Supplementary material for: Cost-effectiveness analysis of a placebo-controlled randomized trial evaluating the effectiveness of arthroscopic subacromial decompression in patients with subacromial shoulder pain.

Table i. Unit costs. The following assumptions were made: staffing levels are the same for decompression and arthroscopy only, and are captured in costs of theatre time; for additional visits, post-surgery follow-up visits and the clinical assessment at three months in the active monitoring with specialist reassessment (AMSR) arm are expected to be captured in the "number of visits to orthopaedic outpatient clinic" question on the follow-up questionnaires; and all procedures are performed as day cases, with no overnight stays

Cost category	Unit cost	Source and description
Cost/min in theatre	£17.25/min (£1035.00/hr)	Mean cost/min in an orthopaedic operating theatre. Average over 15 NHS boards in Scotland, data released November 2016. Information Science Division Scotland National Statistics, released 17 December 2016.
Cost of minimal procedure	£554.00	National average cost for minimal shoulder procedure for non-trauma day cases. Obtained from the National Schedule of Reference Costs – Year 2015-16 file "The main schedule", "Day Case" tab.
Additional equipment costs*		
Anchors (cost per anchor in arthroscopic repair)	£145.70	Manufacturer's list price, obtained in 2012/13, adjusted by Hospital and Community Health Service (HCHS) pay and prices inflation index to account for change in costs between 2012/13 and 2015/16. Only rotator cuff repairs (RCRs). Use average number used in the United Kingdom Rotator Cuff Surgery (UKUFF) trial (1.2 in arthroscopic arm).
Drapes	£24.22	All surgeries. Manufacturer's list prices for shoulder arthroscopy drape and video camera drape. Adjusted by HCHS pay and prices inflation index to account for change in costs between 2012/13 and 2015/16.
Fluid management system on day tubing	£30.97	All surgeries. Manufacturer's list price. Adjusted by HCHS pay and prices inflation index to account for change in costs between 2012/13 and 2015/16.
Radio frequency electrode	£132.86	Only arthroscopic subacromial decompression (ASAD). UKUFF: Hospital costs, adjusted by HCHS pay and prices inflation index to account for change in costs between 2012/13 and 2015/16.
Full-radius soft tissue resector	£84.90	Only ASAD. Manufacturer's list price. Adjusted by HCHS pay and prices inflation index to account for change in costs between 2012/13 and 2015/16.
Oval bone burr	£84.90	Only ASAD. Manufacturer's list price. Adjusted by HCHS pay and prices inflation index to account for change in costs between 2012/13 and 2015/16.
Sling (one sling per operation)	£19.31 (£13.08 including VAT)	All surgeries. Hospital cost obtained (2007, discounting applied).
Hospital visits		
Seen in A&E	£146.86	National average unit cost, obtained from the National Schedule of Reference Costs – Year 2015-16 file "The main schedule", "Total outpatients attendance" tab.
Orthopaedic outpatient clinic	£117.01	National average unit cost for trauma and orthopaedics outpatient attendances, obtained from the National Schedule of Reference Costs – Year 2015-16 file "The main schedule", "Total outpatients attendance" tab. (In line with the way the question is posed, this is not restricted to shoulder.)
Other hospital outpatient clinic	£124.69	National average unit cost, calculated as the weighted average of all outpatient attendances other than A&E, physiotherapy, and orthopaedic outpatient clinics. Obtained from the National Schedule of Reference Costs – Year 2015-16 file "The main schedule", "Total outpatients attendance" tab.
Visits to NHS physiotherapist	£48.33	National average unit cost, obtained from the National Schedule of Reference Costs – Year 2015-16 file "The main schedule", "Total outpatients attendance" tab.
Number of admissions to day hospital	£730.30	Weighted average of all day cases, excluding paediatric cases and cases related to antenatal, neonatal, or fertility-related admissions. Obtained from the National Schedule of Reference Costs – Year 2015-16 file "The main schedule", "DC" tab.
Inpatient episodes (unit cost per night spent in hospital)	£613.11	Weighted average of elective inpatient, non-elective inpatients, and non-elective short stay costs per days, excluding paediatric cases and cases related to antenatal, neonatal, or fertility-related admissions. Obtained from the National Schedule of Reference Costs – Year 2015-16 file "The main schedule", "EL", "NEL", "NES" tabs.

(*Continued*)

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Cost category	Unit cost	Source and description
GP visits		
GP	£33.32	Personal Social Services Research Unit (PSSRU) unit costs of health and social care 2016, table 10.3b. Average consultation lasting 9.22 mins, excluding direct care staff costs and including qualification costs: £33. Home visits were not covered in the 2016 version of the document. 2013 document, out-of-surgery visits, including travel time and longer visit durations, cost approximately 2.5 times as much as GP patient contacts in-surgery. This factor will be applied to GP in-surgery visits to estimate the costs of GP home visits in this trial. In CSAW (baseline, six months, and follow-up), there were 1971 in-surgery GP visits and 13 GP home visits. GP costs per visit are calculated as a weighted average of GP visits in-surgery *versus* at-home visits.
Nurse	Band 4: £7.89 per consultation	Personal Social Services Research Unit (PSSRU) unit costs of health and social care 2016, table 10.6. £29/hr for band 4): £7.49 (£36/hr for band 5). Average consultation lasting 15.5 mins – referenced in PSSRU 2015 (based on the 2006/07 UK general practice survey). The cost for home visits is calculated as described for GPs above. In CSAW, there were 15 nurse home visits and 637 nurse GP visits reported.

