

Supplementary data

Table 1. Demographics of ACLr cohort and proportion of patients with at least 5, 10, and 15 years' follow-up undergoing subsequent TKA

| Factor | All index procedures | | 5-year outcome | | 10-year outcome | | | 15-year outcome | | |
|---|----------------------|--------|----------------|------------------|-----------------|-------|------------------|-----------------|-------|------------------|
| | n (%) | n | n TKA | % (95% CI) | n | n TKA | % (95% CI) | n | n TKA | % (95% CI) |
| Total | 111,212 (100) | 46,402 | 212 | 0.46 (0.40–0.52) | 14,292 | 139 | 0.97 (0.82–1.2) | 3,726 | 66 | 1.8 (1.4–2.3) |
| Sex | | | | | | | | | | |
| Male | 85,905 (77.2) | 36,620 | 127 | 0.35 (0.29–0.41) | 11,672 | 91 | 0.78 (0.63–0.96) | 3,118 | 51 | 1.6 (1.2–2.2) |
| Female | 25,307 (22.8) | 9,782 | 85 | 0.87 (0.69–1.07) | 2,620 | 48 | 1.8 (1.4–2.4) | 608 | 15 | 2.5 (1.4–4.0) |
| Age group (years) | | | | | | | | | | |
| < 20 | 16,156 (14.5) | – | – | – | – | – | – | – | – | – |
| 20–29 | 47,901 (43.1) | 22,503 | 6 | 0.03 (0.01–0.06) | 6,414 | 8 | 0.12 (0.05–0.25) | 1,730 | 6 | 0.35 (0.13–0.75) |
| 30–39 | 28,715 (25.8) | 14,846 | 44 | 0.30 (0.22–0.40) | 5,456 | 45 | 0.82 (0.60–1.1) | 1,533 | 33 | 2.2 (1.5–3.0) |
| 40–49 | 14,690 (13.2) | 7,427 | 99 | 1.3 (1.1–1.6) | 2,028 | 54 | 2.7 (2.0–3.5) | 403 | 22 | 5.5 (3.5–8.2) |
| 50–59 | 3,235 (2.9) | 1,394 | 41 | 2.9 (2.1–4.0) | 338 | 24 | 7.1 (4.6–10.4) | 60 | 5 | 8.3 (2.8–18.4) |
| ≥ 60 | 515 (0.46) | 232 | 22 | 9.5 (6.0–14.0) | 56 | 8 | 14.3 (6.4–26.2) | – | – | – |
| Charlson comorbidity index | | | | | | | | | | |
| 0 | 100,680 (90.5) | 43,005 | 184 | 0.43 (0.37–0.49) | 13,588 | 128 | 0.94 (0.79–1.12) | 3,726 | 66 | 1.8 (1.4–2.3) |
| 1–15 | 10,484 (9.4) | 3,397 | 28 | 0.82 (0.55–1.2) | 704 | 11 | 1.6 (0.78–2.8) | – | – | – |
| 16–30 | 47 (0.04) | – | – | – | – | – | – | – | – | – |
| 31–50 | 1 (0.00) | – | – | – | – | – | – | – | – | – |
| Index of multiple deprivation (quintiles) | | | | | | | | | | |
| 1 = least deprived | 23,158 (20.8) | 10,230 | 35 | 0.34 (0.24–0.48) | 3,196 | 26 | 0.81 (0.53–1.2) | 909 | 15 | 1.65 (0.93–2.71) |
| 2 | 22,290 (20.0) | 9,663 | 48 | 0.50 (0.37–0.66) | 2,963 | 36 | 1.2 (0.85–1.7) | 824 | 13 | 1.58 (0.84–2.68) |
| 3 | 22,252 (20.0) | 9,447 | 41 | 0.43 (0.31–0.59) | 2,947 | 25 | 0.85 (0.55–1.3) | 744 | 16 | 2.15 (1.23–3.47) |
| 4 | 21,434 (19.3) | 8,599 | 41 | 0.48 (0.34–0.65) | 2,647 | 27 | 1.02 (0.67–1.5) | 675 | 12 | 1.78 (0.92–3.08) |
| 5 = most deprived | 20,233 (18.2) | 7,524 | 45 | 0.60 (0.44–0.80) | 2,210 | 24 | 1.1 (0.70–1.6) | 510 | 10 | 1.96 (0.94–3.58) |
| Missing | 1,845 | – | – | – | – | – | – | – | – | – |
| Rurality | | | | | | | | | | |
| Urban | 88,727 (79.8) | 36,538 | 160 | 0.44 (0.37–0.51) | 11,272 | 111 | 0.98 (0.81–1.2) | 2,945 | 58 | 1.97 (1.50–2.54) |
| Rural | 21,604 (19.4) | 9,489 | 50 | 0.53 (0.39–0.69) | 2,898 | 27 | 0.93 (0.61–1.4) | 743 | 8 | 1.08 (0.47–2.11) |
| Missing | 881 | – | – | – | – | – | – | – | – | – |
| Ethnicity | | | | | | | | | | |
| White | 92,820 (83.5) | 42,801 | 212 | 0.50 (0.43–0.57) | 12,840 | 139 | 1.1 (0.91–1.3) | 3,213 | 66 | 2.1 (1.6–2.6) |
| Asian | 5,353 (4.8) | – | – | – | – | – | – | – | – | – |
| Black | 2,131 (1.9) | – | – | – | – | – | – | – | – | – |
| Mixed | 1,401 (1.3) | – | – | – | – | – | – | – | – | – |
| Other | 1,590 (1.4) | – | – | – | – | – | – | – | – | – |
| Missing | 7,917 (7.1) | – | – | – | – | – | – | – | – | – |
| Concurrent procedures | | | | | | | | | | |
| Isolated ACLr | 76,773 (69.0) | 35,452 | 180 | 0.51 (0.44–0.59) | 12,577 | 130 | 1.0 (0.86–1.2) | 3,726 | 66 | 1.8 (1.4–2.3) |
| Chondral surgery | 2,601 (2.3) | 840 | 9 | 1.1 (0.49–2.0) | – | – | – | – | – | – |
| Meniscal surgery ^a | 31,838 (28.6) | 10,110 | 23 | 0.23 (0.14–0.34) | 1,715 | 9 | 0.52 (0.24–0.99) | – | – | – |

