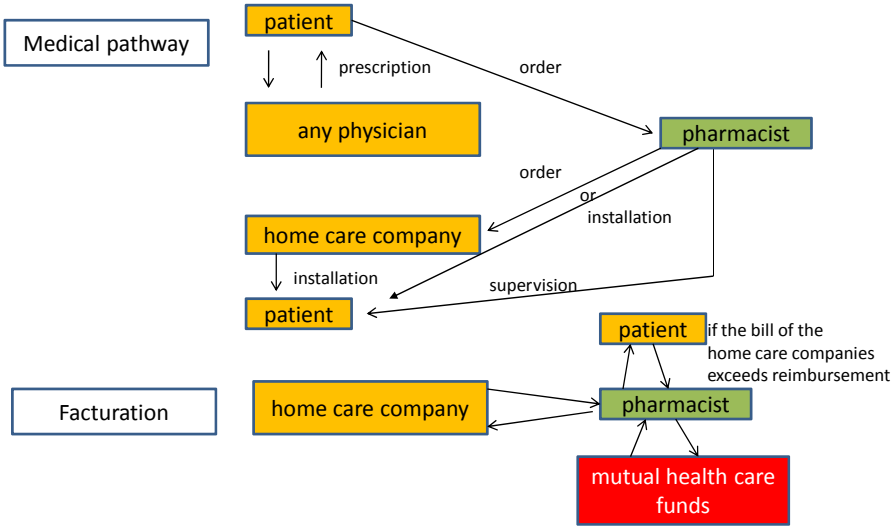
Liquid oxygen



The pathway only describes the distribution and reimbursement tree for the medical device (not for the drug oxygen)

5 OVERVIEW OF THE PATHWAY ~ DISTRIBUTION AND REIMBURSEMENT FOR OXYGEN CYLINDERS WITHIN THE RIZIV/INAMIAGREEMENT WITH THE PHARMACISTS

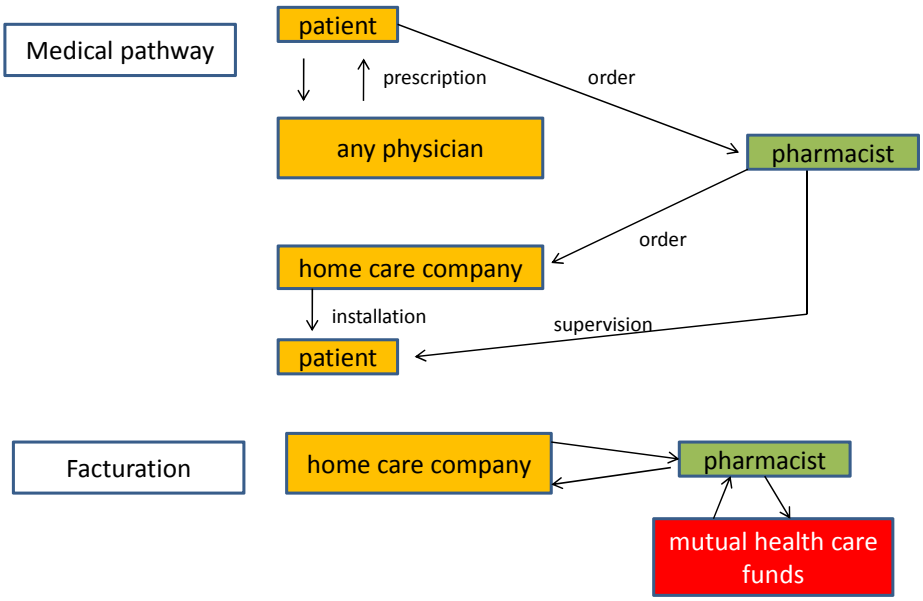
Oxygen cylinders



The pathway only describes the distribution and reimbursement tree for the medical device (not for the drug oxygen)

6 OVERVIEW OF THE PATHWAY ~ DISTRIBUTION AND REIMBURSEMENT FOR OXYGEN CONCENTRATOR KRÖBER BY OXYCURE WITHIN THE RIZIV/INAMI AGREEMENT WITH THE PHARMACISTS

Kröber oxygen concentrator by Oxycure



7 COMPARED PROPERTIES OF THE DIFFERENT O2 SOURCES FOR LONG-TERM OXYGEN THERAPY.

Source	Avantages	Inconvenients
Concentrator	Simple and cheap Easy to manipulate Transferable Don't need refill	Don't allow mobility Technical control needed Noisy Loss efficacy at high flows Supplementary oxygen cylinder mandatory Generates high temperatures Nondetectable FiO2 fall
Gaseous oxygen	Well known system Available Quiet Possible to walk (little cylinder)	Supplier dependency High cost Fixed source Burdensome Difficult to manipulate Risk linked to high pressures Necessity to fix cylinder
Liquid oxygen	Quiet Possibility to stock hug volumes in a little space Possible to walk May ensure high flows	Evaporation losts Impossibility to travel with fixed source High cost Supplier dependency Security issues Need patient education Need periodical resupply

8 TECHNICAL CHARACTERISTICS OF THE DIFFERENT PORTABLE CONCENTRATORS CURRENTLY ON THE MARKET.

Concentrateur	LifeStyle	FreeStyle	InoGen One	Eclipse	EverGo
Photo					
Fabricant	AirSep	AirSep	InoGen	SeQual	Respironics
Dimensions H x l x L (cm)	13,9 x 18,4 x 41,4	21,8 x 15,5 x 9,1	31 x 15 x 29,5	49 x 18 x 31,2	21,6 x 15,25 x 30,5
Poids (kg)	4,4	2	3,7	7,9	3,8 - 4,5
Poids Pack Batterie(s) supl. (kg)	0,5	0,8 (pack ceinture)	0,7	1	
Alimentation (V)	100-250, 12	100-240, 12-16	100-240	100-240, 12	110-240, 12 - 18
Batterie(s)	NiMH	Lithium ion	Lithium ion	Lithium ion	Lithium ion
Poids de Lithium dans Batterie interne (g)	x	4,8	< 8	7,92	7,92
Poids de Lithium dans Pack Batterie supl. (g)	x	7,94	< 8	7,92	7,92
Autonomie Batterie(s) (h, mn)	0 h 50	de 2 à 3 h 30	3	de 2,3 à 5,1 (pulsé)	4 (ou 2 x 4)
Autonomie Pack Batterie(s) supl.	3 h 15	de 5 à 10 h	3		
Temps de charge Batterie (h, mn)	2 h 30	3 h 30	3	1,4 à 5 h	
Temps de charge Pack Batterie(s)	4 h	3 h	3		
Niveau sonore annoncé (dB(A))	< 55	47	< 40	40 (pulsé)	< 50
Débit continu	non	non	non	**oui**	non
Débits proposés (l/mn)	x	x	x	0,5 à 3 par 0,5	sans objet
Pression de sortie (kpa)	7 psi	7 psi		34,5	
Débit pulsé (valve à la demande)	oui	oui	oui	oui	oui
Positions de réglage (pulse ~ lpm)	1, 2, 3, 4, 5	1, 2, 3	1 à 5 par 0,5	1 à 6 par 0,5	1 à 6 par 0,5
FiO2 annoncé	90 +/- 3	90 +/- 3	90 +/- 3	91 +/- 3	89 +/-3
Réglage Trigger (cmH2O)	0,3	0,3	0,12	0,25 à 0,7 (ajust.)	0,16
Marquage CE	oui	oui	oui	oui	oui
Homologation FAA (aviation US)	oui	oui	oui	oui	oui
Année	2003	2005	2005	2006	2007

FÉDÉRATION ANTADIR

APPENDICES OF CHAPTER 2

I SEARCH STRATEGIES

Author	
Project number	
Project name	
Search questions	
Keywords	
Date	2010-04-09
Database (name + access ; e.g.: Medline OVID)	Medline PubMed

Search Strategy (attention, for PubMed, check « Details »)

Search	Most Recent Queries	Time	Result
#59	Search ((#27) AND #36) AND #58	10:25:24	621
#58	Search (((#41) OR #47) OR #49) OR #54	10:24:44	1040279
#57	Search (#37) AND #56	10:18:32	331
#56	Search "Longitudinal Studies"[Mesh]	10:18:15	671752
#55	Search (#37) AND #54	10:16:51	349
#54	Search "Cohort Studies"[Mesh]	10:16:21	742750
#51	Search (#37) AND #50	10:12:05	348
#50	Search (#47) OR #49	10:10:26	358825
#49	Search "Controlled Clinical Trial "[Publication Type]	10:09:48	80297
#47	Search "Randomized Controlled Trial "[Publication Type]	10:09:11	283216
#42	Search (#37) AND #41	10:03:42	22
#41	Search "Meta-Analysis "[Publication Type]	10:02:28	23440
#37	Search (#27) AND #36	09:59:29	4341
#36	Search (((#29) OR #30) OR #31) OR #35	09:58:58	12635
#35	Search ("Oxygen/therapeutic use"[Mesh:NoExp] OR "Oxygen/therapy"[Mesh:NoExp])	09:57:55	2613
#31	"LTOT"[All Fields]	09:56:33	242
#30	"long term oxygen therapy"[All Fields]	09:56:00	644
#29	Search "Oxygen Inhalation Therapy"[Mesh:NoExp]	09:55:05	10026
#12	"cluster headache"[MeSH Terms] OR ("cluster"[All Fields] AND "headache"[All Fields]) OR "cluster headache"[All Fields]	09:53:52	2589
#3	Search "Lung Diseases, Obstructive"[Mesh]	09:53:21	134171
#27	Search (((((((((#3) OR #5) OR #8) OR #10) OR #15) OR #17) OR #21) OR #23) OR #25) OR #26	09:51:22	356843
#26	"chronic airflow limitation"[All Fields]	09:47:41	289
#25	"pulmonary disease, chronic obstructive"[MeSH Terms] OR ("pulmonary"[All Fields] AND "disease"[All Fields] AND "chronic"[All Fields] AND "obstructive"[All Fields]) OR "chronic obstructive pulmonary disease"[All Fields] OR "copd"[All Fields]	09:47:12	28845

	#23	"hypoxaemia"[All Fields] OR "anoxia"[MeSH Terms] OR "anoxia"[All Fields] OR "hypoxemia"[All Fields]	09:46:56	60449
	#21	"hypoxaemia"[All Fields] OR "anoxia"[MeSH Terms] OR "anoxia"[All Fields] OR "hypoxemia"[All Fields]	09:46:32	60449
	#19	"anoxia"[MeSH Terms] OR "anoxia"[All Fields] OR "hypoxia"[All Fields]	09:46:10	92572
	#17	Search "Palliative Care"[Mesh]	09:45:51	31778
	#15	Search "Cluster Headache"[Mesh]	09:44:59	1855
	#10	Search "Heart Failure"[Mesh]	09:44:02	67350
	#8	Search "Cystic Fibrosis"[Mesh]	09:42:41	23984
	#5	Search "Lung Diseases, Interstitial"[Mesh]	09:41:53	39842
Note				

Date	2010-04-09
Database (name + access ; e.g.: Medline OVID)	Embase, Embase.com
Search Strategy (attention, for PubMed, check « Details »)	No. Query Results Results Date #23. #12 AND #16 AND #22 281 9 Apr 2010 #22. #19 OR #20 OR #21 277,858 9 Apr 2010 #21. 'meta analysis'/exp AND [embase]/lim 38,552 9 Apr 2010 #20. 'randomized controlled trial'/exp AND [embase]/lim 185,114 9 Apr 2010 #19. 'cohort analysis'/exp AND [embase]/lim 62,794 9 Apr 2010 #17. #12 AND #16 3,773 9 Apr 2010 #16. #13 OR #15 9,955 9 Apr 2010 #15. 'oxygen therapy'/de AND [embase]/lim 9,865 9 Apr 2010 #14. #12 AND #13 56 9 Apr 2010 #13. 'home oxygen therapy'/exp AND [embase]/lim 107 9 Apr 2010 #12. #1 OR #2 OR #3 OR #4 OR #5 OR #6 OR #9 OR #10 OR #11 210,713 9 Apr 2010 #11. chronic AND airflow AND limitation AND [embase]/lim 1,165 9 Apr 2010 #10. hypoxemia AND [embase]/lim 66,621 9 Apr 2010 #9. hypoxaemia AND [embase]/lim 2,384 9 Apr 2010 #6. 'palliative therapy'/exp AND [embase]/lim 27,601 9 Apr 2010 #5. 'cluster headache'/exp AND [embase]/lim 2,675 9 Apr 2010 #4. 'congestive heart failure'/exp AND [embase]/lim 32,330 9 Apr 2010 #3. 'cystic fibrosis'/exp AND [embase]/lim 26,336 9 Apr 2010 #2. 'interstitial lung disease'/exp AND [embase]/lim 24,793 9 Apr

	2010 #1. 'chronic obstructive lung disease'/exp AND 37,164 9 Apr 2010 [embase]/lim
Note	

Date	2010-07-14
Database (name + access ; e.g.: Medline OVID)	CINAHL
Search Strategy (attention, for PubMed, check « Details »)	# Query Limiters/Expanders Last Run Via Results S23 S16 and S22 Search modes - Boolean/Phrase Interface - EBSCOhost Search Screen - Basic Search Database - CINAHL 132 S22 S17 or S18 or S19 or S20 or S21 Search modes - Boolean/Phrase Interface - EBSCOhost Search Screen - Basic Search Database - CINAHL 191600 S21 ("systematic review") or (MH "Systematic Review") Search modes - Boolean/Phrase Interface - EBSCOhost Search Screen - Basic Search Database - CINAHL 12421 S20 (MH "Prospective Studies+") Search modes - Boolean/Phrase Interface - EBSCOhost Search Screen - Basic Search Database - CINAHL 104866 S19 "controlled trial" Search modes - Boolean/Phrase Interface - EBSCOhost Search Screen - Basic Search Database - CINAHL 13051 S18 (MH "Clinical Trials+") Search modes - Boolean/Phrase Interface - EBSCOhost Search Screen - Basic Search Database - CINAHL 84707 S17 ("meta-analysis") or (MH "Meta Analysis") Search modes - Boolean/Phrase Interface - EBSCOhost Search Screen - Basic Search Database - CINAHL 11672 S16 S10 and S15 Search modes - Boolean/Phrase Interface - EBSCOhost Search Screen - Basic Search Database - CINAHL 866 S15 S11 or S12 or S13 or S14 Search modes - Boolean/Phrase Interface - EBSCOhost Search Screen - Basic Search Database - CINAHL 2594 S14 "ltot" Search modes - Boolean/Phrase Interface - EBSCOhost Search Screen - Basic Search Database - CINAHL 45 S13 "long term oxygen therapy" Search modes - Boolean/Phrase Interface - EBSCOhost

	Search Screen - Basic Search Database - CINAHL 167 S12 (MH "Home Oxygen Therapy") Search modes - Boolean/Phrase Interface - EBSCOhost Search Screen - Basic Search Database - CINAHL 256 S11 (MH "Oxygen Therapy") Search modes - Boolean/Phrase Interface - EBSCOhost Search Screen - Basic Search Database - CINAHL 2331 S10 S1 or S2 or S3 or S4 or S5 or S6 or S7 or S8 or S9 Search modes - Boolean/Phrase Interface - EBSCOhost Search Screen - Basic Search Database - CINAHL 52007 S9 (MH "Lung Diseases, Obstructive+") Search modes - Boolean/Phrase Interface - EBSCOhost Search Screen - Basic Search Database - CINAHL 22144 S8 "copd" Search modes - Boolean/Phrase Interface - EBSCOhost Search Screen - Basic Search Database - CINAHL 3972 S7 (MH "Anoxemia") Search modes - Boolean/Phrase Interface - EBSCOhost Search Screen - Basic Search Database - CINAHL 693 S6 (MH "Anoxia") Search modes - Boolean/Phrase Interface - EBSCOhost Search Screen - Basic Search Database - CINAHL 1582 S5 (MH "Palliative Care") Search modes - Boolean/Phrase Interface - EBSCOhost Search Screen - Basic Search Database - CINAHL 11974 S4 (MH "Cluster Headache") Search modes - Boolean/Phrase Interface - EBSCOhost Search Screen - Basic Search Database - CINAHL 441 S3 (MH "Heart Failure, Congestive") Search modes - Boolean/Phrase Interface - EBSCOhost Search Screen - Basic Search Database - CINAHL 12355 S2 (MH "Cystic Fibrosis") Search modes - Boolean/Phrase Interface - EBSCOhost Search Screen - Basic Search Database - CINAHL 2642 S1 (MH "Lung Diseases, Interstitial+") Search modes - Boolean/Phrase Interface - EBSCOhost Search Screen - Basic Search Database - CINAHL 1151
Note	

Date	2010-04-09
Database (name + access ; e.g.: Medline OVID)	Cochrane Library (CDSR, DARE, CENTRAL)
Search Strategy (attention, for PubMed, check « Details »)	#1 There are **22** results out of **6076 records** for: "MeSH descriptor **Oxygen Inhalation Therapy**, this term only in **Cochrane Database of Systematic Reviews**" #2 There are **19** results out of **11887 records** for: "MeSH descriptor **Oxygen Inhalation Therapy**, this term only in **Database of Abstracts of Reviews of Effects**" #3 There are **605** results out of **608405 records** for: "MeSH descriptor **Oxygen Inhalation Therapy**, this term only in **Cochrane Central Register of Controlled Trials**"
Note	

2 CRITICAL APPRAISAL SRS - PRISMA – COPD

TITLE			Bradley 2009	Cranston 2008	Crockett 2001	Nonoyama 2009	O'Neill 2006	Puhan 2004	Ram 2001	Wilt 2007
Title	1	Identify the report as a systematic review, meta-analysis, or both	Y	Y	Y	Y	Y	Y	Y	Y
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key findings; systematic review registration number.	Y	Y	Y	Y	Y	Y	Y	Y
Rationale	3	Describe the rationale for the review in the context of what is already known.	Y	Partially	Y	Y	Y	Y	Y	Y
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	Y	Y	Y	Y	Y	Y	Y	Partially
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	Y	Y	N	Y	N	N	Y	N
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale	Y	Y	Y	Y	Y	Y	Y	Y
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	Y	Y	Partially	Y	Y	Partially	Y	Y
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated	N	N	N	N	N	N	N	N
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	Y	Y	Y	Y	Y	Y	Y	Y
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	Y	Y	Y	Y	Y	Y	Y	Y
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	Y	Y	Y	Y	Y	Y	Y	Y
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	Y	Y	N	Y	Y	N	Y	Y
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means	Y	Y	N	Y	N	N	N	Y
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I2) for each meta-analysis.	Y	Y	Partially	Y	Y	Partially	NA	Y
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies)	Y	Y	N	Y	Y	N	Y	N
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified	NA	NA	NA	Y	NA	Y	NA	Partially
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram	Y	Partially	Partially	Y	Y	Y	Partially	Y
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	Y	Y	Partially	Y	Y	N	Y	Y
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome-level assessment (see Item 12)	Y	Y	N	Y	Y	N	Y	Y
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group and (b) effect estimates and confidence intervals, ideally with a forest plot.	Y	Y	Y	Y	Y	Y	Y	Y
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency	Y	Y	Partially	Y	Y	N	NA	Partially
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15)	Y	Y	Y	Y	Y	N	Y	N
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	NA	NA	NA	NA	NA	N	NA	N
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., health care providers, users, and policy makers).	Partially	Partially	Partially	Partially	Partially	Partially	Partially	Partially
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review level (e.g., incomplete retrieval of identified research, reporting bias)	Y	Y	Y	Y	Y	Partially	Y	Partially
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research	Y	Y	Y	Y	Y	Y	Y	Y
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review	NA	NA	NA	NA	Y	Y	NA	Y

3 CRITICAL APPRAISAL SRS - PRISMA – OTHER INDICATIONS

Section/topic	#	checklist item	Palliative Care Cranston 2009	Uronis 2008	CF Elphick 2009	ILD Crockett 2010
TITLE						
Title	1	Identify the report as a systematic review, meta-analysis, or both	Yes	Yes	Yes	Yes
ABSTRACT						
Structured summary	2	Provide a structured summary including, as applicable: background; objectives; data sources; study eligibility criteria, participants, and interventions; study appraisal and synthesis methods; results; limitations; conclusions and implications of key find	Yes	Yes	Yes	Yes
INTRODUCTION						
Rationale	3	Describe the rationale for the review in the context of what is already known.	Yes	Yes	Yes	Yes
Objectives	4	Provide an explicit statement of questions being addressed with reference to participants, interventions, comparisons, outcomes, and study design (PICOS).	Yes	Yes	Yes	Yes
METHODS						
Protocol and registration	5	Indicate if a review protocol exists, if and where it can be accessed (e.g., Web address), and, if available, provide registration information including registration number.	Yes	**NO**	Yes	Yes
Eligibility criteria	6	Specify study characteristics (e.g., PICOS, length of follow-up) and report characteristics (e.g., years considered, language, publication status) used as criteria for eligibility, giving rationale	Yes	Yes	Yes	Yes
Information sources	7	Describe all information sources (e.g., databases with dates of coverage, contact with study authors to identify additional studies) in the search and date last searched.	Yes	Yes	Yes	Yes
Search	8	Present full electronic search strategy for at least one database, including any limits used, such that it could be repeated	Yes	**NO**	Yes	Yes
Study selection	9	State the process for selecting studies (i.e., screening, eligibility, included in systematic review, and, if applicable, included in the meta-analysis).	Yes	Yes	**NO**	Yes
Data collection process	10	Describe method of data extraction from reports (e.g., piloted forms, independently, in duplicate) and any processes for obtaining and confirming data from investigators.	Yes	Yes	Yes	Yes
Data items	11	List and define all variables for which data were sought (e.g., PICOS, funding sources) and any assumptions and simplifications made.	Yes	Yes	Yes	Yes
Risk of bias in individual studies	12	Describe methods used for assessing risk of bias of individual studies (including specification of whether this was done at the study or outcome level), and how this information is to be used in any data synthesis.	Yes	Yes	Yes	Yes
Summary measures	13	State the principal summary measures (e.g., risk ratio, difference in means	Yes	Yes	Yes	Yes
Synthesis of results	14	Describe the methods of handling data and combining results of studies, if done, including measures of consistency (e.g., I2) for each meta-analysis.	Yes	**Partially**	Yes	Yes
Risk of bias across studies	15	Specify any assessment of risk of bias that may affect the cumulative evidence (e.g., publication bias, selective reporting within studies)	Yes	Yes	Yes	Yes
Additional analyses	16	Describe methods of additional analyses (e.g., sensitivity or subgroup analyses, meta-regression), if done, indicating which were pre-specified	Yes	Yes	Yes	Yes
RESULTS						
Study selection	17	Give numbers of studies screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally with a flow diagram	Yes	**Partially**	**NO**	**NO**
Study characteristics	18	For each study, present characteristics for which data were extracted (e.g., study size, PICOS, follow-up period) and provide the citations.	Yes	Yes	Yes	Yes
Risk of bias within studies	19	Present data on risk of bias of each study and, if available, any outcome-level assessment (see Item 12	Yes	Yes	Yes	Yes
Results of individual studies	20	For all outcomes considered (benefits or harms), present, for each study: (a) simple summary data for each intervention group and (b) effect estimates and confidence intervals, ideally with a forest plot.	Yes	Yes	Yes	Yes
Synthesis of results	21	Present results of each meta-analysis done, including confidence intervals and measures of consistency	Yes	Yes	Yes	Yes
Risk of bias across studies	22	Present results of any assessment of risk of bias across studies (see Item 15)	Yes	Yes	Yes	Yes
Additional analysis	23	Give results of additional analyses, if done (e.g., sensitivity or subgroup analyses, meta-regression [see Item 16]).	Yes	Yes	Yes	Yes
DISCUSSION						
Summary of evidence	24	Summarize the main findings including the strength of evidence for each main outcome; consider their relevance to key groups (e.g., health care providers, users, and policy makers).	**Partially**	Yes	**Partially**	**Partially**
Limitations	25	Discuss limitations at study and outcome level (e.g., risk of bias), and at review level (e.g., incomplete retrieval of identified research, reporting bias)	Yes	Yes	Yes	Yes
Conclusions	26	Provide a general interpretation of the results in the context of other evidence, and implications for future research	Yes	Yes	Yes	Yes
FUNDING						
Funding	27	Describe sources of funding for the systematic review and other support (e.g., supply of data); role of funders for the systematic review	**Not applicable**	Yes	**Not applicable**	**Not applicable**