*Additional equipment costs for surgeries performed – main cost drivers only

Table ii. Detailed summary of resource use and associated costs for all three trial arms: decompression (De.), arthroscopy only (AO), and no treatment (NT)

Surgery costs	Resource use (time in theatre, number of appointments, etc.)						Cost based on resource use (in £)					
	Mean (SE)			Mean difference* (96% CI; p-value)			Mean cost in £ (SE)			Mean cost difference in £* (96% CI; p-value)		
	De. (n = 106)	AO (n = 103)	NT (n = 104)	De. *vs* AO	De. *vs* NT	AO *vs* NT	De. (n = 106)	AO (n = 103)	NT (n = 104)	De. *vs* AO	De. *vs* NT	AO *vs* NT
Total time in theatre (mins)	50 (3)	37 (3)	16 (3)	13 (6 to 20; p < 0.001)†	34 (25 to 43; p < 0.001)†	21 (9 to 32; p < 0.001)†	859 (49)	633 (48)	277 (51)	225 (100 to 351; p < 0.001)†	583 (430 to 736; p < 0.001)†	359 (162 to 556; p < 0.001)†
Basic procedure costs							908 (39)	666 (37)	259 (45)	236 (150 to 322; p < 0.001)†	648 (512 to 784; p < 0.001)†	411 (291 to 532; p < 0.001)†
Total surgery cost							1767 (83)	1299 (81)	536 (95)	461 (274 to 649; p < 0.001)†	1231 (955 to 1508; p < 0.001)†	770 (463 to 1078; p < 0.001)†
Baseline to 6 mths												
GP appointments	2.30 (0.28)	2.13 (0.25)	1.90 (0.23)	0.11 (-0.69 to 0.90; p = 0.780)	0.40 (-0.39 to 1.19; p = 0.307)	0.26 (-0.49 to 1.01; p = 0.475)	77 (9)	71 (8)	63 (7)	4 (-23 to 30; p = 0.780)	13 (-13 to 40; p = 0.307)	9 (-16 to 34; p = 0.475)
Nurse appointments	0.83 (0.12)	0.65 (0.10)	0.72 (0.13)	0.16 (-0.09 to 0.41; p = 0.190)	0.11 (-0.21 to 0.42; p = 0.477)	-0.07 (-0.39 to 0.25; p = 0.671)	7 (1)	5 (1)	6 (1)	1 (-1 to 3; p = 0.190)	1 (-2 to 3; p = 0.477)	-1 (-3 to 2; p = 0.671)
Visits to A&E	0.08 (0.03)	0.11 (0.04)	0.13 (0.04)	-0.03 (-0.14 to 0.07; p = 0.513)	-0.06 (-0.18 to 0.06; p = 0.294)	-0.03 (-0.13 to 0.08; p = 0.611)	11 (4)	16 (6)	20 (6)	-5 (-20 to 10; p = 0.513)	-9 (-26 to 8; p = 0.294)	-4 (-19 to 12; p = 0.611)
Visits to orthopaedic outpatient clinic	1.24 (0.12)	1.30 (0.15)	1.08 (0.12)	-0.10 (-0.55 to 0.34; p = 0.631)	0.15 (-0.25 to 0.56; p = 0.441)	0.23 (-0.24 to 0.71; p = 0.318)	145 (14)	152 (18)	126 (14)	-12 (-64 to 40; p = 0.631)	18 (-30 to 65; p = 0.441)	27 (-28 to 83; p = 0.318)
Visits to other hospital outpatient clinic	0.53 (0.11)	0.44 (0.10)	0.40 (0.09)	0.08 (-0.20 to 0.36; p = 0.570)	0.13 (-0.10 to 0.36; p = 0.250)	0.06 (-0.22 to 0.33; p = 0.679)	66 (13)	55 (13)	50 (11)	10 (-25 to 45; p = 0.570)	16 (-12 to 45; p = 0.250)	7 (-27 to 41; p = 0.679)
Visits to NHS physiotherapist†	3.09 (0.38)	3.41 (0.66)	1.80 (0.36)	-0.37 (-2.13 to 1.40; p = 0.674)	1.31 (0.14 to 2.48; p = 0.030)†	1.66 (-0.29 to 3.61; p = 0.092)	150 (18)	165 (32)	87 (18)	-18 (-103 to 68; p = 0.674)	63 (7 to 120; p = 0.030)†	80 (-14 to 174; p = 0.092)
Admissions to day hospital†	0.39 (0.05)	0.38 (0.05)	0.08 (0.03)	0.01 (-0.19 to 0.20; p = 0.956)	0.31 (0.17 to 0.45; p < 0.001)†	0.30 (0.17 to 0.44; p < 0.001)†	282 (38)	277 (37)	57 (21)	4 (-138 to 146; p = 0.956)	225 (122 to 327; p < 0.001)†	220 (121 to 318; p < 0.001)†
Inpatient nights†	0.11 (0.05)	0.40 (0.15)	0.10 (0.06)	-0.29 (-0.52 to -0.07; p = 0.013)†	0.01 (-0.13 to 0.14; p = 0.918)	0.30 (0.12 to 0.49; p = 0.003)†	67 (30)	246 (91)	63 (36)	-179 (-316 to -43; p = 0.013)†	4 (-78 to 86; p = 0.918)	186 (73 to 300; p = 0.003)†
Costs of health service use from baseline to 6 mths (excluding initial trial procedure where relevant)†							803 (61)	988 (124)	472 (57)	-196 (-513 to 122; p = 0.216)	331 (148 to 515; p = 0.001)†	525 (291 to 759; p < 0.001)†
Costs of health service use from baseline to 6 mths (including initial trial procedure where relevant)†							2571 (113)	2287 (144)	1008 (120)	266 (-135 to 666; p = 0.184)	1563 (1169 to 1956; p < 0.001)†	1295 (889 to 1701; p < 0.001)†
6 mths to 12 mths												
GP appointments	1.93 (0.25)	2.04 (0.22)	1.76 (0.24)	-0.16 (-0.85 to 0.53; p = 0.630)	0.15 (-0.54 to 0.83; p = 0.654)	0.29 (-0.40 to 0.97; p = 0.394)	64 (8)	68 (7)	59 (8)	-5 (-28 to 18; p = 0.630)	5 (-18 to 28; p = 0.654)	10 (-13 to 32; p = 0.394)

