

## Appendix H – Economic evidence tables

Study, Population, Country and Quality	Data Sources	Other Comments	Results			Conclusions	Uncertainty
			Cost (€)	Effect (QALYs)	ICER (€)		
<b>Kapma et al. (2014)</b> Within-trial cost-utility analysis as part of the AJAX study. Netherlands.	<u>Effects:</u> AJAX study (RCT comparing EVAR [n=57] with OSR [n=59] for rAAA). <u>Costs:</u> Hospital perspective. Primary procedure, perioperative and follow-up resource use from AJAX (1 centre). Costs from national sources and hospital records.	6-month time horizon (therefore outcomes not subjected to discounting). Price year 2010 (€).  Missing EQ-5D data backwards imputed if possible (else LOCF).	EVAR: 41,350  OSR: 31,616  Increment: <b>10,189</b> 95% CI: [-2477, 24,506]	EVAR: 0.324 95% CI: [0.198, 0.445]  OSR: 0.298 95% CI: [0.164, 0.433]  Increment: <b>0.026</b>	€391,885	'Treatment of rAAA using EVAR was not cost-effective compared with [OSR] in this study.'	Conclusions robust to cost scenarios and analysis based on age subgroups.  EVAR may be cost-effective if the device cost is 50% lower than the list price.  EVAR ICER was €80,000 or less in fewer than 25% of bootstrap iterations.
<b>Partially applicable</b> <sup>a</sup>							
<b>Potentially serious limitations</b> <sup>b,c,d</sup>	<u>Utilities:</u> Derived from EQ-5D-3L questionnaire, administered 1, 3 & 12 months after intervention.	Trial data were bootstrapped (n=25,000) to characterise uncertainty in incremental costs and QALYs.					

Key: CI, confidence interval; EVAR, endovascular aneurysm repair; ICER, incremental cost-effectiveness ratio; LOCF, last observation carried forward; OSR, open surgical repair; QALY, quality-adjusted life year; rAAA, ruptured abdominal aortic aneurysm; RCT, randomised controlled trial.

- EVAR appears to have been conducted only where there was anatomical suitability, which is likely to mean infrarenal aneurysms.
- Relatively small study sample size (n=116).
- Short time horizon (6 months).
- Resource use and cost data only available from 1 of the 2 study hospitals.

Study, Population, Country and Quality	Data Sources	Other Comments	Results			Conclusions	Uncertainty
			Cost (£)	Effect (QALYs)	ICER		
<p><b>Powell et al. (2017)</b> Within-trial cost-utility analysis as part of the IMPROVE study: 3-year update. UK.</p>	<p><b>Effects:</b> IMPROVE study (pragmatic trial comparing EVAR strategy [n=316] with OSR strategy [n=297] for rAAA). <b>Costs:</b> Primary procedure perioperative hospital care and follow-up care resource use from IMPROVE. Costs from standard UK sources (2012). <b>Utilities:</b> Derived from EQ-5D-3L questionnaire, administered in IMPROVE 3, 12 and 36 months after intervention (QALYs estimated by AUC).</p>	<p>3-year time horizon, outcomes discounted by 3.5% annually. Price year appears to be 2011-12, based on source data for unit costs.</p> <p>Primary analysis by randomised group (intention-to-treat). Missing data were imputed from available data from rAAA participants for whom repair was commenced, conditional on other, fully observable variables (e.g. age)</p> <p>Trial data were bootstrapped to characterise uncertainty in the estimated incremental costs and QALYs (number of simulations NR).</p>	<p>EVAR: 16,878 OSR: 19,483</p> <p>Increment: <b>-2605</b> 95% CI: [-5966, 702]</p>	<p>EVAR: 1.14 OSR: 0.97</p> <p>Increment: <b>0.166</b> 95% CI: [0.022, 0.331]</p>	<p><b>EVAR dominant</b></p>	<p>'This mid-term follow-up provides convincing support for the benefits of an endovascular strategy (EVAR if morphologically feasible) versus open repair to treat patients with ruptured abdominal aortic aneurysm. At three years, the endovascular strategy offers an increase in QALYs, without an excess of reinterventions, and is cost effective.'</p>	<p>Results consistent when analysing only participants with confirmed AAA rupture, in an intention-to-treat analysis and when attempting to adjust for trial crossover (complier average causal effect analysis).</p> <p>EVAR ICER dominant in 88% of simulations, cost-effective in over 90% of bootstrap simulations at all cost per QALY thresholds.</p>
<b>Directly applicable</b>							
<b>Potentially serious limitations</b> <sup>a,b</sup>							

Key: AUC, area under the curve; CI, confidence interval; EVAR, endovascular aneurysm repair; ICER, incremental cost-effectiveness ratio; OSR, open surgical repair; PSA, probabilistic sensitivity analysis; QALY, quality-adjusted life year; rAAA, ruptured abdominal aortic aneurysm.

a. Pragmatic trial (not truly randomised at the point of intervention), though an attempt to adjust for this crossover has been undertaken in sensitivity analysis.

b. Short time horizon (3 years), despite longer-term survival data that indicate an acceleration of EVAR mortality beyond 3 years, almost converging with OSR at year 6. 3-year analysis duration may censor lasting differences between interventions in readmission and reintervention rates.