Follow-up Summary 10/23~11/05

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1 Feature Statistics

Numeric features (also include: binary/boolean features, ranked integer features)

```
                           count      mean       std    min     25%     50%     75%     max
na_ratio
_____  _____  _____  _____  _____  _____  _____  _____  _____  ___
_____
selfcare_measure_delta     42938   19.8382   21.3123  -80.99     5.6   12.63   38.93   80.99
0
mobility_measure_delta     42938   19.5748   20.5332  -93.52    7.71   14.65   27.95   93.52
0
arthritis                  42938    0.0052    0.0719       0       0       0       0       1
0
heightinches               42905   66.6716    4.4265       1      64      67      70      99
0.0008
weightpounds               42902   178.891   47.4143       2     146     173     205     634
0.0008
ptindweek1                 42938   334.862   98.0311       0     275     330     405     600
0
ptconweek1                 42938    4.4405   21.6056       0       0       0       0     540
0
```

ptgrpweek1	42938	10.9668	32.3649	0	0	0	0	3000
ptcoweek1	42938	3.2496	22.7905	0	0	0	0	5680
otindweek1	42938	343.73	93.4879	0	300	345	407	6000
otconweek1	42938	3.4943	18.9606	0	0	0	0	4200
otgrpweek1	42938	11.5631	32.1212	0	0	0	0	3300
otcoweek1	42938	3.2965	22.7013	0	0	0	0	4600
slpindweek1	42938	206.407	97.2304	0	143	225	283	5900
slpconweek1	42938	0.4128	4.7326	0	0	0	0	1800
slpgrpweek1	42938	4.1424	19.1771	0	0	0	0	3000
slpcoweek1	42938	0.4671	5.4948	0	0	0	0	2260
ptindweek2	42938	267.265	153.442	0	165	300	379	6000
ptconweek2	42938	4.4481	21.8238	0	0	0	0	5100
ptgrpweek2	42938	12.4134	39.2545	0	0	0	0	4800
ptcoweek2	42938	3.5696	26.1774	0	0	0	0	5250
otindweek2	42938	267.132	150.434	0	180	300	370	6000

Variable	N	Mean	SD	Min	p25	p50	p75	Max	Missing
otconweek2	42938	3.7039	20.0839	0	0	0	0	525	0
otgrpweek2	42938	12.7872	39.3709	0	0	0	0	470	0
otcoweek2	42938	3.6605	26.4232	0	0	0	0	525	0
slpindweek2	42938	161.121	125.043	0	30	163	270	600	0
slpconweek2	42938	0.585	6.2071	0	0	0	0	180	0
slpgrpweek2	42938	5.6276	25.5503	0	0	0	0	420	0
slpcoweek2	42938	0.6321	7.3595	0	0	0	0	300	0
hearing_adm	42938	0.2989	0.6323	0	0	0	0	3	0
vision_adm	42938	0.452	0.7622	0	0	0	1	4	0
health_lit_adm	39485	1.0977	1.2865	0	0	1	2	4	0.0804
expression_adm	42938	3.1967	0.9095	1	3	3	4	4	0
understand_verbal_adm	42938	3.356	0.8026	1	3	4	4	4	0
conduct_bims	42938	0.9106	0.2853	0	1	1	1	1	0
bims_total	38280	12.0244	3.6124	0	10	13	15	15	0.1085
conduct_sams	42938	0.1085	0.311	0	0	0	0	1	0

sams_season	42938	0.9085	0.2883	0	1	1	1	1	0
sams_room	42938	0.8992	0.301	0	1	1	1	1	0
sams_names	42938	0.9037	0.2949	0	1	1	1	1	0
sams_hosp	42938	0.9325	0.2508	0	1	1	1	1	0
acute_mental_change	42938	0.2745	0.4462	0	0	0	1	1	0
mood_total_adm	38316	0.6219	2.496	0	0	0	0	27	0.1076
socisolation_adm	38800	0.4372	0.7723	0	0	0	1	4	0.0964
selfcare_prior	42663	2.8783	0.3449	1	3	3	3	3	0.0064
mobility_prior	42316	2.9242	0.2888	1	3	3	3	3	0.0145
stairs_prior	38956	2.89	0.3479	1	3	3	3	3	0.0927
func_cog_prior	42309	2.8551	0.387	1	3	3	3	3	0.0146
wc_manual_prior	42938	0.0578	0.2333	0	0	0	0	1	0
wc_motor_prior	42938	0.0134	0.1149	0	0	0	0	1	0
mechlift_prior	42938	0.0046	0.0674	0	0	0	0	1	0
walker_prior	42938	0.2073	0.4054	0	0	0	0	1	0

orth_pros_prior 0	42938	0.0084	0.0914	0	0	0	0	1
selfcare_measure_adm 0	42938	40.3364	7.726	19.65	36.97	41.35	44.77	100.64
mobility_measure_adm 0	42938	24.1633	9.0085	4.86	19.16	24.31	30.29	98.38
wc_user 0	42938	0.7043	0.4564	0	0	1	1	1
wheel50ft_adm 0.4217	24831	2.5048	1.3402	1	1	3	4	7
wheel150ft_adm 0.4915	21835	2.2113	1.3576	1	1	2	3	7
bladder_incontinence 0.0586	40423	1.3837	1.5546	0	0	0	3	5
bowel_incontinence 0.1363	37086	0.8019	1.1674	0	0	0	2	3
pvd_comorbid 0	42938	0.0598	0.237	0	0	0	0	1
diabetes_comorbid 0	42938	0.4126	0.4923	0	0	0	1	1
pain_sleep_adm 0	42938	1.4974	1.9336	0	0	1	2	8
pain_therapy_adm 0.2851	30695	1.8533	2.1868	0	1	1	2	8
pain_activities_adm 0.2851	30695	2.1559	2.0901	1	1	1	2	8
nutrition_parenteral_adm 0	42938	0.0059	0.0767	0	0	0	0	1
nutrition_tube_adm 0	42938	0.0759	0.2648	0	0	0	0	1

nutrition_mech_diet_adm	42938	0.3453	0.4755	0	0	0	1	1
	0							
nutrition_ther_diet_adm	42938	0.564	0.4959	0	0	1	1	1
	0							
stage1_pu_adm	4612	0.4367	0.7326	0	0	0	1	5
	0.8926							
stage2_pu_adm	4614	0.3414	0.5862	0	0	0	1	6
	0.8925							
stage3_pu_adm	4614	0.0956	0.3462	0	0	0	0	5
	0.8925							
stage4_pu_adm	4614	0.0184	0.1512	0	0	0	0	3
	0.8925							
unstageable_dressing_pu_adm	4614	0.005	0.0791	0	0	0	0	2
	0.8925							
unstageable_slough_pu_adm	4614	0.1938	0.5383	0	0	0	0	9
	0.8925							
unstageable_deep_pu_adm	4614	0.5152	0.9242	0	0	0	1	9
	0.8925							
antipsychotic_taking_adm	42938	0.0898	0.2859	0	0	0	0	1
	0							
antipsychotic_ind_adm	42938	0.0859	0.2802	0	0	0	0	1
	0							
anticoagulant_taking_adm	42938	0.7267	0.4457	0	0	1	1	1
	0							
anticoagulant_ind_adm	42938	0.711	0.4533	0	0	1	1	1
	0							
antibiotic_taking_adm	42938	0.163	0.3694	0	0	0	0	1
	0							
antibiotic_ind_adm	42938	0.1594	0.366	0	0	0	0	1
	0							