(*Continued*)

Surgery costs	Resource use (time in theatre, number of appointments, etc.)						Cost based on resource use (in £)					
Nurse appointments	1.02 (0.17)	0.71 (0.15)	0.68 (0.17)	0.29 (-0.13 to 0.71; p = 0.163)	0.35 (-0.15 to 0.84; p = 0.163)	0.01 (-0.44 to 0.46; p = 0.962)	8 (1)	6 (1)	5 (1)	2 (-1 to 6; p = 0.163)	3 (-1 to 7; p = 0.163)	0 (-3 to 4; p = 0.962)
Visits to A&E	0.07 (0.03)	0.10 (0.03)	0.11 (0.04)	-0.04 (-0.12 to 0.05; p = 0.394)	-0.04 (-0.12 to 0.05; p = 0.377)	0.00 (-0.09 to 0.08; p = 0.936)	10 (5)	15 (5)	16 (5)	-5 (-17 to 7; p = 0.394)	-5 (-18 to 7; p = 0.377)	0 (-13 to 12; p = 0.936)
Visits to orthopaedic outpatient clinic	0.56 (0.09)	0.71 (0.10)	0.75 (0.10)	-0.17 (-0.42 to 0.08; p = 0.167)	-0.19 (-0.44 to 0.06; p = 0.133)	-0.03 (-0.25 to 0.19; p = 0.802)	65 (11)	83 (12)	87 (12)	-20 (-50 to 9; p = 0.167)	-22 (-52 to 7; p = 0.133)	-3 (-29 to 23; p = 0.802)
Visits to other hospital outpatient clinic	0.48 (0.15)	0.37 (0.08)	0.42 (0.09)	0.09 (-0.15 to 0.34; p = 0.435)	0.05 (-0.28 to 0.39; p = 0.734)	-0.06 (-0.28 to 0.17; p = 0.609)	60 (18)	46 (10)	53 (12)	12 (-19 to 43; p = 0.435)	7 (-34 to 48; p = 0.734)	-7 (-35 to 21; p = 0.609)
Visits to NHS physiotherapist	2.21 (0.39)	2.25 (0.44)	1.37 (0.31)	-0.10 (-1.35 to 1.15; p = 0.870)	0.83 (0.00 to 1.66; p = 0.051)	0.91 (-0.21 to 2.04; p = 0.106)	107 (19)	109 (21)	66 (15)	-5 (-65 to 56; p = 0.870)	40 (0 to 80; p = 0.051)	44 (-10 to 98; p = 0.106)
Admissions to day hospital	0.12 (0.04)	0.10 (0.03)	0.09 (0.03)	0.02 (-0.06 to 0.11; p = 0.583)	0.03 (-0.06 to 0.12; p = 0.471)	0.00 (-0.05 to 0.06; p = 0.867)	88 (28)	72 (23)	65 (21)	17 (-46 to 80; p = 0.583)	22 (-40 to 84; p = 0.471)	3 (-39 to 46; p = 0.867)
Inpatient nights	0.28 (0.19)	0.23 (0.11)	0.15 (0.05)	0.03 (-0.40 to 0.47; p = 0.882)	0.13 (-0.30 to 0.56; p = 0.537)	0.08 (-0.17 to 0.33; p = 0.510)	175 (114)	144 (68)	92 (30)	19 (-248 to 287; p = 0.882)	80 (-184 to 344; p = 0.537)	49 (-103 to 201; p = 0.510)
Costs of health service use from 6 mths to 12 mths							577 (130)	543 (84)	443 (58)	15 (-256 to 286; p = 0.911)	129 (-148 to 406; p = 0.346)	96 (-100 to 292; p = 0.322)
Baseline to 12 mths												
GP appointments	4.23 (0.44)	4.18 (0.39)	3.66 (0.39)	-0.05 (-1.24 to 1.14; p = 0.926)	0.55 (-0.68 to 1.77; p = 0.362)	0.55 (-0.64 to 1.73; p = 0.347)	141 (15)	139 (13)	122 (13)	-2 (-41 to 38; p = 0.926)	18 (-23 to 59; p = 0.362)	18 (-21 to 58; p = 0.347)
Nurse appointments	1.85 (0.23)	1.36 (0.19)	1.40 (0.25)	0.45 (-0.05 to 0.95; p = 0.075)	0.46 (-0.17 to 1.08; p = 0.143)	-0.06 (-0.63 to 0.51; p = 0.842)	15 (2)	11 (2)	11 (2)	4 (0 to 7; p = 0.075)	4 (-1 to 9; p = 0.143)	0 (-5 to 4; p = 0.842)
Visits to A&E	0.14 (0.05)	0.21 (0.05)	0.24 (0.06)	-0.07 (-0.19 to 0.06; p = 0.274)	-0.10 (-0.26 to 0.06; p = 0.227)	-0.03 (-0.15 to 0.09; p = 0.616)	21 (7)	31 (8)	35 (8)	-10 (-28 to 8; p = 0.274)	-14 (-38 to 10; p = 0.227)	-4 (-22 to 13; p = 0.616)
Visits to orthopaedic outpatient clinic	1.79 (0.17)	2.01 (0.20)	1.83 (0.18)	-0.28 (-0.85 to 0.30; p = 0.329)	-0.04 (-0.59 to 0.51; p = 0.890)	0.21 (-0.38 to 0.80; p = 0.475)	210 (19)	236 (24)	214 (21)	-32 (-100 to 35; p = 0.329)	-4 (-69 to 60; p = 0.890)	24 (-45 to 93; p = 0.475)
Visits to other hospital outpatient clinic	1.01 (0.19)	0.82 (0.15)	0.82 (0.13)	0.17 (-0.23 to 0.57; p = 0.379)	0.19 (-0.27 to 0.64; p = 0.404)	0.00 (-0.38 to 0.38; p = 1.000)	126 (24)	102 (18)	103 (17)	22 (-28 to 71; p = 0.379)	23 (-33 to 80; p = 0.404)	0 (-47 to 47; p = 1.000)
Visits to NHS physiotherapist†	5.31 (0.56)	5.66 (0.90)	3.18 (0.51)	-0.47 (-2.87 to 1.94; p = 0.693)	2.14 (0.64 to 3.63; p = 0.007)†	2.57 (0.12 to 5.02; p = 0.041)†	256 (27)	274 (43)	153 (25)	-23 (-139 to 94; p = 0.693)	103 (31 to 176; p = 0.007)†	124 (6 to 243; p = 0.041)†
Admissions to day hospital†	0.51 (0.06)	0.48 (0.06)	0.17 (0.04)	0.03 (-0.18 to 0.23; p = 0.779)	0.34 (0.18 to 0.50; p < 0.001)†	0.31 (0.18 to 0.43; p < 0.001)†	370 (45)	348 (41)	122 (29)	21 (-129 to 171; p = 0.779)	246 (130 to 363; p < 0.001)†	223 (131 to 316; p < 0.001)†
Inpatient nights†	0.39 (0.19)	0.64 (0.21)	0.25 (0.07)	-0.26 (-0.75 to 0.23; p = 0.282)	0.14 (-0.29 to 0.57; p = 0.516)	0.38 (0.05 to 0.72; p = 0.026)†	242 (118)	390 (127)	155 (45)	-160 (-460 to 140; p = 0.282)	84 (-180 to 348; p = 0.516)	235 (31 to 440; p = 0.026)†
Costs of health service use from baseline to 12 mths (excluding initial trial procedure where relevant)†							1380 (147)	1531 (168)	915 (90)	-181 (-567 to 206; p = 0.343)	460 (139 to 781; p = 0.007)†	620 (330 to 911; p < 0.001)†
Costs of health service use & surgery from baseline to 12 mths (including initial trial procedure where relevant)†							3147 (166)	2830 (183)	1451 (151)	281 (-142 to 703; p = 0.183)	1691 (1216 to 2167; p < 0.001)†	1391 (901 to 1881; p < 0.001)†

