**Appendix 8.** HOOS JR logistic LASSO before-surgery, full-model parameters

|  |  |
| --- | --- |
| Intercept | -0.39 |
| Feature | Imputed mean | Standardized mean | Standardized scale | Coefficient |
| BMI | 27.65 | 26.90 | 6.38 | 0.05 |
| Age | 63.03 | 64.00 | 16.00 | 0.23 |
| Years of education | 16.39 | 16.00 | 5.00 | -0.16 |
| Years of pain medication use | 1.38 | 1.38 | 0.88 | 0.01 |
| Baseline HOOS JR score | 50.31 | 49.86 | 15.60 | 1.10 |
| Baseline HOOS symptom score | 49.22 | 50.00 | 25.00 | 0.19 |
| Baseline HOOS sports/rec score | 29.70 | 29.70 | 29.17 | 0.17 |
| Baseline HOOS QOL score | 24.40 | 25.00 | 25.00 | 0.19 |
| Baseline pain VAS (right) | 61.00 | 65.00 | 32.00 | -0.25 |
| Baseline pain VAS (left) | 63.37 | 63.37 | 1.00 | 0.02 |
| Baseline fatigue VAS | 40.29 | 40.29 | 58.00 | 0.21 |
| Baseline general health VAS | 36.21 | 35.00 | 39.00 | 0.11 |
| Baseline WOMAC pain score | 53.62 | 53.62 | 20.31 | -0.07 |
| Baseline WOMAC stiffness score | 44.94 | 50.00 | 37.50 | -0.33 |
| Baseline WOMAC function score | 50.00 | 50.00 | 23.52 | -0.10 |
| Baseline SF-36 physical functioning score | 29.06 | 27.57 | 12.63 | -0.18 |
| Baseline SF-36 role physical score | 33.93 | 32.36 | 12.25 | -0.04 |
| Baseline SF-36 bodily pain score | 35.60 | 37.18 | 12.26 | 0.05 |
| Baseline SF-36 general health score | 52.51 | 52.93 | 9.77 | -0.23 |
| Baseline SF-36 vitality score | 46.93 | 46.93 | 15.61 | 0.01 |
| Baseline SF-36 social functioning score | 40.68 | 40.49 | 21.82 | -0.11 |
| Baseline SF-36 role emotional score | 42.45 | 44.22 | 23.32 | -0.33 |
| Baseline SF-36 mental health score | 47.57 | 50.01 | 14.08 | -0.05 |
| Baseline EQ-5D score | 0.64 | 0.71 | 0.32 | -0.02 |
| Baseline expectations survey score | 82.94 | 82.94 | 16.50 | -0.15 |
| Race: black | - | - | - | 0.18 |
| Race: white | - | - | - | -0.16 |
| Sex: male | - | - | - | -0.03 |
| Laterality: left | - | - | - | 0.06 |
| Unilateral revision | - | - | - | 1.11 |
| Zip code: 10021 | - | - | - | 0.29 |
| Zip code: 10028 | - | - | - | -0.03 |
| Primary payor: commercial | - | - | - | 0.18 |
| Primary payor: other (not Blue Cross, commercial, Medicare, or Medicaid) | - | - | - | -0.18 |
| Secondary payor: Blue Cross | - | - | - | -0.35 |
| Secondary payor: commercial | - | - | - | -0.43 |
| Cohabitation: live with spouse or partner | - | - | - | -0.04 |
| Prior hip surgery (same-side) missing | - | - | - | 0.10 |
| Prior hip surgery (contralateral side) missing | - | - | - | 0.06 |
| Prior knee surgery (contralateral side) | - | - | - | 0.19 |
| Prior spinal surgery missing | - | - | - | 0.10 |
| Ever taken bisphosphonates | - | - | - | -0.05 |
| Ever had cortisone injection on operated joint missing | - | - | - | 0.20 |
| High blood pressure (self-reported health problem) | - | - | - | -0.07 |
| Lung disease (self-reported health problem) | - | - | - | -0.19 |
| Diabetes (self-reported health problem) | - | - | - | 0.11 |
| Kidney disease (self-reported health problem) | - | - | - | -0.13 |
| Anemia or blood disease (self-reported health problem) | - | - | - | 0.24 |
| Osteoarthritis in nonoperative joint/s (self-reported health problem) missing | - | - | - | 0.29 |
| Back pain (self-reported health problem) | - | - | - | 0.27 |
| Rheumatoid arthritis (self-reported health problem) missing | - | - | - | -0.04 |
| Other (self-reported health problem) #1 missing | - | - | - | -0.05 |
| Doctor #113 | - | - | - | 0.05 |
| Doctor #104 | - | - | - | -0.18 |
| Doctor #105 | - | - | - | -0.01 |
| Surgeon #101 | - | - | - | 0.21 |
| Surgeon #104 | - | - | - | -0.12 |
| Surgeon #105 | - | - | - | -0.14 |
| Surgeon #111 | - | - | - | -0.09 |
| Month of year of baseline survey: March | - | - | - | 0.01 |
| Month of year of baseline survey: April | - | - | - | -0.25 |
| Month of year of baseline survey: May | - | - | - | 0.07 |
| Month of year of baseline survey: August | - | - | - | -0.01 |
| Month of year of baseline survey: November | - | - | - | -0.30 |
| Day of week of baseline survey: Monday | - | - | - | 0.01 |
| Day of week of baseline survey: Tuesday | - | - | - | -0.06 |
| Day of week of baseline survey: Wednesday | - | - | - | 0.07 |
| Month of year of index surgery: April | - | - | - | -0.11 |
| Month of year of index surgery: July | - | - | - | 0.05 |
| Month of year of index surgery: September | - | - | - | -0.12 |
| Day of week of index surgery: Tuesday | - | - | - | -0.07 |
| Day of week of index surgery: Thursday | - | - | - | -0.08 |
| Day of week of index surgery: Friday | - | - | - | -0.02 |
| Day of week of index surgery: Saturday | - | - | - | 0.09 |
| ASA score: 2 | - | - | - | 0.20 |
| ASA score: 3 | - | - | - | 0.28 |

The outcome was coded so that 0 = (achieve MCID) and 1 = (did not achieve MCID); coefficients are the typical logistic coefficient estimates; all continuous features were imputed (if missing) and then standardized: first, if missing, the continuous variable was assigned the value in imputed mean; next, all continuous variables were standardized by subtracting the value in standardized mean and then dividing by the value in standardized scale; note that these values were derived from the original 80% training set; standardization scale was based on the 25th and 75th quantiles; LASSO = least absolute shrinkage and selection operator; MCID = minimally clinically important difference; ASA = American Society of Anesthesiologists; HOOS = hip disability and osteoarthritis outcome score; HOOS JR = hip disability and osteoarthritis outcome score for joint replacement; LEAS = lower extremity activity scale; EQ-5D = 5-domain EuroQol quality of life survey