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TABLE E-1 Quality of Studies Included in Analysis

Study	No. of Patients	Avg. Follow-up Period	Data Used in Model	MINORS Score
Gerber et al., 1993[54]	54	>1 yr	Failure rate of ORIF	14
Robinson et al., 1995[59]	81	25 mo	Failure rate of ORIF	7
Lee et al., 2003[65]	42	5.6 yr	Failure rate of ORIF	11
Haidukewych et al., 2004[8]	82	6.6 yr	Failure rate of ORIF	11
Schweitzer et al., 2013[48]	29	28 mo	Failure rate of ORIF	10
Jain et al., 2002[60]	38	3.6 yr	Failure rate of ORIF	9
Gardner et al., 2015[66]	69	18	Failure rate of ORIF	9
Stearns et al., 2009[55]	59	>1 yr	Failure rate of ORIF	11
Thein et al., 2014[61]	78	29 mo	Failure rate of ORIF	13
Weil et al., 2015[56]	149	>1 yr	Failure rate of ORIF	5
Araujo et al., 2014[62]	31	33 mo	Failure rate of ORIF	7
Cao et al., 2014[57]	286	5 yr	Failure rate of ORIF	20
Biber et al., 2014[63]	135	>1 yr	Failure rate of ORIF	6
Chammout et al., 2012[67]	100	17 yr	Failure rate of ORIF	23
Parker et al., 2013[69]	320	2.5 yr	Failure rate of ORIF	10
Johansson, 2014[58]	143	>1 yr	Failure rate of ORIF	19
Viberg et al., 2013[64]	749	19 yr	Failure rate of ORIF	18
Støen et al., 2014[68]	222	6 yr	Failure rate of ORIF	20
Leonardsson et al., 2010[70]	409	124 mo	Failure rate of ORIF	19
Tidermark et al., 2002[71]	90	>1 yr	Failure rate of ORIF	20
Tidermark et al., 2003[72]	102	24 mo	Failure rate of ORIF	20
Alho et al., 1999[73]	203	39 mo	Failure rate of ORIF	10
Baker et al., 2006[27]	81	41 mo	Failure rate of hemiarthroplasty vs. THA	24
Avery et al., 2011[26]	81	9 yr	Failure rate of hemiarthroplasty vs. THA	23
Keating et al., 2006[24]	207	2 yr	Failure rate of ORIF vs. hemiarthroplasty vs. THA	23
Gebhard et al., 1992[28]	173	>1 yr	Failure rate of hemiarthroplasty vs. THA	12
Lee et al., 2013[31]	790	6 yr	Hip fracture mortality rate	10
Diamantopoulos et al., 2013[74]	942	>1 yr	Hip fracture mortality rate	7

TABLE E-2 THA Implant Survival

	Annual Failure Rate *(%)*		Total Survival Rate *(%)*	
Reference/ Postop. Yr	Primary THA	Revision THA	Primary THA	Revision THA
Ref. 21				
1	2.9	7.8	97.1	92.2
2	0.8	2.5	96.3	89.9
3	0.8	2.5	95.5	87.6
4	0.5	1.6	95.0	86.2
5	0.5	1.6	94.6	84.8
6	0.5	1.5	94.1	83.5
7	0.5	1.5	93.7	82.3
8	0.6	1.5	93.1	81.1
9	0.6	1.5	92.6	79.9
10	0.6	1.5	92.0	78.7
Ref. 75-77				
11	1.6	1.6	90.6	77.4
12	1.6	1.6	89.1	76.2
13	1.6	1.6	87.7	75.0
14	1.6	4.7	86.4	71.5
15	1.6	4.7	85.0	68.1
Ref. 75-80				
16	1.0	2.9	84.2	66.1
17	1.0	2.9	83.4	64.2
18	1.0	2.9	82.6	62.4
19	1.0	2.9	81.8	60.6
20	1.0	2.9	81.0	58.8
Ref. 78, 80				
21	1.4	4.3	79.8	56.3
22	1.4	4.3	78.7	53.8
23	1.4	4.3	77.5	51.5
24	1.4	4.3	76.4	49.3
25	1.4	4.3	75.3	47.1
26	1.4	4.3	74.2	45.1
27	1.4	4.3	73.1	43.1
28	1.4	4.3	72.1	41.2
29	1.4	4.3	71.0	39.4
≥30	1.4	4.3	70.0	37.7