*Differences are adjusted for baseline Oxford Shoulder Score, age at randomization, gender, and randomizing site (i.e. adjusted for clustering within trial site using the 'cluster' option within Stata's regression command)

†Statistically significant

SE, standard error; CI, confidence interval

Table iii. Quality of life (QoL) and quality-adjusted life-years (QALYs), including comparisons between all three treatment arms: decompression (De.), arthroscopy only (AO), and no treatment (NT); summaries in this table include all randomized participants; missing data was handled using multiple imputation by chained equations (MICE)

QoL	Mean (SE)			Mean* (95% CI; p-value)		
	De. (n = 106)	**AO (n = 103)**	**NT (n = 104)**	**De. *vs* AO**	**De. *vs* NT**	**AO *vs* NT**
EQ-5D-3L index at baseline	0.517 (0.029)	0.553 (0.028)	0.499 (0.032)			
EQ-5D-3L index at 6 mths†	0.654 (0.030)	0.672 (0.027)	0.526 (0.036)	-0.002 (-0.086 to 0.081; p = 0.954)	0.120 (0.040 to 0.210; p = 0.007)†	0.116 (0.022 to 0.209; p = 0.018)†
EQ-5D-3L index at 12 mths†	0.735 (0.030)	0.728 (0.027)	0.658 (0.034)	0.027 (-0.038 to 0.093; p = 0.397)	0.080 (-0.010 to 0.160; p = 0.065)	0.047 (-0.034 to 0.128; p = 0.238)
QALYs						
QALYs, baseline to 6 mths†	0.293 (0.012)	0.306 (0.011)	0.256 (0.015)	-0.001 (-0.022 to 0.020; p = 0.954)	0.030 (0.010 to 0.050; p = 0.007)†	0.029 (0.006 to 0.052; p = 0.018)†
QALYs, 6 mths to 12 mths†	0.347 (0.013)	0.350 (0.011)	0.296 (0.015)	0.006 (-0.025 to 0.038; p = 0.683)	0.050 (0.020 to 0.080; p = 0.003)†	0.041 (0.011 to 0.071; p = 0.010)†
QALYs, baseline to 12 mths†	0.640 (0.024)	0.656 (0.020)	0.552 (0.029)	0.006 (-0.045 to 0.056; p = 0.819)	0.080 (0.030 to 0.130; p = 0.002)†	0.070 (0.020 to 0.119; p = 0.008)†
QALYs, baseline to 2 yrs†‡	1.349 (0.050)	1.359 (0.043)	1.188 (0.056)	0.032 (-0.072 to 0.136; p = 0.528)	0.160 (0.040 to 0.270; p = 0.008)†	0.115 (0.009 to 0.221; p = 0.035)†

*Differences are adjusted for baseline EuroQol (EQ)-5D-3L index, age at randomization, gender, and randomizing site (i.e. adjusted for clustering within trial site using the 'cluster' option within Stata's regression command)

