

## Appendix H: Health economic evidence tables

Study	Petis 2016 <sup>82</sup>			
Study details	Population & interventions	Costs	Health outcomes	Cost effectiveness
<p><b>Economic analysis:</b> Cost comparison</p> <p><b>Study design:</b> Prospective cohort study</p> <p><b>Approach to analysis:</b> Micro-costing of 3 interventions, each carried out by a single surgeon</p> <p><b>Perspective:</b> Canadian public payer (Ontario Ministry of Health)</p> <p><b>Follow-up:</b> 3 months</p> <p><b>Discounting:</b> Costs: N/A ; Outcomes: N/A</p>	<p><b>Population:</b> People over 19 years old indicated for THR</p> <p><b>Cohort characteristics:</b> <u>Interventions 1, 2 and 3</u> Population (n) = 40, 38 and 40 Mean age: 66.9, 66.7 and 65.5 Male: 37.5%, 58.3% and 53.8%</p> <p><b>Intervention 1:</b> Anterior approach</p> <p><b>Intervention 2:</b> Posterior approach</p> <p><b>Intervention 3:</b> Lateral approach</p>	<p><b>Total cost of procedure (mean per patient):</b> Intervention 1: £4,154.51 Intervention 2: £4,716.34 Intervention 3: £4,469.15</p> <p><b>Currency &amp; cost year:</b> 2013 Canadian dollars, presented here as 2013 British pounds<sup>(a)</sup></p> <p><b>Cost components incorporated:</b> Direct and indirect operating room costs and PACU costs were calculated from cost per minute value. Complications occurring in hospital and after discharge were recorded. However paper also states readmissions and care occurring after discharge were not included.</p>	<p><b>Inpatient LOS (mean days per patient):</b> Intervention 1: 1.42 Intervention 2: 2.74 Intervention 3: 2.68</p>	<p>The anterior THR approach is cost saving compared to the posterior and lateral approaches</p> <p><b>Analysis of uncertainty:</b> No sensitivity analysis was conducted</p>
<b>Data sources</b>				
<p><b>Health outcomes:</b> N/A <b>Quality-of-life weights:</b> N/A <b>Cost sources:</b> Costs applicable to the billing surgeon and anaesthetist were obtained from the Ontario Ministry of Health Schedule of Benefits. LOS was recorded for each patient in the cohort and included as a cost. The inventory control clerk provided the cost of implants and operating room supplies. Equipment specifically required for the anterior approach was amortised by a longevity estimate and per case basis.</p>				
<b>Comments</b>				
<p><b>Source of funding:</b> NR <b>Limitations:</b> Quality of life is not included as an outcome; the follow-up may be too short to understand the long term complications of the interventions; no sensitivity analysis was conducted; no multivariate analysis conducted to adjust for confounders, although a 1-way ANOVA showed no significant difference in age, sex, BMI, side operated on, primary diagnosis and age adjust Charlson Comorbidity Index.</p>				

**Overall applicability:**<sup>(b)</sup> Partially applicable      **Overall quality:**<sup>(c)</sup> Potentially serious limitations

Abbreviations: ANOVA: analysis of variance; LOS: length of stay; NR: not reported; PACU: post-anaesthesia care unit; THR: total hip replacement

(a) Converted using 2013 purchasing power parities<sup>77</sup>

(b) Directly applicable / Partially applicable / Not applicable

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

Study	Sharma 2019 <sup>102</sup>			
Study details	Population & interventions	Costs	Health outcomes	Cost effectiveness
<p><b>Economic analysis:</b> Cost comparison</p> <p><b>Study design:</b> Retrospective matched cohort study</p> <p><b>Approach to analysis:</b> Two cost models were used: a micro-costing analysis and a Resource Intensity Weights analysis<sup>(a)</sup></p> <p><b>Perspective:</b> Canadian healthcare</p> <p><b>Follow-up:</b> Initial inpatient stay</p> <p><b>Discounting:</b> Costs: N/A; Outcomes: N/A</p>	<p><b>Population:</b> Hip arthroplasty patients</p> <p><b>Cohort characteristics:</b> <u>Interventions 1, 2 and 3</u> Population (n): 69, 69 and 69 Mean age: 66, 66 and 66 Male: 53%, 53% and 53%</p> <p><b>Intervention 1</b> Anterior approach</p> <p><b>Intervention 2</b> Lateral approach</p> <p><b>Intervention 3</b> Posterior approach</p>	<p><b>Total cost of procedure (mean per patient):</b> Intervention 1: £5,234 Intervention 2: £6,361 Intervention 3: £6,156</p> <p><b>Currency &amp; cost year:</b> 2018 Canadian dollars, presented here as 2018 British pounds<sup>(b)</sup></p> <p><b>Cost components incorporated:</b> Direct costs, drugs, indirect costs and administration costs</p>	<p><b>Inpatient LOS (mean days per patient):</b> Intervention 1: 0.25  Intervention 2: 3.54  Intervention 3: 3.12</p>	<p>The anterior THR approach is cost saving compared to the posterior and lateral approaches</p> <p><b>Analysis of uncertainty:</b> No sensitivity analysis was conducted</p>
<b>Data sources</b>				
<b>Health outcomes:</b> Initial inpatient length of stay. <b>Quality-of-life weights:</b> N/A <b>Cost sources:</b> Alberta Health Services Analytics databases				
<b>Comments</b>				
<p><b>Source of funding:</b> the authors received no financial support for the research however some of the authors are paid consultants for Depuy, Stryker, Mizuho OSI and Zimmer Biomet <b>Limitations:</b> Quality of life is not included as an outcome; the follow-up may be too short to understand the long term complications of the interventions; no sensitivity analysis was conducted; no multivariate analysis conducted to adjust for confounders although patients were retrospectively matched.</p>				

**Overall applicability:**<sup>(c)</sup> Partially applicable      **Overall quality:**<sup>(d)</sup> Potentially serious limitations

*Abbreviations: LOS: length of stay; N/A: not applicable; THR: total hip replacement*

*(a) One the micro-costing cost model is presented here as both models showed the same results.*

*(b) Converted using 2018 purchasing power parities<sup>77</sup>*

*(c) Directly applicable / Partially applicable / Not applicable*

*(d) Minor limitations / Potentially serious limitations / Very serious limitations*