opioid_taking_adm	42938	0.2125	0.4091	0	0	0	0	1
0								
opioid_ind_adm	42938	0.2097	0.4071	0	0	0	0	1
0								
antiplatelet_taking_adm	42938	0.6605	0.4735	0	0	1	1	1
0								
antiplatelet_ind_adm	42938	0.6351	0.4814	0	0	1	1	1
0								
hypoglycemic_taking_adm	42938	0.3917	0.4881	0	0	0	1	1
0								
hypoglycemic_ind_adm	42938	0.3815	0.4858	0	0	0	1	1
0								
med_follow_up	4503	0.9869	0.1137	0	1	1	1	1
0.8951								
chemo_adm	42938	0.0088	0.0935	0	0	0	0	1
0								
chemo_iv_adm	42938	0.0006	0.0246	0	0	0	0	1
0								
chemo_oral_adm	42938	0.0078	0.0877	0	0	0	0	1
0								
chemo_other_adm	42938	0.0006	0.0241	0	0	0	0	1
0								
radiation_adm	42938	0.0006	0.0241	0	0	0	0	1
0								
oxygen_adm	42938	0.1434	0.3505	0	0	0	0	1
0								
oxygen_cont_adm	42938	0.0609	0.2392	0	0	0	0	1
0								
oxygen_int_adm	42938	0.0878	0.2829	0	0	0	0	1
0								

oxygen_high_adm	42938	0.0024	0.0492	0	0	0	0	1
suctioning_adm	42938	0.0169	0.1288	0	0	0	0	1
suctioning_sched_adm	42938	0.0014	0.0367	0	0	0	0	1
suctioning_asneeded_adm	42938	0.016	0.1253	0	0	0	0	1
trach_adm	42938	0.0135	0.1155	0	0	0	0	1
vent_invasive_adm	42938	0.0005	0.0231	0	0	0	0	1
vent_noninvasive_adm	42938	0.0457	0.2088	0	0	0	0	1
vent_bipap_adm	42938	0.0063	0.0793	0	0	0	0	1
vent_cpap_adm	42938	0.0397	0.1953	0	0	0	0	1
meds_iv_adm	42938	0.109	0.3116	0	0	0	0	1
meds_iv_vasoactive_adm	42938	0.0065	0.0802	0	0	0	0	1
meds_iv_antibiotic_adm	42938	0.0397	0.1952	0	0	0	0	1
meds_iv_anticoagulant_adm	42938	0.0046	0.0676	0	0	0	0	1
meds_iv_other_adm	42938	0.0754	0.2641	0	0	0	0	1
transfusions_adm	42938	0.002	0.0444	0	0	0	0	1

dialysis_adm	42938	0.0213	0.1443	0	0	0	0	1
0								
hemodialysis_adm	42938	0.0187	0.1356	0	0	0	0	1
0								
peritoneal_dialysis_adm	42938	0.0026	0.0512	0	0	0	0	1
0								
iv_access_adm	42938	0.1986	0.3989	0	0	0	0	1
0								
iv_access_periph_adm	42938	0.1505	0.3576	0	0	0	0	1
0								
iv_access_mid_adm	42938	0.0173	0.1302	0	0	0	0	1
0								
iv_access_cent_adm	42938	0.037	0.1888	0	0	0	0	1
0								
age_at_admit	42938	68.7322	13.4544	1	61	70	79	90
0								
los	42938	16.1965	9.538	1	10	14	21	337
0								
ric	42938	1	0	1	1	1	1	1
0								
cmg	42938	104.108	1.604	101	103	104	106	106
0								

Categorical features:

	unique_values	mode	mode_ratio	unknown_ratio
falls_hx	3	No	0.6222	0.0554
drug_regimen_review	3	No	0.8874	0
hispanic	2	No	0.9256	0
prior_surgery	3	No	0.7511	0.0352

```
wc150_type                   3   manual                0.7013        0.2957
disorganized_adm             3   Not_present           0.8111        0
race                         8   White                 0.6739        0.0599
inattention_adm              3   Not_present           0.7495        0
wc50_type                    3   manual                0.7014        0.2957
admit_from                   3   Short-term_hospital   0.9403        0
sex                          2   male                  0.529         0
prehospital_living           2   Home                  0.9916        0
language                     2   English               0.9433        0
payor_primary                3   Medicare_FFS          0.3741        0
marital_status               3   Unmarried             0.4822        0.0575
admitclass                   4   Initial               0.8673        0.0881
transport_lack               3   No                    0.9172        0.0485
tier                         4   3                     0.5353        0.4077
altered_adm                  3   Not_present           0.9268        0
```

Statistics-Based Feature Selection

Filter out these features with bad statistics:

1. numeric features with a na_ratio > 0.5

2. numeric features with a std < 0.1

3. categorical features with a mode_ratio > 0.95

Remaining # features: 141 -> 114

```
# of train samples: 28625
# of eval samples: 7156
# of test samples: 7157
# of valid selfcare train samples: 28625
```

```
# of valid selfcare eval samples: 7156
# of valid selfcare test samples: 7157
# of valid mobility train samples: 28625
# of valid mobility eval samples: 7156
# of valid mobility test samples: 7157
total # of features: 115
+----------+---------------------------+----------+-------------+
|  Index   | Name                      | Dtype    | # of NaNs   |
+==========+===========================+==========+=============+
|       0  | selfcare_measure_delta    | float64  |          0  |
+----------+---------------------------+----------+-------------+
|       1  | mobility_measure_delta    | float64  |          0  |
+----------+---------------------------+----------+-------------+
|       2  | sex                       | object   |          0  |
+----------+---------------------------+----------+-------------+
|       3  | marital_status            | object   |          0  |
+----------+---------------------------+----------+-------------+
|       4  | admitclass                | object   |          0  |
+----------+---------------------------+----------+-------------+
|       5  | admit_from                | object   |          0  |
+----------+---------------------------+----------+-------------+
|       6  | payor_primary             | object   |          0  |
+----------+---------------------------+----------+-------------+
|       7  | heightinches              | float64  |         33  |
+----------+---------------------------+----------+-------------+
|       8  | weightpounds              | float64  |         36  |
+----------+---------------------------+----------+-------------+
|       9  | ptindweek1                | float64  |          0  |
+----------+---------------------------+----------+-------------+
|      10  | ptconweek1                | float64  |          0  |
+----------+---------------------------+----------+-------------+
```

| 11 | ptgrpweek1 | float64 | 0 |
+---------+------------------------+---------+-------------+
| 12 | ptcoweek1 | float64 | 0 |
+---------+------------------------+---------+-------------+
| 13 | otindweek1 | float64 | 0 |
+---------+------------------------+---------+-------------+
| 14 | otconweek1 | float64 | 0 |
+---------+------------------------+---------+-------------+
| 15 | otgrpweek1 | float64 | 0 |
+---------+------------------------+---------+-------------+
| 16 | otcoweek1 | float64 | 0 |
+---------+------------------------+---------+-------------+
| 17 | slpindweek1 | float64 | 0 |
+---------+------------------------+---------+-------------+
| 18 | slpconweek1 | float64 | 0 |
+---------+------------------------+---------+-------------+
| 19 | slpgrpweek1 | float64 | 0 |
+---------+------------------------+---------+-------------+
| 20 | slpcoweek1 | float64 | 0 |
+---------+------------------------+---------+-------------+
| 21 | ptindweek2 | float64 | 0 |
+---------+------------------------+---------+-------------+
| 22 | ptconweek2 | float64 | 0 |
+---------+------------------------+---------+-------------+
| 23 | ptgrpweek2 | float64 | 0 |
+---------+------------------------+---------+-------------+
| 24 | ptcoweek2 | float64 | 0 |
+---------+------------------------+---------+-------------+
| 25 | otindweek2 | float64 | 0 |
+---------+------------------------+---------+-------------+
| 26 | otconweek2 | float64 | 0 |