†Statistically significant

‡Assumptions made in the extrapolation: Carry forward quality of life from 12 months; also carry over cost observed from six to 12 months for each additional six-month period (extrapolation scenario 1)

SE, standard error; CI, confidence interval

Table iv. Incremental cost-effectiveness

Analysis and comparison	Mean cost difference in £* (95% CI; p-value)	Mean difference in QALYs* (95% CI; p-value)	Mean incremental cost per QALY gained	More effective, %	Less costly, %	Probability of cost-effectiveness at £20 000 per QALY gained, %
Baseline to 6 mths						
De. *vs* NT	1563 (1169 to 1956; p < 0.001)	0.030 (0.010 to 0.050; p = 0.007)	52 100 (NE quadrant)	*100*	*0*	*0*
AO *vs* NT	1295 (889 to 1701; p < 0.001)	0.029 (0.006 to 0.052; p = 0.018)	44 655 (NE quadrant)	*100*	*0*	*3*
De. *vs* AO	266 (-135 to 666; p = 0.184)	-0.001 (-0.022 to 0.020; p = 0.954)	-266 000 (NW quadrant)	*53*	*16*	*23*
Baseline to 12 mths						
De. *vs* NT	1691 (1216 to 2167; p < 0.001)	0.080 (0.030 to 0.130; p = 0.002)	21 138 (NE quadrant)	*100*	*0*	*50*
AO *vs* NT	1391 (901 to 1881; p < 0.001)	0.070 (0.020 to 0.119; p = 0.008)	19 871 (NE quadrant)	*100*	*0*	*52*
De. *vs* AO	281 (-142 to 703; p = 0.183)	0.006 (-0.045 to 0.056; p = 0.819)	46 833 (NE quadrant)	*63*	*17*	*46*
Extrapolation scenario 1†						
De. *vs* NT	1691 (1216 to 2167; p < 0.001)	0.160 (0.040 to 0.270; p = 0.008)	10 569 (NE quadrant)	*100*	*0*	*89*
AO *vs* NT	1391 (901 to 1881; p < 0.001)	0.115 (0.009 to 0.221; p = 0.035)	12 096 (NE quadrant)	*98*	*0*	*79*
De. *vs* AO	281 (-142 to 703; p = 0.183)	0.032 (-0.072 to 0.136; p = 0.528)	8781 (NE quadrant)	*76*	*17*	*70*
Extrapolation scenario 2‡						
De. *vs* NT	1940 (1046 to 2834; p < 0.001)	0.160 (0.040 to 0.270; p = 0.008)	12 125 (NE quadrant)	*100*	*0*	*84*
AO *vs* NT	1575 (799 to 2351; p < 0.001)	0.115 (0.009 to 0.221; p = 0.035)	13 696 (NE quadrant)	*97*	*0*	*75*
De. *vs* AO	309 (-484 to 1103; p = 0.428)	0.032 (-0.072 to 0.136; p = 0.528)	9656 (NE quadrant)	*76*	*24*	*67*

*Differences are adjusted for baseline Oxford Shoulder Score (costs)/baseline EQ-5D-3L index (QoL), age at randomization, gender and randomizing site

†Extrapolation scenario 1: carry forward quality of life (QoL) from 12 months; assume no differential costs between the treatment arms

‡Extrapolation scenario 2: carry forward QoL from 12 months; also carry over cost observed from six months to 12 months for each additional six-month period

CI, confidence interval; QALY, quality-adjusted life-year; De., decompression; NT, no treatment; NE, north-east quadrant of the cost-effectiveness plane; AO, arthroscopy only; NW, north-west quadrant of the cost-effectiveness plane

Table v. Sensitivity analysis to assess the consistency of the incremental cost-effectiveness from baseline to six months post-randomization

Analysis & comparison	Mean cost difference in £* (95% CI; p-value)	Mean difference in QALYs* (95% CI; p-value)	Mean incremental cost per QALY gained	More effective, %	Less costly, %	Cost-effective at £20 000 per QALY gained, %
Per-protocol population†						
De. *vs* NT	2452 (2204 to 2701; p < 0.001)	0.030 (0.010 to 0.050; p = 0.005)	81 733 (NE quadrant)	*100*	*0*	*0*
AO *vs* NT	2020 (1741 to 2299; p < 0.001)	0.031 (0.007 to 0.055; p = 0.014)	65 161 (NE quadrant)	*100*	*0*	*0*
De. *vs* AO	440 (88 to 792; p = 0.016)	-0.001 (-0.022 to 0.020; p = 0.916)	-440 000 (NW quadrant)	*47*	*13*	*8*
Complete cases population‡						
De. *vs* NT	1771 (1328 to 2213; p < 0.001	0.050 (0.020 to 0.080; p = 0.003)	35 420 (NE quadrant)	*100*	*0*	*0*
AO *vs* NT	1298 (819 to 1777; p < 0.001)	0.038 (0.008 to 0.068; p = 0.014)	34 158 (NE quadrant)	*100*	*0*	*5*
De. *vs* AO	472 (49 to 895; p = 0.030)	0.009 (-0.023 to 0.042; p = 0.558)	52 444 (NE quadrant)	*30*	*7*	*7*
0% price discount						
De. *vs* NT	1620 (1217 to 2023; p < 0.001)	0.030 (0.010 to 0.050; p = 0.007)	54 000 (NE quadrant)	*100*	*0*	*0*
AO *vs* NT	1316 (900 to 1732; p < 0.001)	0.029 (0.006 to 0.052; p = 0.018)	45 379 (NE quadrant)	*100*	*0*	*3*
De. *vs* AO	302 (-104 to 708; p = 0.138)	-0.001 (-0.022 to 0.020; p = 0.954)	-302 000 (NW quadrant)	*53*	*14*	*19*
30% price discount						
De. *vs* NT	1505 (1122 to 1888; p < 0.001)	0.030 (0.010 to 0.050; p = 0.007)	50 166 (NE quadrant)	*100*	*0*	*0*
AO *vs* NT	1274 (878 to 1671; p < 0.001)	0.029 (0.006 to 0.052; p = 0.018)	43 931 (NE quadrant)	*100*	*0*	*3*
De. *vs* AO	229 (-166 to 625; p = 0.244)	-0.001 (-0.022 to 0.020; p = 0.954)	-229 000 (NW quadrant)	*53*	*18*	*26*