4 CRITICAL APPRAISAL - PRIMARY STUDIES

4.1 JADAD SCORE - COPD

STUDY REFERENCE	Bjorgen 09	Eaton 06	Heraud 08	Lacasse 05	Nonoyama 07	Ozalevli 07	Quantrill 07	Samolski 10	Sandland 08
Was the study described as random?	1	1	1	1	1	1	1	1	1
Was the randomization scheme described and appropriate?	0	1	0	1	0	1	0	0	1
Was the study described as double-blind?	0	1	0	1	1	0	1	0	1
Was the method of double blinding appropriate? (Were both the patient and the assessor appropriately blinded?)	0	1	0	1	0	0	1	0	1
Deduct one point if the method used to generate the sequence of randomization was described and it was inappropriate (patients were allocated alternately, or according to date of birth, hospital number, etc)	0	0	0	0	0	-1	0	0	0
Deduct one point if the study was described as double blind but the method of blinding was inappropriate (e.g., comparison of tablet vs. injection with no double dummy)	0	0	0	0	0	0	0	0	0
Was there a description of dropouts and withdrawals?	1	1	0	1	1	1	0	1	1
Total scores:	2	5	1	5	3	2	3	2	5

4.2 JADAD SCORE – OTHER INDICATIONS

	Palliative	HF										ILD
Study reference	**Hanly 1989**	**Andreas 1996**	**Andreas 1998**	**Andreas 1999**	**Chua 1996**	**Hagenah 1996**	**Harris-Eze 1994**	**Moore 1992**	**Restrick 1992**	**Russell 1999**	**Sasayama 2009**	**Staniforth 1998**	**Abernethy 2010**
Was the study described as random?	1	1	1	1	0	1	1	1	1	1	1	1	1
Was the randomization scheme described and appropriate?	0	0	0	0	1	0	0	1	0	0	1	0	1
Was the study described as double-blind?	0	1	1	1	0	1	1	1	1	1	0	1	1
Was the method of double blinding appropriate? (Were both the patient and the assessor appropriately blinded?)	1	1	1	0	0	1	1	1	1	1	1	1	1
Was there a description of dropouts and withdrawals?	1	1	1	1	1	1	1	1	1	1	1	1	1
Deduct one point if the method used to generate the sequence of randomization was described and it was inappropriate (patients were allocated alternately, or according to date of birth, hospital number, etc).	0	0	0	0	0	0	0	0	0	0	0	0	0
Deduct one point if the study was described as double blind but the method of blinding was inappropriate (e.g., comparison of tablet vs. injection with no double dummy).	-1	0	0	0	0	0	0	0	0	0	-1	0	0
Total scores	**2**	**4**	**4**	**3**	**2**	**4**	**4**	**5**	**4**	**4**	**3**	**4**	**5**

4.3 PEDRO CHECKLIST - COPD

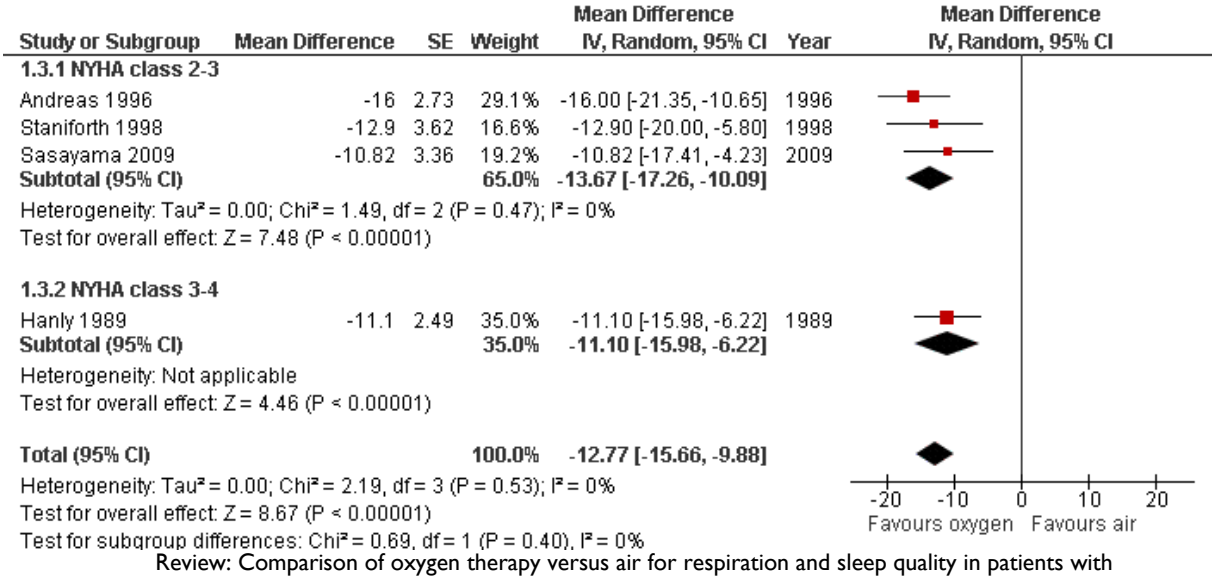
Studies	Bjorgen 09	Eaton 06	Heraud 08	Lacasse 05	Nonoyama 07	Ozalevli 07	Quantrill 07	Samolski 10	Sandland 08
Eligibility criteria were specified	1	1	1	1	1	1	1	1	1
Subjects were randomly allocated to groups (in a crossover study, subjects were randomly allocated an order in which treatments were received)	1	1	1	1	1	1	1	1	1
Allocation was concealed	0	1	0	1	1	1	0	0	1
The groups were similar at baseline regarding the most important prognostic indicators	0	1	1	1	1	1	1	1	0
There was blinding of all subjects	0	0	0	0	0	0	0	0	0
There was blinding of all therapists who administered the therapy	0	1	0	0	0	0	0	0	0
There was blinding of all assessors who measured at least one key outcome	0	1	0	1	1	0	1	0	1
Measures of at least one key outcome were obtained from more than 85% of the subjects initially allocated to groups	0	0	1	0	0	1	1	0	0
All subjects for whom outcome measures were available received the treatment or control condition as allocated or, where this was not the case, data for at least one key outcome was analysed by "intention to treat"	0	1	0	0	0	0	0	0	0
the results of between-group statistical comparisons are reported for at least one key outcome	1	1	1	1	1	1	1	1	1
the study provides both point measures and measures of variability for at least one key outcome	1	1	1	1	1	1	1	1	1
Total (max score= 11 points)	4	9	6	6	7	7	7	5	6

4.4 PEDRO CHECKLIST – OTHER INDICATIONS

PEDro scale														
Yes (1)/No (0)	Palliative	HF												ILD
Studies	**Hanly 1989**	**Andreas 1996**	**Andreas 1998**	**Andreas 1999**	**Chua 1996**	**Hagenah 1996**	**Harris-Eze 1994**	**Moore 1992**	**Restrick 1992**	**Russell 1999**	**Sasayama 2009**	**Staniforth 1998**	**Abernethy 2010**
Eligibility criteria were specified	1	1	1	1	0	1	1	0	0	1	1	1	1
Subjects were randomly allocated to groups (in a crossover study, subjects were randomly allocated an order in which treatments were received)	1	1	1	1	1	1	1	1	1	1	1	1	1
Allocation was concealed	0	0	0	0	0	0	0	0	0	0	0	0	1
The groups were similar at baseline regarding the most important prognostic indicators	1	1	1	1	1	1	1	1	1	1	1	1	1
There was blinding of all subjects	1	1	1	0	1	1	1	1	1	1	0	1	1
There was blinding of all therapists who administered the therapy	0	1	1	1	0	1	1	1	1	1	0	1	1
There was blinding of all assessors who measured at least one key outcome	0	1	1	1	0	1	1	1	1	1	1	1	1
Measures of at least one key outcome were obtained from more than 85% of the subjects initially allocated to groups	1	1	1	1	1	1	1	1	1	1	1	1	1
All subjects for whom outcome measures were available received the treatment or control condition as allocated or, where this was not the case, data for at least one key outcome was analysed by "intention to treat"	0	0	0	0	0	0	0	0	0	0	0	0	1
The results of between-group statistical comparisons are reported for at least one key outcome	0	0	0	0	0	0	0	0	0	0	0	1	1
The study provides both point measures and measures of variability for at least one key outcome	1	1	1	1	1	1	1	1	1	1	1	0	1
Total (max score = 11 points)	**6**	**8**	**8**	**7**	**5**	**8**	**8**	**7**	**7**	**8**	**6**	**8**	**11**

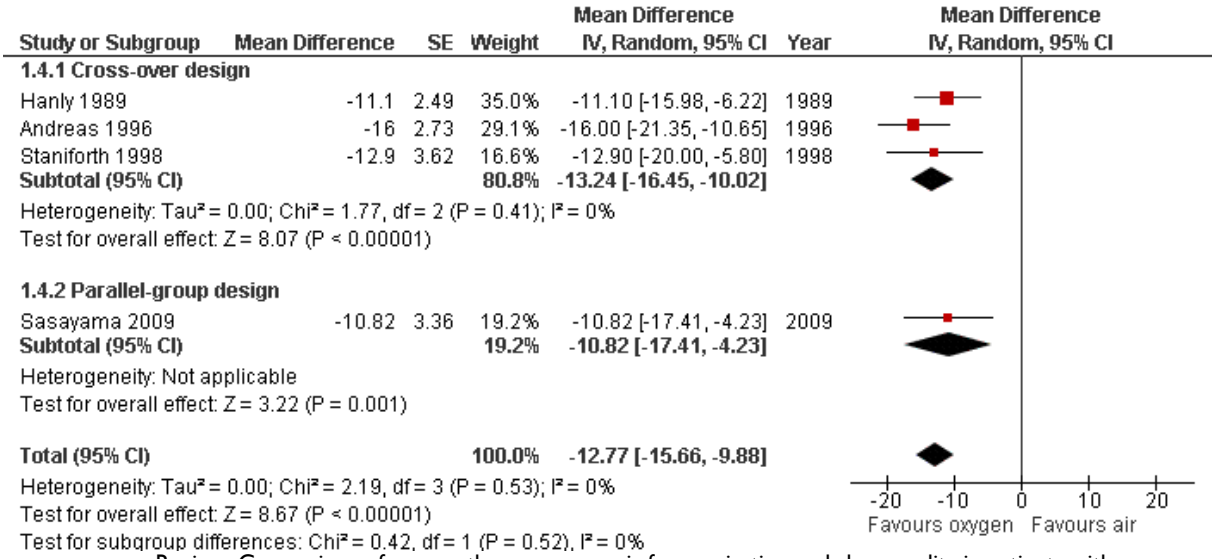
5 META-ANALYSIS – HEART FAILURE (HF)

5.1 META-ANALYSIS - APNOEA-HYPOPNOEA INDEX (AHI) BY DEGREE OF HEART FAILURE



Review: Comparison of oxygen therapy versus air for respiration and sleep quality in patients with chronic, stable heart failure.
Comparison: Supplemental oxygen inhalation versus air inhalation for respiration and sleep quality in patients with chronic, stable heart failure, with subgroup analysis according to NYHA class.
Outcome: apnoea-hypopnoea index (AHI), events per hour.
Number of participants: randomised 99; completed 93.

5.2 META-ANALYSIS - APNOEA-HYPOPNOEA INDEX (AHI) BY STUDY DESIGN

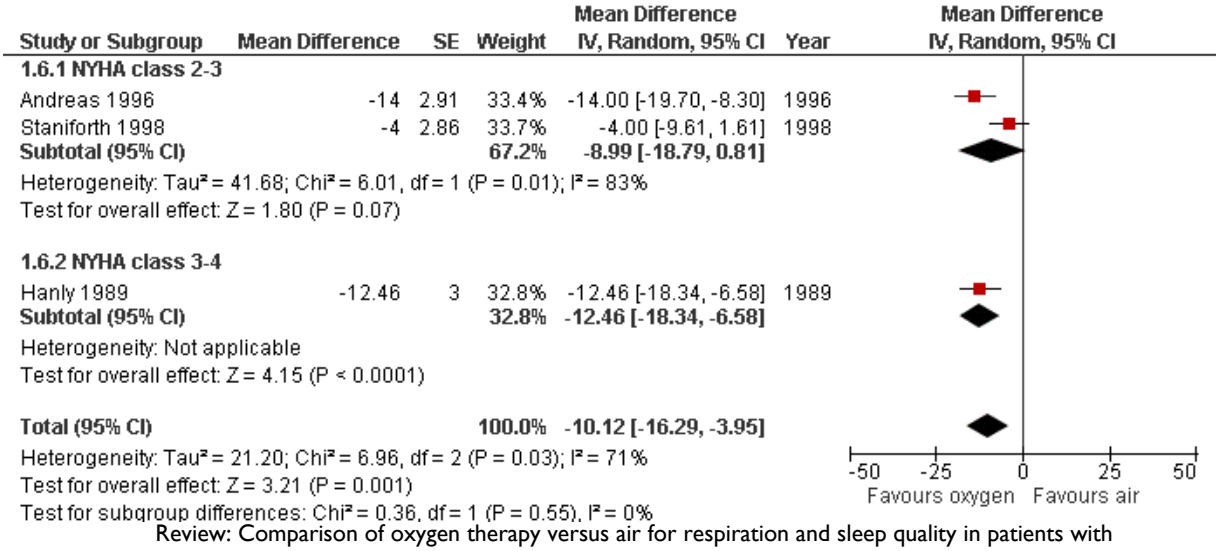


Review: Comparison of oxygen therapy versus air for respiration and sleep quality in patients with chronic, stable heart failure.
Comparison: Supplemental oxygen inhalation versus air inhalation for respiration and sleep quality in patients with chronic, stable heart failure, with subgroup analysis according to study design.
Outcome: apnoea-hypopnoea index (AHI), events per hour.
Number of participants: randomised 99; completed 93.

Four trials involving 93 patients were included in the meta-analysis of apnoea-hypopnoea index (AHI).

All four trials found a statistically decrease in index (AHI). The number of apnoea-hypopnoea events was significantly less in all trials. The pooled estimate of the effect of oxygen was a statistically significant decrease in AHI, with a difference of -12.77 (-15.66, -9.88) hypopnoea events in favour of oxygen. There was no statistical heterogeneity between the trials (I^2=0%). Categorical meta-analyses based on the NYHA class (class 2-3 versus class 3-4 trials) or study design (cross-over versus parallel design) indicated that the decrease in number of apnoea-hypopnoea events with oxygen was in the same order of magnitude, irrespective of the severity of heart failure or study design (test for subgroup differences P=0.40 and P=0.52, respectively.

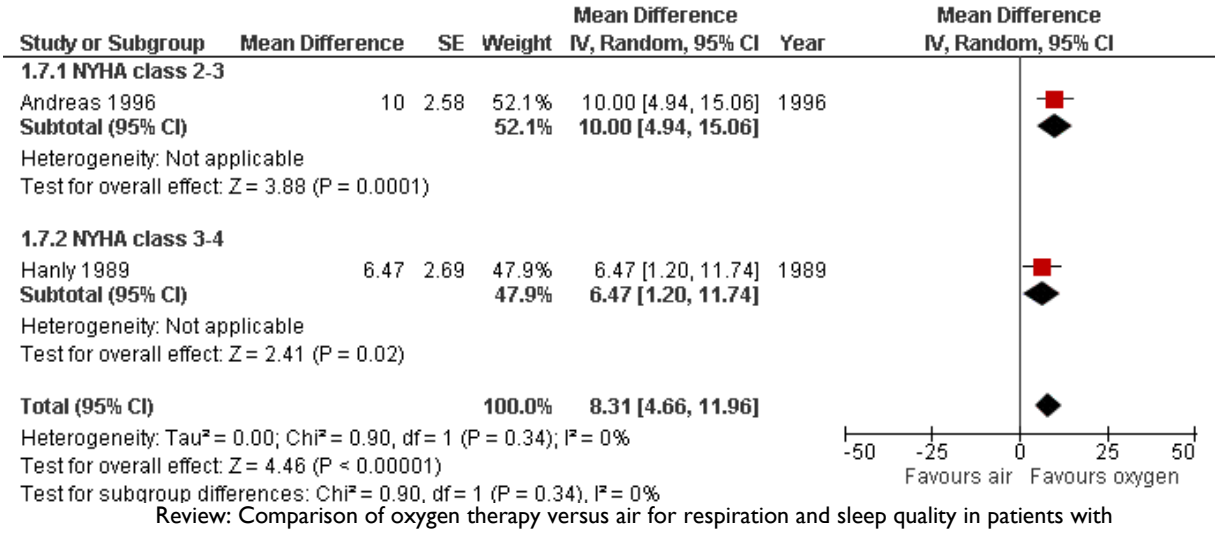
5.3 META-ANALYSIS - SLEEP STAGE 1



Review: Comparison of oxygen therapy versus air for respiration and sleep quality in patients with chronic, stable heart failure.
Comparison: Supplemental oxygen inhalation versus air inhalation for respiration and sleep quality in patients with chronic, stable heart failure, with subgroup analysis according to NYHA class.
Outcome: Sleep stage 1, % of total sleep time.
Number of participants: randomised 48; completed 42.

Three trials used a cross-over design to document the effects of oxygen on sleep stage 1. Only one of these trials found no difference for sleep stage 1, expressed as a percentage of total sleep time. The percentage of sleep stage 1 during total sleep time was less with oxygen in both other trials. The pooled estimate of the effect of oxygen was a statistically significant decrease in sleep stage 1, expressed as a percentage of total sleep time -10.12% (-16.29, -3.95) in favour of oxygen. Statistical heterogeneity between the trials was high (I^2=71%). Stratification according to the degree of heart failure indicated that the decrease in number of arousals was not dependent on severity of heart failure (test for subgroup differences P=0.55). The duration of oxygen therapy and follow up varied from 3 days (Hanly, Millar et al. 1989) to 4 weeks (Staniforth, Kinnear et al. 1998).

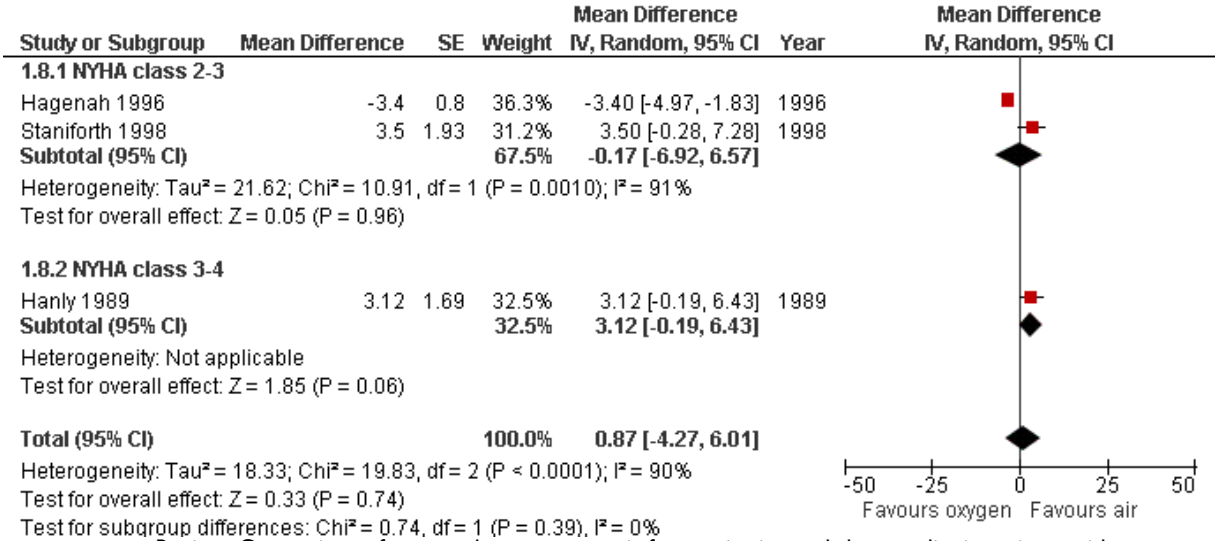
5.4 META-ANALYSIS - SLEEP STAGE 2



Review: Comparison of oxygen therapy versus air for respiration and sleep quality in patients with chronic, stable heart failure.
Comparison: Supplemental oxygen inhalation versus air inhalation for respiration and sleep quality in patients with chronic, stable heart failure, with NYHA class indicated in forest plot.
Outcome: Sleep stage 2, % of total sleep time.
Number of participants: randomised 36; completed 31.

Interestingly, only two trials documented the effects of oxygen on sleep stage 2. The percentage of sleep stage 2 during total sleep time was higher with oxygen in the both trials. The pooled estimate of the effect of oxygen was a statistically significant increase in sleep stage 2, expressed as a percentage of total sleep time +8.31% (4.66, 11.96) in favour of oxygen. No statistical heterogeneity was found (I^2=0%).