27	otgrpweek2	float64	0
28	otcoweek2	float64	0
29	slpindweek2	float64	0
30	slpconweek2	float64	0
31	slpgrpweek2	float64	0
32	slpcoweek2	float64	0
33	hispanic	object	0
34	race	object	0
35	language	object	0
36	transport_lack	object	0
37	hearing_adm	Int64	0
38	vision_adm	Int64	0
39	health_lit_adm	Int64	3453
40	expression_adm	Int64	0
41	understand_verbal_adm	Int64	0

| 42 | conduct_bims | int64 | 0 |
+----+---------------------+--------+------+
| 43 | bims_total | Int64 | 4658 |
+----+---------------------+--------+------+
| 44 | conduct_sams | int64 | 0 |
+----+---------------------+--------+------+
| 45 | sams_season | int64 | 0 |
+----+---------------------+--------+------+
| 46 | sams_room | int64 | 0 |
+----+---------------------+--------+------+
| 47 | sams_names | int64 | 0 |
+----+---------------------+--------+------+
| 48 | sams_hosp | int64 | 0 |
+----+---------------------+--------+------+
| 49 | acute_mental_change | int64 | 0 |
+----+---------------------+--------+------+
| 50 | inattention_adm | object | 0 |
+----+---------------------+--------+------+
| 51 | disorganized_adm | object | 0 |
+----+---------------------+--------+------+
| 52 | altered_adm | object | 0 |
+----+---------------------+--------+------+
| 53 | mood_total_adm | Int64 | 4622 |
+----+---------------------+--------+------+
| 54 | socisolation_adm | Int64 | 4138 |
+----+---------------------+--------+------+
| 55 | selfcare_prior | Int64 | 275 |
+----+---------------------+--------+------+
| 56 | mobility_prior | Int64 | 622 |
+----+---------------------+--------+------+
| 57 | stairs_prior | Int64 | 3982 |

58	func_cog_prior	Int64	629
59	wc_manual_prior	int64	0
60	wc_motor_prior	int64	0
61	walker_prior	int64	0
62	selfcare_measure_adm	float64	0
63	mobility_measure_adm	float64	0
64	wc_user	int64	0
65	wheel50ft_adm	Int64	18107
66	wc50_type	object	0
67	wheel150ft_adm	Int64	21103
68	wc150_type	object	0
69	bladder_incontinence	Int64	2515
70	bowel_incontinence	Int64	5852
71	pvd_comorbid	int64	0
72	diabetes_comorbid	int64	0

| 73 | pain_sleep_adm | Int64 | 0 |
+---------+--------------------------+---------+-------------+
| 74 | pain_therapy_adm | Int64 | 12243 |
+---------+--------------------------+---------+-------------+
| 75 | pain_activities_adm | Int64 | 12243 |
+---------+--------------------------+---------+-------------+
| 76 | falls_hx | object | 0 |
+---------+--------------------------+---------+-------------+
| 77 | prior_surgery | object | 0 |
+---------+--------------------------+---------+-------------+
| 78 | nutrition_tube_adm | int64 | 0 |
+---------+--------------------------+---------+-------------+
| 79 | nutrition_mech_diet_adm | int64 | 0 |
+---------+--------------------------+---------+-------------+
| 80 | nutrition_ther_diet_adm | int64 | 0 |
+---------+--------------------------+---------+-------------+
| 81 | antipsychotic_taking_adm | int64 | 0 |
+---------+--------------------------+---------+-------------+
| 82 | antipsychotic_ind_adm | int64 | 0 |
+---------+--------------------------+---------+-------------+
| 83 | anticoagulant_taking_adm | int64 | 0 |
+---------+--------------------------+---------+-------------+
| 84 | anticoagulant_ind_adm | int64 | 0 |
+---------+--------------------------+---------+-------------+
| 85 | antibiotic_taking_adm | int64 | 0 |
+---------+--------------------------+---------+-------------+
| 86 | antibiotic_ind_adm | int64 | 0 |
+---------+--------------------------+---------+-------------+
| 87 | opioid_taking_adm | int64 | 0 |
+---------+--------------------------+---------+-------------+
| 88 | opioid_ind_adm | int64 | 0 |

89	antiplatelet_taking_adm	int64	0
90	antiplatelet_ind_adm	int64	0
91	hypoglycemic_taking_adm	int64	0
92	hypoglycemic_ind_adm	int64	0
93	drug_regimen_review	object	0
94	oxygen_adm	int64	0
95	oxygen_cont_adm	int64	0
96	oxygen_int_adm	int64	0
97	suctioning_adm	int64	0
98	suctioning_asneeded_adm	int64	0
99	trach_adm	int64	0
100	vent_noninvasive_adm	int64	0
101	vent_cpap_adm	int64	0
102	meds_iv_adm	int64	0
103	meds_iv_antibiotic_adm	int64	0

```
|       104 | meds_iv_other_adm          | int64   |           0 |
+-----------+----------------------------+---------+-------------+
|       105 | dialysis_adm               | int64   |           0 |
+-----------+----------------------------+---------+-------------+
|       106 | hemodialysis_adm           | int64   |           0 |
+-----------+----------------------------+---------+-------------+
|       107 | iv_access_adm              | int64   |           0 |
+-----------+----------------------------+---------+-------------+
|       108 | iv_access_periph_adm       | int64   |           0 |
+-----------+----------------------------+---------+-------------+
|       109 | iv_access_mid_adm          | int64   |           0 |
+-----------+----------------------------+---------+-------------+
|       110 | iv_access_cent_adm         | int64   |           0 |
+-----------+----------------------------+---------+-------------+
|       111 | age_at_admit               | float64 |           0 |
+-----------+----------------------------+---------+-------------+
|       112 | los                        | float64 |           0 |
+-----------+----------------------------+---------+-------------+
|       113 | cmg                        | float64 |           0 |
+-----------+----------------------------+---------+-------------+
|       114 | tier                       | object  |           0 |
+-----------+----------------------------+---------+-------------+
```

2 MICE Imputation

`sklearn.impute import IterativeImputer` is used.

The imputer was trained on training set only, with the 2 outcome columns excluded.

When imputing the whole dataset, outcome columns are also hidden, then added back after predictors' imputation is done.