*Differences are adjusted for baseline Oxford Shoulder Score (costs) or baseline EuroQol (EQ)-5D-3L index (quality of life; QoL), age at randomization, gender, and randomizing site (i.e. adjusted for clustering within trial site using the 'cluster' option within Stata's regression command)

†Numbers included in the PP population: decompression, n= 80; arthroscopy only, n=68; no treatment, n=78

‡Numbers included in CC population: decompression, n= 81; arthroscopy only, n=86; no treatment, n=79

CI, confidence interval; QALYs, quality-adjusted life-years; De., decompression; NT, no treatment; NE, north-east quadrant of the cost-effectiveness plane; AO, arthroscopy only; NW, north-west quadrant of the cost-effectiveness plane

Table vi. Sensitivity analysis to assess the consistency of the incremental cost-effectiveness from baseline to 12 months post-randomization

Analysis and comparison	Mean cost difference in £* (95% CI; p-value)	Mean difference in QALYs* (95% CI; p-value)	Mean incremental cost per QALY gained	More effective, %	Less costly, %	Cost-effective at £20 000 per QALY gained, %
Per-protocol population†						
De. *vs* NT	2567 (2152 to 2982; p < 0.001)	0.090 (0.040 to 0.140; p = 0.001)	28 522 (NE quadrant)	*100*	*0*	*12*
AO *vs* NT	2220 (1908 to 2532; p < 0.001)	0.073 (0.018 to 0.128; p = 0.011)	30 410 (NE quadrant)	*99*	*0*	*14*
De. *vs* AO	346 (-50 to 743; p = 0.084)	0.014 (-0.041 to 0.068; p = 0.613)	24 714 (NE quadrant)	*70*	*6*	*49*
Complete cases population‡						
De. *vs* NT	1741 (1198 to 2283; p < 0.001)	0.080 (0.030 to 0.130; p = 0.003)	21 763 (NE quadrant)	*100*	*0*	*44*
AO *vs* NT	1325 (754 to 1896; p < 0.001)	0.069 (0.023 to 0.115; p = 0.005)	19 203 (NE quadrant)	*100*	*0*	*52*
De. *vs* AO	413 (6 to 820; p = 0.047)	0.005 (-0.044 to 0.055; p = 0.832)	82 600 (NE quadrant)	*58*	*9*	*31*
0% price discount						
De. *vs* NT	1749 (1265 to 2232; p < 0.001)	0.080 (0.030 to 0.130; p = 0.002)	21 863 (NE quadrant)	*100*	*0*	*46*
AO *vs* NT	1412 (911 to 1912; p < 0.001)	0.070 (0.020 to 0.119; p = 0.008)	20 171 (NE quadrant)	*100*	*0*	*51*
De. *vs* AO	317 (-109 to 743; p = 0.137)	0.006 (-0.045 to 0.056; p = 0.819)	52 833 (NE quadrant)	*63*	*14*	*44*
30% price discount						
De. *vs* NT	1634 (1166 to 2102; p < 0.001)	0.080 (0.030 to 0.130; p = 0.002)	20 425 (NE quadrant)	*100*	*0*	*54*
AO *vs* NT	1370 (890 to 1850; p < 0.001)	0.070 (0.020 to 0.119; p = 0.008)	19 571 (NE quadrant)	*100*	*0*	*52*
De. *vs* AO	244 (-175 to 663; p = 0.240)	0.006 (-0.045 to 0.056; p = 0.819)	40 667 (NE quadrant)	*63*	*20*	*49*

*Differences are adjusted for baseline Oxford Shoulder Score (costs) or baseline EuroQol (EQ)-5D-3L index (quality of life; QoL), age at randomization, gender, and randomizing site (i.e. adjusted for clustering within trial site using the 'cluster' option within Stata's regression command)

†Numbers included in the PP population: decompression, n= 80; arthroscopy only, n=68; no treatment, n=78

‡Numbers included in CC population: decompression, n= 81; arthroscopy only, n=86; no treatment, n=79

CI, confidence interval; QALYs, quality-adjusted life-years; De., decompression; NT, no treatment; NE, north-east quadrant of the cost-effectiveness plane; AO, arthroscopy only

