

Supplemental Digital Content

Table A.1: ICD-9 and ICD-10 Procedure Codes Used in the Study

Primary TKA Procedures	
ICD-9 Procedure Code	Procedure Description
81.54	Total knee replacement
ICD-10 Procedure Code	Procedure Description
0SRC0EZ	Replacement of Right Knee Joint with Articulating Spacer, Open Approach
0SRD0EZ	Replacement of Left Knee Joint with Articulating Spacer, Open Approach
0SRC07Z	Replacement of Right Knee Joint with Autologous Tissue Substitute, Open Approach
0SRC0J9	Replacement of Right Knee Joint with Synthetic Substitute, Cemented, Open Approach
0SRC0JA	Replacement of Right Knee Joint with Synthetic Substitute, Uncemented, Open Approach
0SRC0JZ	Replacement of Right Knee Joint with Synthetic Substitute, Open Approach
0SRC0KZ	Replacement of Right Knee Joint with Nonautologous Tissue Substitute, Open Approach
0SRC069	Replacement of Right Knee Joint with Oxidized Zirconium on Polyethylene Synthetic Substitute, Cemented, Open Approach
0SRC06A	Replacement of Right Knee Joint with Oxidized Zirconium on Polyethylene Synthetic Substitute, Uncemented, Open Approach
0SRC06Z	Replacement of Right Knee Joint with Oxidized Zirconium on Polyethylene Synthetic Substitute, Open Approach
0SRD07Z	Replacement of Left Knee Joint with Autologous Tissue Substitute, Open Approach
0SRD0J9	Replacement of Left Knee Joint with Synthetic Substitute, Cemented, Open Approach
0SRD0JA	Replacement of Left Knee Joint with Synthetic Substitute, Uncemented, Open Approach
0SRD0JZ	Replacement of Left Knee Joint with Synthetic Substitute, Open Approach
0SRD0KZ	Replacement of Left Knee Joint with Nonautologous Tissue Substitute, Open Approach
0SRD069	Replacement of Left Knee Joint with Oxidized Zirconium on Polyethylene Synthetic Substitute, Cemented, Open Approach
0SRD06A	Replacement of Left Knee Joint with Oxidized Zirconium on Polyethylene Synthetic Substitute, Uncemented, Open Approach
0SRD06Z	Replacement of Left Knee Joint with Oxidized Zirconium on Polyethylene Synthetic Substitute, Open Approach

0QRB07Z	Replacement of Right Lower Femur with Autologous Tissue Substitute, Open Approach
0QRB0JZ	Replacement of Right Lower Femur with Synthetic Substitute, Open Approach
0QRB0KZ	Replacement of Right Lower Femur with Nonautologous Tissue Substitute, Open Approach
0QRB37Z	Replacement of Right Lower Femur with Autologous Tissue Substitute, Percutaneous Approach
0QRB3JZ	Replacement of Right Lower Femur with Synthetic Substitute, Percutaneous Approach
0QRB3KZ	Replacement of Right Lower Femur with Nonautologous Tissue Substitute, Percutaneous Approach
0QRB47Z	Replacement of Right Lower Femur with Autologous Tissue Substitute, Percutaneous Endoscopic Approach
0QRB4JZ	Replacement of Right Lower Femur with Synthetic Substitute, Percutaneous Endoscopic Approach
0QRB4KZ	Replacement of Right Lower Femur with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach
0QRC07Z	Replacement of Left Lower Femur with Autologous Tissue Substitute, Open Approach
0QRC0JZ	Replacement of Left Lower Femur with Synthetic Substitute, Open Approach
0QRC0KZ	Replacement of Left Lower Femur with Nonautologous Tissue Substitute, Open Approach
0QRC37Z	Replacement of Left Lower Femur with Autologous Tissue Substitute, Percutaneous Approach
0QRC3JZ	Replacement of Left Lower Femur with Synthetic Substitute, Percutaneous Approach
0QRC3KZ	Replacement of Left Lower Femur with Nonautologous Tissue Substitute, Percutaneous Approach
0QRC47Z	Replacement of Left Lower Femur with Autologous Tissue Substitute, Percutaneous Endoscopic Approach
0QRC4JZ	Replacement of Left Lower Femur with Synthetic Substitute, Percutaneous Endoscopic Approach
0QRC4KZ	Replacement of Left Lower Femur with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach
0QRD07Z	Replacement of Right Patella with Autologous Tissue Substitute, Open Approach
0QRD0JZ	Replacement of Right Patella with Synthetic Substitute, Open Approach
0QRD0KZ	Replacement of Right Patella with Nonautologous Tissue Substitute, Open Approach
0QRD37Z	Replacement of Right Patella with Autologous Tissue Substitute, Percutaneous Approach
0QRD3JZ	Replacement of Right Patella with Synthetic Substitute, Percutaneous Approach
0QRD3KZ	Replacement of Right Patella with Nonautologous Tissue Substitute, Percutaneous Approach
0QRD47Z	Replacement of Right Patella with Autologous Tissue Substitute, Percutaneous Endoscopic Approach