TABLE E-3 Annual All-Cause Mortality Rate by Age*

Age *(yr)*	Mortality Rate *(%)*
20	0.09
25	0.09
30	0.11
35	0.16
40	0.24
45	0.35
50	0.51
55	0.81
60	1.26
65	1.88
70	2.90
75	4.67
80	7.47
85	11.73
90	17.95
95	26.47
100	37.23

*Obtained from U.S. Life Tables[29].

TABLE E-4 Perioperative Mortality Rate During Revision THA by Age*

Age *(yr)*	Mortality Rate *(%)*
40	0.2
50	0.2
55	0.4
60	0.5
65	0.8
70	1.1
75	1.8
80	4.4

*Data derived from studies by Memtsoudis et al.[30] and Hunt et al.[33].

TABLE E-5 Utility Ratios of ORIF by Age

Age *(yr)*	Utility *(% of THA Utility)*
50	100
55	100
60	100
65	100
70	82.3
75	70.8
80	63.5
85	49.2
90	40.4
95	55.6

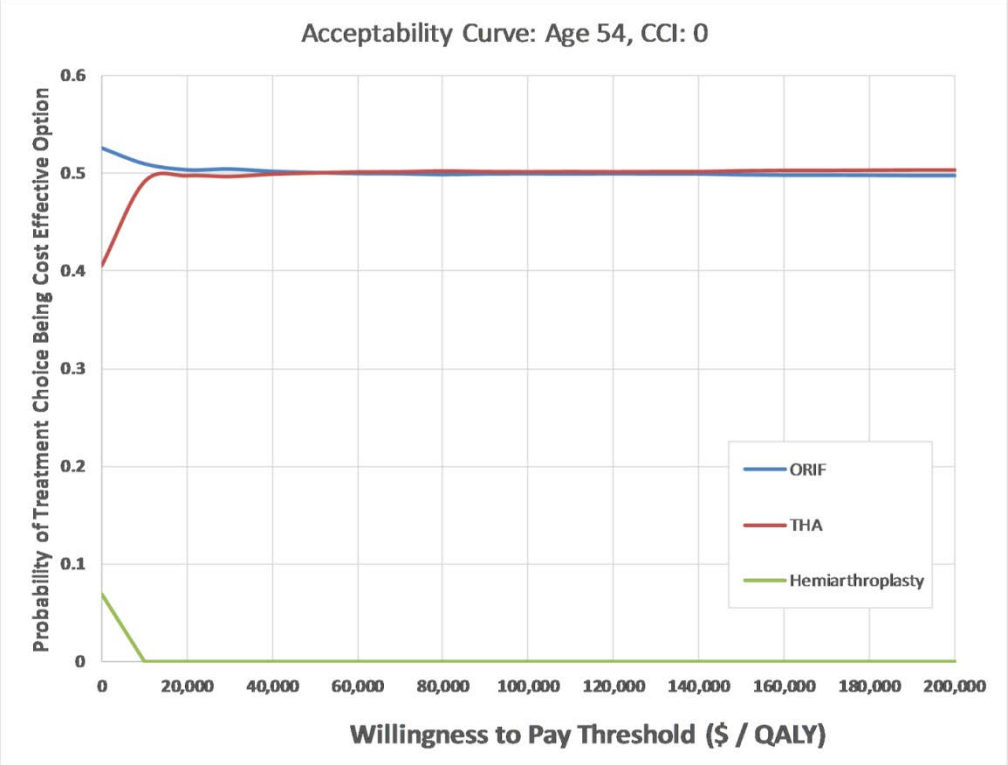
TABLE E-6 ORIF Failure/Revision Rate by Age

