

Online Only Supplement for Development and Validation of the Fall-Related Injury Risk in Nursing Homes (INJURE-NH) Prediction Tool

Supplemental Figure S1. Flow diagram depicting the selection of long stay nursing home residents in the study sample, 2016-2017.

Supplemental Figure S2. Calibration plots of the observed risk of fall-related injury and the predicted risk from the INJURE-NH tool among long-stay nursing home residents in the validation sample.

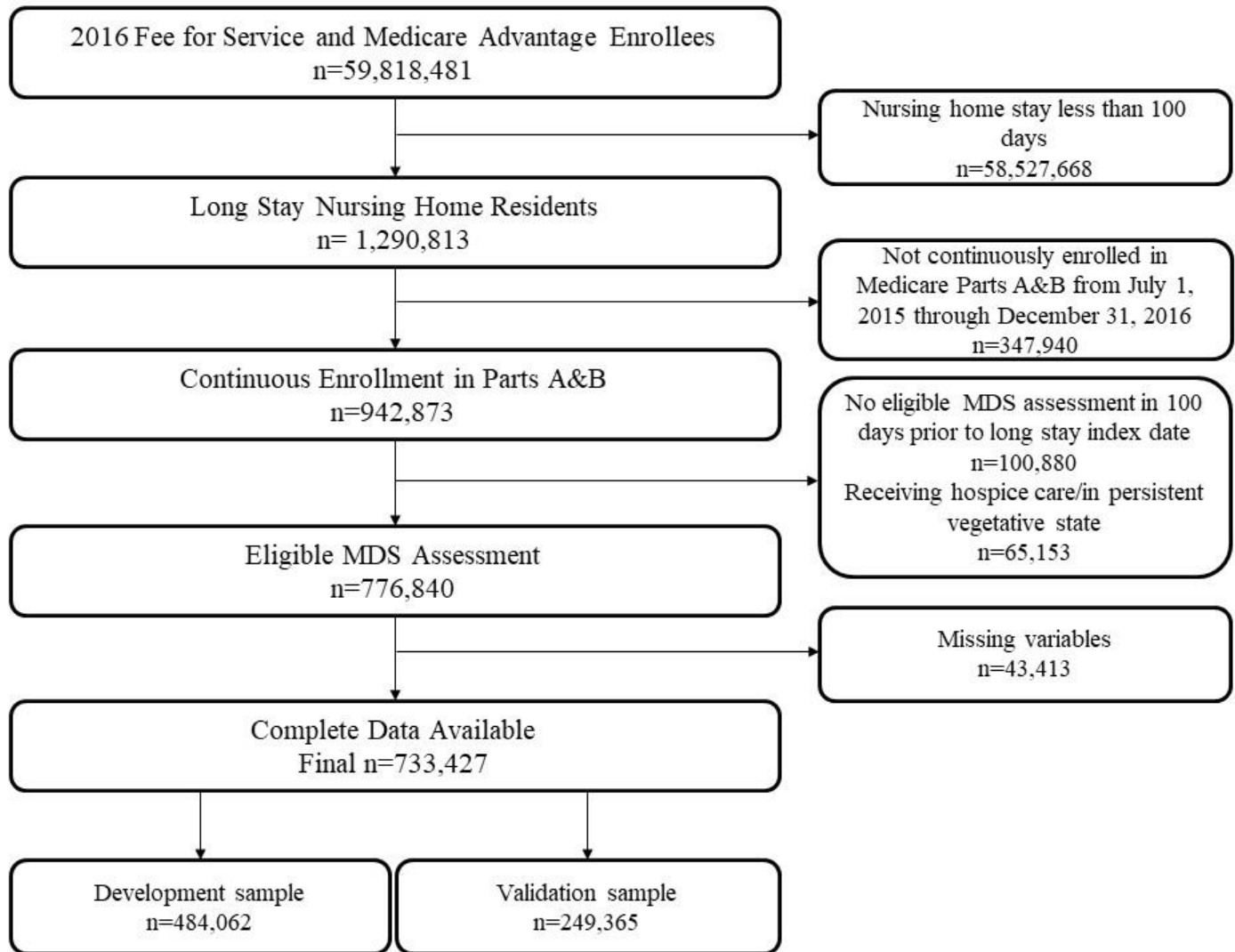
Supplemental Table S1. All characteristics considered for inclusion in risk tool.

Supplemental Table S2. Predictors of fall-related injuries included in the final 2-year Fine-Gray sub-distribution hazards regression model (INJURE-NH-Long), development sample.

Supplemental Table S3. Predictors of fall-related injuries included in the final 2-year Fine-Gray sub-distribution hazards regression model (INJURE-NH-Long), validation sample.