3 Linear Model Statistical Summary

Selfcare

```
                        OLS Regression Results
==========================================================================
Dep. Variable:     selfcare_measure_delta   R-squared:              0.311
Model:                             OLS   Adj. R-squared:            0.308
Method:                  Least Squares   F-statistic:               96.60
Date:                 Tue, 05 Nov 2024   Prob (F-statistic):         0.00
Time:                         17:55:58   Log-Likelihood:        -1.2291e+05
No. Observations:                28625   AIC:                    2.461e+05
Df Residuals:                    28491   BIC:                    2.472e+05
Df Model:                          133
Covariance Type:             nonrobust
==========================================================================
=
                     coef    std err          t      P>|t|      [0.025
0.975]
--------------------------------------------------------------------------
-
const              484.4206     15.875     30.515      0.000     453.305
515.536
heightinches         0.0298      0.034      0.888      0.375      -0.036
0.096
weightpounds         0.0298      0.003     11.120      0.000       0.025
0.035
```

	coef	std err	z	P>|z|	[0.025	0.975]
ptindweek1	0.0258	0.001	17.725	0.000	0.023	0.029
ptconweek1	0.0338	0.007	5.100	0.000	0.021	0.047
ptgrpweek1	0.0428	0.004	10.699	0.000	0.035	0.051
ptcoweek1	0.0305	0.016	1.927	0.054	−0.001	0.062
otindweek1	0.0209	0.001	13.996	0.000	0.018	0.024
otconweek1	0.0381	0.008	4.872	0.000	0.023	0.053
otgrpweek1	0.0301	0.004	7.482	0.000	0.022	0.038
otcoweek1	−0.0017	0.016	−0.105	0.916	−0.033	0.030
slpindweek1	0.0100	0.002	6.410	0.000	0.007	0.013
slpconweek1	0.0777	0.024	3.262	0.001	0.031	0.124
slpgrpweek1	0.0104	0.007	1.583	0.114	−0.002	0.023
slpcoweek1	0.0046	0.024	0.193	0.847	−0.042	0.051
ptindweek2	−0.0006	0.001	−0.476	0.634	−0.003	0.002
ptconweek2	0.0066	0.006	1.033	0.301	−0.006	0.019
ptgrpweek2	0.0165	0.003	5.119	0.000	0.010	0.023

	coef	std err	z	P>|z|	[0.025	0.975]
ptcoweek2	−0.0065	0.014	−0.477	0.633	−0.033	0.020
otindweek2	0.0016	0.001	1.146	0.252	−0.001	0.004
otconweek2	0.0082	0.007	1.182	0.237	−0.005	0.022
otgrpweek2	0.0150	0.003	4.630	0.000	0.009	0.021
otcoweek2	0.0057	0.014	0.405	0.686	−0.022	0.033
slpindweek2	0.0009	0.001	0.607	0.544	−0.002	0.004
slpconweek2	−0.0167	0.018	−0.948	0.343	−0.051	0.018
slpgrpweek2	0.0056	0.005	1.117	0.264	−0.004	0.015
slpcoweek2	0.0127	0.017	0.737	0.461	−0.021	0.046
hearing_adm	−0.1968	0.183	−1.073	0.283	−0.556	0.163
vision_adm	−0.5956	0.146	−4.075	0.000	−0.882	−0.309
health_lit_adm	−0.5372	0.097	−5.512	0.000	−0.728	−0.346
expression_adm	0.1983	0.205	0.966	0.334	−0.204	0.601
understand_verbal_adm	0.9878	0.230	4.290	0.000	0.536	1.439
conduct_bims	−0.3586	0.851	−0.421	0.673	−2.026	1.309

	coef	std err	z	P>|z|	[0.025	0.975]
bims_total	0.3422	0.040	8.631	0.000	0.264	0.420
conduct_sams	−1.8707	1.462	−1.279	0.201	−4.737	0.996
sams_season	1.8640	1.038	1.796	0.072	−0.170	3.898
sams_room	−2.6534	1.514	−1.753	0.080	−5.620	0.313
sams_names	−1.5853	1.216	−1.304	0.192	−3.968	0.798
sams_hosp	0.4905	0.752	0.652	0.514	−0.983	1.964
acute_mental_change	−0.1550	0.302	−0.514	0.607	−0.746	0.436
mood_total_adm	0.0457	0.047	0.966	0.334	−0.047	0.139
socisolation_adm	−0.0836	0.152	−0.549	0.583	−0.382	0.215
selfcare_prior	2.4116	0.458	5.270	0.000	1.515	3.309
mobility_prior	0.0068	0.596	0.011	0.991	−1.162	1.175
stairs_prior	1.3883	0.479	2.901	0.004	0.450	2.326
func_cog_prior	0.1550	0.355	0.437	0.662	−0.540	0.850
wc_manual_prior	−0.1337	0.543	−0.246	0.805	−1.197	0.930
wc_motor_prior	−1.1698	1.000	−1.170	0.242	−3.129	0.790

walker_prior	−1.1866	0.295	−4.025	0.000	−1.765
−0.609					
selfcare_measure_adm	−0.7197	0.025	−29.342	0.000	−0.768
−0.672					
mobility_measure_adm	0.3293	0.023	14.092	0.000	0.283
0.375					
wc_user	−0.8260	0.558	−1.481	0.139	−1.919
0.267					
wheel50ft_adm	0.8307	0.215	3.867	0.000	0.410
1.252					
wheel150ft_adm	0.0023	0.213	0.011	0.991	−0.416
0.420					
bladder_incontinence	−1.3051	0.106	−12.275	0.000	−1.513
−1.097					
bowel_incontinence	0.1694	0.144	1.180	0.238	−0.112
0.451					
pvd_comorbid	−0.5738	0.454	−1.263	0.207	−1.464
0.317					
diabetes_comorbid	−0.6823	0.352	−1.941	0.052	−1.371
0.007					
pain_sleep_adm	0.0033	0.124	0.026	0.979	−0.240
0.247					
pain_therapy_adm	−0.2611	0.119	−2.195	0.028	−0.494
−0.028					
pain_activities_adm	0.4263	0.146	2.919	0.004	0.140
0.713					
nutrition_tube_adm	−1.2339	0.495	−2.491	0.013	−2.205
−0.263					
nutrition_mech_diet_adm	−1.7600	0.243	−7.251	0.000	−2.236
−1.284					

	coef	std err	z	P>|z|	[0.025	0.975]
nutrition_ther_diet_adm	0.3760	0.235	1.599	0.110	−0.085	0.837
antipsychotic_taking_adm	−0.5821	1.671	−0.348	0.728	−3.857	2.693
antipsychotic_ind_adm	−0.4759	1.706	−0.279	0.780	−3.820	2.868
anticoagulant_taking_adm	−1.5191	0.919	−1.652	0.098	−3.321	0.283
anticoagulant_ind_adm	0.7229	0.910	0.794	0.427	−1.061	2.507
antibiotic_taking_adm	1.6361	1.720	0.951	0.342	−1.735	5.008
antibiotic_ind_adm	−1.6625	1.740	−0.956	0.339	−5.073	1.747
opioid_taking_adm	−1.7139	1.961	−0.874	0.382	−5.557	2.129
opioid_ind_adm	1.2763	1.970	0.648	0.517	−2.585	5.137
antiplatelet_taking_adm	−0.0842	0.735	−0.115	0.909	−1.525	1.357
antiplatelet_ind_adm	0.2678	0.727	0.369	0.712	−1.156	1.692
hypoglycemic_taking_adm	−0.5419	1.111	−0.488	0.626	−2.719	1.635
hypoglycemic_ind_adm	0.2631	1.094	0.241	0.810	−1.880	2.407
oxygen_adm	1.1844	1.434	0.826	0.409	−1.627	3.996
oxygen_cont_adm	−1.2650	1.371	−0.923	0.356	−3.951	1.421