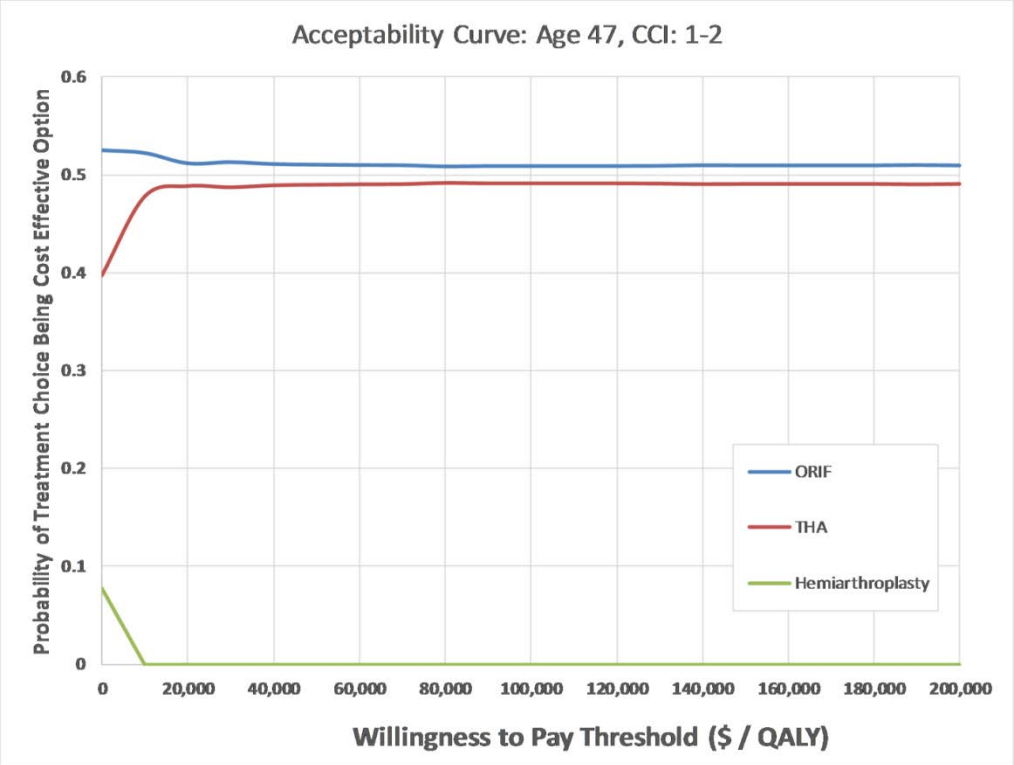
Age *(yr)*	Rate *(%)*
40	9.3
45	15.3
55	16.2
65	17.1
75	24.2
85	25.1