0QRD4JZ	Replacement of Right Patella with Synthetic Substitute, Percutaneous Endoscopic Approach
0QRD4KZ	Replacement of Right Patella with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach
0QRF07Z	Replacement of Left Patella with Autologous Tissue Substitute, Open Approach
0QRF0JZ	Replacement of Left Patella with Synthetic Substitute, Open Approach
0QRF0KZ	Replacement of Left Patella with Nonautologous Tissue Substitute, Open Approach
0QRF37Z	Replacement of Left Patella with Autologous Tissue Substitute, Percutaneous Approach
0QRF3JZ	Replacement of Left Patella with Synthetic Substitute, Percutaneous Approach
0QRF3KZ	Replacement of Left Patella with Nonautologous Tissue Substitute, Percutaneous Approach
0QRF47Z	Replacement of Left Patella with Autologous Tissue Substitute, Percutaneous Endoscopic Approach
0QRF4JZ	Replacement of Left Patella with Synthetic Substitute, Percutaneous Endoscopic Approach
0QRF4KZ	Replacement of Left Patella with Nonautologous Tissue Substitute, Percutaneous Endoscopic Approach
0SRC0L9	Replacement of Right Knee Joint with Medial Unicondylar Synthetic Substitute, Cemented, Open Approach
0SRC0LA	Replacement of Right Knee Joint with Medial Unicondylar Synthetic Substitute, Uncemented, Open Approach
0SRC0LZ	Replacement of Right Knee Joint with Medial Unicondylar Synthetic Substitute, Open Approach
0SRC0M9	Replacement of Right Knee Joint with Lateral Unicondylar Synthetic Substitute, Cemented, Open Approach
0SRC0MA	Replacement of Right Knee Joint with Lateral Unicondylar Synthetic Substitute, Uncemented, Open Approach
0SRC0MZ	Replacement of Right Knee Joint with Lateral Unicondylar Synthetic Substitute, Open Approach
0SRC0N9	Replacement of Right Knee Joint with Patellofemoral Synthetic Substitute, Cemented, Open Approach
0SRC0NA	Replacement of Right Knee Joint with Patellofemoral Synthetic Substitute, Uncemented, Open Approach
0SRC0NZ	Replacement of Right Knee Joint with Patellofemoral Synthetic Substitute, Open Approach
0SRD0L9	Replacement of Left Knee Joint with Medial Unicondylar Synthetic Substitute, Cemented, Open Approach
0SRD0LA	Replacement of Left Knee Joint with Medial Unicondylar Synthetic Substitute, Uncemented, Open Approach
0SRD0LZ	Replacement of Left Knee Joint with Medial Unicondylar Synthetic Substitute, Open Approach
0SRD0M9	Replacement of Left Knee Joint with Lateral Unicondylar Synthetic Substitute, Cemented, Open Approach
0SRD0MA	Replacement of Left Knee Joint with Lateral Unicondylar Synthetic Substitute, Uncemented, Open Approach

