**Supplemental Table 4**

**Demographic data of geriatric patients who underwent spinal surgery for a degenerative spine disease-related diagnosis**

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **ACDF n=2,000** | **PCF n=553** | **360o Cervical Fusion n=112** | **Lumbar Microdiscectomy n=2,631** | **Lumbar Laminectomy n=1,817** | **Posterior Lumbar Fusion n=6,557** | **Anterior Lumbar Fusion n=118** | **360o Lumbar Fusion n=795** | **All  n=14,583** |
| Sex |  |  |  |  |  |  |  |  |  |
| Male | 41.9 | 45.6 | 39.3 | 44.0 | 48.3 | 31.1 | 33.1 | 30.1 | 37.6 |
| Female | 58.2 | 54.4 | 60.7 | 56.0 | 51.7 | 68.9 | 67.0 | 69.9 | 62.4 |
| Age at procedure |  |  |  |  |  |  |  |  |  |
| <70 | 35.1 | 23.2 | 27.7 | 24.4 | 20.6 | 25.3 | 35.6 | 30.9 | 26.2 |
| 70-74 | 32.0 | 27.1 | 32.1 | 30.9 | 29.0 | 31.4 | 37.3 | 33.5 | 31.1 |
| 75-79 | 21.0 | 25.1 | 27.7 | 22.7 | 26.0 | 25.2 | 17.0 | 23.8 | 24.1 |
| ≥80 | 12.0 | 24.6 | 12.5 | 22.0 | 24.4 | 18.2 | 10.2 | 11.8 | 18.6 |
| Beneficiary Race Code |  |  |  |  |  |  |  |  |  |
| Non-Hispanic white | 90.4 | 84.3 | 88.4 | 94.1 | 94.7 | 93.2 | 93.2 | 93.2 | 92.8 |
| Non-Hispanic black | 5.8 | 10.0 | 5.4 | 2.2 | 2.0 | 3.4 | 3.4 | 2.4 | 3.6 |
| Asian | 1.0 | 1.6 | 2.7 | 1.6 | 1.2 | 1.2 | 1.7 | 1.4 | 1.3 |
| Hispanic | 1.1 | 1.5 | 2.7 | 0.7 | 0.8 | 0.8 | 1.7 | 1.1 | 0.9 |
| American Indian or Alaska Native | 0.4 | 0.4 | 0.0 | 0.2 | 0.2 | 0.4 | 0.0 | 0.6 | 0.3 |
| Other | 1.1 | 2.2 | 0.9 | 1.0 | 1.0 | 0.8 | 0.0 | 0.8 | 1.0 |
| Unknown | 0.4 | 0.2 | 0.0 | 0.3 | 0.2 | 0.2 | 0.0 | 0.5 | 0.3 |
| Region |  |  |  |  |  |  |  |  |  |
| MW | 21.7 | 26.9 | 28.6 | 24.7 | 26.4 | 25.7 | 21.2 | 19.6 | 24.8 |
| NE | 9.6 | 20.1 | 18.8 | 13.1 | 12.4 | 13.6 | 11.9 | 8.6 | 12.8 |
| SO | 49.6 | 34.0 | 38.4 | 40.8 | 40.8 | 40.6 | 39.8 | 45.5 | 41.9 |
| WE | 19.2 | 19.0 | 14.3 | 21.4 | 20.4 | 20.2 | 27.1 | 26.3 | 20.6 |
| Surgeon Specialty |  |  |  |  |  |  |  |  |  |
| Neurosurgery | 66.8 | 72.9 | 60.7 | 58.3 | 63.7 | 47.9 | 35.6 | 33.3 | 54.5 |
| Other | 33.3 | 27.1 | 39.3 | 41.7 | 36.3 | 52.1 | 64.4 | 66.7 | 45.5 |
| Charlson Comorbidity1 |  |  |  |  |  |  |  |  |  |
| 0 | 38.1 | 29.5 | 36.6 | 48.9 | 43.2 | 39.8 | 32.2 | 42.0 | 41.3 |
| 1 | 29.5 | 24.2 | 23.2 | 27.1 | 27.6 | 28.9 | 37.3 | 28.4 | 28.3 |
| 2 | 15.9 | 17.0 | 19.6 | 12.2 | 15.1 | 16.4 | 18.6 | 14.7 | 15.4 |
| 3+ | 16.6 | 29.3 | 20.5 | 11.8 | 14.1 | 14.9 | 11.9 | 14.8 | 15.0 |
| Benzodiazepine Use1 | 14.1 | 12.3 | 12.5 | 11.5 | 14.3 | 11.4 | 13.6 | 14.1 | 12.4 |
| Alcohol Abuse1 | 1.3 | 2.5 | 0.9 | 0.5 | 0.8 | 0.8 | 3.4 | 1.0 | 0.9 |
| Drug Abuse1 | 1.0 | 4.0 | 0.9 | 1.0 | 0.8 | 1.8 | 4.2 | 2.8 | 1.6 |
| Depression1 | 22.7 | 27.9 | 25.9 | 17.8 | 18.9 | 23.5 | 28.8 | 27.8 | 22.2 |
| Anxiety1 | 18.6 | 19.2 | 25.9 | 13.6 | 14.8 | 17.1 | 17.0 | 19.6 | 16.7 |