5.5 META-ANALYSIS - SLEEP STAGES 3-4 (SLOW WAVE SLEEP)

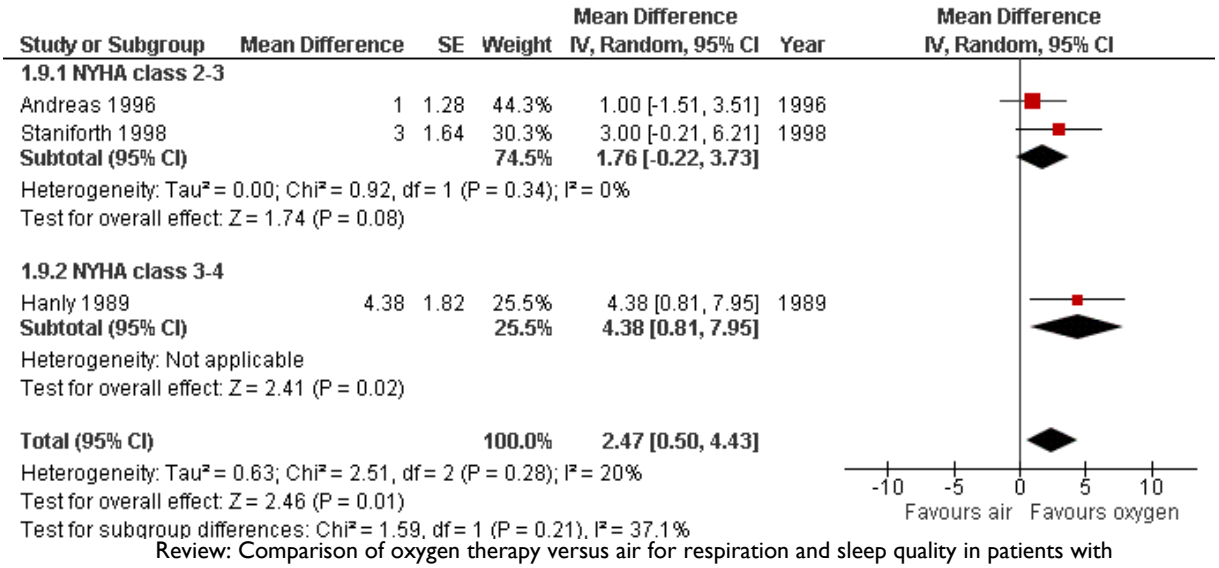


Review: Comparison of oxygen therapy versus air for respiration and sleep quality in patients with chronic, stable heart failure.
Comparison: Supplemental oxygen inhalation versus air inhalation for respiration and sleep quality in patients with chronic, stable heart failure, with subgroup analysis according to NYHA class.
Outcome: Sleep stages 3-4 (slow wave sleep), % of total sleep time.
Number of participants: randomised 48; completed 42.

Three trials, all using a cross-over design, documented the effects of oxygen on sleep stages 3-4 (slow wave sleep).

Only one of these trials found statistically significant difference for sleep stages 3-4 (slow wave sleep), expressed as a percentage of total sleep time. The percentage of sleep stage 3-4 during total sleep time was (not significantly higher) in the both other trials. The pooled estimate of the effect of oxygen was a statistically non-significant difference in sleep stages 3-4. Statistical heterogeneity between the trials was very high (I^2=90%). The duration of oxygen therapy and follow up varied from 3 days (Hanly, Millar et al. 1989) to 4 weeks (Staniforth, Kinnear et al. 1998).

5.6 META-ANALYSIS - REM (RAPID EYE MOVEMENT) SLEEP

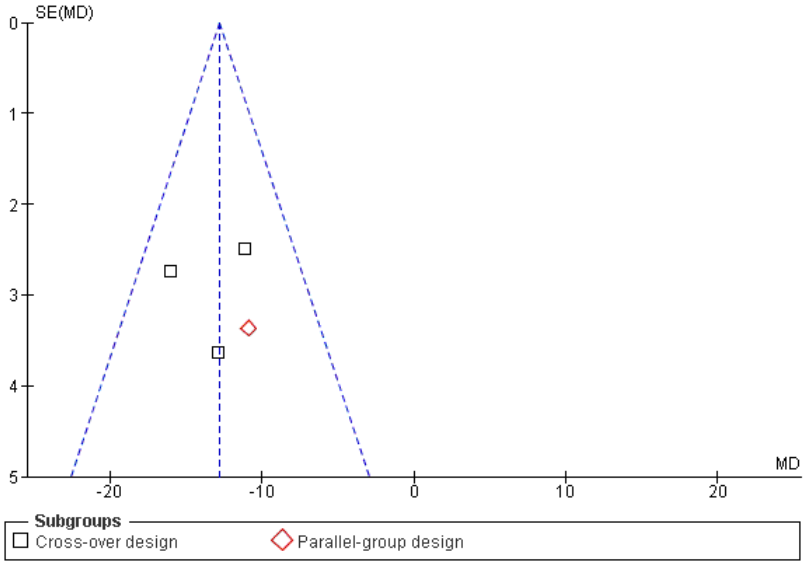


Review: Comparison of oxygen therapy versus air for respiration and sleep quality in patients with chronic, stable heart failure.
Comparison: Supplemental oxygen inhalation versus air inhalation for respiration and sleep quality in patients with chronic, stable heart failure, with subgroup analysis according to NYHA class.
Outcome: REM (rapid eye movement) sleep, % of total sleep time.
Number of participants: randomised 48; completed 42.

The 3 trials reporting data on sleep stage 1, also provided information on REM (rapid eye movement) sleep, as a % of total sleep time. All trials documented an effect in favour of oxygen, but this effect was statistically significant in 1 trial only. The pooled estimate of the effect of oxygen was a statistically significant difference in REM (rapid eye movement) sleep, with an effect size of 2.47 (0.50, 4.43) % of total sleep time. There was no statistical heterogeneity (I^2=0%).

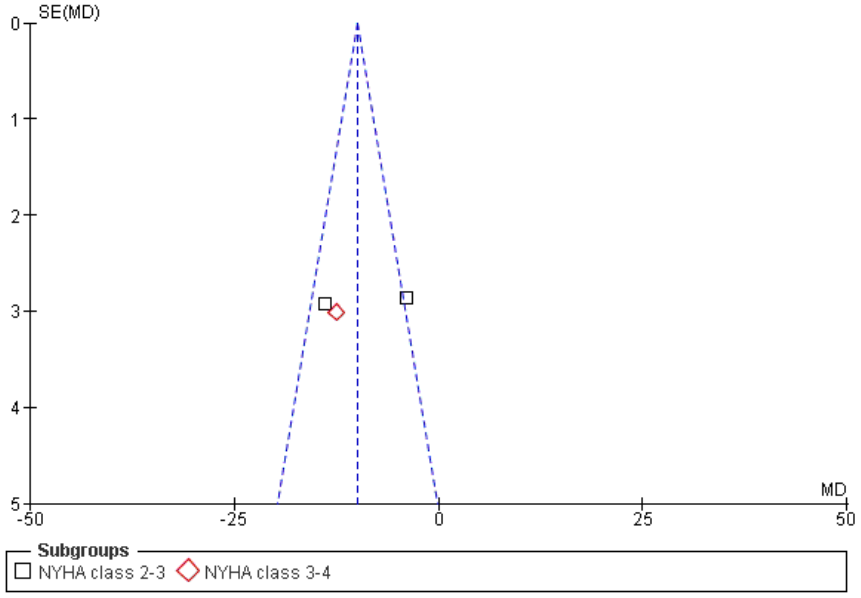
6 FUNNEL PLOTS – HEART FAILURE (HF)

6.1 FUNNEL PLOT - APNOEA-HYPOPNOEA INDEX (AHI)



The funnel plot for apnoea-hypopnoea index (AHI) shows no asymmetry, and the trim and fill computations indicate that the imputed pooled estimate is identical to our random effects model pooled estimate and its 95% confidence interval. Moreover, the fail-safe N method indicates that the number of missing studies that would render our pooled estimate non-significant is 73. Publication bias is thus very unlikely for this outcome.

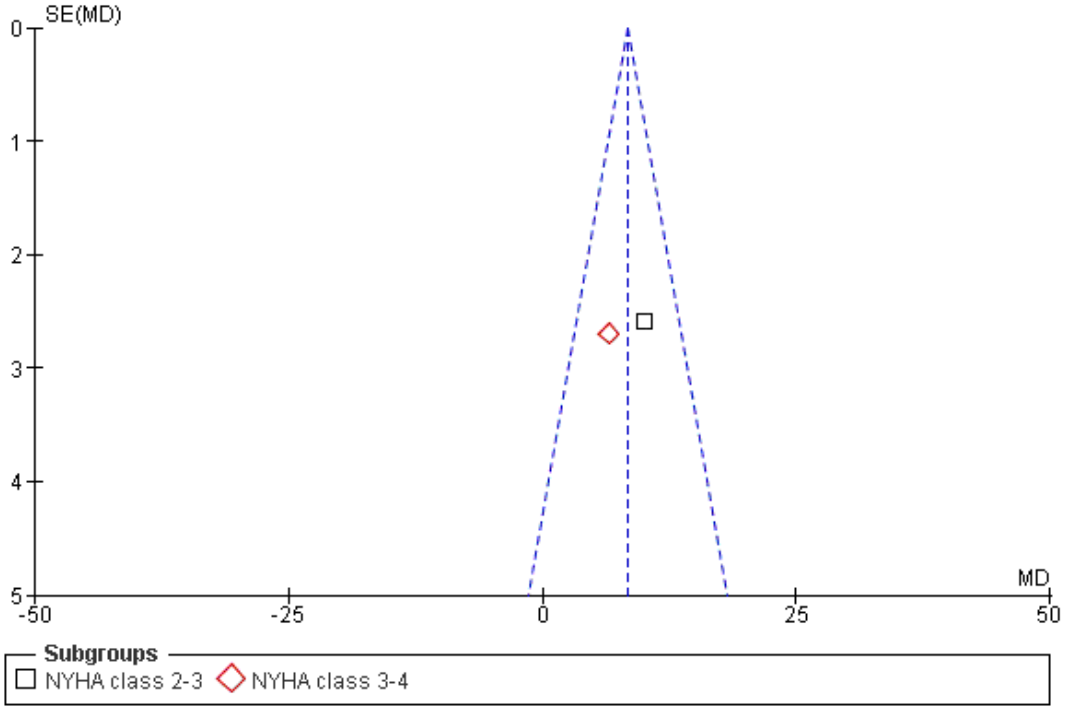
6.2 FUNNEL PLOT - SLEEP STAGE 1



The funnel plot sleep stage 1 shows no asymmetry, and the trim and fill computations indicate that the imputed pooled estimate is identical to our random effects model pooled estimate and its 95% confidence interval.

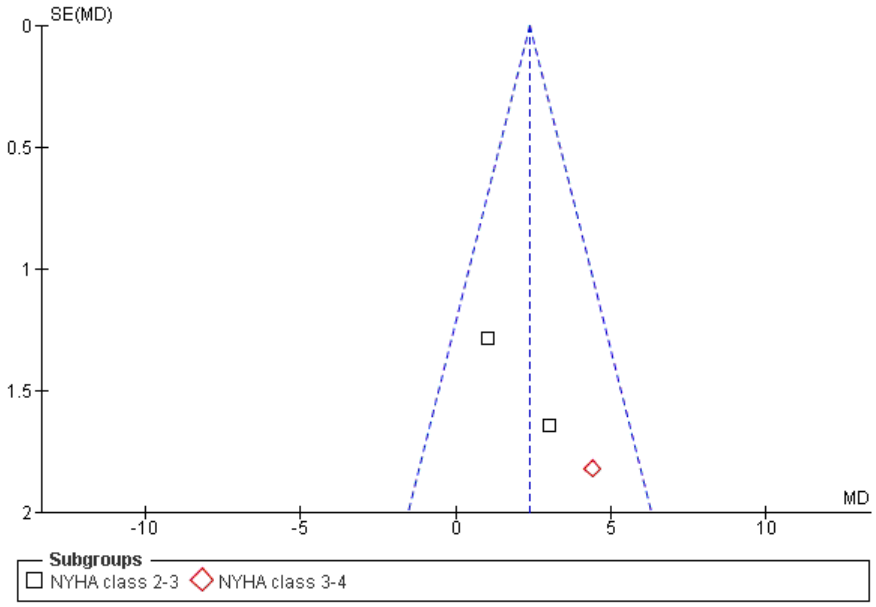
Moreover, the fail-safe N method indicates that the number of missing studies that would render our pooled estimate non-significant is 25. Here too, publication bias is thus very unlikely to affect our conclusions.

6.3 FUNNEL PLOT - SLEEP STAGE 2



Publication bias is very unlikely for sleep stage 2. The funnel plot for this outcome suggests no asymmetry, and the trim and fill computations indicate that the imputed pooled estimate is identical to our random effects model pooled estimate and its 95% confidence interval.

6.4 FUNNEL PLOT - REM (RAPID EYE MOVEMENT) SLEEP



The funnel plot for REM (rapid eye movement) sleep suggests asymmetry due to the absence of small studies on the left of the summary estimate. The trim-and-fill computations indicate that publication bias is likely to be present. Under a random effects model we computed a pooled estimate and 95% confidence interval for the included trials of 2.47 (0.50, 4.43), indicating statistical significance. Using trim and fill methodology the imputed poled estimate of 1.00 (-1.23, 3.23) is no longer statistically significant. The fail-safe N method indicates only 4 missing studies would render our pooled estimate non significant. Given the strong likelihood of publication bias the findings of our meta-analysis for this outcome should be interpreted with extreme caution.

APPENDICES OF CHAPTER 3

I SEARCH STRATEGIES

Date	07/07/2010
Database	PubMed, Medline
Search Strategy	(("Economics"[Mesh] OR cost[Title/Abstract] OR costs[Title/Abstract] OR cost-analysis[Title/Abstract] OR cost-benefit[Title/Abstract] OR cost-utility[Title/Abstract] OR cost-effectiveness[Title/Abstract] OR (economic[Title/Abstract] OR economic/activity[Title/Abstract] OR economic/administrative[Title/Abstract] OR economic/biophysical[Title/Abstract] OR economic/bureaucratic[Title/Abstract] OR economic/career[Title/Abstract] OR economic/cost[Title/Abstract] OR economic/cultural[Title/Abstract] OR economic/decision[Title/Abstract] OR economic/demographic[Title/Abstract] OR economic/development[Title/Abstract] OR economic/ecological[Title/Abstract] OR economic/educational[Title/Abstract] OR economic/efficient[Title/Abstract] OR economic/environmental[Title/Abstract] OR economic/epidemiological[Title/Abstract] OR economic/family[Title/Abstract] OR economic/family/personal[Title/Abstract] OR economic/financial[Title/Abstract] OR economic/function[Title/Abstract] OR economic/game[Title/Abstract] OR economic/health[Title/Abstract] OR economic/high[Title/Abstract] OR economic/historical[Title/Abstract] OR economic/industrial[Title/Abstract] OR economic/job[Title/Abstract] OR economic/legal[Title/Abstract] OR economic/life[Title/Abstract] OR economic/logistic[Title/Abstract] OR economic/low[Title/Abstract] OR economic/management[Title/Abstract] OR economic/market[Title/Abstract] OR economic/material[Title/Abstract] OR economic/materialistic[Title/Abstract] OR economic/mathematical[Title/Abstract] OR economic/medical[Title/Abstract] OR economic/nutritional[Title/Abstract] OR economic/occupational[Title/Abstract] OR economic/policy[Title/Abstract] OR economic/political[Title/Abstract] OR economic/production[Title/Abstract] OR economic/productive/social[Title/Abstract] OR economic/professional[Title/Abstract] OR economic/psychosocial[Title/Abstract] OR economic/public[Title/Abstract] OR economic/quality[Title/Abstract] OR economic/reimbursement[Title/Abstract] OR economic/relative[Title/Abstract] OR economic/resource[Title/Abstract] OR economic/social[Title/Abstract] OR economic/social/professional[Title/Abstract] OR economic/sociodemographic[Title/Abstract] OR economic/structural[Title/Abstract] OR economic/systems[Title/Abstract] OR economic/technological[Title/Abstract] OR economic'[Title/Abstract] OR economic's[Title/Abstract] OR economica[Title/Abstract] OR economical[Title/Abstract] OR economical/imaging[Title/Abstract] OR economicall[Title/Abstract] OR economically[Title/Abstract] OR economically/socially[Title/Abstract] OR economically'[Title/Abstract] OR economicalness[Title/Abstract] OR economicaly[Title/Abstract] OR economicas[Title/Abstract] OR economicbranches[Title/Abstract] OR economiche[Title/Abstract] OR economici[Title/Abstract] OR economicist[Title/Abstract] OR economicist'[Title/Abstract] OR economicity[Title/Abstract] OR economicmicro[Title/Abstract] OR economico[Title/Abstract] OR economicomathematical[Title/Abstract] OR economicosocial[Title/Abstract] OR economics[Title/Abstract] OR economics/business[Title/Abstract] OR economics/cost[Title/Abstract] OR economics/margaret[Title/Abstract] OR economics/nutrition[Title/Abstract] OR economics/technology[Title/Abstract] OR economics'[Title/Abstract] OR economicscience[Title/Abstract] OR economicus[Title/Abstract] OR economicus'rationalism[Title/Abstract]) OR (financ[Title/Abstract] OR financal[Title/Abstract] OR finance[Title/Abstract] OR finance/access[Title/Abstract] OR finance/administration[Title/Abstract] OR finance/business[Title/Abstract] OR finance/commerce[Title/Abstract] OR finance/economics[Title/Abstract] OR finance/going[Title/Abstract] OR finance/guide[Title/Abstract] OR finance/health[Title/Abstract] OR finance/house[Title/Abstract] OR finance/insurance[Title/Abstract] OR finance/insurance/real[Title/Abstract] OR finance/it[Title/Abstract] OR finance/marketing[Title/Abstract] OR finance/money[Title/Abstract] OR

	finance/politics[Title/Abstract] OR finance/primary[Title/Abstract] OR finance'[Title/Abstract] OR finance's[Title/Abstract] OR financeable[Title/Abstract] OR financed[Title/Abstract] OR financee's[Title/Abstract] OR financeira[Title/Abstract] OR financement[Title/Abstract] OR financer[Title/Abstract] OR financer's[Title/Abstract] OR financers[Title/Abstract] OR finances[Title/Abstract] OR finances/housing[Title/Abstract] OR finances/insurance[Title/Abstract] OR finances/revenue[Title/Abstract] OR finances/standard[Title/Abstract] OR finances'[Title/Abstract] OR finances"[Title/Abstract] OR financiability[Title/Abstract] OR financiail[Title/Abstract] OR financial[Title/Abstract] OR financial/account[Title/Abstract] OR financial/administrative[Title/Abstract] OR financial/benefits[Title/Abstract] OR financial/business[Title/Abstract] OR financial/compliance[Title/Abstract] OR financial/cost[Title/Abstract] OR financial/criminal[Title/Abstract] OR financial/decision[Title/Abstract] OR financial/economic[Title/Abstract] OR financial/employment[Title/Abstract] OR financial/housing[Title/Abstract] OR financial/insurance[Title/Abstract] OR financial/job[Title/Abstract] OR financial/labor[Title/Abstract] OR financial/legal[Title/Abstract] OR financial/management[Title/Abstract] OR financial/material[Title/Abstract] OR financial/motivational[Title/Abstract] OR financial/organizational[Title/Abstract] OR financial/pain[Title/Abstract] OR financial/pain/health[Title/Abstract] OR financial/personal[Title/Abstract] OR financial/political[Title/Abstract] OR financial/practical[Title/Abstract] OR financial/resource[Title/Abstract] OR financial/social[Title/Abstract] OR financial/structural[Title/Abstract] OR financial/study[Title/Abstract] OR financial/time[Title/Abstract] OR financial/transportation[Title/Abstract] OR financial/work[Title/Abstract] OR financial'[Title/Abstract] OR financialburden[Title/Abstract] OR financialization[Title/Abstract] OR financialized[Title/Abstract] OR financially[Title/Abstract] OR financially'[Title/Abstract] OR financials[Title/Abstract] OR financialy[Title/Abstract] OR financien[Title/Abstract] OR financier[Title/Abstract] OR financiere[Title/Abstract] OR financiering[Title/Abstract] OR financiers[Title/Abstract] OR financiers'[Title/Abstract] OR financies[Title/Abstract] OR financing[Title/Abstract] OR financing/development[Title/Abstract] OR financing/influence[Title/Abstract] OR financing/purchasing[Title/Abstract] OR financing/structural[Title/Abstract] OR financing'[Title/Abstract] OR financing's[Title/Abstract] OR financings[Title/Abstract] OR financingthefuture[Title/Abstract] OR financsek[Title/Abstract])) AND ("Oxygen Inhalation Therapy"[Mesh] OR (oxygen[Title/Abstract] AND (home[Title/Abstract] OR domiciliary[Title/Abstract] OR nocturnal[Title/Abstract] OR (portabel[Title/Abstract] OR portabella[Title/Abstract] OR portabello[Title/Abstract] OR portabililty[Title/Abstract] OR portability[Title/Abstract] OR portability/compactness[Title/Abstract] OR portability'[Title/Abstract] OR portabilty[Title/Abstract] OR portabl[Title/Abstract] OR portable[Title/Abstract] OR portable/desktop[Title/Abstract] OR portable/hand[Title/Abstract] OR portable/mobile[Title/Abstract] OR portable/transport[Title/Abstract] OR portable/wearable[Title/Abstract] OR portable'[Title/Abstract] OR portablease[Title/Abstract] OR portables[Title/Abstract] OR portabletnp[Title/Abstract] OR portablke[Title/Abstract] OR portably[Title/Abstract]) OR (ambulat[Title/Abstract] OR ambulat'orio[Title/Abstract] OR ambulatary[Title/Abstract] OR ambulate[Title/Abstract] OR ambulate/transfer[Title/Abstract] OR ambulated[Title/Abstract] OR ambulates[Title/Abstract] OR ambulating[Title/Abstract] OR ambulation[Title/Abstract] OR ambulation/climbing[Title/Abstract] OR ambulation/coordination[Title/Abstract] OR ambulation/exercise[Title/Abstract] OR ambulation/independence[Title/Abstract] OR ambulation/intravenous[Title/Abstract] OR ambulation/iv[Title/Abstract] OR ambulation/leg[Title/Abstract] OR ambulation/locomotion[Title/Abstract] OR ambulation/mobility[Title/Abstract] OR ambulation'[Title/Abstract] OR ambulations[Title/Abstract] OR ambulatoire[Title/Abstract] OR ambulatoire'[Title/Abstract] OR ambulator[Title/Abstract] OR ambulatorally[Title/Abstract] OR ambulatori[Title/Abstract] OR ambulatoria[Title/Abstract] OR ambulatorial[Title/Abstract] OR ambulatoriale[Title/Abstract] OR ambulatoriali[Title/Abstract] OR ambulatorially[Title/Abstract] OR ambulatoric[Title/Abstract] OR ambulatories[Title/Abstract] OR ambulatorily[Title/Abstract] OR ambulatorio[Title/Abstract] OR ambulatorios[Title/Abstract] OR ambulatorische[Title/Abstract] OR ambulatorium[Title/Abstract] OR ambulatoriums[Title/Abstract] OR ambulatorization[Title/Abstract] OR ambulators[Title/Abstract] OR ambulators/15[Title/Abstract] OR ambulators'[Title/Abstract] OR ambulatory[Title/Abstract] OR ambulatory/automated[Title/Abstract] OR