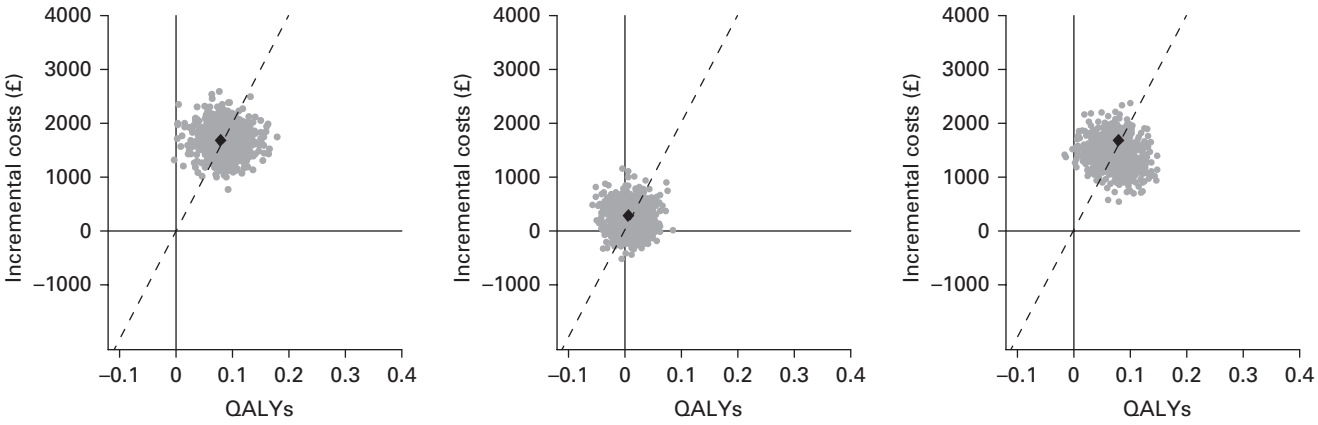

Fig. aa

Fig. ab

Fig. ac

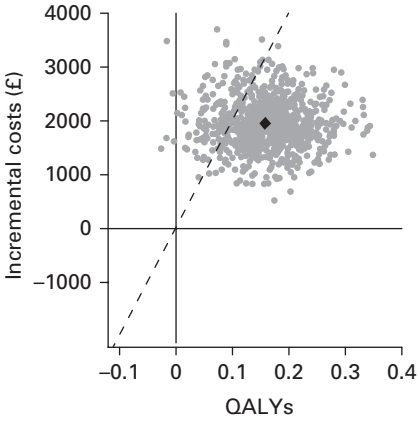

Fig. ad

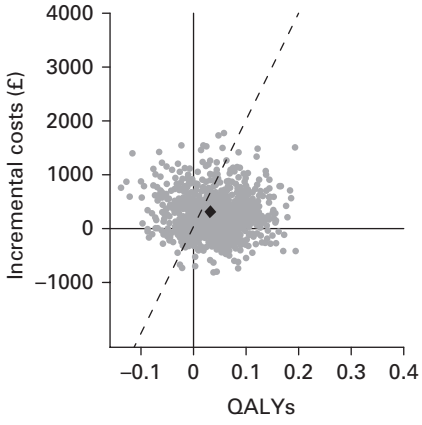

Fig. ae

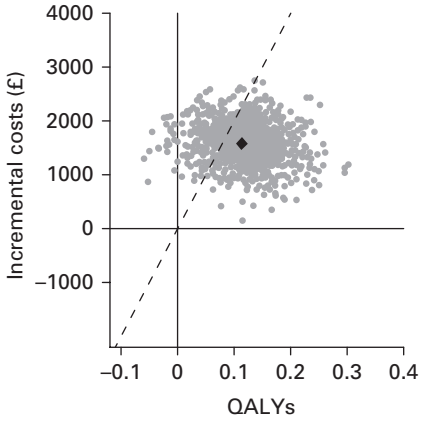

Fig. af

Cost-effectiveness planes: aa) to ac) baseline to 12 months; and ad) to af) baseline to two years (extrapolation scenario 2). aa) and ad) Decompression *versus* no treatment; ab) and ae) decompression *versus* arthroscopy only; and ac) and af) arthroscopy only *versus* no treatment. Points that fall below the dashed line are cost-effective at a £20 000 per quality-adjusted life-year (QALY) willingness-to-pay threshold. Extrapolation scenario 2: Carry forward quality of life (QoL) from 12 months; also carry over cost observed from six to 12 months for each additional six-month period.

Table vii. Employment information over the trial follow-up; participants were asked the question, "Are you in paid employment?"

	Decompression, n (%)	Arthroscopy only, n (%)	No treatment, n (%)
Baseline*	n = 106	n = 103	n = 104
Yes; full-time	50 (*41*)	48 (*47*)	49 (*47*)
Yes; part-time	15 (*14*)	20 (*19*)	12 (*12*)
No	41 (*39*)	35 (*34*)	43 (*41*)
6 mths*	n = 87	n = 93	n = 88
Yes; full-time	41 (*47*)	40 (*43*)	39 (*44*)
Yes; part-time	15 (*17*)	20 (*22*)	9 (*10*)
No	31 (*36*)	33 (*35*)	40 (*45*)
12 mths*	n = 84	n = 87	n = 80
Yes; full-time	39 (*46*)	35 (*40*)	35 (*44*)
Yes; part-time	15 (*18*)	23 (*26*)	8 (*10*)
No	30 (*36*)	29 (*33*)	37 (*46*)

*The data presented are based on available data; information was not available for all randomized participants. There was no evidence of a statistically significant difference (5% significance level) in the proportion of participants in employment (either part-time or full-time) at the end of the study between the treatment arms

Table viii. Change in employment due to shoulder problems over the trial follow-up; participants were asked the question, "Have you altered your employment in any way over the last six months as a result of shoulder problems?"

