

Appendix H: Health economic evidence tables

Bloch 2018 ²³				
Study details	Population & interventions	Costs	Health outcomes	Cost effectiveness
<p>Economic analysis: Cost-consequences analysis</p> <p>Study design: Multicentre randomised controlled trial</p> <p>Perspective: Switzerland third party payer</p> <p>Follow-up 2 years</p> <p>Discounting: Costs: ; NR Outcomes: NR</p>	<p>Population: 208 adults with OSAHS and excessive sleepiness. Patients then used autoCPAP (pressure 5–15 mbar) at home during a 2–4-week adaptation period. Participants using autoCPAP during adaptation for ≥2 hours/night and wishing to continue CPAP therapy were randomised.</p> <p>Median age: 55.5 Male:87%</p> <p>Intervention 1: Fixed-level CPAP with pressure set at the 90th percentile applied by the autoCPAP device during adaptation. Philips Resironics RemStar</p> <p>Intervention 2: Automatic CPAP (pressure 5–15 mbar). ResMed AutoSet device</p>	<p>OSAHS costs over 2 years (median per patient): Intervention 1: 5070 Intervention 2: 5250 Incremental (2–1): 180 (95% CI: NR; p=NR)</p> <p>Total costs over 2 years (median per patient): Intervention 1: 11440 Intervention 2: 11380 Incremental (2–1): -60 (95% CI: NR; p=NR)</p> <p>Currency & cost year: Swiss francs, year NR so assumed to be 2017 (presented here as 2017 UK pounds^(b))</p> <p>Cost components incorporated: Hospital and physician bills.</p>	<p>SF-6D change, Baseline to 2 years (mean per patient): Intervention 1:+0.03 Intervention 2:+0.00 Incremental (2–1):-0.03 (95% CI: -0.06, 0.00; p=0.069)</p> <p>QALYs over 2 years calculated by NGC assuming linear change in SF-6D over 2 years: Incremental (2–1):-0.03</p> <p>ESS change, Baseline to 2 years (mean per patient): Intervention 1:-6.7 Intervention 2: -7.3 Incremental (2–1): -0.6 (95% CI: -1.5, 0.4; p=0.161)</p> <p>Unscheduled OSAHS visits over 2 years (mean per patient): Intervention 1: 0.18 Intervention 2: 0 Incremental (2–1): -0.18 (95% CI: NR; p=NR)</p>	<p>Using OSAHS costs and QALYs calculated by NGC: Fixed-level pressure dominates</p> <p>Using all health care costs and QALYs calculated by NGC: Fixed-level cost £2000 per additional QALY gained.</p> <p>Analysis of uncertainty: Outcomes were reported as intention to treat in addition to per protocol analyses (which were very similar)</p>
Data sources				

Health outcomes: Randomised controlled trial reported in the same paper. **Quality-of-life weights:** SF-6D **Cost sources:** Healthcare costs were obtained from a third party perspective by collecting health insurance, physician's office and hospital bills.

Comments

Source of funding: Swiss National Science Foundation, the Lung Leagues of Zurich, St. Gallen and Thurgau and by unconditional grants from the Respironics Foundation and ResMed Switzerland. **Limitations:** QALYs not calculated and quality of life measured by SF-6D not EQ-5D. Switzerland cost perspective. Costs were medians not means. Based on a single trial not a systematic review. Not double-blinded. Funding from manufacturers. **Other:**

Overall applicability:^(c) Partially applicable **Overall quality:**^(d) Potentially serious limitations

Abbreviations: 95% CI= 95% confidence interval; CPAP=Continuous positive airway pressure; EQ-5D= Euroqol 5 dimensions (scale: 0.0 [death] to 1.0 [full health], negative values mean worse than death); ICER= incremental cost-effectiveness ratio; NR= not reported; pa= probabilistic analysis; QALYs= quality-adjusted life years; SF-6D=short form – 6 dimensions

(a) Converted using 2017 purchasing power parities¹⁹⁰

(b) Directly applicable / Partially applicable / Not applicable

(c) Minor limitations / Potentially serious limitations / Very serious limitations

Study	Masa 2020 ¹⁴¹			
Study details	Population & interventions	Costs	Health outcomes	Cost effectiveness
<p>Economic analysis: Cost-effectiveness analysis</p> <p>Study design: Two parallel multicentre randomized controlled trials (16 clinical sites)</p> <p>Approach to analysis: Within-trial CEA</p> <p>Perspective: Spanish healthcare system</p> <p>Follow-up: 3 years</p>	<p>Population: Stable ambulatory patients with OHS and concomitant severe OSA (AHI ≥30)</p> <p>CPAP trial population characteristics: Patient N: 107 Mean age: 60 Male: 50%</p> <p>NIV trial population characteristics: Patient N: 97 Mean age: 65 Male: 37%</p>	<p>Total cost (including hospitalisation)/year: Intervention 1: £2787 Intervention 2: £1984 Incremental (2–1): Saves £830 (95% CI: 252, 1347; p=0.995)</p> <p>Currency & cost year: 2018 Spanish Euros (presented here as 2019 UK pounds^(a))</p> <p>Cost components incorporated: The cost of hospitalisation days plus other hospital</p>	<p>Hospitalisation days/year: Intervention 1: 1.89 Intervention 2: 2.13 Incremental (2–1): 0.24 (95% CI:-1.94, 2.30; p=0.378)</p> <p>Probability of hospitalisation: Intervention 1: 35.1% Intervention 2: 35.5% Incremental (2–1): 0.4% (95% CI: NR; p=0.945)</p>	<p>Incremental cost per hospital day averted: 1 vs 2: £3736</p> <p>Treatment with CPAP led to sufficiently lower healthcare costs to overcome the cost of longer hospital stay compared with NIV.</p> <p>Analysis of uncertainty: The effect of a higher proportion of treatment dropouts in the CPAP group was explored in sensitivity analysis.</p>

Discounting: Costs: NR Outcomes: NR	Intervention 1: Non-invasive ventilation set at a bilevel PAP with assured volume Intervention 2: Fixed pressure CPAP set based on a conventional CPAP titration study	resources, including: ICU days and ED visits; non-annual, baseline and annual clinic visits; NIV daytime adjustment and tests; medication for comorbid conditions; home care for PAP therapy		
Data sources				
Health outcomes: Masa 2015 and the current trial were the source for health outcomes values used in this study. Quality-of-life weights: SF-36 data was collected within the trial but was not reported by this study or used to inform this analysis. Cost sources: Hospital resource utilisation and costs were collected on 11 occasions over 3 years: after the first and second months, and every 3 months until completing 2 years, then every 6 months until completing 3 years of follow-up; additional details not reported.				
Comments				
Source of funding: Instituto de Salud Carlos III (Fondo de Investigaciones Sanitarias, Ministerio de Sanidad y Consumo) PI050402, Spanish Respiratory Foundation 2005 (FEPAR) and Air Liquide Spain. Limitations: Spanish healthcare system; QALYs and clinical outcomes not included; no discounting; Within RCT cost-effectiveness analysis so does not cover entire evidence base; details regarding resource and cost source not reported. Other: None.				
Overall applicability: Partially applicable ^(b) Overall quality: Minor limitations ^(c)				

Abbreviations: CEA= cost-effectiveness analysis; 95% CI= 95% confidence interval; NR= not reported; NS = not significant;

(a) Converted using 2018 purchasing power parities¹⁹⁰

(b) Directly applicable / Partially applicable / Not applicable

(c) Minor limitations / Potentially serious limitations / Very serious limitations