	ambulatory/conservative[Title/Abstract] OR ambulatory/counseling[Title/Abstract] OR ambulatory/cyclic[Title/Abstract] OR ambulatory/cycling[Title/Abstract] OR ambulatory/functional[Title/Abstract] OR ambulatory/health[Title/Abstract] OR ambulatory/home[Title/Abstract] OR ambulatory/hospital[Title/Abstract] OR ambulatory/inpatient[Title/Abstract] OR ambulatory/intraoperative[Title/Abstract] OR ambulatory/mobility[Title/Abstract] OR ambulatory/office[Title/Abstract] OR ambulatory/oligosymptomatic[Title/Abstract] OR ambulatory/outpatient[Title/Abstract] OR ambulatory/partial[Title/Abstract] OR ambulatory/portable[Title/Abstract] OR ambulatory/postural[Title/Abstract] OR ambulatory/primary[Title/Abstract] OR ambulatory/regional[Title/Abstract] OR ambulatory'[Title/Abstract] OR ambulatory's[Title/Abstract] OR ambulatoryly[Title/Abstract] OR ambulatorysurgery[Title/Abstract] OR ambulatoty[Title/Abstract] OR ambulaty[Title/Abstract])))) OR long term oxygen therapy[Title/Abstract] OR LTOT[Title/Abstract] OR (mechanical ventilation[Title/Abstract] AND (home[Title/Abstract] OR domiciliary[Title/Abstract])) OR long term mechanical ventilation[Title/Abstract] OR long term ventilation[Title/Abstract] OR oxygen conserving devices[Title/Abstract])) OR (("Economics"[Mesh] OR cost[Title/Abstract] OR costs[Title/Abstract] OR cost-analysis[Title/Abstract] OR cost-benefit[Title/Abstract] OR cost-utility[Title/Abstract] OR cost-effectiveness[Title/Abstract] OR (economic[Title/Abstract] OR economic/activity[Title/Abstract] OR economic/administrative[Title/Abstract] OR economic/biophysical[Title/Abstract] OR economic/bureaucratic[Title/Abstract] OR economic/career[Title/Abstract] OR economic/cost[Title/Abstract] OR economic/cultural[Title/Abstract] OR economic/decision[Title/Abstract] OR economic/demographic[Title/Abstract] OR economic/development[Title/Abstract] OR economic/ecological[Title/Abstract] OR economic/educational[Title/Abstract] OR economic/efficient[Title/Abstract] OR economic/environmental[Title/Abstract] OR economic/epidemiological[Title/Abstract] OR economic/family[Title/Abstract] OR economic/family/personal[Title/Abstract] OR economic/financial[Title/Abstract] OR economic/function[Title/Abstract] OR economic/game[Title/Abstract] OR economic/health[Title/Abstract] OR economic/high[Title/Abstract] OR economic/historical[Title/Abstract] OR economic/industrial[Title/Abstract] OR economic/job[Title/Abstract] OR economic/legal[Title/Abstract] OR economic/life[Title/Abstract] OR economic/logistic[Title/Abstract] OR economic/low[Title/Abstract] OR economic/management[Title/Abstract] OR economic/market[Title/Abstract] OR economic/material[Title/Abstract] OR economic/materialistic[Title/Abstract] OR economic/mathematical[Title/Abstract] OR economic/medical[Title/Abstract] OR economic/nutritional[Title/Abstract] OR economic/occupational[Title/Abstract] OR economic/policy[Title/Abstract] OR economic/political[Title/Abstract] OR economic/production[Title/Abstract] OR economic/productive/social[Title/Abstract] OR economic/professional[Title/Abstract] OR economic/psychosocial[Title/Abstract] OR economic/public[Title/Abstract] OR economic/quality[Title/Abstract] OR economic/reimbursement[Title/Abstract] OR economic/relative[Title/Abstract] OR economic/resource[Title/Abstract] OR economic/social[Title/Abstract] OR economic/social/professional[Title/Abstract] OR economic/sociodemographic[Title/Abstract] OR economic/structural[Title/Abstract] OR economic/systems[Title/Abstract] OR economic/technological[Title/Abstract] OR economic'[Title/Abstract] OR economic's[Title/Abstract] OR economica[Title/Abstract] OR economical[Title/Abstract] OR economical/imaging[Title/Abstract] OR economicall[Title/Abstract] OR economically[Title/Abstract] OR economically/socially[Title/Abstract] OR economically'[Title/Abstract] OR economicalness[Title/Abstract] OR economicaly[Title/Abstract] OR economicas[Title/Abstract] OR economicbranches[Title/Abstract] OR economiche[Title/Abstract] OR economici[Title/Abstract] OR economicist[Title/Abstract] OR economicist'[Title/Abstract] OR economicity[Title/Abstract] OR economicmicro[Title/Abstract] OR economico[Title/Abstract] OR economicomathematical[Title/Abstract] OR economicosocial[Title/Abstract] OR economics[Title/Abstract] OR economics/business[Title/Abstract] OR economics/cost[Title/Abstract] OR economics/margaret[Title/Abstract] OR economics/nutrition[Title/Abstract] OR economics/technology[Title/Abstract] OR economics'[Title/Abstract] OR economicscience[Title/Abstract] OR economicus[Title/Abstract] OR economicus'rationalism[Title/Abstract]) OR (financ[Title/Abstract] OR financal[Title/Abstract] OR finance[Title/Abstract] OR finance/access[Title/Abstract] OR

	finance/administration[Title/Abstract] OR finance/business[Title/Abstract] OR finance/commerce[Title/Abstract] OR finance/economics[Title/Abstract] OR finance/going[Title/Abstract] OR finance/guide[Title/Abstract] OR finance/health[Title/Abstract] OR finance/house[Title/Abstract] OR finance/insurance[Title/Abstract] OR finance/insurance/real[Title/Abstract] OR finance/it[Title/Abstract] OR finance/marketing[Title/Abstract] OR finance/money[Title/Abstract] OR finance/politics[Title/Abstract] OR finance/primary[Title/Abstract] OR finance'[Title/Abstract] OR finance's[Title/Abstract] OR financeable[Title/Abstract] OR financed[Title/Abstract] OR financee's[Title/Abstract] OR financeira[Title/Abstract] OR financement[Title/Abstract] OR financer[Title/Abstract] OR financer's[Title/Abstract] OR financers[Title/Abstract] OR finances[Title/Abstract] OR finances/housing[Title/Abstract] OR finances/insurance[Title/Abstract] OR finances/revenue[Title/Abstract] OR finances/standard[Title/Abstract] OR finances'[Title/Abstract] OR finances"[Title/Abstract] OR financiability[Title/Abstract] OR financiail[Title/Abstract] OR financial[Title/Abstract] OR financial/account[Title/Abstract] OR financial/administrative[Title/Abstract] OR financial/benefits[Title/Abstract] OR financial/business[Title/Abstract] OR financial/compliance[Title/Abstract] OR financial/cost[Title/Abstract] OR financial/criminal[Title/Abstract] OR financial/decision[Title/Abstract] OR financial/economic[Title/Abstract] OR financial/employment[Title/Abstract] OR financial/housing[Title/Abstract] OR financial/insurance[Title/Abstract] OR financial/job[Title/Abstract] OR financial/labor[Title/Abstract] OR financial/legal[Title/Abstract] OR financial/management[Title/Abstract] OR financial/material[Title/Abstract] OR financial/motivational[Title/Abstract] OR financial/organizational[Title/Abstract] OR financial/pain[Title/Abstract] OR financial/pain/health[Title/Abstract] OR financial/personal[Title/Abstract] OR financial/political[Title/Abstract] OR financial/practical[Title/Abstract] OR financial/resource[Title/Abstract] OR financial/social[Title/Abstract] OR financial/structural[Title/Abstract] OR financial/study[Title/Abstract] OR financial/time[Title/Abstract] OR financial/transportation[Title/Abstract] OR financial/work[Title/Abstract] OR financial'[Title/Abstract] OR financialburden[Title/Abstract] OR financialization[Title/Abstract] OR financialized[Title/Abstract] OR financially[Title/Abstract] OR financially'[Title/Abstract] OR financials[Title/Abstract] OR financialy[Title/Abstract] OR financien[Title/Abstract] OR financier[Title/Abstract] OR financiere[Title/Abstract] OR financiering[Title/Abstract] OR financiers[Title/Abstract] OR financiers'[Title/Abstract] OR financies[Title/Abstract] OR financing[Title/Abstract] OR financing/development[Title/Abstract] OR financing/influence[Title/Abstract] OR financing/purchasing[Title/Abstract] OR financing/structural[Title/Abstract] OR financing'[Title/Abstract] OR financing's[Title/Abstract] OR financings[Title/Abstract] OR financingthefuture[Title/Abstract] OR financsek[Title/Abstract])) AND ("Pulmonary Disease, Chronic Obstructive"[Mesh] OR "Lung Diseases"[Mesh] OR "Heart Failure"[Mesh] OR "Cluster Headache"[Mesh] OR Asthma[Title/Abstract] OR chronic airflow limitation[Title/Abstract] OR chronic bronchitis[Title/Abstract] OR chronic obstructive pulmonary disease[Title/Abstract] OR cluster headache[Title/Abstract] OR congestive heart failure[Title/Abstract] OR cystic fibrosis[Title/Abstract] OR emphysema[Title/Abstract] OR heart failure[Title/Abstract] OR hypoxemia[Title/Abstract] OR hypoxaemia[Title/Abstract] OR interstitial lung disease[Title/Abstract] OR lung cancer[Title/Abstract] OR occupational lung disease[Title/Abstract] OR palliative care[Title/Abstract]) AND ("Oxygen Inhalation Therapy"[Mesh] OR (("oxygen"[MeSH Terms] OR "oxygen"[All Fields]) AND (home[All Fields] OR domiciliary[All Fields] OR nocturnal[All Fields] OR (portabales[All Fields] OR portabel[All Fields] OR portabella[All Fields] OR portabello[All Fields] OR portabelt[All Fields] OR portabil'nyi[All Fields] OR portabililty[All Fields] OR portabilitat[All Fields] OR portability[All Fields] OR portability/compactness[All Fields] OR portability'[All Fields] OR portabilty[All Fields] OR portabl[All Fields] OR portable[All Fields] OR portable/desktop[All Fields] OR portable/hand[All Fields] OR portable/mobile[All Fields] OR portable/transport[All Fields] OR portable/wearable[All Fields] OR portable'[All Fields] OR portablease[All Fields] OR portablen[All Fields] OR portabler[All Fields] OR portables[All Fields] OR portabletnp[All Fields] OR portablke[All Fields] OR portablod[All Fields] OR portably[All Fields]) OR (ambulat[All Fields] OR ambulat'orio[All Fields] OR ambulatarnata[All Fields] OR ambulatarnogo[All Fields] OR ambulatary[All Fields] OR ambulate[All Fields] OR ambulate/transfer[All Fields] OR ambulated[All Fields] OR ambulaten[All Fields] OR ambulater[All Fields] OR ambulates[All Fields] OR ambulating[All Fields] OR ambulation[All Fields] OR ambulation/climbing[All Fields] OR

	ambulation/coordination[All Fields] OR ambulation/early[All Fields] OR ambulation/exercise[All Fields] OR ambulation/independence[All Fields] OR ambulation/intravenous[All Fields] OR ambulation/iv[All Fields] OR ambulation/leg[All Fields] OR ambulation/locomotion[All Fields] OR ambulation/mobility[All Fields] OR ambulation'[All Fields] OR ambulations[All Fields] OR ambulatni[All Fields] OR ambulatnog[All Fields] OR ambulatnorno[All Fields] OR ambulatoire[All Fields] OR ambulatoire'[All Fields] OR ambulatoirement[All Fields] OR ambulatoires[All Fields] OR ambulatonroi[All Fields] OR ambulatonykh[All Fields] OR ambulator[All Fields] OR ambulatorally[All Fields] OR ambulatori[All Fields] OR ambulatoria[All Fields] OR ambulatoriai[All Fields] OR ambulatoriais[All Fields] OR ambulatorial[All Fields] OR ambulatoriale[All Fields] OR ambulatoriali[All Fields] OR ambulatoriali'[All Fields] OR ambulatorially[All Fields] OR ambulatorialmente[All Fields] OR ambulatoriamente[All Fields] OR ambulatorias[All Fields] OR ambulatoric[All Fields] OR ambulatorie[All Fields] OR ambulatoriefunktion[All Fields] OR ambulatorien[All Fields] OR ambulatoriepatienters[All Fields] OR ambulatorier[All Fields] OR ambulatories[All Fields] OR ambulatoriet[All Fields] OR ambulatoriets[All Fields] OR ambulatorieundersogelse[All Fields] OR ambulatorii[All Fields] OR ambulatoriia[All Fields] OR ambulatoriiakh[All Fields] OR ambulatorily[All Fields] OR ambulatorine[All Fields] OR ambulatorinen[All Fields] OR ambulatorines[All Fields] OR ambulatorio[All Fields] OR ambulatorio/centro[All Fields] OR ambulatoriopesquisa[All Fields] OR ambulatorios[All Fields] OR ambulatorisch[All Fields] OR ambulatorische[All Fields] OR ambulatorischen[All Fields] OR ambulatorisessa[All Fields] OR ambulatorisk[All Fields] OR ambulatoriska[All Fields] OR ambulatoriskai[All Fields] OR ambulatoriu[All Fields] OR ambulatoriul[All Fields] OR ambulatorium[All Fields] OR ambulatorium/1[All Fields] OR ambulatorium/2[All Fields] OR ambulatorium/3[All Fields] OR ambulatorium/4[All Fields] OR ambulatorium/5[All Fields] OR ambulatoriums[All Fields] OR ambulatoriumsbetriebes[All Fields] OR ambulatorization[All Fields] OR ambulatormykh[All Fields] OR ambulatorna[All Fields] OR ambulatorna/ednodnevna[All Fields] OR ambulatornaia[All Fields] OR ambulatornata[All Fields] OR ambulatorne[All Fields] OR ambulatorni[All Fields] OR ambulatornite[All Fields] OR ambulatorno[All Fields] OR ambulatornoe[All Fields] OR ambulatornogo[All Fields] OR ambulatornoi[All Fields] OR ambulatornoj[All Fields] OR ambulatornom[All Fields] OR ambulatornomu[All Fields] OR ambulatornye[All Fields] OR ambulatornyi[All Fields] OR ambulatornykh[All Fields] OR ambulatornym[All Fields] OR ambulatorogo[All Fields] OR ambulators[All Fields] OR ambulators/15[All Fields] OR ambulators'[All Fields] OR ambulatorul[All Fields] OR ambulatory[All Fields] OR ambulatory/academic[All Fields] OR ambulatory/automated[All Fields] OR ambulatory/conservative[All Fields] OR ambulatory/counseling[All Fields] OR ambulatory/cyclic[All Fields] OR ambulatory/cycling[All Fields] OR ambulatory/functional[All Fields] OR ambulatory/health[All Fields] OR ambulatory/home[All Fields] OR ambulatory/hospital[All Fields] OR ambulatory/inpatient[All Fields] OR ambulatory/intraoperative[All Fields] OR ambulatory/mobility[All Fields] OR ambulatory/office[All Fields] OR ambulatory/oligosymptomatic[All Fields] OR ambulatory/outpatient[All Fields] OR ambulatory/partial[All Fields] OR ambulatory/portable[All Fields] OR ambulatory/postural[All Fields] OR ambulatory/primary[All Fields] OR ambulatory/regional[All Fields] OR ambulatory'[All Fields] OR ambulatory's[All Fields] OR ambulatoryjna[All Fields] OR ambulatoryjne[All Fields] OR ambulatoryjnego[All Fields] OR ambulatoryjnej[All Fields] OR ambulatoryjnie[All Fields] OR ambulatoryjno[All Fields] OR ambulatoryjny[All Fields] OR ambulatoryjnych[All Fields] OR ambulatoryjnym[All Fields] OR ambulatorykh[All Fields] OR ambulatoryly[All Fields] OR ambulatorymi[All Fields] OR ambulatorynkh[All Fields] OR ambulatorysurgery[All Fields] OR ambulatoty[All Fields] OR ambulatriiu[All Fields] OR ambulatrono[All Fields] OR ambulatuvar[All Fields] OR ambulaty[All Fields])))) OR (long[All Fields] AND term[All Fields] AND ("oxygen inhalation therapy"[MeSH Terms] OR ("oxygen"[All Fields] AND "inhalation"[All Fields] AND "therapy"[All Fields]) OR "oxygen inhalation therapy"[All Fields] OR ("oxygen"[All Fields] AND "therapy"[All Fields]) OR "oxygen therapy"[All Fields])) OR LTOT[All Fields] OR (("respiration, artificial"[MeSH Terms] OR ("respiration"[All Fields] AND "artificial"[All Fields]) OR "artificial respiration"[All Fields] OR ("mechanical"[All Fields] AND "ventilation"[All Fields]) OR "mechanical ventilation"[All Fields]) AND (home[All Fields] OR domiciliary[All Fields])) OR (long[All Fields] AND term[All Fields] AND ("respiration, artificial"[MeSH Terms] OR ("respiration"[All Fields] AND "artificial"[All Fields]) OR "artificial respiration"[All Fields] OR ("mechanical"[All Fields] AND "ventilation"[All Fields]) OR "mechanical ventilation"[All Fields])) OR (long[All Fields] AND term[All Fields] AND ("ventilation"[MeSH Terms] OR "ventilation"[All Fields] OR "respiration"[MeSH Terms] OR "respiration"[All Fields])) OR (("oxygen"[MeSH Terms] OR "oxygen"[All Fields]) AND conserving[All Fields] AND ("instrumentation"[Subheading] OR

	"instrumentation"[All Fields] OR "devices"[All Fields] OR "equipment and supplies"[MeSH Terms] OR ("equipment"[All Fields] AND "supplies"[All Fields]) OR "equipment and supplies"[All Fields]))))) NOT ("Human Activities"[Mesh] OR hyperbaric[Title/Abstract] OR low pressure[Title/Abstract] OR emergency unit[Title] OR emergency department[Title] OR energy consumption[Title/Abstract]) AND ("humans"[MeSH Terms] AND ("1995"[PDAT] : "2010"[PDAT]))

Date	07/07/2010		
Database	Cinahl, EBSCOhost		
Search Strategy	**#**	**Query**	**Limiters/Expanders**
	S82	S81 NOT S69	Search modes - Boolean/Phrase
	S81	(S79 or S80)	Search modes - Boolean/Phrase
	S80	S75 and S77 and S78	Search modes - Boolean/Phrase
	S79	S75 and S76	Search modes - Boolean/Phrase
	S78	S62 or S71	Search modes - Boolean/Phrase
	S77	S45 or S72 or S73 or S74	Search modes - Boolean/Phrase
	S76	S27 or S71	Search modes - Boolean/Phrase
	S75	S2 or S3 or S4 or S5 or S6 or S7 or S8 or S9 or S70	Search modes - Boolean/Phrase
	S74	(MH "Cluster Headache")	Search modes - Boolean/Phrase
	S73	(MH "Heart Failure, Congestive")	Search modes - Boolean/Phrase
	S72	(MH "Pulmonary Disease, Chronic Obstructive") or (MH "Lung Diseases") or (MH "Lung Diseases, Interstitial") or (MH "Lung Diseases, Obstructive")	Search modes - Boolean/Phrase
	S71	(MH "Oxygen Therapy") or (MH "Inhalation Therapy (Saba CCC)") or (MH "Oxygen Therapy Care (Saba CCC)") or (MH "Oxygen Therapy (Iowa NIC)") or (MH "Administration, Inhalation") or (MH "Home Oxygen Therapy") or (MH "Respiratory Therapy")	Search modes - Boolean/Phrase
	S70	(MH "Economics")	Search modes - Boolean/Phrase
	S69	S63 or S64 or S65 or S66 or S67 or S68	Search modes - Boolean/Phrase
	S68	TI energy consumption	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S67	TI emergency department	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S66	TI emergency unit	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S65	AB low pressure or TI low pressure	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words /

		synonyms Search modes - Boolean/Phrase
S64	AB hyperbaric or TI hyperbaric	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
S63	human activities	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
S62	S46 or S54 or S56 or S57 or S58 or S59 or S60 or S61	Search modes - Boolean/Phrase
S61	TX oxygen conserving devices or TX oxygen conserving devices	Search modes - Boolean/Phrase
S60	TX long term ventilation or TX long term ventilation	Search modes - Boolean/Phrase
S59	TX long term mechanical ventilation or TX long term mechanical ventilation	Search modes - Boolean/Phrase
S58	TX ltot or TX ltot	Search modes - Boolean/Phrase
S57	TX long term oxygen therapy or TX long term oxygen therapy	Search modes - Boolean/Phrase
S56	mechanical ventilation and S55	Search modes - Boolean/Phrase
S55	S48 or S49	Search modes - Boolean/Phrase
S54	S47 and S53	Search modes - Boolean/Phrase
S53	S48 or S49 or S50 or S51 or S52	Search modes - Boolean/Phrase
S52	TX ambulat*	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
S51	TX portab*	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
S50	TX nocturnal	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
S49	TX domiciliary	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
S48	TX home	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
S47	TX oxygen	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase

	S46	TX oxygen inhalation therapy	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S45	S28 or S29 or S30 or S31 or S32 or S33 or S34 or S35 or S36 or S37 or S38 or S39 or S40 or S41 or S42 or S43 or S44	Search modes - Boolean/Phrase
	S44	AB palliative care or TI palliative care	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S43	AB occupational lung disease or TI occupational lung disease	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S42	AB lung cancer or TI lung cancer	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S41	AB interstitial lung disease or TI interstitial lung disease	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S40	AB hypoxemia or TI hypoxemia	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S39	AB hypoxaemia or TI hypoxaemia	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S38	AB heart failure or TI heart failure	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S37	AB emphysema or TI emphysema	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S36	AB cystic fibrosis or TI cystic fibrosis	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S35	AB congestive heart failure or TI congestive heart failure	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S34	AB chronic bronchitis or TI chronic bronchitis	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S33	AB chronic airflow limitation or TI	Limiters - ; Exclude MEDLINE records

		chronic airflow limitation	Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S32	AB asthma or TI asthma	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S31	AB cluster headache or TI cluster headache	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S30	AB heart failure or TI heart failure	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S29	AB lung disease* or TI lung disease*	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S28	AB chronic obstructive pulmonary disease or TI chronic obstructive pulmonary disease	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S27	S11 or S19 or S21 or S22 or S23 or S24 or S25 or S26	Search modes - Boolean/Phrase
	S26	AB oxygen conserving devices or TI oxygen conserving devices	Search modes - Boolean/Phrase
	S25	AB long term ventilation or TI long term ventilation	Search modes - Boolean/Phrase
	S24	AB long term mechanical ventilation or TI long term mechanical ventilation	Search modes - Boolean/Phrase
	S23	AB ltot or TI ltot	Search modes - Boolean/Phrase
	S22	AB long term oxygen therapy or TI long term oxygen therapy	Search modes - Boolean/Phrase
	S21	(AB mechanical ventilation or TI mechanical ventilation) and (S13 or S14)	Search modes - Boolean/Phrase
	S20	AB mechanical ventilation or TI mechanical ventilation	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S19	S12 and S18	Search modes - Boolean/Phrase
	S18	S13 or S14 or S15 or S16 or S17	Search modes - Boolean/Phrase
	S17	TI ambulat* or AB ambulat*	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Find all my search terms
	S16	TI portab* or AB portab*	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Find all my search terms