0SRD0MZ	Replacement of Left Knee Joint with Lateral Unicondylar Synthetic Substitute, Open Approach
0SRD0N9	Replacement of Left Knee Joint with Patellofemoral Synthetic Substitute, Cemented, Open Approach
0SRD0NA	Replacement of Left Knee Joint with Patellofemoral Synthetic Substitute, Uncemented, Open Approach
0SRD0NZ	Replacement of Left Knee Joint with Patellofemoral Synthetic Substitute, Open Approach
0SRT07Z	Replacement of Right Knee Joint, Femoral Surface with Autologous Tissue Substitute, Open Approach
0SRT0J9	Replacement of Right Knee Joint, Femoral Surface with Synthetic Substitute, Cemented, Open Approach
0SRT0JA	Replacement of Right Knee Joint, Femoral Surface with Synthetic Substitute, Uncemented, Open Approach
0SRT0JZ	Replacement of Right Knee Joint, Femoral Surface with Synthetic Substitute, Open Approach
0SRT0KZ	Replacement of Right Knee Joint, Femoral Surface with Nonautologous Tissue Substitute, Open Approach
0SRU07Z	Replacement of Left Knee Joint, Femoral Surface with Autologous Tissue Substitute, Open Approach
0SRU0J9	Replacement of Left Knee Joint, Femoral Surface with Synthetic Substitute, Cemented, Open Approach
0SRU0JA	Replacement of Left Knee Joint, Femoral Surface with Synthetic Substitute, Uncemented, Open Approach
0SRU0JZ	Replacement of Left Knee Joint, Femoral Surface with Synthetic Substitute, Open Approach
0SRU0KZ	Replacement of Left Knee Joint, Femoral Surface with Nonautologous Tissue Substitute, Open Approach
0SRV07Z	Replacement of Right Knee Joint, Tibial Surface with Autologous Tissue Substitute, Open Approach
0SRV0J9	Replacement of Right Knee Joint, Tibial Surface with Synthetic Substitute, Cemented, Open Approach
0SRV0JA	Replacement of Right Knee Joint, Tibial Surface with Synthetic Substitute, Uncemented, Open Approach
0SRV0JZ	Replacement of Right Knee Joint, Tibial Surface with Synthetic Substitute, Open Approach
0SRV0KZ	Replacement of Right Knee Joint, Tibial Surface with Nonautologous Tissue Substitute, Open Approach
0SRW07Z	Replacement of Left Knee Joint, Tibial Surface with Autologous Tissue Substitute, Open Approach
0SRW0J9	Replacement of Left Knee Joint, Tibial Surface with Synthetic Substitute, Cemented, Open Approach
0SRW0JA	Replacement of Left Knee Joint, Tibial Surface with Synthetic Substitute, Uncemented, Open Approach
0SRW0JZ	Replacement of Left Knee Joint, Tibial Surface with Synthetic Substitute, Open Approach
0SRW0KZ	Replacement of Left Knee Joint, Tibial Surface with Nonautologous Tissue Substitute, Open Approach

Table A.2: Risk Factors of CATKA Use in New York Using Separate Models for ICD-9 and ICD-10 Codes¹

	ICD-9 (N=184,816)	ICD-10 (N=77,141)	Combined (N=261,957)
Effect	OR (95% CI)	OR (95% CI)	OR (95% CI)
<u>Sex (ref= Male)</u>			
Female	0.98 (0.94, 1.02)	0.97 (0.92, 1.02)	0.98 (0.95, 1.01)
<u>Age (ref= 18-44)</u>			
45-54	1.02 (0.92, 1.13)	0.89 (0.77, 1.03)	0.98 (0.90, 1.06)
55-64	1.09 (0.99, 1.20)	0.95 (0.83, 1.08)	1.04 (0.96, 1.12)
65-74	1.07 (0.98, 1.17)	1.00 (0.88, 1.14)	1.05 (0.97, 1.13)
75+	1.00 (0.91, 1.10)	1.05 (0.92, 1.20)	1.02 (0.94, 1.10)
<u>Race (ref= Non-Hispanic White)</u>			
Black	0.62 (0.58, 0.66)	<i>0.66 (0.60, 0.72)</i>	<i>0.63 (0.60, 0.67)</i>
Hispanic	<i>0.48 (0.42, 0.55)</i>	<i>0.44 (0.39,0.49)</i>	<i>0.45 (0.41,0.50)</i>
Asian/Pacific Islander	<i>0.61 (0.48, 0.77)</i>	<i>0.47 (0.38, 0.58)</i>	<i>0.53 (0.45, 0.62)</i>
Other	<i>0.48 (0.44, 0.52)</i>	<i>0.48 (0.42, 0.54)</i>	<i>0.48 (0.45, 0.51)</i>
Missing/Unknown	<i>0.40 (0.31, 0.51)</i>	N/A	<i>0.40 (0.31, 0.51)</i>
<u>Insurance (ref= Medicare)</u>			
Medicaid	<i>1.12 (1.07,1.18)</i>	<i>0.55 (0.45, 0.67)</i>	<i>0.46 (0.40, 0.53)</i>
Commercial	<i>0.45 (0.37, 0.54)</i>	1.05 (0.98, 1.12)	<i>0.94 (0.91, 0.98)</i>
Work Compensation	1.09 (0.99, 1.19)	0.89 (0.77, 1.03)	0.95 (0.88, 1.02)
Other/Unknown	<i>1.40 (1.26, 1.57)</i>	<i>0.34 (0.23, 0.50)</i>	1.06 (0.95, 1.18)
<u>Year of Surgery²</u>			
2011	<i>1.22 (1.14, 1.31)</i>	N/A	<i>1.22 (1.14, 1.31)</i>
2012	<i>1.17 (1.09, 1.26)</i>	N/A	<i>1.17 (1.09, 1.26)</i>
2013	<i>1.41 (1.32, 1.51)</i>	N/A	<i>1.41 (1.32, 1.51)</i>
2014	<i>1.85 (1.73, 1.97)</i>	N/A	<i>1.85 (1.74, 1.98)</i>
2015	<i>2.14 (2.00, 2.29)</i>	1.01 (0.93, 1.10)	<i>2.07 (1.94, 2.20)</i>
2016	N/A	N/A	<i>1.83 (1.72, 1.95)</i>
2017	N/A	1.06 (1.00, 1.12)	<i>1.94 (1.81, 2.07)</i>
<u>Charlson Comorbidity score (ref= 0)</u>			
1	0.97 (0.93, 1.01)	<i>0.91 (0.85, 0.96)</i>	<i>0.95 (0.92, 0.98)</i>
2	0.99 (0.92, 1.05)	<i>0.78 (0.71, 0.87)</i>	<i>0.92 (0.87,0.97)</i>
3+	1.03 (0.94,1.12)	<i>0.76 (0.67, 0.86)</i>	<i>0.92 (0.85, 0.99)</i>

