

TABLE E-1 Estimated Unit Costs Used in the Economic Analysis\*

Resource	Unit Cost	Reference
Minute of operating room time	£14.67	Mean cost/minute for all orthopaedic operating rooms in Scottish NHS hospitals <sup>36</sup> . Includes cost of staff, premedication, recovery room, bone cement, and sterilization of surgical instruments.
Hospital bed-day	£298.63	Weighted average cost per excess bed-day for elective inpatient admissions for all procedures involving the knee except those for trauma <sup>35</sup> .
Day-case stay in hospital	£188.81	Data on the room costs for patients who are admitted and discharged on the same day were unavailable. Therefore, such patients were assumed to accrue a cost midway between the cost of a bed-day (£298.634) and the cost of an orthopaedic outpatient consultation (£79.00 <sup>35</sup> ).
Knee components	Various	Prices for knee components were obtained from manufacturers. Prices for components no longer available were based on 2000 list prices (inflated to 2007-2008 values using the HCHS pay and price inflation index <sup>34</sup> ) or were based on comparable components that were still available. All prices were reduced by 30% to reflect the discount that a typical hospital might negotiate.
Unit of whole blood	£134.27	National price per unit of whole blood in 2007-2008 <sup>37</sup> .
Transfusion	£85.15	Cost of transfusion estimated by a previous economic evaluation, excluding the costs of blood and the overnight stay <sup>32</sup> , inflated from 2004-2005 values to 2007-2008 values using the HCHS pay and price inflation index <sup>34</sup> .
Computed tomography scan	£113.17	Based on the cost of a computed tomography scan of one area to diagnose pulmonary embolism, precontrast and postcontrast (service code RA10Z) <sup>35</sup> .
Leg ultrasonographic scan	£55.03	Based on the cost of an ultrasonographic scan to diagnose deep vein thrombosis requiring less than twenty minutes (service code RA23Z) <sup>35</sup> .
Stay in high-dependency (intensive-care) unit	£498.19	Incremental cost of twenty-four hours spent in the high-dependency unit = average cost of a bed-day in such a unit (£796.82; service codes XC06ZH DU-XC08ZH DU) <sup>35</sup> minus the cost per bed-day in an orthopaedic ward (£298.634).
Outpatient consultation	£79.00	Weighted average of all outpatient knee procedures (service codes HB22C, HB23C, HB24C, and HB25C) and follow-up face-to-face orthopaedic outpatient consultations (service code 110N) <sup>35</sup> .
Physiotherapy consultation	£29.28	Weighted average of clinic consultations and home visits by hospital physiotherapists and community physiotherapists, including travel costs and qualifications (weighted by the proportion of therapists' time spent on home versus clinic consultations and assuming that 50% of patients would see a

Resource	Unit Cost	Reference
		hospital rather than a community physiotherapist) <sup>33</sup> . The cost of an NHS physiotherapy consultation was used in all cases, since the proportion of consultations that were paid privately is not known.
General practitioner consultation	£36.00	Unit cost per surgery consultation lasting 11.7 minutes, including direct care staff costs and qualification costs <sup>33</sup> .
Late patellar resurfacing (excluding hospital stay)	£1665	Calculated from the unit costs shown above and data collected on KAT participants. Includes patellar component, surgical procedure, and cost of complications.
One or two-stage revision surgery (excluding hospital stay)	£7582	Calculated from the unit costs shown above and data collected on KAT participants. Includes knee components, surgical procedure, and cost of complications.

\*-NHS = National Health Service, HCHS = Hospital and Community Health Services, and KAT = Knee Arthroplasty Trial. Unit costs are given in 2007-2008 pounds Sterling.

TABLE E-2 Demographic Data for the Trial Participants

	Allocated to Patellar Resurfacing	Allocated to No Patellar Resurfacing
Total no. of patients recruited	861	854
Mean age $\pm$ std. dev. (yr)	70.23 $\pm$ 7.93	70.21 $\pm$ 8.28
Sex		
Male	387 (44.9%)	373 (43.7%)
Female	474 (55.1%)	481 (56.3%)
Mean body-mass index $\pm$ std. dev.* (kg/m <sup>2</sup> )	29.54 $\pm$ 5.5	29.75 $\pm$ 5.2
American Society of Anesthesiologists score†		
Completely fit and healthy	153 (19.1%)	143 (18.3%)
Some illness but has no effect on normal activity	500 (62.3%)	497 (63.6%)
Symptomatic illness present but minimal restriction	144 (18.0%)	136 (17.4%)
Symptomatic illness causing severe restriction	5 (0.6%)	5 (0.6%)
Primary type of knee arthritis‡		
Osteoarthritis	800 (96.3%)	789 (95.4%)
Rheumatoid	29 (3.5%)	37 (4.5%)
Both	2 (0.2%)	1 (0.1%)
Extent of arthritis affecting mobility		
One knee	225 (26.1%)	229 (26.8%)
Both knees	366 (42.5%)	342 (40.0%)
General	270 (31.4%)	283 (33.1%)
Other conditions affecting mobility§		
Medical	61 (7.3%)	66 (8.0%)
Locomotor/musculoskeletal	55 (6.6%)	78 (9.5%)
Previous knee surgery#		
Ipsilateral osteotomy	11 (1.3%)	13 (1.6%)
Ipsilateral patellectomy	0 (0.0%)	0 (0.0%)
Contralateral knee replacement	112 (13.5%)	94 (11.4%)
Other previous knee surgery	167 (20.1%)	172 (20.9%)
Arthroscopy	146 (17.6%)	150 (18.2%)
Other	26 (3.1%)	23 (2.8%)

\*Data were available for 810 patients in the resurfacing group and 796 patients in the nonresurfacing group. †Data were available for 802 patients in the resurfacing group and 781 patients in the nonresurfacing group. ‡Data were available for 831 patients in the resurfacing group and 827 patients in the nonresurfacing group. §Data were available for 831 patients in the resurfacing group and 820 patients in the nonresurfacing group. #Data were available for 829 patients in the resurfacing group and 824 patients in the nonresurfacing group.