	S15	TI nocturnal or AB nocturnal	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Find all my search terms
	S14	TI domiciliary or AB domiciliary	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Find all my search terms
	S13	TI home or AB home	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Find all my search terms
	S12	TI oxygen or AB oxygen	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Find all my search terms
	S11	TI oxygen inhalation therapy or AB oxygen inhalation therapy	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Find all my search terms
	S10	S1 or S2 or S3 or S4 or S5 or S6 or S7 or S8 or S9	Search modes - Boolean/Phrase
	S9	AB financ* or TI financ*	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S8	AB economic* or TI economic*	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S7	AB cost-effectiveness or TI cost-effectiveness	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S6	AB cost-utility or TI cost-utility	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S5	AB cost-benefit or TI cost-benefit	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S4	AB cost-analysis or TI cost-analysis	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S3	AB costs or TI costs	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase
	S2	AB cost or TI cost	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words /

			synonyms Search modes - Boolean/Phrase
	S1	AB economics or TI economics	Limiters - ; Exclude MEDLINE records Expanders - Also search for related words / synonyms Search modes - Boolean/Phrase

Date	22/04/2010
Database	Embase
Search Strategy	No. Query Results Results Date #190.#186 NOT #183 AND [humans]/lim AND [embase]/lim AND [1995-2010]/py 702 22 Apr 2010 #189.#186 NOT #183 AND [humans]/lim AND [embase]/lim AND [medline]/lim AND [1995-2010]/py 458 22 Apr 2010 #188.#186 NOT #183 AND [humans]/lim AND [embase]/lim 843 22 Apr 2010 #187.#186 NOT #183 944 22 Apr 2010 #186.#184 OR #185 995 22 Apr 2010 #185.#162 AND #176 AND #182 633 22 Apr 2010 #184.#162 AND #170 625 22 Apr 2010 #183.#104 OR #105 OR #106 OR #155 OR #156 OR #157 OR #158 OR #159 OR #160 82,481 22 Apr 2010 #182.#179 OR #181 29,476 22 Apr 2010 #181.#161 AND #180 1,057 22 Apr 2010 #180.#88 OR #89 189,613 22 Apr 2010 #179.#17 OR #94 OR #150 OR #152 OR #153 OR #154 OR #178 28,790 22 Apr 2010 #178.#87 AND #177 27,818 22 Apr 2010 #177.#88 OR #89 OR #90 OR #91 OR #92 325,403 22 Apr 2010 #176.#171 OR #172 OR #173 OR #174 OR #175 818,378 22 Apr 2010 #175.'occupational lung disease':ab 212 22 Apr 2010 #174.'occupational lung disease':ti 166 22 Apr 2010 #173.'congestive heart failure':ab 27,266 22 Apr 2010 #172.'congestive heart failure':ti 9,739 22 Apr 2010 #171.#51 OR #52 OR #53 OR #54 OR #55 OR #56 OR #69 OR #70 OR #73 OR #74 OR #75 OR #76 OR #132 OR #133 OR #134 OR #135 OR #136 OR #137 OR #138 OR #139 OR #140 OR #141 OR #142 OR #143 OR #144 OR #145 OR #146 OR #147 OR #148 OR #149 818,297 22 Apr 2010 #170.#166 OR #169 7,194 22 Apr 2010 #169.#167 AND #168 919 22 Apr 2010 #168.#124 OR #125 22,654 22 Apr 2010 #167.#20 OR #21 OR #22 OR #23 129,225 22 Apr 2010 #166.#17 OR #32 OR #33 OR #122 OR #123 OR #126 OR #127 OR #128 OR #129 OR #130 OR #131 OR #165 6,524 22 Apr 2010 #165.#163 AND #164 5,476 22 Apr 2010 #164.#18 OR #19 279,128 22 Apr 2010 #163.#20 OR #21 OR #22 OR #23 OR #24 OR #25 OR #26 OR #27 OR #28 OR #29 230,765 22 Apr 2010 #162.#1 OR #13 429,272 22 Apr 2010 #161.'mechanical ventilation' 24,190 22 Apr 2010 #160.'energy consumption':ab 2,811 22 Apr 2010 #159.'energy consumption':ti 328 22 Apr 2010 #158.'emergency department':ti 10,908 22 Apr 2010 #157.'emergency unit':ti 261 22 Apr 2010 #156.'low pressure':ab 5,344 22 Apr 2010 #155.'low pressure':ti 1,050 22 Apr 2010 #154.'oxygen conserving devices' 31 22 Apr 2010 #153.'long term ventilation' 301 22 Apr 2010

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	#24. nocturnal:ti 8,891 22 Apr 2010 #23. domiciliary:ab 1,603 22 Apr 2010 #22. domiciliary:ti 1,123 22 Apr 2010 #21. home:ab 102,518 22 Apr 2010 #20. home:ti 44,381 22 Apr 2010 #19. oxygen:ab 247,406 22 Apr 2010 #18. oxygen:ti 73,474 22 Apr 2010 #17. 'home oxygen therapy'/exp AND [embase]/lim 107 22 Apr 2010 #16. 'oxygen therapy'/exp AND [embase]/lim 16,339 22 Apr 2010 #13. cost:ab OR cost:ti OR costs:ab OR costs:ti OR 'cost analysis':ab OR 'cost analysis':ti OR 'cost benefit':ab OR 'cost benefit':ti OR 'cost utility':ab OR 'cost utility':ti OR 'cost effectiveness':ab OR 'cost effectiveness':ti OR economic*:ab OR economic*:ti OR financ*:ab OR financ*:ti AND [embase]/lim 280,798 22 Apr 2010 #11. 'cost effectiveness analysis'/exp AND [embase]/lim 65,011 22 Apr 2010 #10. 'drug cost'/exp AND [embase]/lim 39,201 22 Apr 2010 #9. 'health care cost'/exp AND [embase]/lim 117,935 22 Apr 2010 #8. 'hospital cost'/exp AND [embase]/lim 11,328 22 Apr 2010 #7. 'health care cost'/exp AND [embase]/lim 117,935 22 Apr 2010 #6. 'cost control'/exp AND [embase]/lim 18,952 22 Apr 2010 #5. 'cost of illness'/exp AND [embase]/lim 5,592 22 Apr 2010 #4. 'cost benefit analysis'/exp AND [embase]/lim 33,454 22 Apr 2010 #3. 'economics'/exp AND [embase]/lim 14,374 22 Apr 2010 #2. 'cost'/exp AND [embase]/lim 141,461 22 Apr 2010 #1. 'health economics'/exp AND [embase]/lim 260,424 22 Apr 2010

Date	07/07/2010
Database	Web of Science
Search Strategy	#13: #11 NOT #12 #12: Topic=(human activities) OR Topic=(hyperbaric) OR Topic=(low pressure) OR Title=(emergency unit) OR Title=(emergency department) OR Topic=(energy consumption) #11: #9 OR #7 Refined by: Publication Years=(2007 OR 2000 OR 2003 OR 2004 OR 2010 OR 2001 OR 1999 OR 1995 OR 2006 OR 1997 OR 2005 OR 1996 OR 2009 OR 1998 OR 2008 OR 2002) #10: #9 OR #7 #9: #8 AND #6 AND #1 #8: Topic=(chronic obstructive pulmonary disease) OR Topic=(asthma) OR Topic=(chronic airflow limitation) OR Topic=(chronic bronchitits) OR Topic=(cluster headache) OR Topic=(congestive heart failure) OR Topic=(cystic fibrosis) OR Topic=(emphysema) OR Topic=(heart failure) OR Topic=(hypox$mia) OR Topic=(interstitial lung disease) OR Topic=(lung cancer) OR Topic=(occupational lung disease) OR Topic=(palliative care) #7: #6 AND #1 #6: #5 OR #2 #5: #4 AND #3 #4: Topic=(oxygen) #3: Topic=(home) OR Topic=(domiciliary) OR Topic=(nocturnal) OR Topic=(portab*) OR Topic=(ambulat*) #2: Topic=(oxygen inhalation therapy) OR Topic=(long term oxygen therapy) OR Topic=(LTOT) OR Topic=(oxygen conserving devices) #1: Topic=(economic*) OR Topic=(cost) OR Topic=(costs) OR Topic=(cost-analysis) OR Topic=(cost-benefit) OR Topic=(cost-utility) OR Topic=(cost-effectiveness) OR Topic=(financ*)

Date	07/07/2010
Database	Pedro
Search Strategy	oxygen therapy AND home

Date	07/07/2010
Database	Econlit
Search Strategy	oxygen therapy AND cost*

Date	07/07/2010
Database	Clinicaltrials.gov
Search Strategy	Oxygen therapy AND cost

Date	07/07/2010
Database	NHS Evidence (NICE)
Search Strategy	Oxygen AND cost*

Date	07/07/2010
Database	HTA database via the CRD website
Search Strategy	Oxygen AND cost*

2 DATA EXTRACTION TABLES

Author	**Oba Y**		
Year	2009		
Country	USA		
Study type	Cost-utility		
Objective	To study the cost-effectiveness of long-term oxygen therapy (LTOT) to facilitate proper resource allocation.		
Model	Markov model		
Perspective	Third-party payer.		
Time window	Cycle length set up to three months but total time window set to 5 years. The authors argued that there was no need to expand it more because there was no evidence of the efficacy of LTOT beyond that point.		
Interventions	Oxygen therapy versus no oxygen in patients with severe resting hypoxemia (SRH) and patients with Nocturnal Desaturation (ND).		
Population	COPD patients with SRH and those with ND.		
Assumptions	Oxygen therapy was assumed to be continuous (>16 hrs/day) in patients with SRH, while it was nocturnal (9hrs/day) in the ND group. Model constructed with 3 mutually exclusive stages: Stage 1: FEV1 of >50% of predicted. Stage 2: FEV1 of 30-50% of predicted Stage 3: FEV1 of <30% of predicted Stage 4: Death. In the SRH group it was assumed that 50% of the initial cohort had stage 2 disease and that the remaining 50% had stage three In the ND group, it was assumed that 15% of the initial cohort had stage 1 disease, 70% had stage 2 disease and the remaining 15% had stage 3. The model assumed that FEV1 declined over time and that a patient's health status declined with decrements in FEV1. The mean use of a concentrator for NOT was assumed to be 9h/d. It was assumed that LTOT did not reduce COPD-related hospitalizations Because the available evidence fails to support that NOT prolongs life even in patients with SRH, the mortality rate of a hypothetical control (no oxygen therapy) group in the NOTT1 was assumed to be the same as that of the NOT group. The rate of decline with LTOT for COT and NOT was estimated to be 6.5 mL for the first 18 months and 0 mL thereafter.		
Data source for costs	Medicare reimbursement rates for oxygen therapy and stationary oxygen equipment with or without a portable equipment.		
Cost items included	Direct costs of nocturnal oxygen therapy and continuous oxygen therapy including: Monthly costs of LTOT and the cost of running an oxygen concentrator.		
Data source for outcomes	Quarterly transitional probabilities of death were derived from published clinical studies. Characteristics of the population and the split between the different stages were also derived from the literature (primarily the Nocturnal Oxygen Therapy Trial (NOTT) and the Medical Research Council (MRC). Rates of decline of FEV1 in the SRH group derived from the NOTT and the MRC studies, while those fro the ND group were taken from Chaouat et al. The Health outcome measured in the study was health-related quality of life (HRQL). Source for the QALY study: Rutten-van Mölken et al.		
Discounting	Discount rate of 3% applied to costs and benefits		
Costs	All costs reported in 2007 US$		
	Costs of LTOT/month	$198.40	
	Cost of running concentrator/month	$30	*Continuous oxygen*

		$11	*Nocturnal oxygen*
Outcomes	Mean HRQL for stable patients		
	Stage 1	0.832	*95% CI 0.821-0.843*
	Stage 2	0.832	*95% CI 0.790-0.816*
	Stage 3	0.731	*95% CI 0.699-0.762*
Cost-effectiveness	Incremental cost-effectiveness ratios were presented for SRH and ND patients **For SRH:** **3 yr horizon**: Incremental cost, $ QUALYs ICER, $/QALY *Control* --------- 1.56 ---------- *Continuous oxygen* $6567 1.84 23,807 **5 year horizon** *Control* --------- 2.07 ---------- *Continuous oxygen* $9517 2.66 16,124 **For ND:** **3 yr horizon**: Incremental cost, $ QUALYs ICER, $/QALY *Control* --------- 1.87 ---------- *Nocturnal oxygen* $5975 1.88 477,929 **5 year horizon** *Control* --------- 2.68 ---------- *Nocturnal oxygen* $8615 2.70 306,356 The estimated ICER for continuous oxygen therapy was robust and more favourable than commonly used medical and surgical therapies for COPD. However, the ICER estimated for nocturnal oxygen therapy was sensitive to variations in the mortality rate.		
Sensitivity analysis	1-way sensitivity analysis: All ICERs for continued oxygen therapy <$25000/QALY. The ICER for nocturnal oxygen varied widely when the quarterly rate of death changed. Probabilistic sensitivity analysis (based on 5000 simulations): Once more, this supported the robustness of the base case scenario for continuous oxygen therapy For nocturnal therapy the ICER varied widely.		
Conclusions	Medicare coverage can be improved by prescribing long-term oxygen therapy to patients who will receive substantial benefit and by providing adequate support for services an maintenance.		
Remarks	No indirect costs captured No clear justification of the time horizon chosen. Cost-effectiveness estimates for LTOT could be very conservative since it was assumed that it could not reduce COPD hospitalizations The estimate change in HRQoL was based on predicted decline in FEV1 derived from the literature. Some of the clinical evidence in which the assumptions were based on studies that are now over 30 years old and in small patient populations that could differ from current patient populations.		
Conflict of interests	None reported		

Author	**Serginson**
Year	2009
Country	Australia
Study type	Retrospective observational study.
Project aim	It was three-fold: To determine the rate of prescription and the total cost of government-funded domiciliary-oxygen therapy (DOT) in Australia; including the department of

	Veterans'Affairs (DVA) and the Department of Health and Ageing (DoHA) To identify differences between jurisdictions in prescription rates, costs and service provision To evaluate the adequacy of available data to explain any differences.
Model	NA
Perspective	Government perspective.
Time window	1 financial year (2004-2005).
Interventions	This study consisted on a description of prescription rates and costs of Domiciliary Oxygen Therapy services across the Australian territory. It was not a comparative study.
Population	20127 patients using DOT services in Australia.
Assumptions	Since 2004-2005 cost data were not available for all jurisdictions, 2003-04 data were used for Victoria and 2001 data for rural Western Australia. Since Administrative costs were not available for New South Wales while available for all other states and since in that state the costs of previously purchased oxygen concentrators were excluded the overall costs for the state were underestimated and therefore, the average cost per patient per year for all other state services was used instead of that of New South Wales when estimating the national cost of state-funded and all DOT services in Australia. This was done in order to avoid biasing the overall cost results
Data source for costs	Data compiled from all DOT services in Australia. Centralised departments managing state budgets for DOT provided costs and patient numbers. If centralised data were not available, data were obtained from regional departments. Medicare provided the number of patients prescribed DOT in residential aged care facilities and the cost of oxygen subsidies paid by the Department of Health in 2004-2005.
Cost items included	Equipment only (fees paid to oxygen companies). Equipment and administrative (wages and non-labour costs of administering the programs included). No indirect costs included. Data for DOT funded by palliative services not included. Education or support to patients receiving DOT not included.
Data source for outcomes	NA. No outcomes captured since this was purely a descriptive study, looking at costs of DOT in Australia and how they varied between jurisdictions.
Discounting	No discounting made explicit.
Costs	Cost per patient per year varied fourfold between the DVA and the DoHa, while prescription rates varied threefold between the states, ranging from 44 for the Northern territory to 133 for Tasmania per 100 000 population.

Costs by source of funding	*State*	*DVA*	*DoHA*
Total costs 04-05	*$20806000*	*$3439682*	*$6837939*
Mean costs/patient/yr	*$1497*	*$842*	*$3189*

Outcomes			
	NA		
Cost-effectiveness	NA		
Sensitivity analysis	No sensitivity analysis performed.		
Conclusions	Domiciliary oxygen therapy prescription rates and costs vary between jurisdictions. A national domiciliary oxygen therapy register would help to better understand such variations and would facilitate service planning.		
Remarks	Costs measured as accurately as possible given the data limitations (some assumptions needed to be made). Overall items included in the cost not explained in enough detail Overall costs not complete since they excluded DOT services funded by palliative care services, which were expected to represent a small part of the overall figure (primarily due to the short life expectancy of patients undergoing palliative care). Costs for 2004-05 not available for all jurisdictions, in which case costs for previous years were used.		

Conflict of interests	Study funded by the Medical Aids Subsidy Scheme. One of the authors worked for the DVA Rehabilitation Appliances Program. All other authors are members of the MASS Oxygen clinical trial

Author	**Mapel**
Year	2008
Country	USA
Study type	Retrospective comparative study.
Objective	To compare the overall health-care costs of patients with COPD who used lightweight portable oxygen systems to those who used E-cylinder (i.e. 682 litre-cylinder) systems.
Model	Generalized linear model used to adjust for differences.
Perspective	Healthcare system.
Time window	36-months (study period 1st January 1999 to 31st of December 2004).
Interventions	Lightweight portable oxygen systems only versus E-cylinder systems only versus a mix usage of portable oxygen and E-cylinders.
Population	2725 COPD patients between 40 and 89 years of age that had a minimum of 11 fills over a 12-month interval. Patients with a diagnosis of pulmonary fibrosis, pneumoconiosis, lung cancer or other chronic lung diseases not usually included in the diagnosis of COPD.
Assumptions	No assumptions made explicit.
Data source for costs	For procedure costs: costs estimated with Medicare's cost to charge adjustments for the appropriate time period. Were used. The costs of outpatient prescriptions fills was valued at the wholesale price. Cost of portable oxygen paid by the Lovelace Health Plan was $43.50/month during the study period.
Cost items included	Health care utilization (inpatient, outpatient and pharmacy costs) Costs of oxygen therapy with the different modes.
Data source for outcomes	No health outcomes captured but health utilisation was included in the analysis and data was collected during the study.
Discounting	No discounting mentioned in the study.
Costs	No significant cost differences between those who used only E-cylinders versus those who had only lightweight portable oxygen systems. No significant differences between the annual costs of patients with a 12-month follow up and those with a 24-month follow up. For the unadjusted total cost comparisons the median costs for patients treated with E-cylinders in the first 12 months were $9,503 per year versus $6,515 per year for the lightweight group. The difference was not statistically significant. Costs increased significantly as in-patient, outpatient and pharmacy utilization increased. The linear models studies showed a non-significant cost difference in favour of the lightweight group, after controlling for all other independent variables (age, sex, ethnicity, and Charlson score in addition to the different utilization types. The model explained 51% of the differences in costs over a 12-month period.
Outcomes	Hospitalisation rates were significantly different and favoured the lightweight group.
Cost-effectiveness	Only costs presented.
Sensitivity analysis	No sensitivity analysis performed.
Conclusions	The type of oxygen system used did not significantly affect overall cost of care in patients with COPD on long-term oxygen therapy.
Remarks	
Conflict of interests	Study sponsored by Nellcor Puritan Bennett. No other conflicts of interest were declared.

Author	**Jones A**
Year	2007
Country	Australia
Study type	Retrospective Observational Study.
Objective	To assess the use of domiciliary oxygen therapy (DOT) in Tasmania and the impact of a specialist oxygen clinic on service provision.
Model	NA
Perspective	Overall costs to the health care system.
Time window	1-year.
Interventions	The study compared the overall costs of domiciliary oxygen before and after setting up a dedicated oxygen clinic.
Population	All patient receiving Tasmanian government-funded domiciliary oxygen therapy between December 2002 and April 2004.
Assumptions	No explicit assumptions made.
Data source for costs	Air Liquide Healthcare (service provider).
Cost items included	Equipment Delivery charges Ambulatory Oxygen supplies.
Data source for outcomes	No outcomes looked at since the aim of the study was simply to look at prescription and cost changes in Tasmania after the establishment of an oxygen dedicated clinic.
Discounting	No explicit time adjustments mentioned.
Costs	After the oxygen clinic was set up the prescription rate fell to 1.82 per 100 000/month compared with 5.26 per 100,000 in previous months. Costs after the establishment of the oxygen clinic decreased from $20 512 in December 2002 to $12 953 in April 2004.
Outcomes	None captured.
Cost-effectiveness	NA
Sensitivity analysis	No sensitivity analysis performed.
Conclusions	Prescription of domiciliary oxygen therapy was often not in keeping with national guidelines. A specialist oxygen clinic resulted in a reduction of prescriptions, time to re-assessment and overall oxygen costs.
Remarks	Results not easily generalisable since they are very pertinent to the Tasmanian situation at the time of the study. It would have been interesting to capture outcomes of the patients that were receiving prescriptions for oxygen before the oxygen clinic was set up to check that their outcomes were not worse following the drop in prescriptions.
Conflict of interests	None declared.

Author	**Seino**
Year	2007
Country	Japan
Study type	Cost-benefit study.
Model	NA
Perspective	Health insurance.
Time window	6 months for the cost part of the study.
Interventions	Home oxygen therapy at a rate of 3 l/min through nasal cannulas during sleep (intervention group) versus room air (control group). Home oxygen was delivered via a concentrator.