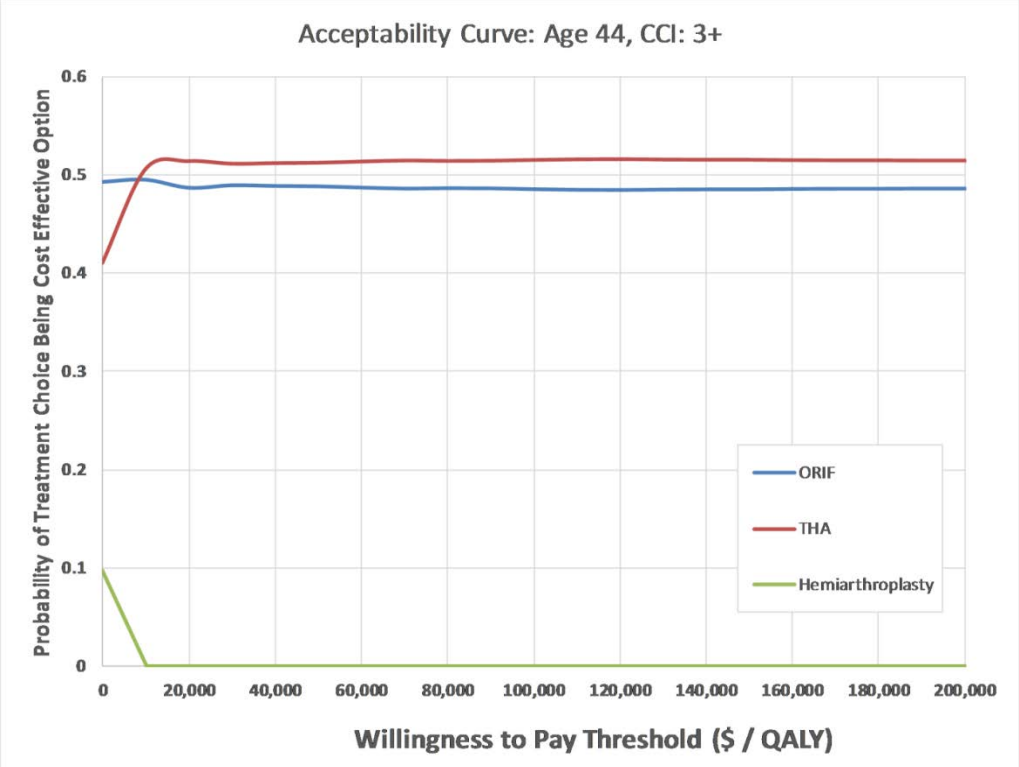
TABLE E-7 Distribution Values Used in Probabilistic Sensitivity Analysis

Distribution	Mean	95% CI	Stand. Dev.	Distribution Type
Costs *($)*				
ORIF	19,252	14,439-24,065	2,407	Normal
THA	20,529	15,397-25,661	2,566	Normal
Hemiarthroplasty	20,203	15,152-25,254	2,525	Normal
Revision THA	34,700	30,000-40,000	2,500	Normal
Failure rate of ORIF (for a 55-year-old) *(%)*	16	10-30	5	Beta
10-yr failure rate of primary THA *(%)*	8	5-15	2.5	Beta
10-yr failure rate of revision THA *(%)*	21	15-48	8.25	Beta
Failure rate of hemiarthroplasty *(× rate for THA)*	1.7	1-6	1.3	Normal
Standard mortality ratio during index procedure *(× baseline annual mortality rate)*	5	3-7	1	Beta
Perioperative mortality rate of revision surgery (for a 55-year-old) *(%)*	0.35	0.25-0.50	0.06	Beta
Utility				
Successful union after ORIF (for a 55-year-old)*	0.96	0.85-1.00	0.0375	Normal
Successful primary THA	0.96	0.78-1.00	0.055	Normal
Successful revision THA	0.84	0.56-1.00	0.11	Normal
Successful hemiarthroplasty	0.69	0.53-0.81	0.07	Normal
Utility loss with revision THA	0.20	0.00-0.30	0.075	Beta

Probabilistic Statistical Analysis Results: Acceptability Curves at Different Ages and Medical Comorbidities




Acceptability Curve: Age 47, CCI: 1-2
Probability of Treatment Choice Being Cost Effective Option
0.6
0.5
0.4
0.3
0.2
0.1
0
0
20,000
40,000
60,000
80,000
100,000
120,000
140,000
160,000
180,000
200,000
Willingness to Pay Threshold ($ / QALY)
ORIF
THA
Hemiarthroplasty


Acceptability Curve: Age 44, CCI: 3+
Probability of Treatment Choice Being Cost Effective Option
0.6
0.5
0.4
0.3
0.2
0.1
0
0
20,000
40,000
60,000
80,000
100,000
120,000
140,000
160,000
180,000
200,000
Willingness to Pay Threshold ($ / QALY)
ORIF
THA
Hemiarthroplasty