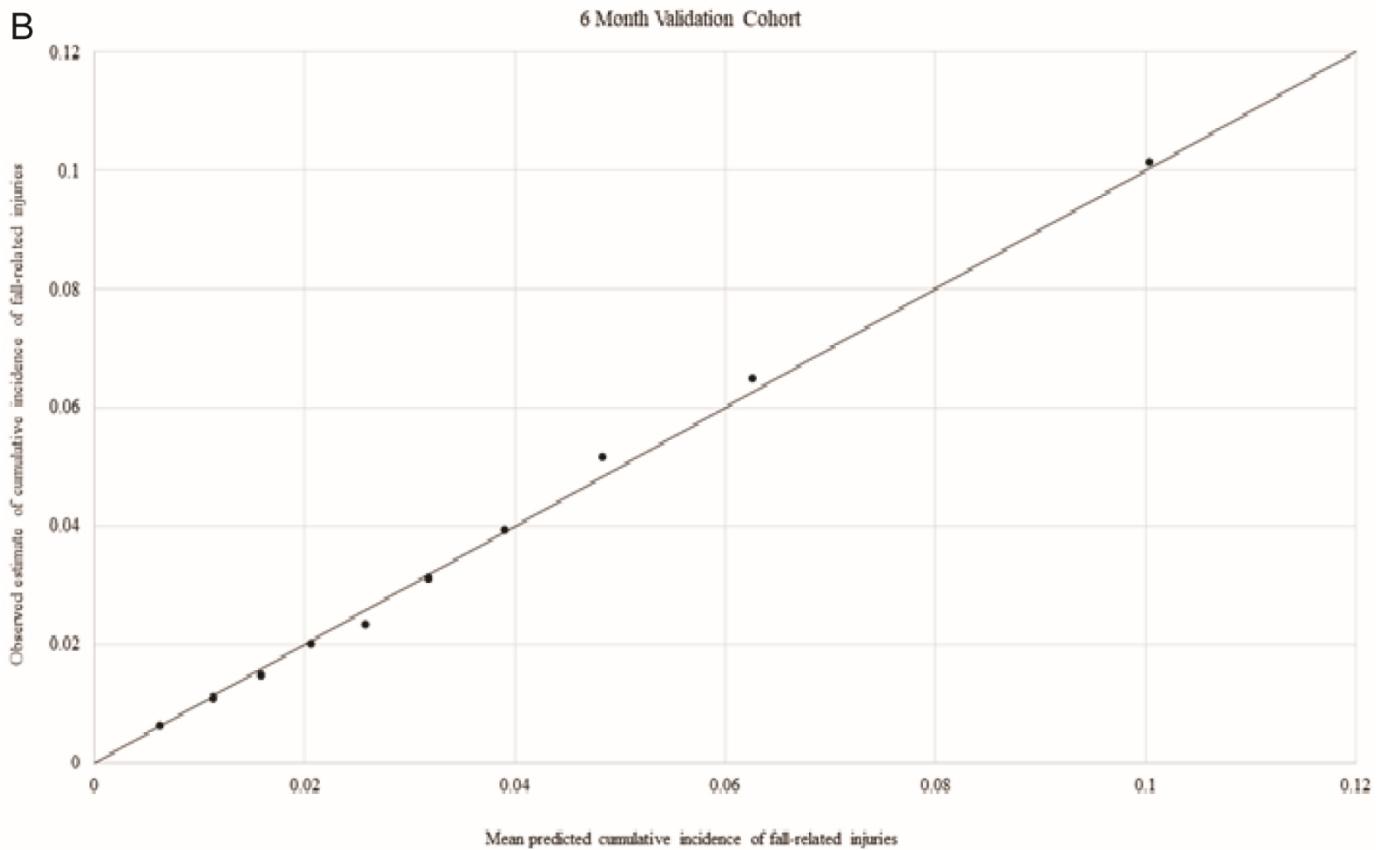
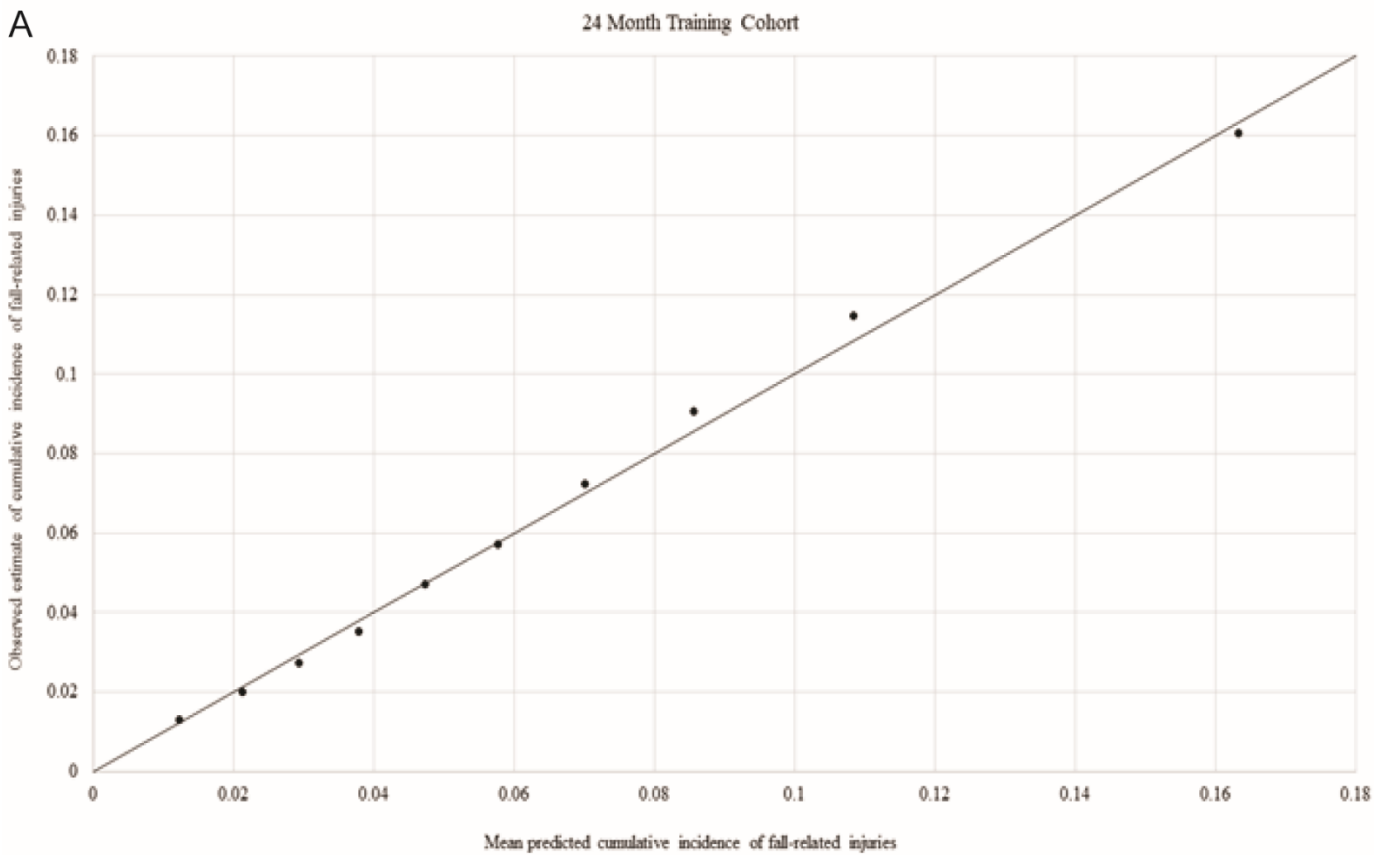
Supplemental Table S4. Predictors of fall-related injuries included in the final 6-month Fine-Gray sub-distribution hazards regression model (INJURE-NH-Long), development sample.