Population	56 ambulatory patients aged >20 with clinical evidence of CHF enrolled from 20 centres between June 2000 and April 2001. Patients with predominantly obstructive sleep apnea, unstable angina, myocardial infarction within the last 3 months, significant renal, neurological/respiratory disease or pregnant were excluded.		
Assumptions	Medical treatment was assumed to be unchanged during the study period		
Data source for costs	Diagnosis Procedure Combination (DPC)-MDC5 charge for hospitalization for worsening heart failure (HF) and the database of the social insurance agency in the Ministry of Health and Welfare, February 2003.		
Cost items included	Hospitalization costs Emergency visits Outpatient visits Home oxygen therapy.		
Data source for outcomes	Hospitalisation rates from worsening CHF, frequency of emergency visits and regular outpatient visits were captured. QoL was captured via a study-specific questionnaire and assessed by SAS (specific activity scale) , AHI (apnea-hypopnea index), ODI (oxygen desaturation index) and LVEF (left ventricular ejection fraction).		
Discounting	No specific discounting rates mentioned.		
Costs	Costs expressed in 2003 Yens		
		Before Home Oxygen	*After Home Oxygen*
	Hospitalisation (cost per year)	*Yen 3,433,437*	*Yen 747,170*
	Emergency visits (cost per year)	*Yen 22,200*	*Yen 6,216*
	Regular outpatient visits (cost per year)	*Yen 179,078*	*Yen 172,754*
	Home Oxygen Therapy per year	*Yen 0*	*Yen 854,400*
Outcomes	Improvement in sleep quality increased daytime QoL and improved cardiac function. The frequency of hospitalisations was reduced by 76%, while emergency visits were reduced by 72%.		
Cost-effectiveness	Expected cost-reduction of Yen 1,854,175/year/patient, depite the additional charge of home oxygen therapy.		
Sensitivity analysis	Sensitivity analysis performed depending on hospitalisation period. Data from the Ministry of Health reported a mean hospitalisation period of uncomplicated heart failure for DPC MDC5 of 33 days. The sensitivity test revealed that the cost reduction would be expected for a hospitalization period of >13 days.		
Conclusions	A benefit of 1,854,175 yen/patient/year from the reduction in hospitalization and emergency visits obtained from providing home oxygen therapy for patients with central sleep apnea caused by chronic heart failure		
Remarks	QoL and improved cardiac function was captured in this study but not combined with the costing data Only hospitalisation rates, outpatient visits and emergency visits were taken into account for the cost side of the analysis. Sensitivity analysis performed on hospitalisation period which appears to be a major component of costs The cost side of the analysis can be easily adjusted to another health care system since the cost calculations are very clearly explained.		
Conflict of interests	None mentioned		

Author	**Cavassa S**
Year	2005
Country	Italy
Study type	Descriptive case review.
Objective	Four-fold: To measure and present the epidemiology of chronic respiratory diseases and patients' compliance to home oxygen therapy in the Local Health Authority of Pinerolo.

	To analyze concurrent treatments as indicators of co-morbidity and complications; To evaluate how hospitalisation relates to the history of the disease and to its pharmacological management. To quantify the direct costs of chronic respiratory diseases.
Model	NA
Perspective	Health services perspective. Only direct costs taken into consideration
Time window	January –September 2003.
Interventions	NA. This was a descriptive analysis that included a cost analysis of domiciliary oxygenotherapy. No alternative interventions were looked at.
Population	273 patients on domiciliary oxygenotherapy between January and September 2003 at the local Health Authority of Pinerolo.
Assumptions	None made explicit.
Data source for costs	No health outcomes captured since it was not the aim of the analysis, but health care utilisation was looked at and co-morbidities such as cardiovascular disease in the patient sample was identified by looking at pharmaceutical consumption. Data was obtained from four databases, on home oxygen therapy, drugs prescriptions, hospital discharge forms and ambulatory visits, covering January-September 2003 were used.
Cost items included	Oxygen at home Ambulatory visits Hospitalisation costs Pharmaceuticals.
Data source for outcomes	Data from four databases, on home oxygen therapy, drugs prescriptions, hospital discharge forms and ambulatory visits, covering January-September 2003 were used.
Discounting	No adjustment for timing needed since all costs referred to the same year (2003).
Costs	Mean cost per patient: 3004.5€/semester. From these: 60% linked to hospitalisations 19% linked to oxygen therapy 18% linked to pharmaceuticals consumption 3.2% linked to ambulatory visits.
Outcomes	Prevalence of respiratory insufficiency: 0.22%. Great discrepancies found between the levels of oxygen prescribed and those consumed by the patient (20% of patients used 50% less than what had been prescribed, while 25% used 150% more than what had been prescribed). Pharmacological therapies: All patients included in the analysis made use of pharmaceuticals and a very high proportion of them used cardiovascular drugs. Hospitalisations: 33% of all patients included in the study had one or more hospitalisations in the period January-September 2003.
Cost-effectiveness	NA, since this was purely a descriptive analysis which looked at costs of oxygen amongst other factors.
Sensitivity analysis	No sensitivity analysis performed.
Conclusions	The results of the study illustrate the complexity linked to the management of LTOT patients and highlights some areas, such as compliance, where improvement would be important.
Remarks	Costs calculations were not explained in detail and would have been good to know exactly what oxygenotherapy costs included It would have been good to go into more detail as to what the authors meant by oxygen therapy and whether other alternative administration sourced to those used at the time of the study in Pinerolo could have made a difference in terms of costs. The compliance results do require further analysis, since an over consumption of oxygen would imply higher costs (how much could have been saved if all patients complied with the prescribed regimen?).
Conflict of interests	None declared.

Author	**Guyatt G H**
Year	2005
Country	Canada
Study type	Randomized controlled trial.
Objective	To determine the impact of alternative strategies for assessing eligibility for domiciliary oxygen on funded oxygen use, quality of life and costs.
Model	NA
Perspective	Third party payer.
Time window	1-year after randomisation
Interventions	Current approach to eligibility for domiciliary oxygen versus al alternative method which basically consisted on re-assessing patients who had been eligible at the initial assessment after two months of stability.
Population	276 applicants in the conventional arm and 270 in the alternative arm. A total of 546. For the actual calculations only 466 patients were taken into consideration since all those who died between the time they started their oxygen therapy and the time their application was received at the Methods centre. All of them were over 18 and only patients whose application for oxygen was based on a need for palliative care were excluded from the study.

Assumptions	Patients who died before the first scheduled follow-up assessment were assigned a follow-up cost of $0, while patients with no resource use data collected were assigned follow-up costs equal to the mean of their treatment group.		
Data source for costs	The cost of the assessment were estimated using the salary and benefits from the HOP program of the relevant personnel involved in the assessments, divided by the number of new applications over a 1-year period. For the US the costs were obtained from a major medical centre and from a physician-billing agency in Los Angeles, California. Cost of oxygen from the Home Oxygen Program (HOP) reimbursement database. For the US analysis cost estimates for oxygen came from a major medical centre in California. Sources of unit costs for health care resources use in Canada included: The Ontario Schedule of Benefits for Ensured Medical Services The Ontario Case Costing Project Local Health care Programs Use of other health care resources from questionnaire filled in by all patients every 3 months. Sources of unit costs for health care resources use in US from Medical reimbursement rates and from a major medical centre in Los Angeles, California.		
Cost items included	Assessment and appeal costs HOP oxygen costs Hospitalisations GP visits Specialist visits Emergency room Clinic visits Emergency room Clinic visits Tests/procedures Other professionals.		
Data source for outcomes	QoL data from the Chronic Respiratory Questionnaire (CRQ) and Health Utilities Index (HUI). Mortality data from oxygen providers. Inconsistencies were checked using the Ministry of Health and Long-Term Care's Registered Persons database.		
Discounting	No discounting was made explicit.		
Costs	All costs in 2004 Canadian $.		
		Alternative Assessment	***Conventional Assessment***
	Assessment and appeal costs	*$351*	*$42*

	Oxygen costs p=0.0002	*$1 833*	*$2 265*
	Health care follow-up costs p=0.95	*$4 947*	*$4 862*
	Total costs p=0.98	*$7 131*	*$7 169*
Outcomes	QoL measurements done in a smaller patient sample (36.7% in the alternative assessment arm versus 36.6% in the conventional arm) since an important part of them declined to fill in the questionnaire. For QoL measurements: The HUI3 results show that both groups tend to improve their scores over time and both baseline and follow-up scores are similar in both groups. Similarly, the results from the CRQ show an improvement of scores over time with greater improvement in the first 6-months. Results were statistically significant. Mortality measurements were similar in both groups (no statistical differences) with around 20% of patients dying by the final follow-up, 1 year after randomization.		
Cost-effectiveness	NA		
Sensitivity analysis	Costs in each arm of the study were also calculated using cost estimates for the US.		
Conclusions	Re-assessment of applicants for domiciliary oxygen after several months of stability identifies an important number of original eligible candidates that are no longer eligible, which reduces costs to the public payers without having a negative impact on QoL, mortality or other resource use.		
Remarks	The overall costs estimated did not approach statistical significance, although there were statistically significant differences between the oxygen costs in one arm and the other.		
Conflict of interests	None declared		

Author	**O'Neill B**
Year	2005
Country	UK
Study type	Descriptive cost study based on data obtained via a questionnaire based survey.
Objective	Two-fold: To evaluate patient's use of short burst oxygen therapy in chronic obstructive pulmonary disease (COPD). To measure potential cost savings if cylinders are replaced by concentrators.
Model	NA
Perspective	Health care system. No indirect costs included.
Time window	Study period: February 2002 -September 2003.
Interventions	Oxygen cylinders versus oxygen concentrators.
Population	100 patients suffering from COPD and receiving short burst oxygen therapy for at least the three months prior to the study. Patients who met the criteria for long-term oxygen therapy (LTOT) were excluded from the study.
Assumptions	Cylinder costs based on an assumed flow rate of 2 l/min and cylinder size of 1360 l (most common method of delivery reported in the questionnaire). For the four levels of utilisation identified among cylinder users: Group 1: Those who consumed less than one cylinder per week were assumed to use three per month; Group 2: Those who consumed one cylinder per week were assumed to use four per month; Group 3: Those who consumed two per week were assumed to use eight per month; Group 4: those who consumed more than three per week were assumed to use a total of 12 per month.
Data source for costs	.Oxygen usage levels derived from the results obtained via the questionnaire. The actual source of the unitary costs of oxygen was not made explicit.
Cost items	Both variable and fixed costs included in the analysis.

included	Concentrator costs included installation, back-up cylinder, rental, servicing and electricity. Cylinder costs included installation, ingredient cost, dispensing fee, delivery and flow head rental.		
Data source for outcomes	NA. Health outcomes not captured since this study consisted of a cost-minimisation exercise which implies assuming equivalent health outcomes for the interventions being compared.		
Discounting	No specific discounting mentioned.		
Costs	Costs of provision of oxygen at 2003 pounds.		
	Costs of concentrator		
	Fixed		
		Installation	*48.21*
		Back up cylinder	*3.37*
	Variable		
		Rental (per month)	*17.08*
		Servicing (per quarter)	*18.24*
		Electricity (per hour)	*0.04*
	Costs of cylinder (1360L)		
		Service installation	*10.20*
		Ingredient	*7.48*
		Dispensing fee (per 3 cylinders)	*9.14*
		Delivery allowance per delivery	*9.38*
		Flow head rental per month	*1.99*
Outcomes	NA since purely a cost study.		
Cost-effectiveness	Estimated savings (in pounds) per patient over the mean time period oxygen was used in each group, from transferring from cylinders to concentrators.		

	Group 1	Group 2	Group 3	Group 4
Concentrator	768.00	556.87	954.68	805.10
Cylinder	1298.73	1198.90	3797.77	4487.64
Savings	530.73	642.03	2843.09	3682.54

Sensitivity analysis	No sensitivity analysis performed.
Conclusions	The study shows that savings could be made by transferring patients using cylinders to concentrators.
Remarks	Study done in 100 patients which represents a considerable sample size, but patients were not randomised to one oxygen administration mode or another.
Conflict of interests	None declared. The study was funded by the Northern Ireland Chest Heart and Stroke Association.

Author	**Greenough A**
Year	2004
Country	UK
Study type	Retrospective case review in four centres.
Objective	To determine if the cost of treating prematurely born infants with chronic lung disease in their first 2 years were greater in centres with high compared to centres with restricted use of HOT.
Model	NA
Perspective	Health care system perspective.
Time window	Two-year period (children followed-up until they were 2 years old).
Interventions	Two high-use centres of home oxygen therapy (>50% of chronic lung disease infants), versus two low-use centres (<20% of chronic lung disease infants).
Population	235 neonates born at less than 32 weeks of gestational age admitted during their 1st week after birth to an ICU unit in one of the four centres involved in the study between July 1994 and July 1997, who developed chronic lung disease.

Assumptions	Assumptions were made with regards to the average length of a consultation (with a consultant paediatrician:15 minutes; with a GP: 8.4 minutes).
Data source for costs	Mean costs per bed day and cost of outpatient visits as well as ICU costs from the four hospitals involved in the study. Cost of admission to a paediatric ward from the NHS reference costs 1999 Drugs and oxygen costs from the British National Formulary. Cost of GP's time based on average net remuneration assuming an 8.4 min consultation. Cost of a domiciliary medical/nursing visit based on average net remuneration.
Cost items included	Costs of admissions to hospital (ICU, Paediatric ward) Costs of outpatient visits Visits of health personnel at home Pharmaceuticals needed Oxygen consumed.
Data source for outcomes	No health outcome captured.
Discounting	No specific discounting rates mentioned.
Costs	Costs expressed in 1999 pounds. The overall cost of care appear to be lower for the high use of home oxygen therapy centres versus the low use centres: pound28965 versus pound43555 ($p<0.0001$). The difference in favour of the high use centres was primarily due to lower costs at the neonatal unit following birth, since infants in the high use centres were discharged from it at an earlier post-conceptional age: 37.7 weeks at the high use centres versus 39.9 weeks at the low use centres ($p<0.001$). Once the children were discharged from the neonatal unit costs were similar in both groups.
Outcomes	NA
Cost-effectiveness	NA
Sensitivity analysis	No sensitivity analysis performed.
Conclusions	Early discharge and high use of home oxygen therapy is not associated with increased costs of care.
Remarks	The mail limitation of this study is that it is comparing different centres (two with high use of domiciliary oxygen therapy with two with low use of such services). Such comparison makes it hard to know whether the differences in costs are a consequence of the high or low use of oxygen at home or whether they also respond to some differences in terms of protocols or general care between the neonatal units from the different centres. Since the costs once the infant is discharged from the neonatal unit are similar across centres, the potential savings depend completely from the neonatal care performed in each centre.
Conflict of interests	Research nurses funded by Abbot laboratories Ltd.

Author	**Farrero E**
Year	2001
Country	Spain
Study type	RCT
Objective	To analyse the influence of a hospital-based home-care program (HCP) on the management of COPD patients receiving long-term oxygen therapy (LTOT)
Model	NA
Perspective	Hospital perspective. Very narrow perspective. Any costs falling outside of the hospital such as primary care services costs were not taken into consideration
Time window	1 year
Interventions	Conventional medical care versus home care in patients already receiving LTOT. Home care included a monthly telephone call, home
Population	122 COPD patients were enrolled in the study and 94 completed it after the 1-year follow-

	up Patient characteristics: FVC (% predicted): 40 for the HCP group and 38 for the control group FEV1 (% predicted): 28 for the HCP and 27 for the control PaO2 mmHg: 51 for the HCP group and 50 for the control PaCO2 mm Hg: 54 for the HCP group and 56 for the control		
Assumptions	No specific assumptions made explicit.		
Data source for costs	Hospital's financial department data based on NHS fees Hospitalisation cost from diagnostic related groups (DRG)		
Cost items included	Staffing costs Cost of routine examinations (laboratory, arterial blood gases, chest radiography, ECG) Drugs Costs of HCP (administrative costs, costs of home visits and costs of extra hospital visits).		
Data source for outcomes	Survival and QoL were analysed during the evaluation. The chronic respiratory questionnaire (CRQ) was used to capture QoL data Other outcomes included in the study were: arterial blood gas values, FVC and FEV1 and resource use (hospitalisations emergency department visits and length of stay at the hospital). These were estimated using patient level data derived from the sample of patients included in the study.		
Discounting	No discounting required since the time horizon of the study was one year.		
Costs	Costs in pesetas and (dollars). The year of costing was not specified.		
		HCP	Control
	Cost of hospital admissions	*8.328.487 (47.591)*	*21.283.911 (121.622)*
	Cost of emergency visits	*740.869 (4.233)*	*2.681.241 (15.321)*
	Cost of HCP	*6.701.796 (38.296)*	_
	Total cost	*15.771.152 (90.121)*	*23.965.152 (136.944)*
	Savings	*8.194.000 (46.823)*	-
Outcomes	QoL was only captured for the first 40 patients in the study. In total 33 patients of the 40 included in the QoL part of the study completed the follow-up period. Neither group showed statistically significant differences in any of the four domains of the questionnaire. There were no significant differences in the evolution of arterial blood gas exchange between the groups while both presented similar significant decreases in FVC and FEV1 after the study. The median survival time was 20 months in both groups, with no significant difference between them (p=0.79). After the follow-up period there was a statistically significant reduction in resources used in the HCP group versus the control group: Emergency department visits per patient: 0,45 versus 1,58 (p=0,0001) Number of hospital admissions per patients: 0,5 versus 1,29 (p=0,001) Days of hospitalisation: 7,43 versus 18,20 (p=0,01).		
Cost-effectiveness	No cost effectiveness analysis performed. Costs and outcomes were analysed separately		
Sensitivity analysis	No sensitivity analysis performed.		
Conclusions	Hospital-based home care is an effective alternative to hospital admission. It reduces the use of hospital resources and the overall cost of health care.		
Remarks	Compliance was not analysed QoL only studies in 40 patients, from which only 33 patients completed the follow-up period.		
Conflict of interests	No conflict of interest mentioned.		

Author	**Maquilón C**
Year	2001
Country	Chile
Study type	Retrospective comparative analysis.
Objective	To compare health care costs for patients in a home oxygen therapy program, with those of a similar group of patients in a waiting list to receive such therapy.
Model	NA
Perspective	Health care system perspective.
Time window	1-year costs (1999).
Interventions	Home oxygen therapy versus no action (patients on waiting list to receive home oxygen therapy).
Population	Patients with COPD and PaO2 values < or = to 55mmHg, receiving domiciliary oxygen for at least the whole of 1999. Patients with cancer or pulmonary fibrosis excluded. Size of population sample: 21 patients, from which 9 received oxygen therapy and 12 were on the waiting list.
Assumptions	No specific assumptions mentioned
Data source for costs	Instituto Nacional del Tórax (National Institute of Thorax) in Chile.
Cost items included	Regular medical consultations Emergency consultations. Hospitalization costs (including the number of inpatient days on regular or intermediary care beds, laboratory tests, drugs and oxygen consumed). Ambulatory costs (including all pharmaceutical and oxygen costs) .
Data source for outcomes	Patient specific clinical records.
Discounting	No discounting required since only costs from 1999 were considered.
Costs	Annual health care costs for patients on home oxygen therapy were 709,656 Chilean pesos versus annual costs of 797,320 Chilean pesos for patients on the waiting list.
Outcomes	No efficacy measures considered since the study was specifically designed as a cost study. However, the percentage of hospitalizations and emergency consultations required were captured in order to facilitate the cost calculations: 33% of patients on oxygen therapy versus 100% on waiting list required an emergency consultation (p=0,0008) and 33% of the oxygen therapy patients versus 66% of those on the waiting list required hospitalisation (p=0,05).
Cost-effectiveness	The study did not attempt to obtain incremental cost-effectiveness ratios and only measured the overall annual costs for patients on domiciliary oxygen therapy versus those on the waiting list (control group).
Sensitivity analysis	No sensitivity analysis performed.
Conclusions	Although the ambulatory costs for the group receiving oxygen therapy were higher this was compensated by lower emergency consultation and hospitalisation costs. The authors conclude that there is no economic justification for maintaining patients on the waiting list.
Remarks	Hospital costs and costs of regular medical visits, appear to be based on estimated charges rather than on actual patient specific costs. Very small sample size (21 patients in total). The baseline characteristics of the populations compared appear to be statistically different with regards to the age of the patient, which complicates a direct comparison.
Conflict of interests	No specific conflict of interest declared but the study was sponsored by a private company: Air Liquide Locsa S.A.

Author	**Zinman C**		
Year	2000		
Country	South Africa.		
Study type	Retrospective review study.		
Objective	The objective was three-fold: To assess the clinical and demographic characteristics of patients attending an oxygen clinic, to assess the relevance of the current clinical criteria determining the need for domiciliary oxygen To assess the cost-effectiveness of an oxygen clinic To assess compliance with oxygen therapy.		
Model	NA.		
Perspective	State's perspective.		
Time window	10-months. Patients were seen at the oxygen clinic between January 1996 to November 1996 .		
Interventions	NA. This was a descriptive study that only looked at what characteristics made patients eligible or not for domiciliary oxygen therapy to then measure cost savings derived from a reduction in the prescription rate following the assessment at the clinic.		
Population	679 patients attending a newly established oxygen clinic. Both patients already receiving long-term oxygen therapy (LTOT) and new patients were included		
Assumptions	None made explicit.		
Data source for costs	Probably from clinic but not made explicit.		
Cost items included	Only oxygen costs included.		
Data source for outcomes	Outcomes from study undertaken at the clinic.		
Discounting	No specific discounting mentioned.		
Costs	Cost savings to the state from oxygen not prescribed of R125000 per month.		
Outcomes	Comparison of FEV1, FEV% and PaO2 in patients with COPD who were given oxygen and those denied oxygen.		
		COPD given oxygen	***COPD denied oxygen***
	Mean FEV1	*0.76**	*1.11**
	SD	*0.34*	*0.48*
	Mean FEV1%	*34.70**	*46.43**
	SD	*21.08*	*16.58*
	Mean PaO2 (mmHg)	*47.18**	*63.00**
	SD	*9.89*	*9.52*
	**P<0.001*		
	Compliance with oxygen prescription was 39%.		
Cost-effectiveness	No incremental cost effectiveness performed. Outcomes and costs were looked at separately.		
Sensitivity analysis	No sensitivity analysis performed.		
Conclusions	FEV1 should be abandoned as a criteria for eligibility for LTOT and that FEV1% should be used in conjunction with FEV1/FVC as a diagnostic tool. The patients and his needs should be individually assessed. The poor compliance indicates that there would be a benefit from improved education and support to patients/carers.		
Remarks	No explicit explanation as to how the costs were measured, while outcomes were taken from the actual study.		
Conflict of interests	None declared		

Author	**Heaney**
Year	1999
Country	Northern Ireland
Study type	Cost descriptive analysis.
Objective	Two-fold: To determine the level of oxygen cylinder use at which it becomes more cost effective to provide oxygen by concentrator at home in Northern Ireland. To examine potential cost savings if cylinder use above this level had been replaced by concentrator in 1996.
Model	NA
Perspective	Health Insurance.
Time window	One year.
Interventions	Oxygen at home delivered by a concentrator versus oxygen at home delivered by cylinders.
Population	Hypothetical costs calculated for two different scenarios; The study also calculates potential savings for the whole of the Northern area population where the relevant number of patients appear to be 2927.
Assumptions	Outcomes assumed to be equivalent for both concentrators and cylinders. Pharmacists transported 3 cylinders per delivery and all deliveries were within 6 miles. No concentrator breakdowns.
Data source for costs	Individual concentrator prescriptions from a regional department. Cost of concentrator usage based on the contract of the provider at the time. Data source for all other costs not specified.
Cost items included	Only the cost of provision of oxygen was included in the analysis (fixed costs such as installation costs and variable costs such as oxygen consumption or electricity consumption). All other costs such as drugs, medical visits or hospital admissions were excluded, since the authors argued that there was no reason why two different forms of provision of the same thing (oxygen) would result in different health outcomes.
Data source for outcomes	No outcomes captured since it is a costing exercise (outcomes were assumed but not proved to be equivalent).
Discounting	No discounting needed since all costs refer to the same year -1996 .
Costs	All costs were presented in 1996 pounds. The results show that given the usage of two cylinders per month at a flow rate of 1 l/min the cost effective cut-off point is 12 months (concentrator pound344.63 versus cylinder pound353.29). Only hypothetical cost savings based on assumptions with regards to the number of cylinders provided per patient are presented. The calculations mention potential savings for Northern Ireland of moving patients from cylinders to concentrators (if they used more than 22 cylinders per year) of between pounds 13,363 and pounds 794,798.
Outcomes	NA
Cost-effectiveness	NA
Sensitivity analysis	Calculated minimum and maximum savings scenarios based on the assumptions around values that particular variables were likely to take.
Conclusions	If more than 3 cylinders per month are being used, independent of flow rate or duration of prescription, it is always cheaper to prescribe a concentrator.
Remarks	Hypothetical costing exercise limited to the provision of oxygen via cylinders or concentrators It was undertaken in view of the reimbursement situation in Northern Ireland to influence a revision in prescribing and reimbursement guidelines and therefore its findings are not easily generalised to other populations The calculations were based on pre-determined scenarios and not based on hard data.