	coef	std err	z	P>|z|	[0.025	0.975]
oxygen_int_adm	−0.7189	1.392	−0.517	0.606	−3.447	2.009
suctioning_adm	−4.3093	3.588	−1.201	0.230	−11.343	2.724
suctioning_asneeded_adm	2.5420	3.700	0.687	0.492	−4.710	9.794
trach_adm	1.1673	1.566	0.745	0.456	−1.902	4.237
vent_noninvasive_adm	0.8844	1.374	0.644	0.520	−1.809	3.578
vent_cpap_adm	0.5856	1.460	0.401	0.688	−2.275	3.446
meds_iv_adm	0.8240	0.933	0.883	0.377	−1.004	2.653
meds_iv_antibiotic_adm	1.0856	0.922	1.177	0.239	−0.722	2.893
meds_iv_other_adm	−0.3320	0.902	−0.368	0.713	−2.100	1.436
dialysis_adm	−2.3172	2.264	−1.024	0.306	−6.754	2.120
hemodialysis_adm	2.6135	2.225	1.174	0.240	−1.748	6.975
iv_access_adm	−5.2678	1.450	−3.633	0.000	−8.110	−2.426
iv_access_periph_adm	3.4068	1.425	2.390	0.017	0.613	6.200
iv_access_mid_adm	3.9984	1.532	2.610	0.009	0.996	7.001
iv_access_cent_adm	2.3335	1.402	1.664	0.096	−0.415	5.082

	coef	std err	z	P>|z|	[0.025	0.975]
age_at_admit	−0.1255	0.012	−10.646	0.000	−0.149	−0.102
los	0.0713	0.015	4.741	0.000	0.042	0.101
cmg	−4.6050	0.143	−32.312	0.000	−4.884	−4.326
sex_male	−2.1899	0.286	−7.649	0.000	−2.751	−1.629
marital_status_Unknown	0.7097	0.473	1.501	0.133	−0.217	1.637
marital_status_Unmarried	1.1208	0.227	4.931	0.000	0.675	1.566
admitclass_Other	−11.0319	1.192	−9.255	0.000	−13.368	−8.696
admitclass_Readmission	−2.3567	0.575	−4.101	0.000	−3.483	−1.230
admitclass_Unknown	2.1217	0.402	5.282	0.000	1.334	2.909
admit_from_Other_facility	0.2252	0.910	0.248	0.804	−1.558	2.008
admit_from_Short−term_hospital	1.7143	0.731	2.347	0.019	0.282	3.146
payor_primary_Medicare_FFS	0.9681	0.266	3.636	0.000	0.446	1.490
payor_primary_Not_listed	0.6020	0.331	1.820	0.069	−0.046	1.250
hispanic_Yes	1.4207	0.483	2.944	0.003	0.475	2.366
race_Asian_Indian	2.7139	1.993	1.362	0.173	−1.192	6.620

	coef	std err	z	P>|z|	[0.025	0.975]
race_Black	−0.1797	1.535	−0.117	0.907	−3.188	2.828
race_East_Asian	0.5743	2.039	0.282	0.778	−3.422	4.571
race_Pacific_islander	−1.1558	2.654	−0.435	0.663	−6.358	4.046
race_Southeast_Asian	0.7440	1.715	0.434	0.664	−2.617	4.105
race_Unknown	1.2954	1.588	0.816	0.414	−1.816	4.407
race_White	1.1775	1.524	0.773	0.440	−1.809	4.164
language_Non−English	−0.6186	0.547	−1.131	0.258	−1.690	0.453
transport_lack_Unknown	0.2506	0.542	0.462	0.644	−0.812	1.313
transport_lack_Yes	0.6128	0.585	1.048	0.294	−0.533	1.758
inattention_adm_Fluctuates	−0.3091	0.577	−0.536	0.592	−1.439	0.821
inattention_adm_Not_present	0.8673	0.576	1.506	0.132	−0.262	1.996
disorganized_adm_Fluctuates	−0.6088	0.656	−0.929	0.353	−1.894	0.676
disorganized_adm_Not_present	0.1147	0.620	0.185	0.853	−1.101	1.330
altered_adm_Fluctuates	0.6213	0.907	0.685	0.493	−1.156	2.398
altered_adm_Not_present	−0.5421	0.816	−0.664	0.507	−2.142	1.058

	coef	std err	t	P>|t|	[0.025	0.975]
wc50_type_manual	−0.8481	2.596	−0.327	0.744	−5.936	4.240
wc50_type_motorized	0.0221	2.724	0.008	0.994	−5.317	5.361
wc150_type_manual	−0.4343	2.578	−0.168	0.866	−5.487	4.619
wc150_type_motorized	−0.3916	2.674	−0.146	0.884	−5.633	4.850
falls_hx_Unknown	−0.7952	0.531	−1.497	0.134	−1.836	0.246
falls_hx_Yes	−0.8844	0.236	−3.746	0.000	−1.347	−0.422
prior_surgery_Unknown	0.3126	0.645	0.485	0.628	−0.951	1.576
prior_surgery_Yes	0.0302	0.273	0.111	0.912	−0.505	0.565
drug_regimen_review_Not_applicable	−2.4391	1.206	−2.023	0.043	−4.802	−0.076
drug_regimen_review_Yes	0.3324	0.347	0.958	0.338	−0.347	1.012
tier_2	−0.7145	1.275	−0.560	0.575	−3.214	1.785
tier_3	0.0399	0.924	0.043	0.966	−1.771	1.851
tier_Unknown	0.6671	0.935	0.713	0.476	−1.166	2.500

==

Omnibus:	157.644	Durbin−Watson:	1.984
Prob(Omnibus):	0.000	Jarque−Bera (JB):	218.338
Skew:	−0.060	Prob(JB):	3.88e−48
Kurtosis:	3.411	Cond. No.	1.03e+16

```
===========================================================================
```

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
[2] The smallest eigenvalue is 1.42e-22. This might indicate that there are
strong multicollinearity problems or that the design matrix is singular.

Mobility

```
                          OLS Regression Results
==============================================================================
Dep. Variable:     mobility_measure_delta   R-squared:                   0.247
Model:                               OLS    Adj. R-squared:              0.243
Method:                    Least Squares    F-statistic:                 70.16
Date:                   Tue, 05 Nov 2024    Prob (F-statistic):           0.00
Time:                           17:56:29    Log-Likelihood:         -1.2310e+05
No. Observations:                  28625    AIC:                     2.465e+05
Df Residuals:                      28491    BIC:                     2.476e+05
Df Model:                            133
Covariance Type:                nonrobust
==============================================================================
=
                         coef    std err          t      P>|t|      [0.025
0.975]
------------------------------------------------------------------------------
-
const                 371.7695     15.980     23.264      0.000     340.447
403.092
heightinches           -0.0289      0.034     -0.855      0.392      -0.095
0.037
```