ACLR = anterior cruciate ligament reconstruction; CI = confidence interval; n TKA = number of total or partial knee arthroplasties.

– = suppressed due to small numbers.

^a with or without concurrent chondral surgery.

APPENDIX: OPCS procedure code list

| Procedure | OPCS 4.2 | OPCS 4.3 | OPCS 4.4 | OPCS 4.5 | OPCS 4.6 | OPCS 4.7 | Description |
|-------------------------------|----------|----------|----------|----------|----------|----------|---|
| ACLR ^a | W74.2 | W74.2 | W74.2 | W74.2 | W74.2 | W74.2 | Reconstruction of intra-articular ligament NEC |
| Other ACL ^{a, b} | W84.1 | W84.1 | W84.1 | W84.1 | W84.1 | W84.1 | Endoscopic repair of intra-articular ligament |
| Other ACL ^{a, b} | W84.2 | W84.2 | W84.2 | W84.2 | W84.2 | W84.2 | Endoscopic reattachment of intra-articular ligament |
| Other ACL ^{a, b} | W72.3 | W72.3 | W72.3 | W72.3 | W72.3 | W72.3 | Primary prosthetic replacement of intra-articular ligament |
| Other ACL ^{a, b} | W72.4 | W72.4 | W72.4 | W72.4 | W72.4 | W72.4 | Prosthetic replacement of intra-articular ligament NEC |
| Chondral surgery ^a | W83.3 | W83.3 | W83.3 | W83.3 | W83.3 | W83.3 | Endoscopic shaving of articular cartilage |
| Chondral surgery ^a | W83.8 | W83.8 | W83.4 | W83.4 | W83.4 | W83.4 | Endoscopic articular abrasion chondroplasty |
| Chondral surgery ^a | W83.8 | W83.8 | W83.5 | W83.5 | W83.5 | W83.5 | Endoscopic articular thermal chondroplasty |
| Chondral surgery ^a | W83.8 | W83.8 | W83.6 | W83.6 | W83.6 | W83.6 | Endoscopic excision of articular cartilage NEC |
| Chondral surgery ^a | W83.8 | W83.8 | W83.8 | W83.8 | W83.8 | W83.8 | Other specified therapeutic endoscopic operations on other articular cartilage |
| Chondral surgery ^a | W83.8 | W83.8 | W89.1 | W89.1 | W89.1 | W89.1 | Endoscopic chondroplasty NEC |
| Chondral surgery ^a | W83.1 | W83.1 | W83.1 | W83.1 | W83.1 | W83.1 | Endoscopic drilling of lesion of articular cartilage |
| Chondral surgery ^a | - | - | W84.5 | W84.5 | W84.5 | W84.5 | Endoscopic drilling of epiphysis for repair of articular cartilage |
| Meniscal surgery | W82.2 | W82.2 | W82.2 | W82.2 | W82.2 | W82.2 | Endoscopic resection of semilunar cartilage NEC |
| Meniscal surgery | W82.3 | W82.3 | W82.3 | W82.3 | W82.3 | W82.3 | Endoscopic repair of semilunar cartilage |
| Meniscal surgery | W82.1 | W82.1 | W82.1 | W82.1 | W82.1 | W82.1 | Endoscopic total excision of semilunar cartilage |
| Arthroplasty ^a | W43.1 | W43.1 | W43.1 | W43.1 | W43.1 | W43.1 | Primary total prosthetic replacement of joint using cement NEC |
| Arthroplasty ^a | W44.1 | W44.1 | W44.1 | W44.1 | W44.1 | W44.1 | Primary total prosthetic replacement of joint not using cement NEC |