Conflict of interests	None declared

Author	**Andersson A**
Year	1998
Country	Sweden
Study type	Prospective randomized multicentre trial.
Objective	To compare the two main regimens for oxygen administration (cylinders versus liquid) in domiciliary long-term oxygen therapy (LTOT) in COPD patients
Model	NA
Perspective	Health care system perspective.
Time window	Six months.
Interventions	Concentrator treatment with small oxygen cylinders versus liquid oxygen treatment. Recommended oxygen flow: continuous for a minimum of 16hrs/day.
Population	51 patients with chronic hypoxaemia caused by pulmonary disease, eligible for treatment with liquid oxygen. Patients unable to leave the home or unable to use mobile equipments were excluded from the study. Specific patients characteristics at the start of the trial included the following: FEV1 (in L): 1.0 for the liquid oxygen group and 0.7 for the concentrator group FVC (in L): 2.1 for the liquid oxygen group and 1,7 for the concentrator group PaO2 (in kPa): 7.1 for the liquid oxygen group and 6.8 for the concentrator group PaCO2 (in kPa): 6.1 for the liquid oxygen group and 5.9 for the concentrator group.
Assumptions	The size of the hospital did not have an impact on costs.
Data source for costs	Calculated retrospectively based on patient's diary annotations. The costs of the oxygen and the equipment were based on the tariffs collected from each department involved in the study. A median cost was calculated for each category and expressed in 1996 prices. Transportation costs were estimated from the local taxi company tariffs.
Cost items included	Direct monetary costs of oxygen and equipment as well as any medical or technical services required. Transport cost and depreciation costs for the portable container. The cost of various complimentary components such as nasal catheters and assistive devices was not included.
Data source for outcomes	SIP and EuroQol instruments filled in by the patient during the trial. The QoL analysis was based on 41 patients for which adequate answers were collected.
Discounting	No specific discounting rates mentioned.
Costs	Cost calculations based only on 48 patients for whom satisfactory data was collected. All costs are presented in 1996 US$. The mean total cost for the 6-month period in the concentrator group was of US$1,310 per patient, while it was US$4,950 for the liquid oxygen group.
Outcomes	Health related quality of life measured with the SIP instrument showed significant differences in favour of the liquid oxygen group in the categories of physical function, body care, ambulation, social interaction and total SIP score, while the EuroQol did not find statistically significant differences between the two groups.
Cost-effectiveness	No attempt to look at costs per health improvement was done and the results on costs and on health related QoL were kept and analysed separately.
Sensitivity analysis	No sensitivity analysis performed.
Conclusions	Although liquid oxygen treatment is more expensive than treatment with concentrators it appears to offer a better impact in terms of QoL.
Remarks	The overall results may not be easily generalisable since the costs reflect the specific costs of the hospital departments involved in the study and the quality of life study was based on a limited sample of patients and the results found via the SIP instrument were not confirmed by those obtained from the EuroQol. The authors suggest that the EuroQol may not be as sensitive to changes in health related

	QoL in this specific patient group analysed here, but whether this is true or not remains unclear. The overall time frame is short (only 6 months) which may represent a problem particularly when looking at technical services since these may have happened just before or after the study period.
Conflict of interests	No specific conflict of interest declared but the study was sponsored by AGA Gas Ltd.

Author	**Bertrand P**
Year	1998
Country	Chile
Study type	Retrospective case review
Objective	To compare the costs of infants receiving oxygen therapy at the hospital versus infants receiving it at home.
Model	NA
Perspective	Health care services.
Time window	Patients meeting the inclusion criteria and seen between January 1993 and December 1996.
Interventions	To analyse the patient's characteristics and their prognosis patients were divided according to their ethiology. For the cost analysis costs of patients receiving oxygen therapy both at the hospital and at home were considered and compared.
Population	55 patients under HTO aged between 3 weeks and 11 years.
Assumptions	No specific assumptions mentioned.
Data source for costs	Costs for oxygen therapy supplied by the actual hospital doing the study and a private company selling and supplying oxygen services.
Cost items included	Cardiorespiratory monitors Nebulizer Physiotherapy Nursing costs Oxygen.
Data source for outcomes	Data on patients' characteristics, diagnosis with best prognosis, oxygen needs, or follow up period was captured during the study but no comparisons between outcomes of infants looked after in the hospital versus those looked after at home was performed.
Discounting	No specific discounting mentioned
Costs	Oxygen costs Pesos 254 030/month for the patient treated at home (when the patient receives 0,25 l/min) or Pesos 289 730 (when the patient receives 1 l/min).
Outcomes	Neonatal distress and broncho-pulmonary dysplasia had the best prognosis with oxygen discontinued at 4 and 5.7 months respectively.
Cost-effectiveness	Overall costs of treating a patient at the hospital were Pesos 1 200 000/month versus Pesos 254 030/month for the patient treated at home (when the patient receives 0,25 l/min) or Pesos 289 730 (when the patient receives 1 l/min).
Sensitivity analysis	No sensitivity test undertaken.
Conclusions	Infants and newborns on home oxygen therapy present a good prognosis. Such therapy allows them to be discharged home earlier, which in turn results in cost savings.
Remarks	Outcomes during the study period were looked at but there was no confrontation between outcomes obtained in patients treated in the hospital versus those treated at home Small patient sample which makes it risky to generalise the findings No p values reported for the results of the cost analysis.
Conflict of interests	None declared

Author	**Jackson M**
Year	1998

Country	UK
Study type	Cross-over study.
Objective	To compare the theoretical and the actual cost of cylinder supply of oxygen versus the cost of concentrators in patients using between 1 and 8 h/day of oxygen in two health districts. To evaluate patients' acceptability of the two systems and patients' QoL in order to assess whether cylinders or concentrators are preferable.
Model	NA
Perspective	Health Insurance perspective. No indirect costs considered.
Time window	6 month period in total (3 months receiving each therapeutical alternative).
Interventions	Domiciliary oxygen concentrators for three months versus domiciliary oxygen cylinders for three months in the same patient population (cross-over study).
Population	26 patients with COPD in two health districts receiving oxygen for less than 8hrs/day. Patients were excluded if they were smokers at the time of the study.
Assumptions	To calculate the theoretical minimum cost of cylinder supply a number of assumptions were made: 1. Maximum of three cylinders delivered at home at one time 2. Delivery distance was the minimum (0-3 miles) 3. Patients used the medium setting (21 min) 4. All oxygen in the cylinders was used up. Average patient survival: 18 months.
Data source for costs	Theoretical cost of cylinders calculated from Drug Tariff Actual costs of cylinders provided by the prescription pricing authority Costing data for oxygen concentrators supplied by regional contractors
Cost items included	Cost of oxygen cylinder and oxygen concentrators supply and treatment. No medical services costs included.
Data source for outcomes	Measurements of FEV1, FVC, PEF and PEF at each visit (6 visits to patient performed during the study). QoL data obtained for all patients via a questionnaire filled in by patients at each visit.
Discounting	No discounting mentioned.
Costs	Concentrator supply of oxygen is cheaper than cylinder supply for patients who use an average of > 1.4 hrs/day.
Outcomes	No significant differences in the FEV1, FVC or PEF in either group during the two limbs of the study. Both groups of patients indicated improvements in all groups of questions when receiving oxygen from concentrators compared to cylinders. The changes were statistically significant ($p<0.05$) except for the change on "mastery" in one of the groups.
Cost-effectiveness	No combination of costs and outcomes was given.
Sensitivity analysis	Sensitivity performed with regards to patient survival. A survival period between 6 or 36 months did not change much the cost cross-over point that would have been 1.7 or 1.35 h/day respectively, as opposed to 1.4hrs/day.
Conclusions	Both in theory and in practice, oxygen concentrators are cheaper than cylinders when oxygen is used for more than 1.4 hrs/day. Patients found concentrators to be more acceptable, more useful and less obtrusive than cylinders.
Remarks	This was not a randomized controlled trial (cross over studies that could introduce some biases in the responses) Only supply costs included.
Conflict of interests	No conflict of interest declared.

Author	**Montner P**
Year	1998
Country	USA
Study type	Prospective randomized trial
Objective	To evaluate the effect of a new, multidisciplinary total quality improvement (TQI) team established to re-organise and improve the long term oxygen therapy (LTOT) programme at the Albuquerque Veterans Affairs Medical Centre.
Model	NA
Perspective	Third party payer.
Time window	The 1994 programme was compared via quality indicators to the programme established in 1995.
Interventions	A new programme for LTOT was established, which incorporated numerous changes of which the most important was the establishment of a new position of home O2 coordinator. This new programme was compared to the original one, where responsibilities were not clearly assigned.
Population	NA, since the aim of the study was to evaluate the actual program.
Assumptions	No explicit assumptions made.
Data source for costs	National centre of cost containment (Department of Veteran Affairs, Milwaukee).
Cost items included	Initial set up Equipment costs Oxygen costs Respiratory therapist visits.
Data source for outcomes	Data regarding referrals and oxygen prescriptions came from hospital charts Patient satisfaction data was obtained via a survey.
Discounting	No specific discounting mentioned.
Costs	A new contract with a single vendor was able to reduce costs and while the cost of renting oxygen concentrators diminished from the original $192.50 to $85/month. Liquid oxygen tank rental costs diminished from $85.25 to $40.00/month.
Outcomes	Quality indicators chosen to evaluate the programme: Referrals for LTOT happened earlier with the new programme than with the original one. The difference was statistically significant p=0.04. Patients' satisfaction rates improved from 76% with the old programme to 97% with the new one (p=0.04). Oxygen prescriptions proved to be more complete under the new programme (p<0.001).
Cost-effectiveness	Total costs diminish by 9.5% to a total of $546 586 despite an increase in the number of patients of 43.9%. The cost per patient in 1995 with the new programme was $926, which meant a reduction of 37.1%
Sensitivity analysis	No sensitivity analysis performed.
Conclusions	A new, motivated team was able to improve the existing LTOT programme.
Remarks	Results not easily generalisable since they are very pertinent to the LTOT programme available at the Albuquerque Veterans Affairs Medical Centre. There was no detail explanation on protocols regarding eligibility of patients to LTOT, since the study focussed primarily on the actual programme and the process followed to identify its problems and address its needs. No measurement of survival undertaken. It could have been interesting to see if there was any difference coming from the improvements introduced in the programme not just in terms of survival but also in terms of resource utilisation (eg hospitalisations or GP visits, etc)
Conflict of interests	None declared.

<table>
<tr><td>Author</td><td>Pelletier-Fleury N</td></tr>
<tr><td>Year</td><td>1997</td></tr>
<tr><td>Country</td><td>France</td></tr>
<tr><td>Study type</td><td>Retrospective case review.</td></tr>
<tr><td>Model</td><td>Regression techniques were performed to assess what variables accounted for the largest proportion of costs and to check whether some of the covariates influenced the overall costs.</td></tr>
<tr><td>Perspective</td><td>National Health Insurance.</td></tr>
<tr><td>Time window</td><td>1 year.</td></tr>
<tr><td>Interventions</td><td>A group of patients having their oxygen delivered at home via the non for profit sector (mainly using concentrators) versus a random sample of patients having their oxygen delivered via the for profit sector (mainly using gas cylinders).</td></tr>
<tr><td>Population</td><td>61 patients with chronic obstructive pulmonary disease (COPD) receiving long-term oxygen therapy (LTOT). The initial cause of the COPD had to be chronic bronchitis or emphysema.
Patients receiving home ventilator treatment were excluded form the study.</td></tr>
<tr><td>Assumptions</td><td>Tabaquisme in patients after being placed on LTOT as well as compliance were assumed to be the same in both groups, independently of the type of oxygen administration used (concentrator, gas or liquid) , since no data to this respect was available via CANAM.</td></tr>
<tr><td>Data source for costs</td><td>CANAM (Health Insurance scheme for self-employed professionals).
Two tariff rates prevalent in 1994 used (one for the not-for profit sector and one for the for-profit sector). Costs were expressed in FF.
No hospitalisation costs were included. Only ambulatory costs were taken into consideration.
Indirect costs such as productivity lost due to illness were not thought to be relevant since the mean age of the patients included in the study was well above the retirement age.</td></tr>
<tr><td>Cost items included</td><td>Physician visits
Tests
Drugs
Physiotherapy
Oxygen therapy
Transport.</td></tr>
<tr><td>Data source for outcomes</td><td>Survival was looked at to detect any potential differences between the two forms of providing the oxygen (for profit versus not-for-profit).</td></tr>
<tr><td>Discounting</td><td>No explicit discounting mentioned</td></tr>
<tr><td>Costs</td><td>Tariff rates for oxygen therapy in 1994 French Francs per day
<table>
<tr><td>Not for profit</td><td>Concentrator FF42,4</td><td>Compressed gas FF82.1</td><td>Liquid FF102.6</td></tr>
<tr><td>For Profit</td><td colspan="2">O2<5L/min w/o portable system FF59.8</td><td>O2<5L/min with portable system FF106.7</td></tr>
</table></td></tr>
<tr><td>Outcomes</td><td>There were no significant differences in terms of survival after 1 year between the two different oxygen provision modes (for-profit versus not-for-profit).
The mode of oxygen administration did not seem to significantly affect survival either.
However, the number of co-morbidities, the age at the time of the oxygen therapy initiation, the PAO2 and the FEV1/FVC all seemed to have significant influence on survival.
All these variables were introduced in a Cox model which showed that only PAO2 and FEV1/FVC, as well as the number of co-morbidities showing a significant predictive role over patients' survival.
<table>
<tr><td></td><td></td><td></td></tr>
</table></td></tr>
<tr><td>Cost-effectiveness</td><td>Given than the different modes of oxygen delivery and the different types of oxygen administration do not seem to have an impact on survival the focus would be on any potential cost differences between the study groups.
Oxygen therapy costs per patient represented 72.1% of the total ambulatory costs in the non-for profit sector while they represented 81.6% of ambulatory costs in the for-profit sector.</td></tr>
</table>

	The statistically significant difference in terms of costs found between the two different provision modes (FF2474 in the for-profit versus FF2065.2 in the non-for-profit) were a consequence of the less expensive cost of oxygen in the non-for profit sector. All other direct costs considered (drugs, consultations, physiotherapy or transport) did not show significant differences.
Sensitivity analysis	No sensitivity analysis performed.
Conclusions	Oxygen treatment plays a key role in the variation of overall COPD costs and further studies should be developed to better understand which mode of delivery should be used under what circumstances.
Remarks	The overall objective and question needed to be answered in this study is not well defined since it mixes way of delivery (not for profit organisation versus for profit), different modes of administrating oxygen (concentrators versus cylinders) and also talks about compliance with guidelines Survival was captured but the number of patients was relatively low (61 in total). Results not easily generalisable since they reflect a complicated dual system available at the time of the study 1997 in France Group on the not-for profit arm not picked at random since limited number of records showed patients who were alive at the end of the study period. Limited to a small territory within France, not a national level study which makes it harder to generalise its findings.
Conflict of interests	None declared

Author	**Pelletier-Fleury N**
Year	1996
Country	France
Study type	Retrospective case review.
Objective	To estimate the annual costs for respiratory care of COPD patients receiving LTOT.
Model	Multiple linear regression model performed to assess what variables accounted for the largest proportion of costs and to check whether some of the covariates influenced the overall costs.
Perspective	National Health Insurance.
Time window	1 year.
Interventions	A group of patients having their oxygen delivered at home via the non-for-profit sector versus a random sample of patients having their oxygen delivered via the for-profit sector.
Population	61 patients with COPD receiving long-term oxygen therapy. The initial cause of the COPD had to be chronic bronchitis or emphysema. Patients receiving home ventilator treatment were excluded from the study.
Assumptions	In view of the high mean age of COPD patients receiving LTOT (74 years of age) the authors assumed of a relatively weak impact on total expenses of the indirect costs (ie absenteeism at work and invalidity pensions), and therefore decided to exclude such costs from the analysis.
Data source for costs	CANAM (Health Insurance scheme for self-employed professionals). Tariff rates prevalent in 1994 were used. Costs were expressed in 1995 US$ For hospitalisation costs an estimation derived from DRGs (diagnosis related groups) was used.
Cost items included	Physician visits Tests Drugs Physiotherapy Oxygen therapy Hospitalizations Transport.
Data source for outcomes	No health outcomes captured, but health care utilisation in the form of GP visits, Chest specialists and Hospitalisations included and derived from CANAM data.

Discounting	No explicit discounting mentioned.			
Costs	Tariff rates for oxygen therapy in 1994 US$ per day			
	Not for profit	*Concentrator $US7.71*	Compressed gas $US14.93	Liquid $US18.67
	For Profit	*O2<5L/min w/o portable system US$10.89*	*O2<5L/min with portable system US$19.41*	
Outcomes	Health care utilisation in the form of medical visits or hospitalisations did not present statistically significant differences between the two study groups (p>0.05 in all cases).			
Cost-effectiveness	For patients having their oxygen delivered by the not-for-profit sector the total ambulatory costs for respiratory care was lower US$4,596 per patient and per year versus US$5,399, since they mainly used concentrators. Annual oxygen therapy costs per patient (US$3640) represented 73% of the total ambulatory costs (US$4960), and this cost varied only with the mode of oxygen administration and the use of portable systems, being independent of age, sex, PaO2, FEV1/FVC, number of other severe illnesses and length of follow-up.			
Sensitivity analysis	No sensitivity analysis performed.			
Conclusions	Oxygen treatment plays a key role in the variation of overall COPD costs and further studies should be developed to better understand which mode of delivery should be used under what circumstances.			
Remarks	The overall objective and question needed to be answered in this study is not well defined since it mixes way of delivery (not for profit organisation versus for profit), different modes of administrating oxygen (concentrators versus cylinders) and also talks about compliance with guidelines Results not easily generalisable since they reflect a complicated dual system available at the time of the study 1996 in France. Relatively small number of patients (61 in total) Group on the not-for profit arm not picked at random since limited number of records showed patients who were alive at the end of the study period.			
Conflict of interests	None declared.			

Author	**Hallam L**
Year	1996
Country	UK
Study type	Descriptive cost analysis.
Objective	Four fold: To collect information on the number of babies discharged home on oxygen in the Oxford region between 1988-1992. To compare the costs of treating an infant with oxygen at home versus treating an infant with oxygen at the hospital. To measure the financial costs to parents of home care. To investigate cost implications of the change in oxygen delivery methods used at home (move from cylinders to concentrators).
Model	NA
Perspective	Both the health services and parents perspectives.
Time window	Information captured for infants until they were weaned off oxygen.
Interventions	Comparison of costs of oxygen at home (55 babies discharged analysed) versus at the hospital (hypothetical costs calculated since no group of infants were followed at the hospital).
Population	55 infants discharged home on oxygen between 1988 and 1992 in the Oxford region.
Assumptions	The total number of days on supplementary oxygen would have been the same if the babies had remained in hospital while they were on oxygen, as it was when they were cared for at home.

	The level of attention given by nurses to babies on oxygen prior to their discharge was assumed to remain the same if infants remained hospitalised rather than being sent home. Low cost assumption: 2 cylinders per week consumed. High cost assumption: 10 cylinders per week consumed.
Data source for costs	Hospital records Interviews with nursing staff Interviews with parents.
Cost items included	Equipment Training Health service use Travel cost of community visits to the home Outpatient visits Hospital re-admissions Costs of staffing in hospital.
Data source for outcomes	No health outcomes captured since this was purely a descriptive cost analysis, although health care services utilization was looked at. Sources for healthcare services consumption included: 1 Hospital records 2. Interviews with nursing staff.
Discounting	5% used where applicable.
Costs	All costs given as 1994 pounds. The estimated cost differences between the costs of caring for oxygen dependent babies at home versus caring for them at the hospital ranged from pounds15378 per baby (median 13868) when we assume the minimum estimate of nursing time and the maximum use of home cylinders to pounds 50343 per baby (median 15378) assuming the highest estimate of nursing time at the hospital and the lowest consumption of home cylinders. The expected per day savings of treating babies at home would go from pounds 45 to pounds 146. All costs were adjusted to pounds 1994. In addition to this, 84% of parents interviewed felt they had no additional expenditure when caring for their babies at home, while they did save money in terms of transport from and to the hospital prior to the discharge of the infants to their homes.
Outcomes	Not captured since the aim of the study was purely to look at costs.
Cost-effectiveness	NA
Sensitivity analysis	No sensitivity analysis was performed.
Conclusions	The costs of health service resources used in caring for babies at home is much less than the resources needed to care for babies at the hospital.
Remarks	Further limitations of the study include: Costs measures taken retrospectively via interviews, which is likely to introduce some bias. No real control, since no hospitalised infants were looked at. It is therefore a hypothetical costing exercise and therefore it is important to interpret its findings carefully. Hospital costs captured limited to costs of staff and oxygen costs. Savings in terms of freed resources and not real monetary savings.
Conflict of interests	None declared

Author	**Cottrell J J**
Year	1995
Country	USA
Study type	Prospective randomized trial.
Objective	To assess the impact on costs and outcomes of 2 versus 6 month re-evaluation intervals in patients requiring continuous home oxygen therapy (HOT).

Model	NA
Perspective	Third party payer.
Time window	1-year follow up.
Interventions	Identical evaluations at either 2 or 6 months.
Population	50 patients from a cohort of 200 individuals who were on a stable HOT regimen (defined as having no changes in their oxygen prescription over the 6 weeks prior to inclusion in the study).
Assumptions	No explicit assumptions made.
Data source for costs	Oxygen costs supplied by contractor. Other costs from Veteran Affairs medical centre charges. For health visits outside the Veteran Affairs medical centre bills were used.
Cost items included	Health care resources costs (medical visits and hospitalisations) Oxygen No indirect costs included.
Data source for outcomes	Data on outcomes captured throughout the study by an experienced research nurse included: Pulmonary function testing, arterial blood gas analysis, pulse oximetry, visual analogue scale for dyspnea (VAS), 34 sickness impact profile (SIP) and exercise tolerance as measured by a 12-minute walk.
Discounting	No specific discounting rates mentioned.
Costs	Differences in total costs were not statistically significant, although, not surprisingly there was a statistically significant difference in evaluation costs (p=0.001). The more frequent evaluations on the 2-month group resulted in an excess of costs in that group of $204.
Outcomes	Statistically significant differences were found only for the SIP questionnaire, where there was a significant improvement in the 2-month group, but not in the 6-month group when baseline values were compared with those at 1-year follow-up.
Cost-effectiveness	While outcome results were similar in both groups, cost differences showed an advantage for the 6-month evaluation group versus the 2 month evaluation group
Sensitivity analysis	No sensitivity analysis performed.
Conclusions	After achieving stability following at least 6-months of continuous HOT usage, patients receiving HOT do not require to be routinely evaluated more frequently than every 6 months.
Remarks	Both outcomes and costs captured but no clear explanation of what the source for the costs was. Limited sample size, which makes it not advisable to generalise its findings without further checking, despite the fact that the study was a randomised controlled trial. Compliance was not looked at during the study.
Conflict of interests	None declared. The study was funded by VA grants and the American Lung Association of Western Pennsylvania.