	coef	std err	t	P>|t|	[0.025	0.975]
weightpounds	0.0206	0.003	7.621	0.000	0.015	0.026
ptindweek1	0.0267	0.001	18.240	0.000	0.024	0.030
ptconweek1	0.0232	0.007	3.484	0.000	0.010	0.036
ptgrpweek1	0.0494	0.004	12.278	0.000	0.042	0.057
ptcoweek1	0.0257	0.016	1.611	0.107	−0.006	0.057
otindweek1	0.0171	0.002	11.390	0.000	0.014	0.020
otconweek1	0.0236	0.008	2.999	0.003	0.008	0.039
otgrpweek1	0.0323	0.004	7.986	0.000	0.024	0.040
otcoweek1	0.0052	0.016	0.319	0.750	−0.027	0.037
slpindweek1	0.0144	0.002	9.218	0.000	0.011	0.017
slpconweek1	0.0686	0.024	2.863	0.004	0.022	0.116
slpgrpweek1	0.0204	0.007	3.071	0.002	0.007	0.033
slpcoweek1	−0.0130	0.024	−0.548	0.584	−0.060	0.034
ptindweek2	−0.0012	0.001	−0.900	0.368	−0.004	0.001
ptconweek2	0.0053	0.006	0.813	0.416	−0.007	0.018

	coef	std err	z	P>|z|	[0.025	0.975]
ptgrpweek2	0.0160	0.003	4.922	0.000	0.010	0.022
ptcoweek2	0.0015	0.014	0.108	0.914	−0.026	0.028
otindweek2	−0.0016	0.001	−1.187	0.235	−0.004	0.001
otconweek2	−0.0004	0.007	−0.058	0.954	−0.014	0.013
otgrpweek2	0.0073	0.003	2.231	0.026	0.001	0.014
otcoweek2	−0.0149	0.014	−1.061	0.289	−0.042	0.013
slpindweek2	0.0029	0.001	2.053	0.040	0.000	0.006
slpconweek2	−0.0192	0.018	−1.081	0.280	−0.054	0.016
slpgrpweek2	−0.0022	0.005	−0.447	0.655	−0.012	0.008
slpcoweek2	0.0243	0.017	1.401	0.161	−0.010	0.058
hearing_adm	−0.0539	0.185	−0.292	0.770	−0.416	0.308
vision_adm	−0.7562	0.147	−5.140	0.000	−1.045	−0.468
health_lit_adm	−0.4220	0.098	−4.302	0.000	−0.614	−0.230
expression_adm	−0.0671	0.207	−0.325	0.745	−0.472	0.338
understand_verbal_adm	0.7825	0.232	3.376	0.001	0.328	1.237

	coef	std err	z	P>|z|	[0.025	0.975]
conduct_bims	0.0087	0.857	0.010	0.992	−1.670	1.688
bims_total	0.1965	0.040	4.923	0.000	0.118	0.275
conduct_sams	−1.1848	1.472	−0.805	0.421	−4.070	1.701
sams_season	1.4498	1.045	1.388	0.165	−0.598	3.498
sams_room	−3.4308	1.524	−2.252	0.024	−6.417	−0.444
sams_names	−1.0247	1.224	−0.837	0.402	−3.424	1.374
sams_hosp	0.9462	0.757	1.250	0.211	−0.538	2.430
acute_mental_change	0.0472	0.304	0.155	0.877	−0.548	0.642
mood_total_adm	−0.0080	0.048	−0.168	0.867	−0.101	0.085
socisolation_adm	0.0210	0.153	0.137	0.891	−0.279	0.321
selfcare_prior	1.2162	0.461	2.640	0.008	0.313	2.119
mobility_prior	0.5715	0.600	0.952	0.341	−0.605	1.748
stairs_prior	1.1850	0.482	2.460	0.014	0.241	2.129
func_cog_prior	−0.0402	0.357	−0.113	0.910	−0.740	0.660
wc_manual_prior	−1.3528	0.546	−2.476	0.013	−2.424	−0.282

	coef	std err	z	P>|z|	[0.025	0.975]
wc_motor_prior	−2.9662	1.006	−2.947	0.003	−4.939	−0.994
walker_prior	−2.3700	0.297	−7.985	0.000	−2.952	−1.788
selfcare_measure_adm	0.0345	0.025	1.395	0.163	−0.014	0.083
mobility_measure_adm	−0.1886	0.024	−8.020	0.000	−0.235	−0.143
wc_user	−1.8802	0.561	−3.349	0.001	−2.981	−0.780
wheel50ft_adm	0.5035	0.216	2.329	0.020	0.080	0.927
wheel150ft_adm	0.1734	0.215	0.807	0.419	−0.248	0.594
bladder_incontinence	−0.9666	0.107	−9.031	0.000	−1.176	−0.757
bowel_incontinence	−0.0516	0.144	−0.357	0.721	−0.335	0.232
pvd_comorbid	−0.9006	0.457	−1.969	0.049	−1.797	−0.004
diabetes_comorbid	−1.1195	0.354	−3.163	0.002	−1.813	−0.426
pain_sleep_adm	0.0039	0.125	0.031	0.975	−0.241	0.249
pain_therapy_adm	−0.2395	0.120	−2.000	0.046	−0.474	−0.005
pain_activities_adm	0.3473	0.147	2.363	0.018	0.059	0.635
nutrition_tube_adm	−0.3488	0.499	−0.700	0.484	−1.326	0.629

	coef	std err	z	P>|z|	[0.025	0.975]
nutrition_mech_diet_adm	−1.2028	0.244	−4.923	0.000	−1.682	−0.724
nutrition_ther_diet_adm	0.4249	0.237	1.796	0.073	−0.039	0.889
antipsychotic_taking_adm	−1.1066	1.682	−0.658	0.511	−4.404	2.190
antipsychotic_ind_adm	0.4619	1.717	0.269	0.788	−2.904	3.828
anticoagulant_taking_adm	−0.6289	0.926	−0.679	0.497	−2.443	1.185
anticoagulant_ind_adm	0.3864	0.916	0.422	0.673	−1.410	2.182
antibiotic_taking_adm	2.4688	1.732	1.426	0.154	−0.925	5.863
antibiotic_ind_adm	−2.4965	1.751	−1.425	0.154	−5.929	0.936
opioid_taking_adm	−1.3390	1.974	−0.678	0.497	−5.207	2.529
opioid_ind_adm	0.4899	1.983	0.247	0.805	−3.397	4.377
antiplatelet_taking_adm	0.2138	0.740	0.289	0.773	−1.237	1.664
antiplatelet_ind_adm	−0.0632	0.731	−0.086	0.931	−1.497	1.370
hypoglycemic_taking_adm	−0.2858	1.118	−0.256	0.798	−2.477	1.906
hypoglycemic_ind_adm	−0.0791	1.101	−0.072	0.943	−2.237	2.079
oxygen_adm	1.8312	1.444	1.268	0.205	−0.999	4.661

	coef	std err	z	P>|z|	[0.025	0.975]
oxygen_cont_adm	−2.0469	1.380	−1.484	0.138	−4.751	0.657
oxygen_int_adm	−1.1392	1.401	−0.813	0.416	−3.885	1.607
suctioning_adm	−2.2917	3.612	−0.634	0.526	−9.372	4.788
suctioning_asneeded_adm	0.4977	3.725	0.134	0.894	−6.803	7.798
trach_adm	0.7906	1.576	0.502	0.616	−2.299	3.880
vent_noninvasive_adm	1.1613	1.383	0.840	0.401	−1.550	3.872
vent_cpap_adm	0.4988	1.469	0.339	0.734	−2.381	3.379
meds_iv_adm	0.2319	0.939	0.247	0.805	−1.609	2.073
meds_iv_antibiotic_adm	0.2583	0.928	0.278	0.781	−1.561	2.078
meds_iv_other_adm	0.1727	0.908	0.190	0.849	−1.607	1.953
dialysis_adm	−2.3885	2.279	−1.048	0.295	−6.855	2.078
hemodialysis_adm	1.7202	2.240	0.768	0.443	−2.670	6.111
iv_access_adm	−4.0016	1.460	−2.742	0.006	−6.862	−1.141
iv_access_periph_adm	2.1101	1.435	1.471	0.141	−0.702	4.922
iv_access_mid_adm	2.8664	1.542	1.859	0.063	−0.156	5.888