TABLE E-3 Resource Use and Associated Costs\*

	Allocated to Patellar Resurfacing (N = 841)†		Allocated to No Patellar Resurfacing (N = 830)†		Difference (95% CI)	
	Number	Cost	Number	Cost	Number	Cost
Resource use during inpatient stay for primary knee replacement						
Minutes in operating room	124.3 ± 40.1	£1823 ± £588	122.0 ± 40.6	£1790 ± £595	2.27 (−1.61, 6.17)	£33 (−£24, £90)
Days in hospital‡	10.2 ± 5.4	£3046 ± £1618	10.0 ± 4.5	£2975 ± £1355	0.24 (−0.25, 0.73)	£71 (−£76, £217)
Patellar components	0.84 ± 0.37	£90 ± £55	0.11 ± 0.32	£12 ± £36	0.72 (0.69, 0.75)§	£78 (£74, £83)§
Other knee components	2.77 ± 0.46	£1514 ± £284	2.77 ± 0.46	£1507 ± £285	0.00 (−0.05, 0.04)	£6.50 (−£21.07, £34.07)
Total knee components	3.60 ± 0.58	£1603 ± £303	2.89 ± 0.56	£1519 ± £288	0.72 (0.66, 0.77)§	£85 (£56, £113)§
Perioperative and postoperative complications	0.21 ± 0.51	£10 ± £57	0.20 ± 0.50	£9 ± £56	0.01 (−0.04, 0.06)	£0.87 (−£4.57, £6.32)
Further surgery occurring during hospital stay	0.03 ± 0.17	£19 ± £128	0.03 ± 0.18	£20 ± £131	0.00 (−0.02, 0.01)	−£0.97 (−£13.57, £11.64)
Total cost of inpatient stay for primary knee replacement	—	£6501 ± £1808	—	£6312 ± £1563	—	£188 (£23, £354)§
Resource use over first five years of study (excluding initial hospital stay)						
Hospital readmissions related to involved knee, not involving knee surgery	0.07 ± 0.31	£148 ± 1609#	0.07 ± 0.29	£86 ± 580#	0.01 (−0.02, 0.03)	£62 (−£54, £178)#
Hospital readmissions related to involved knee, involving minor knee operations**	0.07 ± 0.31	£146 ± £822#	0.09 ± 0.35	£252 ± £1469#	−0.02 (−0.05, 0.01)	−£106 (−£220, £9)#
Hospital readmissions related to involved knee, involving patella-related operations††	0.01 ± 0.10	£40 ± £400#	0.02 ± 0.14	£70 ± £525#	−0.01 (−0.02, 0.00)	−£30 (−£74, £15)#
Hospital readmissions related to involved knee, involving major	0.02 ± 0.14	£218 ± 1848#	0.03 ± 0.21	£491 ± £3218#	−0.02 (−0.03, 0.00)§	−£274 (−£525, −£22)§#

	Allocated to Patellar Resurfacing (N = 841)†		Allocated to No Patellar Resurfacing (N = 830)†		Difference (95% CI)	
	Number	Cost	Number	Cost	Number	Cost
reoperations‡‡						
Total hospital readmissions related to involved knee	0.17 ± 0.53	£552 ± £2727#	0.21 ± 0.65	£898 ± £4381#	-0.04 (-0.10, 0.02)	-£347 (-£697, £3)#
Outpatient consultations related to involved knee	3.22 ± 3.49	£245 ± £263#	3.22 ± 3.68	£245 ± £276#	0.00 (-0.36, 0.35)	-£0.60 (-£28, £26)#
Physiotherapy consultations related to involved knee	2.44 ± 4.11	£189 ± £317#	2.40 ± 3.99	£185 ± £304#	0.05 (-0.37, 0.47)	-£3.95 (-£29, £36)#
General practitioner consultations related to involved knee	1.20 ± 2.39	£91 ± £180#	1.12 ± 2.04	£85 ± £153#	0.08 (-0.14, 0.30)	£6.04 (-£11, £23)#
Total cost over first five years of study (excluding initial hospital stay)	—	£1076 ± £3030#	—	£1413 ± £4707#	—	-£337 (-£717, £43)#
Total cost of primary operation and follow-up	—	£7577 ± £3663#	—	£7726 ± £5065#	—	-£149 (-£574, £277)#

\*All values are per patient; all costs are in 2007-2008 pounds Sterling. Data for patients excluded after randomization are not included. †Values are given as the mean and the standard deviation. ‡Excludes the incremental cost of time spent in high-dependency (intensive-care) unit. §p < 0.05. #Discounted at 3.5% per year. \*\*Minor knee operations include all procedures requiring a return to the operating room other than late patellar resurfacing, patellar fracture, single-stage revision, two-stage revision, or above-the-knee amputation. ††Patella-related operations comprise patellar resurfacing and patellar fracture. Readmissions that also included a major reoperation were excluded from this category to avoid double-counting. ‡‡Major reoperations comprise revision, two-stage revision, and above-the-knee amputation.