**APPENDIX TABLE I** Inclusion and exclusion codes for 1-level ACDF, 1-level lumbar fusion, total knee arthroplasty, and total hip arthroplasty based on International Classification of Diseases, Ninth and Tenth Revisions, codes and CPT codes

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|  | Codes | Description |
| *1-Level Lumbar Fusion* | | |
| Included |  |  |
| CPT | 22840 and 22612 or 22630 or 22633 | Posterior non-segmental instrumentation of vertebra/1 interspace; posterior, posterolateral, or lateral transverse process technique arthrodesis procedures on the spine (vertebral column) |
| ICD-9/ICD-10 | 7213, 72210, 72402, 7244, 7384, 75612, M4310, M47817, M4896, M5416, M5417, M5126, M5127, Q762 | Thoracic or lumbosacral neuritis or radiculitis unspecified; lumbosacral spondylosis without myelopathy; displacement of lumbar intervertebral disc without myelopathy; spinal stenosis, lumbar region, without neurogenic claudication; acquired spondylolisthesis; spondylolisthesis; lumbar, lumbosacral radiculopathy; lumbar, lumbosacral spondylosis/spondylolysis/ spondylolisthesis; spinal stenosis |
| Excluded |  |  |
| CPT | 22558, 22585, 22632, 22845, 22846, 22849, 22850, 22852, 22855, 25855 | Reinsertion of spinal fixation device; removal of posterior nonsegmental instrumentation; removal of posterior segmental instrumentation; removal of anterior instrumentation; anterior arthrodesis; additional level fusion |
| *1-Level ACDF* | | |
| Included |  |  |
| CPT | 22551, 22554 | Anterior arthrodesis; ACDF |
| Excluded |  |  |
| CPT | 22210, 22216, 22585, 22590, 22600, 22614, 22845, 22846, 2287, 63001, 63015, 63020, 63035, 63040, 63043, 63045, 63048, 63050, 63051, 63082, 63250, 63265, 63270, 63275, 63280, 63285, 63801 | Posterior, posterolateral, or lateral transverse process technique arthrodesis or osteotomy; osteotomy of spine, posterior, posterolateral approach, or anterior; anterior arthrodesis with addition of level; anterior instrumentation with greater or equal to 3 levels fused; laminectomy of cervical spine; vertebral corpectomy |
| *Total Knee Arthroplasty* | | |
| Included |  |  |
| CPT | 27447 | Arthroplasty, knee, condyle and plateau |
| ICD-9/ICD-10 | 715.06, 715.16, 715.26, 715.36, 715.46, 715.56, 715.66, 715.76, 715.86 , M170–M175, M179 | Osteoarthritis of the knee |
| Excluded |  |  |
| CPT | 27486,27487 | Revision surgery |
| ICD-9/ICD-10 | 815.5, 815.9, 0SW.C0JC 0SW.C0JZ 0SW.C3JC 0SW.C3JZ 0SW.C4JC 0SW.C4JZ 0SW.D0JZ 0SW.D0JC 0SW.D3JC 0SW.D3JZ 0SW.D4JC 0SW.D4JZ 0SW.T0JZ 0SW.T3JZ 0SW.T4JZ 0SW.U0JZ 0SW.U3JZ 0SW.U4JZ 0SW.V0JZ 0SW.V3JZ 0SW.V4JZ 0SW.W0JZ 0SW.W3JZ 0SW.W4JZ | Revision surgery |
| ICD-9/ICD-10 | 446, 701.0, 710.0–710.4, 710.8, 710.9, 711.2, 714, 719.3, 720, 725, 728.5, 728.89, 729.30, L940, L941, L943, M05–M08, M120, M123, M30, M310–M313, M32, M33–M35, M45, M461, M468, M469 | Rheumatoid arthritis |
| *Total Hip Arthroplasty* | | |
| Included |  |  |
| CPT | 27130 | Reconstruction procedures on the pelvis and hip joint |
| ICD-9/ICD-10 | 715.1, 715.18, 715.25, 715.35, 715.5, 715.95, M16, M160–M165, M169 | Osteoarthritis of the hip |
| Excluded |  |  |
| CPT | 27138, 27137, 27134 | Revision surgery |
| ICD-9/ICD-10 | 815.3, 815.9, 0SW.90JZ 0SW.93JZ 0SW.94JZ 0SW.A0JZ 0SW.A3JZ 0SW.A4JZ 0SW.B0JZ 0SW.B3JZ 0SW.B4JZ 0SW.E0JZ 0SW.E4JZ 0SW.E3JZ 0SW.R0JZ 0SW.R3JZ 0SW.S0JZ 0SW.R4JZ 0SW.S4JZ 0SW.S3JZ | Revision surgery |
| ICD-9/ICD-10 | 446, 701.0, 710.0–710.4, 710.8, 710.9, 711.2, 714, 719.3, 720, 725, 728.5, 728.89, 729.30, L940, L941, L943, M05–M08, M120, M123, M30, M310–M313, M32, M33–M35, M45, M461, M468, M469 | Rheumatoid arthritis |

ACDF, anterior discectomy and fusion; CPT, Current Procedural Terminology; ICD-9/ICD-10, *International Classification of Diseases, Ninth and Tenth Revisions.*

\*All patients with the following ICD-9/ICD-10 codes were excluded: 805.0–805.9, S10–S19 (trauma, fracture); 839.0–839.5 (closed or open dislocation of the cervical spine); 952.0–952.9 (spinal cord injury); 140–239, C0–C96 (cancer, malignancy); 342.6–344.9, 438.2–438.5, 780.72, G00–G47, G70–G99, 780.72 (nervous system disorders, cerebrovascular accidents, functional quadriplegia).