	coef	std err	z	P>|z|	[0.025	0.975]
iv_access_cent_adm	2.3568	1.412	1.669	0.095	−0.410	5.124
age_at_admit	−0.1177	0.012	−9.916	0.000	−0.141	−0.094
los	0.0619	0.015	4.094	0.000	0.032	0.092
cmg	−3.6074	0.143	−25.146	0.000	−3.889	−3.326
sex_male	−0.5732	0.288	−1.989	0.047	−1.138	−0.008
marital_status_Unknown	−0.0565	0.476	−0.119	0.905	−0.990	0.877
marital_status_Unmarried	0.6479	0.229	2.832	0.005	0.199	1.096
admitclass_Other	−11.4505	1.200	−9.543	0.000	−13.802	−9.099
admitclass_Readmission	−3.1474	0.578	−5.441	0.000	−4.281	−2.013
admitclass_Unknown	1.3064	0.404	3.231	0.001	0.514	2.099
admit_from_Other_facility	−0.3406	0.916	−0.372	0.710	−2.135	1.454
admit_from_Short−term_hospital	2.5978	0.735	3.532	0.000	1.156	4.039
payor_primary_Medicare_FFS	0.7730	0.268	2.884	0.004	0.248	1.298
payor_primary_Not_listed	1.1165	0.333	3.354	0.001	0.464	1.769
hispanic_Yes	1.8796	0.486	3.870	0.000	0.928	2.832

	coef	std err	z	P>|z|	[0.025	0.975]
race_Asian_Indian	5.3872	2.006	2.686	0.007	1.455	9.319
race_Black	1.4279	1.545	0.924	0.355	-1.600	4.456
race_East_Asian	1.3035	2.052	0.635	0.525	-2.719	5.326
race_Pacific_islander	1.5683	2.672	0.587	0.557	-3.668	6.805
race_Southeast_Asian	2.4589	1.726	1.424	0.154	-0.925	5.842
race_Unknown	1.6330	1.598	1.022	0.307	-1.499	4.765
race_White	2.3491	1.534	1.532	0.126	-0.657	5.355
language_Non-English	-0.4321	0.550	-0.785	0.432	-1.511	0.647
transport_lack_Unknown	-0.0625	0.546	-0.115	0.909	-1.132	1.007
transport_lack_Yes	-0.6470	0.588	-1.100	0.272	-1.800	0.506
inattention_adm_Fluctuates	-0.1944	0.580	-0.335	0.738	-1.332	0.943
inattention_adm_Not_present	0.5315	0.580	0.917	0.359	-0.605	1.668
disorganized_adm_Fluctuates	-0.8561	0.660	-1.297	0.195	-2.150	0.438
disorganized_adm_Not_present	-0.1384	0.624	-0.222	0.825	-1.362	1.085
altered_adm_Fluctuates	0.5702	0.913	0.625	0.532	-1.219	2.359

	coef	std err	t	P>|t|	[0.025	0.975]
altered_adm_Not_present	-0.3567	0.822	-0.434	0.664	-1.967	1.254
wc50_type_manual	-2.4024	2.613	-0.919	0.358	-7.524	2.719
wc50_type_motorized	0.5222	2.742	0.190	0.849	-4.852	5.897
wc150_type_manual	1.4868	2.595	0.573	0.567	-3.600	6.573
wc150_type_motorized	-3.3670	2.692	-1.251	0.211	-8.643	1.909
falls_hx_Unknown	-1.1212	0.535	-2.098	0.036	-2.169	-0.074
falls_hx_Yes	-1.4308	0.238	-6.020	0.000	-1.897	-0.965
prior_surgery_Unknown	-0.0934	0.649	-0.144	0.886	-1.366	1.179
prior_surgery_Yes	0.4335	0.275	1.578	0.115	-0.105	0.972
drug_regimen_review_Not_applicable	-1.1944	1.214	-0.984	0.325	-3.573	1.184
drug_regimen_review_Yes	0.7001	0.349	2.005	0.045	0.016	1.384
tier_2	-0.0416	1.284	-0.032	0.974	-2.558	2.475
tier_3	0.9509	0.930	1.022	0.307	-0.872	2.774
tier_Unknown	1.6247	0.942	1.726	0.084	-0.221	3.470

```
==============================================================================
Omnibus:                     1189.114   Durbin-Watson:                   2.020
Prob(Omnibus):                  0.000   Jarque-Bera (JB):             2040.361
```

```
Skew:                       0.351    Prob(JB):                          0.00
Kurtosis:                   4.104    Cond. No.                      1.03e+16
=================================================================

Notes:
[1] Standard Errors assume that the covariance matrix of the errors is correctly specified.
[2] The smallest eigenvalue is 1.42e-22. This might indicate that there are
strong multicollinearity problems or that the design matrix is singular.
```

4 Lasso Regression

Alpha = 0.01

Selfcare

```
---------- Train Set Results ----------
MSE: 314.3998
R²: 0.3101
---------- Eval Set Results ----------
MSE: 303.8687
R²: 0.3295
---------- Test Set Results ----------
MSE: 311.7511
R²: 0.3058

---------- Model Summary: Non-zero Coefficients ----------
    Feature                            Coefficient
---  ------------------------------  -------------
  0  selfcare_prior                        2.39751
```

1	admitclass_Unknown	2.00542
2	stairs_prior	1.42072
3	admit_from_Short-term_hospital	1.38099
4	hispanic_Yes	1.19128
5	marital_status_Unmarried	1.0527
6	understand_verbal_adm	0.9923
7	meds_iv_antibiotic_adm	0.906835
8	payor_primary_Medicare_FFS	0.865237
9	inattention_adm_Not_present	0.831454
10	wheel50ft_adm	0.801865
11	vent_noninvasive_adm	0.754105
12	tier_Unknown	0.621055
13	sams_season	0.600677
14	payor_primary_Not_listed	0.509162
15	marital_status_Unknown	0.472033
16	altered_adm_Fluctuates	0.447462
17	meds_iv_adm	0.434721
18	pain_activities_adm	0.402841
19	vent_cpap_adm	0.399555
20	nutrition_ther_diet_adm	0.349424
21	iv_access_mid_adm	0.348507
22	bims_total	0.343399
23	mobility_measure_adm	0.331358
24	oxygen_int_adm	0.304638
25	transport_lack_Yes	0.247966
26	drug_regimen_review_Yes	0.232384
27	expression_adm	0.195301
28	race_White	0.161821
29	antiplatelet_ind_adm	0.158802
30	race_Unknown	0.151276
31	func_cog_prior	0.136997

