**Appendix 1.** Before-decision features

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| --- | --- | --- | --- |
| Time Point | Feature | Numerical or categorical | % missing (n = 13,719) |
| Before decision | Age | Numerical | 0.04% |
| Before decision | BMI | Numerical | 0.2% |
| Before decision | Years of education | Numerical | 4% |
| Before decision | Years of pain medication use | Numerical | 41% |
| Before decision | Knee patient (not hip patient) | Categorical | 0% |
| Before decision | Race | Categorical | 0.09% |
| Before decision | Hispanic or not | Categorical | 10% |
| Before decision | Sex | Categorical | 0% |
| Before decision | Laterality (left, right, bilateral) | Categorical | 0% |
| Before decision | Primary or revision | Categorical | 0% |
| Before decision | Zip code | Categorical | 0.05% |
| Before decision | Primary payor | Categorical | 0.05% |
| Before decision | Secondary payor | Categorical | 0.8% |
| Before decision | Cohabitation  | Categorical | 0.7% |
| Before decision | Prior shoulder surgery (same-side) | Categorical | 18% |
| Before decision | Prior shoulder surgery (contralateral side) | Categorical | 18% |
| Before decision | Prior hip surgery (same-side) | Categorical | 17% |
| Before decision | Prior hip surgery (contralateral side) | Categorical | 14% |
| Before decision | Prior knee surgery (same-side) | Categorical | 17% |
| Before decision | Prior knee surgery (contralateral side) | Categorical | 15% |
| Before decision | Prior spinal surgery | Categorical | 44% |
| Before decision | Ever taken bisphosphonates | Categorical | 1% |
| Before decision | Ever had cortisone injection on operated joint  | Categorical | 47% |
| Before decision | Heart disease (self-reported health problem) | Categorical | 41% |
| Before decision | High blood pressure (self-reported health problem) | Categorical | 5% |
| Before decision | Lung disease (self-reported health problem) | Categorical | 7% |
| Before decision | Diabetes (self-reported health problem) | Categorical | 7% |
| Before decision | Ulcer/stomach disease (self-reported health problem) | Categorical | 7% |
| Before decision | Kidney disease (self-reported health problem) | Categorical | 7% |
| Before decision | Liver disease (self-reported health problem) | Categorical | 7% |
| Before decision | Anemia or blood disease (self-reported health problem) | Categorical | 7% |
| Before decision | Cancer (self-reported health problem) | Categorical | 7% |
| Before decision | Depression (self-reported health problem) | Categorical | 7% |
| Before decision | Osteoarthritis in nonoperative joint/s (self-reported health problem) | Categorical | 7% |
| Before decision | Back pain (self-reported health problem) | Categorical | 8% |
| Before decision | Rheumatoid arthritis (self-reported health problem) | Categorical | 12% |
| Before decision | Other (self-reported health problem) | Categorical | 73% |