APPENDICES OF CHAPTER 4

1 DATA SOURCE

The EPS release 5 (EPSR5) is a sample of 1/40 of the total population added with 1/20 of the population aged 65 and older. The EPS is composed of all data, available within the Belgian sickness funds that are related to the compulsory insurance for health care. This database is produced by the IMA-AIM and is accessible to RIZIV-INAMI, FPS Public Health, WIV, FPS Social Security, KCE, and the Federal Plan Bureau. All data are available at the level of the reimbursements, from 2002 until 2009.

Particularly relevant to this study, the database contains per patient the following information:

- The amount reimbursed by the compulsory health insurance (RIZIV-INAMI) per health care related item (nomenclature code) or pharmaceutical product (CNK code).
- The amount of the co-payment to be paid by the patient.
- The date of the reimbursement.
- Socio-demographic information on the patient: age, gender, year and month of decease if the patient is deceased.
- Information on insurance state (e.g. partially or fully insured).

2 DEFINITION OF SELF-EMPLOYED WITHOUT MINOR RISK INSURANCE

Self-employed patients with health insurance for major risks but without health insurance for minor risks prior to 2008 were defined as follows: Code Insured 1 (CT1) starts with "4" (= self-employed) and Code Insured 2 (CT2) does not start with "1" (= insured for both minor and major risks).

These patients were excluded when their oxygen therapy episode started prior to 1 January 2008 (from this date onwards these patients are insured for major and minor risks).

3 DETAILS ON COST CALCULATION

The costs were calculated as the sum of the reimbursements charged to the RIZIV-INAMI and the patient's co-payments (but without supplements) between the first date of the oxygen therapy episode and the last date of the oxygen therapy episode (both included).

The mean per month for all costs was calculated as follows:

- In Belgium, hospital per diem costs are covered by 2 distinct systems of public health funding. A major part is covered through fixed monthly hospital payments but these are not registered in the IMA-AIM data. Additional remuneration consists of a lump sum billed each day of the hospital stay, for which the data are available in the IMA-AIM data. We replaced these lump sums by the 100% hospital lump sum per diem calculated as the actual per diem prices available per hospital, per year, per semester and per type of stay multiplied by the number of invoiced days for the hospital stay. Lump sums per admission were removed.
- All costs were summed over the oxygen therapy episode and divided by (365.25/12) to get a mean cost per month.

The mean per month for all ambulatory costs was calculated as the sum of all costs except costs identified by RIZIV-INAMI in hospital reimbursed nomenclature, over the oxygen therapy episode and divided by (365.25/12) to get a mean cost per month.

The mean per month for oxygen therapy costs was calculated as the sum of all costs of the nomenclature and CNK codes listed below, over the oxygen therapy episode and divided by (365.25/12) to get a mean cost per month.

4 DETAILS ON MORTALITY RATE IN EPSR5

All cause mortality rates were calculated in a survival analysis. The event was defined as deceased or not. The time to event was defined as the number of months between the year-month of start of the oxygen therapy and the year-month of decease (excluding start and end month). Patients not deceased at the end of the 2009 were considered censored.

A life table was constructed to calculate all cause mortality probability per month.

5 DETAILS ON HOSPITALISATION PROBABILITY IN EPSR5

The probability of being hospitalised (all cause) after the start of the oxygen therapy was calculated in a survival analysis. The event was defined as being hospitalised or not. The first hospital stay was defined as the first occurrence of RIZIV-INAMI nomenclature for hospital lump sum per diem after the start of the oxygen therapy.

The time to event was defined as the number of months between the year-month of start of the oxygen therapy and the year-month of the start of the first hospital stay (excluding start and end month). Patients not hospitalised at the end of the 2009 and patients deceased without hospital stay were considered censored.

A life table was constructed to calculate all cause hospitalisation probability per month.

6 RIZIV-INAMI NOMENCLATURE CODES FOR CASE SELECTION

Code	Convention	Label NL	Label FR
772516	hospital	Overeenkomsten : zuurstoftherapie thuis met zuurstofconcentrator	Conventions : oxygénothérapie à domicile avec concentrateur d'oxygène
775176	hospital	Revalidatieovereenkomst betreffende de langdurige zuurstoftherapie thuis : Gasvormige medische zuurstof 0,4m³ met spaarventiel, voorzien in §207 van de lijst gevoegd bij het K.B. van 21 december 2001 tot vaststelling van de procedures, termijnen en voorwa	Convention type de rééducation fonctionnelle relative à l'oxygènothérapie de longue durée à domicile : Oxygène gazeux médicinal 0,4m³ avec valve économiseur, prévu au §207 de la liste jointe à l'A.R. du 21 décembre 2001 fixant les procédures, délais et co
775191	hospital	Revalidatieovereenkomst betreffende de langdurige zuurstoftherapie thuis : Gasvormige medische zuurstof 0,4m³ met spaarventiel, niet voorzien in §207 van de lijst gevoegd bij het K.B. van 21 december 2001 tot vaststelling van de procedures, termijnen en v	Convention type de rééducation fonctionnelle relative à l'oxygènothérapie de longue durée à domicile : Oxygène gazeux médicinal 0,4m³ avec valve économiseur, non prévu au §207 de la liste jointe à l'A.R. du 21 décembre 2001 fixant les procédures, délais e
772531	hospital	Overeenkomsten : zuurstoftherapie thuis met vloeibare zuurstof	Conventions : oxygénothérapie à domicile par oxygène liquide
750632	pharmacy	Specialiteiten afgeleverd aan niet-gehospitaliseerde rechthebbenden in de officina's : Categorie A , gasvormige zuurstof	Spécialités délivrées dans les officines à des bénéficiaires non hospitalisés : Catégorie A, oxygène gazeuse
750654	pharmacy	Specialiteiten afgeleverd aan niet-gehospitaliseerde rechthebbenden in de officina's : Categorie A, vloeibare zuurstof	Spécialités délivrées dans les officines à des bénéficiaires non hospitalisés : Catégorie A, oxygène liquide
751030	pharmacy	Specialiteiten afgeleverd aan niet ter	Spécialités délivrées à des bénéficiaires non-

Code	Convention	Label NL	Label FR
		verpleging opgenomen rechthebbenden : Zuurstofgas	hospitalisés : oxygène gazeux
751052	pharmacy	Specialiteiten afgeleverd aan niet ter verpleging opgenomen rechthebbenden : Vloeibare zuurstof	Spécialités, délivrées à des bénéficiaires non hospitalisés : oxygène liquide
755952	pharmacy	Honoraria en forfaits zuurstof in het kader van de Overeenkomst Apothekers-VI: toebehoren – ziekenhuisofficina	Honoraires et forfaits oxygène dans le cadre de la Convention Pharmaciens-OA : accessoires - officine hospitalière
757455	pharmacy	Honoraria en forfaits zuurstof in het kader van de Overeenkomst Apothekers-VI: honorarium voor coördinatie en begeleiding –ziekenhuisofficina	Honoraires et forfaits oxygène dans le cadre de la Convention Pharmaciens-OA : honoraires pour la coordination et l'accompagnement - officine hospitalière
754132	pharmacy	Honoraria en forfaits zuurstof in het kader van de diagnostische middelen	Honoraires et forfaits oxygène dans le cadre de moyens diagnostiques
754493	pharmacy	Honoraria en forfaits zuurstof in het kader van de Overeenkomst Apothekers-VI: honorarium voor coördinatie en begeleiding – publieke officina	Honoraires et forfaits oxygène dans le cadre de la Convention Pharmaciens-OA : honoraires pour la coordination et l'accompagnement - officine ouverte au public
755370	pharmacy	Honoraria en forfaits zuurstof in het kader van de Overeenkomst Apothekers-VI: toebehoren – publieke officina	Honoraires et forfaits oxygène dans le cadre de la Convention Pharmaciens-OA : accessoires - officine ouverte au public

7 RIZIV-INAMI CNK CODES FOR CASE SELECTION

CNK	Type	Label
1668078	gaseous oxygen	GASVORMIGE MEDISCHE ZUURSTOF 0,4 m3 MET SPAARVENTIEL
1568849	liquid oxygen	OXYGENE MEDICAL LIQUIDE AIR LIQUIDE MEDICAL
1569201	liquid oxygen	OXYGENE MEDICAL LIQUIDE VIVISOL
1569227	liquid oxygen	OXYGENE MEDICAL LIQUIDE MESSER BELGIUM
1767060	liquid oxygen	OXYGENE MEDICAL LIQUIDE MESSER BELGIUM
2170033	liquid oxygen	VLOEIBARE MEDISCHE ZUURSTOF - HOEKLOOS
2170025	liquid oxygen	VLOEIBARE MEDISCHE ZUURSTOF - HOEK LOOS
1668078	gaseous oxygen	GASVORMIGE MEDISCHE ZUURSTOF 0,4 m3 MET SPAARVENTIEL
2342277	oxygen concentrator	Installation par le fournisseur
2342269	oxygen concentrator	Huurgeld en onderheoud
2342285	oxygen concentrator	Bevochtiger voor éénmalig gebruik
2342293	oxygen concentrator	Honoraire pour la coordination
4004701	liquid oxygen	
4004693	gaseous oxygen	
765164	gaseous oxygen	OXYGEN
765172	gaseous oxygen	OXYGEN
765180	gaseous oxygen	OXYGEN
765198	gaseous oxygen	OXYGEN
765206	gaseous oxygen	OXYGEN
765214	gaseous oxygen	OXYGEN
765230	gaseous oxygen	OXYGEN
765248	gaseous oxygen	OXYGEN

CNK	Type	Label
765255	gaseous oxygen	OXYGEN
765271	gaseous oxygen	OXYGEN
765289	gaseous oxygen	OXYGEN
765297	gaseous oxygen	OXYGEN
765305	gaseous oxygen	OXYGEN
765313	gaseous oxygen	OXYGEN
765321	gaseous oxygen	OXYGEN
765339	gaseous oxygen	OXYGEN
765347	gaseous oxygen	OXYGEN
765354	gaseous oxygen	OXYGEN
765362	gaseous oxygen	OXYGEN
765370	gaseous oxygen	OXYGEN
765388	gaseous oxygen	OXYGEN
765396	gaseous oxygen	OXYGEN
765404	gaseous oxygen	OXYGEN
765412	gaseous oxygen	OXYGEN
765420	gaseous oxygen	OXYGEN
765438	gaseous oxygen	OXYGEN
765446	gaseous oxygen	OXYGEN
765453	gaseous oxygen	OXYGEN
765461	gaseous oxygen	OXYGEN
765479	gaseous oxygen	OXYGEN
765487	gaseous oxygen	OXYGEN
765495	gaseous oxygen	OXYGEN
765503	gaseous oxygen	OXYGEN
765511	gaseous oxygen	OXYGEN
765529	gaseous oxygen	OXYGEN
765537	gaseous oxygen	OXYGEN
765545	gaseous oxygen	OXYGEN
765552	gaseous oxygen	OXYGEN
765560	gaseous oxygen	OXYGEN
765578	gaseous oxygen	OXYGEN
765586	gaseous oxygen	OXYGEN
765594	gaseous oxygen	OXYGEN
765602	gaseous oxygen	OXYGEN
765610	gaseous oxygen	OXYGEN
765628	gaseous oxygen	OXYGEN
765636	gaseous oxygen	OXYGEN
765644	gaseous oxygen	OXYGEN
765651	gaseous oxygen	OXYGEN
765669	gaseous oxygen	OXYGEN
765677	gaseous oxygen	OXYGEN
765685	gaseous oxygen	OXYGEN
765693	gaseous oxygen	OXYGEN
765701	gaseous oxygen	OXYGEN

CNK	Type	Label
765891	gaseous oxygen	OXYGEN
765909	gaseous oxygen	OXYGEN
765917	gaseous oxygen	OXYGEN
765925	gaseous oxygen	OXYGEN
765933	gaseous oxygen	OXYGEN
765941	gaseous oxygen	OXYGEN
765958	gaseous oxygen	OXYGEN
765966	gaseous oxygen	OXYGEN
765974	gaseous oxygen	OXYGEN
765982	gaseous oxygen	OXYGEN
765990	gaseous oxygen	OXYGEN
766006	gaseous oxygen	OXYGEN
766014	gaseous oxygen	OXYGEN
766022	gaseous oxygen	OXYGEN
769976	gaseous oxygen	OXYGEN
769984	gaseous oxygen	OXYGEN
769992	gaseous oxygen	OXYGEN
770008	gaseous oxygen	OXYGEN
770016	gaseous oxygen	OXYGEN
770024	gaseous oxygen	OXYGEN
770032	gaseous oxygen	OXYGEN
770040	gaseous oxygen	OXYGEN
770057	gaseous oxygen	OXYGEN
770073	gaseous oxygen	OXYGEN
770081	gaseous oxygen	OXYGEN
770099	gaseous oxygen	OXYGEN
770107	gaseous oxygen	OXYGEN
770115	gaseous oxygen	OXYGEN
770123	gaseous oxygen	OXYGEN
770131	gaseous oxygen	OXYGEN
770149	gaseous oxygen	OXYGEN
770156	gaseous oxygen	OXYGEN
783944		OXYGEN
1568849	liquid oxygen	OXYGEN
1569201	liquid oxygen	OXYGEN
1569227	liquid oxygen	OXYGEN
1668078	gaseous oxygen	OXYGEN
2170025	liquid oxygen	OXYGEN
2170033	liquid oxygen	OXYGEN
2352185	gaseous oxygen	OXYGEN
4000006	gaseous oxygen	oxygene gazeux air b2 0,30m3b150
4000014	gaseous oxygen	oxygene gazeux air b5 0,75m3b150
4000022	gaseous oxygen	oxygene gazeux air b6,6 1,00m3b150
4000030	gaseous oxygen	oxygene gazeux air b10 1,50m3b150
4000048	gaseous oxygen	oxygene gazeux air b13 2,00m3b150

CNK	Type	Label
4000055	gaseous oxygen	oxygene gazeux air b20 3,00m3b150
4000063	gaseous oxygen	oxygene gazeux air b50 7,85m3b150
4000071	gaseous oxygen	oxygene gazeux air b1 0,20m3b200
4000089	gaseous oxygen	oxygene gazeux air b2 0,40m3b200
4000097	gaseous oxygen	oxygene gazeux air b5 1,00m3b200
4000105	gaseous oxygen	oxygene gazeux air b10 2,10m3b200
4000113	gaseous oxygen	oxygene gazeux air b20 4,20m3b200
4000121	gaseous oxygen	oxygene gazeux air b50 10,5m3b200
4000139	gaseous oxygen	oxygene gazeux fleron b2 0,30m3b150
4000147	gaseous oxygen	oxygene gazeux fleron b5 0,75m3b150
4000154	gaseous oxygen	oxygene gazeux fleron b6,6 1m3b150
4000162	gaseous oxygen	oxygene gaz fleron b10 1,5m3b150
4000170	gaseous oxygen	oxygene gaz fleron b13 2m3b150
4000188	gaseous oxygen	oxygene gaz fleron b20 3m3b150
4000196	gaseous oxygen	oxygene gazeux fleron b50 7,85m3b15
4000204	gaseous oxygen	oxygene gaz fleron b1 0,2m3b200
4000212	gaseous oxygen	oxygene gaz fleron b2 0,4m3b200
4000220	gaseous oxygen	oxygene gaz fleron b5 1,0m3b200
4000238	gaseous oxygen	oxygene gaz fleron b10 2,1m3b200
4000246	gaseous oxygen	oxygene gaz fleron b20 4,2m3b200
4000253	gaseous oxygen	oxygene gaz fleron b50 10,5m3b200
4000261	gaseous oxygen	oxygene gaz hoekl b 2,2 0,36m3b150
4000279	gaseous oxygen	oxygene gaz hoekl b 2,8 0,46m3b150
4000287	gaseous oxygen	oxygene gaz hoekl b 4 0,66m3b150
4000295	gaseous oxygen	oxygene gaz hoekl b10 1,65m3b150
4000303	gaseous oxygen	oxygene gaz hoekl b 20 3,30m3b150
4000311	gaseous oxygen	oxygene gaz hoekl b40 6,60m3b150
4000329	gaseous oxygen	oxygene gaz hoekl b 1 0,22m3b200
4000337	gaseous oxygen	oxygene gaz hoekl b2 0,44m3b200
4000345	gaseous oxygen	oxygene gaz hoekl b2,5 0,55m3b200
4000352	gaseous oxygen	oxygene gaz hoekl b2,8 0,61m3b200
4000360	gaseous oxygen	oxygene gaz hoekl b3 0,66m3b200
4000378	gaseous oxygen	oxygene gaz hoekl b4 0,88m3b200
4000386	gaseous oxygen	oxygene gaz hoekl b5 1,1m3b200
4000394	gaseous oxygen	oxygene gaz hoekl b6,6 1,45m3b200
4000402	gaseous oxygen	oxygene gaz hoekl b10 2,2m3b200
4000410	gaseous oxygen	oxygene gaz hoekl b20 4,4m3b200
4000428	gaseous oxygen	oxygene gaz hoekl b30 6,6m3b200
4000436	gaseous oxygen	oxygene gaz hoekl b50 11m3b200
4000444	gaseous oxygen	oxygene gaz cyl stromb 5,010,75m3
4000451	gaseous oxygen	oxygene gaz cyl stromb 10,011,50m3
4000469	gaseous oxygen	oxygene gaz cyl stromb 13,412,01m3
4000477	gaseous oxygen	oxygene gaz cyl stromb 27,014,05m3
4000485	gaseous oxygen	oxygene gaz cyl stromb 45,016,75m3
4000493	gaseous oxygen	oxygene gaz cyl stromb 50,017,50m3

CNK	Type	Label
4000501	gaseous oxygen	oxygene gazeux stromb 10,011,50m3
4000519	gaseous oxygen	oxygene gazeux stromb 13,412,01m3
4000527	gaseous oxygen	oxygene gazeux stromb 27,014,05m3
4000535	gaseous oxygen	oxygene gazeux stromb 45,016,75m3
4000543	gaseous oxygen	oxygene gazeux stromb 50,017,50m3
4000550	gaseous oxygen	oxygene gaz indugas str 5,010,75m3
4000568	gaseous oxygen	oxygene gaz indugas str 10,011,50m3
4000576	gaseous oxygen	oxygene gaz indugas str 13,412,01m3
4000584	gaseous oxygen	oxygene gaz indugas str 27,014,05m3
4000592	gaseous oxygen	oxygene gaz indugas str 45,016,75m3
4000600	gaseous oxygen	oxygene gaz indugas str 50,017,50m3
4000618	gaseous oxygen	oxygene gazeux messer 1,0m3-99,5%
4000626	gaseous oxygen	oxygene gazeux messer 2,2m3-99,9%
4000634	gaseous oxygen	oxygene gazeux messer 4,3m3-99,5%
4000642	gaseous oxygen	oxygene gazeux messer 10,6m3-99,5%
4000659	gaseous oxygen	oxygene gaz vivisol btg b1 0,212m3
4000667	gaseous oxygen	oxygene gaz vivisol btg b2 0,425m3
4000675	gaseous oxygen	oxygene gaz vivisol btg b5 1,125m3
4000683	gaseous oxygen	oxygene gaz vivisol btg b10 2,120m3
4000691	gaseous oxygen	oxygene gaz vivisol btg b20 4,330m3
4000709	gaseous oxygen	oxygene gaz vivisol btg b30 6,370m3
4000717	gaseous oxygen	oxygene gaz vivisol btg b50 10,61m3
4000725	gaseous oxygen	oxygene gazeux medigaz b1 0,2m3
4000733	gaseous oxygen	oxygene gazeux medigaz b2 0,4m3
4000741	gaseous oxygen	oxygene gazeux medigaz b5 1,0m3
4000758	gaseous oxygen	oxygene gazeux medigaz b10 2,1m3
4000766	gaseous oxygen	oxygene gazeux medigaz b15 3,1m3
4000774	gaseous oxygen	oxygene gazeux medigaz b20 4,3m3
4000782	gaseous oxygen	oxygene gazeux stromb 5,010,75m3
4000790	gaseous oxygen	oxygene gazeux messer 1,1m3-99,5%
4000808	gaseous oxygen	oxygene gazeux btg b2 0,425m3
4000816	gaseous oxygen	oxygene gazeux btg b5 1,125m3
4000824	gaseous oxygen	oxygene gazeux btg b10 2,120m3
4000832	gaseous oxygen	oxygene gazeux btg b20 4,330m3
4000840	gaseous oxygen	oxygene gazeux btg b30 6,370m3
4000857	gaseous oxygen	oxygene gazeux btg b50 10,610m3
4000865	gaseous oxygen	oxygene gazeux btg b1 0,212m3
4000873	gaseous oxygen	oxygene gazeux stromb 5 l - 1,0
4000881	gaseous oxygen	oxygene gazeux stromb 10 l - 1,6
4000899	gaseous oxygen	oxygene gazeux stromb 10 l - 2,1
4000907	gaseous oxygen	oxygene gazeux stromb 13 l - 2,0
4000915	gaseous oxygen	oxygene gazeux stromb 13 l - 2,7
4000923	gaseous oxygen	oxygene gazeux stromb 27 l - 4,3
4000931	gaseous oxygen	oxygene gazeux stromb 27 l - 5,7
4000949	gaseous oxygen	oxygene gazeux stromb 45 l - 9,5

CNK	Type	Label
4000956	gaseous oxygen	oxygene gazeux stromb 50 l - 10,
4001053	gaseous oxygen	oxygene gazeux indugas stromb 5
4001061	gaseous oxygen	oxygene gazeux indugas stromb 10
4001079	gaseous oxygen	oxygene gazeux indugas stromb 10
4001087	gaseous oxygen	oxygene gazeux indugas stromb 13
4001095	gaseous oxygen	oxygene gazeux indugas stromb 13
4001103	gaseous oxygen	oxygene gazeux indugas stromb 27
4001111	gaseous oxygen	oxygene gazeux indugas stromb 27
4001129	gaseous oxygen	oxygene gazeux indugas stromb 45
4001137	gaseous oxygen	oxygene gazeux indugas stromb 50

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