32	bowel_incontinence	0.134582
33	race_Asian_Indian	0.0968985
34	disorganized_adm_Not_present	0.0937709
35	slpconweek1	0.0772565
36	los	0.0723812
37	ptgrpweek1	0.0433044
38	mood_total_adm	0.0401251
39	otconweek1	0.0383351
40	ptconweek1	0.0340662
41	ptcoweek1	0.030615
42	otgrpweek1	0.0305066
43	weightpounds	0.0301121
44	ptindweek1	0.0259642
45	heightinches	0.0215258
46	otindweek1	0.0209847
47	ptgrpweek2	0.0163378
48	otgrpweek2	0.0149469
49	slpcoweek2	0.0129195
50	slpgrpweek1	0.0107638
51	slpindweek1	0.0101203
52	otconweek2	0.00837071
53	ptconweek2	0.00642765
54	wheel150ft_adm	0.00639419
55	slpgrpweek2	0.00575785
56	slpcoweek1	0.00543651
57	otcoweek2	0.00460399
58	otindweek2	0.00153546
59	slpindweek2	0.000792061
60	ptindweek2	−0.000659982
61	otcoweek1	−0.00204263
62	ptcoweek2	−0.00539651

63	tier_2	−0.0119519
64	wc_manual_prior	−0.0159114
65	slpconweek2	−0.0167844
66	socisolation_adm	−0.0578502
67	acute_mental_change	−0.116818
68	age_at_admit	−0.126492
69	hearing_adm	−0.177775
70	iv_access_cent_adm	−0.191485
71	antipsychotic_ind_adm	−0.197786
72	wc50_type_manual	−0.204446
73	pain_therapy_adm	−0.237285
74	inattention_adm_Fluctuates	−0.262245
75	hypoglycemic_taking_adm	−0.265718
76	wc_motor_prior	−0.27736
77	language_Non−English	−0.295282
78	opioid_taking_adm	−0.413698
79	altered_adm_Not_present	−0.422813
80	pvd_comorbid	−0.433509
81	falls_hx_Unknown	−0.453386
82	sams_names	−0.501323
83	health_lit_adm	−0.543034
84	disorganized_adm_Fluctuates	−0.566296
85	vision_adm	−0.573041
86	sams_room	−0.588371
87	suctioning_adm	−0.595417
88	diabetes_comorbid	−0.657504
89	selfcare_measure_adm	−0.71615
90	antipsychotic_taking_adm	−0.72325
91	anticoagulant_taking_adm	−0.73647
92	falls_hx_Yes	−0.81496
93	nutrition_tube_adm	−1.0422

```
 94  race_Black                          -1.1343
 95  drug_regimen_review_Not_applicable  -1.15008
 96  walker_prior                        -1.15993
 97  bladder_incontinence                -1.30364
 98  nutrition_mech_diet_adm             -1.69759
 99  iv_access_adm                       -1.77231
100  wc_user                             -1.87079
101  admitclass_Readmission              -2.03416
102  sex_male                            -2.1092
103  cmg                                 -4.60291
104  admitclass_Other                    -9.78954
```

Mobility

```
---------- Train Set Results ----------
MSE: 318.5434
R²: 0.2460
---------- Eval Set Results ----------
MSE: 307.8166
R²: 0.2698
---------- Test Set Results ----------
MSE: 309.6373
R²: 0.2593


---------- Model Summary: Non-zero Coefficients ----------
     Feature                         Coefficient
---  ------------------------------  -------------
  0  admit_from_Short-term_hospital  2.64211
  1  race_Asian_Indian               1.95971
```

2	hispanic_Yes	1.51074
3	tier_Unknown	1.3215
4	stairs_prior	1.23316
5	selfcare_prior	1.19094
6	admitclass_Unknown	1.19048
7	payor_primary_Not_listed	1.0454
8	vent_noninvasive_adm	1.01918
9	understand_verbal_adm	0.746554
10	payor_primary_Medicare_FFS	0.671067
11	tier_3	0.642546
12	drug_regimen_review_Yes	0.615802
13	marital_status_Unmarried	0.59816
14	race_White	0.580659
15	mobility_prior	0.515323
16	wheel50ft_adm	0.49062
17	oxygen_int_adm	0.46661
18	sams_hosp	0.412587
19	altered_adm_Fluctuates	0.399983
20	nutrition_ther_diet_adm	0.393349
21	inattention_adm_Not_present	0.37642
22	prior_surgery_Yes	0.350453
23	vent_cpap_adm	0.347872
24	pain_activities_adm	0.320147
25	meds_iv_adm	0.269937
26	bims_total	0.195895
27	wheel150ft_adm	0.160772
28	sams_season	0.143984
29	antiplatelet_taking_adm	0.098298
30	slpconweek1	0.0676826
31	los	0.062349
32	ptgrpweek1	0.0500156

33	selfcare_measure_adm	0.0366464
34	otgrpweek1	0.0326333
35	ptindweek1	0.0270125
36	ptcoweek1	0.0268248
37	ptconweek1	0.0237012
38	slpcoweek2	0.0235406
39	otconweek1	0.0235084
40	weightpounds	0.0207525
41	slpgrpweek1	0.0205976
42	otindweek1	0.0171955
43	ptgrpweek2	0.0158848
44	slpindweek1	0.0146886
45	otgrpweek2	0.00728166
46	ptconweek2	0.00521565
47	otcoweek1	0.00392484
48	slpindweek2	0.002869
49	ptcoweek2	0.0014965
50	antiplatelet_ind_adm	0.000482431
51	otconweek2	−9.02456e−05
52	ptindweek2	−0.00127416
53	otindweek2	−0.00165366
54	slpgrpweek2	−0.00196182
55	mood_total_adm	−0.00593689
56	slpcoweek1	−0.0103958
57	otcoweek2	−0.0148108
58	slpconweek2	−0.0191357
59	admit_from_Other_facility	−0.0241453
60	heightinches	−0.0378666
61	hearing_adm	−0.0395392
62	hypoglycemic_ind_adm	−0.0467985
63	bowel_incontinence	−0.0486658

64	sams_names	−0.0556964
65	language_Non−English	−0.0838041
66	age_at_admit	−0.117533
67	mobility_measure_adm	−0.183679
68	anticoagulant_taking_adm	−0.185032
69	nutrition_tube_adm	−0.194402
70	inattention_adm_Fluctuates	−0.209251
71	pain_therapy_adm	−0.216866
72	oxygen_cont_adm	−0.25519
73	iv_access_periph_adm	−0.261398
74	altered_adm_Not_present	−0.266616
75	hypoglycemic_taking_adm	−0.292736
76	race_Black	−0.323112
77	transport_lack_Yes	−0.371315
78	health_lit_adm	−0.423896
79	dialysis_adm	−0.47499
80	sex_male	−0.482218
81	antipsychotic_taking_adm	−0.562639
82	disorganized_adm_Fluctuates	−0.652764
83	vision_adm	−0.746798
84	pvd_comorbid	−0.761576
85	opioid_taking_adm	−0.793968
86	suctioning_adm	−0.850123
87	falls_hx_Unknown	−0.975996
88	bladder_incontinence	−0.985781
89	diabetes_comorbid	−1.0927
90	nutrition_mech_diet_adm	−1.12231
91	wc_manual_prior	−1.20954
92	falls_hx_Yes	−1.37998
93	iv_access_adm	−1.45368
94	sams_room	−1.58562

95	walker_prior	−2.32987
96	wc_motor_prior	−2.42778
97	wc_user	−2.77287
98	admitclass_Readmission	−2.8276
99	cmg	−3.59745
100	admitclass_Other	−10.2292