¹ Values that are italicized are significant when $p < 0.05$.

² The ICD-9 column has the reference year of surgery as 2010, while the ICD-10 and combined column have the reference year of surgery as 2016.

Table A.3: Risk Factors of CATKA Use in Florida Using Separate Models for ICD-9 and ICD-10 Codes³

Effect	ICD-9 (N=215,194) OR (95% CI)	ICD-10 (N=93,520) OR (95% CI)	Combined (N=308,714) OR (95% CI)
<u>Sex (ref= Male)</u>			
Female	<i>1.09 (1.04, 1.13)</i>	1.03 (0.97, 1.09)	<i>1.07 (1.03, 1.10)</i>
<u>Age (ref= 18-44)</u>			
45-54	0.92 (0.81, 1.03)	0.93 (0.77, 1.11)	0.91 (0.83, 1.01)
55-64	1.02 (0.92, 1.13)	0.92 (0.79, 1.08)	0.99 (0.91, 1.08)
65-74	1.10 (1.00, 1.21)	0.96 (0.84, 1.10)	1.05 (0.98, 1.14)
75+	<i>1.14 (1.03, 1.25)</i>	0.97 (0.84, 1.12)	1.08 (1.00, 1.17)
<u>Race (ref= Non-Hispanic White)</u>			
Black	<i>0.75 (0.70, 0.81)</i>	<i>0.80 (0.71, 0.89)</i>	<i>0.77 (0.72, 0.82)</i>
Hispanic	<i>0.65 (0.61, 0.71)</i>	<i>0.57 (0.50, 0.64)</i>	<i>0.63 (0.59, 0.67)</i>
Other	<i>0.74 (0.66, 0.84)</i>	<i>0.65 (0.54, 0.78)</i>	<i>0.71 (0.64, 0.79)</i>
<u>Insurance (ref= Medicare)</u>			
Medicaid	1.11 (0.95, 1.30)	0.81 (0.63, 1.06)	1.02 (0.89, 1.16)
Commercial	<i>1.34 (1.26, 1.43)</i>	1.06 (0.96, 1.16)	<i>1.25 (1.19, 1.32)</i>
Self-Pay	1.03 (0.69, 1.54)	0.94 (0.50, 1.78)	1.00 (0.71, 1.41)
Other	0.92 (0.81, 1.05)	0.98 (0.81, 1.18)	0.94 (0.84, 1.04)
<u>Year of Surgery⁴</u>			
2011	1.01 (0.94, 1.09)	N/A	1.01 (0.94, 1.09)
2012	1.04 (0.97, 1.12)	N/A	1.04 (0.97, 1.12)
2013	<i>1.23 (1.15, 1.32)</i>	N/A	<i>1.23 (1.15, 1.32)</i>
2014	<i>1.68 (1.57, 1.79)</i>	N/A	<i>1.68 (1.58, 1.79)</i>
2015	<i>1.66 (1.55, 1.77)</i>	<i>1.35 (1.24, 1.47)</i>	<i>1.62 (1.52, 1.72)</i>
2016	N/A	N/A	<i>1.14 (1.07, 1.21)</i>
2017	N/A	1.05 (0.98, 1.11)	<i>1.19 (1.12, 1.28)</i>
<u>Charlson Comorbidity score (ref= 0)</u>			
1	<i>1.09 (1.04, 1.14)</i>	<i>1.08 (1.01, 1.16)</i>	<i>1.09 (1.05, 1.13)</i>
2	<i>1.21 (1.13, 1.29)</i>	<i>1.19 (1.08, 1.31)</i>	<i>1.20 (1.14, 1.27)</i>
3+	<i>1.14 (1.05, 1.25)</i>	<i>1.17 (1.04, 1.31)</i>	<i>1.15 (1.08, 1.24)</i>

³ Values that are italicized are significant when $p < 0.05$.

⁴ The ICD-9 column has the reference year of surgery as 2010, while the ICD-10 and combined column have the reference year of surgery as 2016.