| History of Cancer1 | 4.8 | 5.6 | 7.1 | 5.9 | 5.9 | 4.0 | 5.1 | 4.3 | 4.8 |
| Active cancer treatment before surgery1 | 2.7 | 4.7 | 3.6 | 2.6 | 3.4 | 2.8 | 5.9 | 1.9 | 2.9 |
| Active cancer treatment after surgery2 | 2.5 | 2.9 | 1.8 | 1.7 | 2.6 | 2.0 | 3.4 | 2.3 | 2.1 |
| Medicaid eligible at surgery | 8.7 | 16.1 | 8.9 | 5.5 | 5.2 | 6.9 | 7.6 | 7.7 | 7.1 |
| Quarters with opioid utilization prior to surgery3 |  |  |  |  |  |  |  |  |  |
| Any use | 62.0 | 60.9 | 66.1 | 69.2 | 66.3 | 71.1 | 77.1 | 75.7 | 68.8 |
| 0 | 38.0 | 39.1 | 33.9 | 30.8 | 33.7 | 29.0 | 22.9 | 24.3 | 31.2 |
| 1 | 23.6 | 19.2 | 19.6 | 28.5 | 25.2 | 23.0 | 23.7 | 21.8 | 24.1 |
| 2 | 13.3 | 11.6 | 13.4 | 16.4 | 15.2 | 15.8 | 16.1 | 15.9 | 15.3 |
| 3 | 8.3 | 9.4 | 8.9 | 9.2 | 9.0 | 11.5 | 11.9 | 11.5 | 10.2 |
| 4 | 16.9 | 20.8 | 24.1 | 15.2 | 17.0 | 20.8 | 25.4 | 26.7 | 19.2 |
| Number of surgeries after index surgery day4 |  |  |  |  |  |  |  |  |  |
| 0 | 85.5 | 89.3 | 87.5 | 79.5 | 77.7 | 87.7 | 76.3 | 79.5 | 84.2 |
| 1 | 12.8 | 9.0 | 8.0 | 17.1 | 19.8 | 10.3 | 22.9 | 18.2 | 13.5 |
| 2 | 1.5 | 1.6 | 4.5 | 2.7 | 1.9 | 1.7 | 0.9 | 2.0 | 1.9 |
| 3 | 0.2 | 0.0 | 0.0 | 0.6 | 0.5 | 0.3 | 0.0 | 0.3 | 0.4 |
| 4 | 0.0 | 0.0 | 0.0 | 0.0 | 0.1 | 0.0 | 0.0 | 0.0 | 0.03 |
| 5 | 0.0 | 0.0 | 0.0 | 0.04 | 0.0 | 0.0 | 0.0 | 0.0 | 0.01 |
| Surgery Year |  |  |  |  |  |  |  |  |  |
| 2008 | 8.4 | 11.6 | 8.9 | 11.6 | 5.8 | 10.9 | 6.8 | 7.4 | 9.8 |
| 2009 | 10.2 | 14.5 | 10.7 | 14.2 | 6.7 | 13.1 | 7.6 | 9.8 | 11.9 |
| 2010 | 10.5 | 13.6 | 11.6 | 13.5 | 9.6 | 13.8 | 19.5 | 12.6 | 12.7 |
| 2011 | 14.2 | 11.9 | 7.1 | 13.3 | 11.7 | 13.9 | 13.6 | 14.7 | 13.5 |
| 2012 | 15.8 | 13.6 | 21.4 | 14.2 | 16.5 | 14.6 | 11.9 | 16.4 | 15.0 |
| 2013 | 17.8 | 15.7 | 15.2 | 15.9 | 21.7 | 15.3 | 22.9 | 16.6 | 16.7 |
| 2014 | 23.3 | 19.2 | 25.0 | 17.3 | 28.0 | 18.5 | 17.8 | 22.5 | 20.4 |
| Urban/Rural |  |  |  |  |  |  |  |  |  |
| Metro | 74.8 | 81.0 | 78.6 | 74.7 | 73.8 | 74.6 | 81.4 | 77.4 | 75.0 |
| Urban, non-metro | 22.1 | 16.5 | 17.9 | 22.3 | 22.3 | 22.0 | 17.0 | 19.5 | 21.7 |
| Rural | 3.2 | 2.5 | 3.6 | 3.0 | 4.0 | 3.4 | 1.7 | 3.1 | 3.3 |
| End Follow-up Reason2 |  |  |  |  |  |  |  |  |  |
| End opioid use | 88.9 | 78.5 | 78.6 | 91.7 | 91.4 | 86.7 | 82.2 | 84.2 | 87.9 |
| End of eligibility | 1.4 | 1.1 | 0.9 | 1.0 | 1.4 | 1.2 | 0.9 | 1.5 | 1.2 |
| Trauma | 9.5 | 19.4 | 18.8 | 7.1 | 7.1 | 11.8 | 15.3 | 14.0 | 10.5 |
| Died | 0.3 | 1.1 | 1.8 | 0.2 | 0.1 | 0.3 | 1.7 | 0.4 | 0.3 |

1Measured in the 12 months prior to surgery

2Measured in the 12 months following surgery

3Measured in days 5 to 365 prior to surgery

4Number of surgeries was defined as the number of dates when a surgery occurred

*ACDF, anterior cervical discectomy and fusion; PCF, posterior cervical fusion*