| Arthroplasty ^a | W44.8 | W44.8 | W44.8 | W44.8 | W44.8 | W44.8 | Other specified total prosthetic replacement of other joint not using cement |
| Arthroplasty ^a | W44.9 | W44.9 | W44.9 | W44.9 | W44.9 | W44.9 | Unspecified total prosthetic replacement of other joint not using cement |
| Arthroplasty ^a | W45.1 | W45.1 | W45.1 | W45.1 | W45.1 | W45.1 | Primary total prosthetic replacement of joint NEC |
| Arthroplasty ^a | W45.8 | W45.8 | W45.8 | W45.8 | W45.8 | W45.8 | Other specified other total prosthetic replacement of other joint |
| Arthroplasty ^a | W45.9 | W45.9 | W45.9 | W45.9 | W45.9 | W45.9 | Unspecified other total prosthetic replacement of other joint |
| Arthroplasty ^a | W53.8 | W53.8 | W53.8 | W53.8 | W53.8 | W53.8 | Other specified prosthetic replacement of articulation of other bone not using cement |
| Arthroplasty | W40.1 | W40.1 | W40.1 | O18.1 | O18.1 | O18.1 | Primary hybrid prosthetic replacement of knee joint using cement |
| Arthroplasty | W40.8 | W40.8 | W40.8 | O18.8 | O18.8 | O18.8 | Other specified hybrid prosthetic replacement of knee joint using cement |
| Arthroplasty | W40.9 | W40.9 | W40.9 | O18.9 | O18.9 | O18.9 | Unspecified hybrid prosthetic replacement of knee joint using cement |
| Arthroplasty | W40.1 | W40.1 | W40.1 | W40.1 | W40.1 | W40.1 | Primary total prosthetic replacement of knee joint using cement |
| Arthroplasty | W40.8 | W40.8 | W40.8 | W40.8 | W40.8 | W40.8 | Other specified total prosthetic replacement of knee joint using cement |
| Arthroplasty | W40.9 | W40.9 | W40.9 | W40.9 | W40.9 | W40.9 | Unspecified total prosthetic replacement of knee joint using cement |
| Arthroplasty | W41.1 | W41.1 | W41.1 | W41.1 | W41.1 | W41.1 | Primary total prosthetic replacement of knee joint not using cement |
| Arthroplasty | W41.8 | W41.8 | W41.8 | W41.8 | W41.8 | W41.8 | Other specified total prosthetic replacement of knee joint not using cement |
| Arthroplasty | W41.9 | W41.9 | W41.9 | W41.9 | W41.9 | W41.9 | Unspecified total prosthetic replacement of knee joint not using cement |
| Arthroplasty | W42.1 | W42.1 | W42.1 | W42.1 | W42.1 | W42.1 | Primary total prosthetic replacement of knee joint NEC |
| Arthroplasty | W42.8 | W42.8 | W42.8 | W42.8 | W42.8 | W42.8 | Other specified other total prosthetic replacement of knee joint |
| Arthroplasty | W42.9 | W42.9 | W42.9 | W42.9 | W42.9 | W42.9 | Unspecified other total prosthetic replacement of knee joint |
| Arthroplasty ^a | W58.1 | W58.1 | W58.1 | W58.1 | W58.1 | W58.1 | Primary resurfacing arthroplasty of joint |

^a Additional matched site-specific (knee) code required (Z846, Z765, Z845, Z844, Z774, or Z787)

^b excluded