	Decompression, n (%)	Arthroscopy only, n (%)	No treatment, n (%)
6 mths prior to baseline*	n = 92	n = 92	n = 83
Yes; changed hours	7 (*8*)	8 (*9*)	8 (*10*)
Yes; changed job	8 (*9*)	9 (*10*)	7 (*8*)
Yes; stopped working	10 (*11*)	4 (*4*)	6 (*7*)
No	67 (*73*)	71 (*77*)	62 (*75*)
Baseline to 6 mths*	n = 75	n = 81	n = 75
Yes; changed hours	8 (*11*)	9 (*11*)	7 (*9*)
Yes; changed job	13 (*17*)	4 (*5*)	6 (*8*)
Yes; stopped working	6 (*8*)	8 (*10*)	5 (*7*)
No	48 (*64*)	60 (*74*)	57 (*76*)
6 to 12 mths*	n = 72	n = 77	n = 68
Yes; changed hours	4 (*6*)	2 (*3*)	3 (*4*)
Yes; changed job	6 (*8*)	3 (*4*)	7 (*10*)
Yes; stopped working	1 (*1*)	2 (*3*)	3 (*4*)
No	61 (*85*)	70 (*91*)	55 (*81*)

*The data presented are based on available data; information was not available for all randomized participants. There was no evidence of a statistically significant difference (5% significance level) in the proportion of participants who changed their employment during the follow-up between the treatment arms

Table ix. Number of sick days reported over the trial follow-up

	Decompression, mean (SD); n	Arthroscopy only, mean (SD); n	No treatment, mean (SD); n
6 mths prior to baseline*			
Total sick days	10.0 (30.9); n = 85	8.0 (24.4); n = 84	10.8 (32.2); n = 77
Shoulder-related sick days	4.7 (21.3); n = 84	4.9 (22.5); n = 82	6.2 (23.8); n = 77
Baseline to 6 mths*			
Total sick days	16.0 (24.7); n = 69	19.5 (38.6); n = 78	9.1 (25.0); n = 64
Shoulder-related sick days	16.7 (25.3); n = 71	16.4 (31.8); n = 79	7.3 (24.9); n = 64
6 to 12 mths*			
Total sick days	11.8 (39.0); n = 66	11.3 (36.5); n = 75	7.7 (526.6); n = 60
Shoulder-related sick days	9.9 (34.6); n = 63	7.7 (30.8); n = 72	6.4 (26.5); n = 58
Baseline to 12 mths*			
Total sick days	29.1 (55.3); n = 59	29.4 (66.7); n = 70	15.6 (45.0); n = 53
Shoulder-related sick days	29.5 (55.2); n = 56	25.9 (57.9); n = 69	12.3 (46.1); n = 51

*The data presented are based on available data; information was not available for all randomized participants. There was no evidence of a statistically significant difference (5% significance level) in the number of sick days between the treatment arms

Table x. Use of additional over-the-counter medication, private practitioners, and exercise equipment or activities

	Decompression, n (%)	Arthroscopy only, n (%)	No treatment, n (%)
Over-the-counter medication*			
6 mths prior to baseline	34/102 (*33*)	34/96 (*35*)	35/100 (*35*)
Baseline to 6 mths	31/82 (*38*)	26/87 (*30*)	26/84 (*31*)
6 to 12 mths	24/77 (*31*)	17/88 (*19*)	16/74 (*22*)
Private practitioner*			
6 mths prior to baseline	14/101 (*14*)	18/93 (*19*)	16/95 (*17*)
Baseline to 6 mths	6/82 (*7*)	5/87 (*6*)	5/83 (*6*)
6 to 12 mths	3/77 (*4*)	5/86 (*6*)	4/74 (*5*)
Exercise equipment or activities*			
6 mths prior to baseline	9/99 (*9*)	12/90 (*13*)	4/95 (*4*)
Baseline to 6 mths	8/80 (*10*)	7/86 (*8*)	7/84 (*8*)
6 to 12 mths	4/76 (*5*)	5/86 (*6*)	3/74 (*4*)

*The data presented are based on available data; information was not available for all randomized participants. There was no evidence of a statistically significant difference (5% significance level) in the use of additional over-the-counter medication, private practitioners, and exercise equipment or activities between the treatment arms

Table xi. Out-of-pocket expenses

	Decompression, mean (SD); n	Arthroscopy only, mean (SD); n	No treatment, mean (SD); n
Over-the-counter medication*			
6 mths prior to baseline	6.9 (14.3); n = 102	11.8 (29.5); n = 96	9.8 (25.6); n = 99
Baseline to 6 mths	6.2 (11.6); n = 80	6.4 (16.1); n = 86	10.1 (28.2); n = 83
6 to 12 mths	5.7 (16.6); n = 76	4.0 (12.3); n = 88	9.4 (27.0); n = 73
Baseline to 12 mths	12.4 (23.3); n = 69	11.2 (22.5); n = 79	20.5 (46.6); n = 69
Private practitioner*			
6 mths prior to baseline	29.0 (93.2); n = 101	50.6 (139.8); n = 93	28.6 (86.2); n = 95
Baseline to 6 mths	15.8 (88.3); n = 82	6.9 (33.5); n = 86	8.8 (49.1); n = 83
6 to 12 mths	4.2 (26.6); n = 76	12.0 (64.0); n = 86	5.7 (25.7); n = 74
Baseline to 12 mths	23.1 (102.5); n = 70	20.5 (79.2); n = 79	10.7 (46.5); n = 70
Exercise equipment or activities*			
6 mths prior to baseline	8.7 (37.9); n = 99	17.7 (61.3); n = 90	4.9 (28.0); n = 95
Baseline to 6 mths	1.1 (4.2); n = 79	8.1 (44.0); n = 86	9.9 (46.7); n = 84
6 to 12 mths	3.4 (23.2); n = 76	4.4 (32.6); n = 86	1.1 (10.5); n = 74
Baseline to 12 mths	4.5 (24.7); n = 68	13.6 (72.9); n = 79	13.0 (51.3); n = 71

*The data presented are based on available data; information was not available for all randomized participants. There was no evidence of a statistically significant difference (5% significance level) in the out-of-pocket expenses between the treatment arms