Supplemental Figure S1. Flow diagram depicting the selection of long stay nursing home residents in the study sample, 2016-2017.



Supplemental Figure S2. Calibration plots of the observed risk of fall-related injury and the predicted risk from the INJURE-NH tool among long-stay nursing home residents in the validation sample.

- a. 2-year risk, full model (INJURE-NH), validation sample (n=249,365)
- b. 6-month risk, full model (INJURE-NH), validation sample (n=249,365)



Supplemental Table S1. All characteristics considered for inclusion in risk tool

Variable name	Variable description	Functional form	Categories
A0800	Gender	Categorical	1: Male 2: Female
A0900	Age group	Categorical	0: 65 to <75 1: 75 to <85 2: 85 to <100 3: ≥ 100
B1000	Visual impairment	Categorical	0: Adequate/impaired (0, 1) 1: Moderate to severely impaired (2, 3, 4)
m3_CFS	Cognitive Function Scale (CFS)	Categorical	1: Intact 2: Mild impairment 3: Moderate impairment 4: Severe impairment
ADL_SF	Activities of Daily Living – Short Form ^b	Categorical	0: 0-8 1: 9-12 2: 13-16
I0800 ^a	Orthostatic Hypotension	Categorical	0: No 1: Yes
I2900 ^a	Diabetes	Categorical	0: No 1: Yes
I3900 ^a	Hip fracture	Categorical	0: No 1: Yes
J1800, J1900A-C ^a	Recent fall	Categorical	0: No fall (J1800=0) 1: Fall without injury (J1800A=1, J1900A=1, or J1900A=2) 2: Fall resulting in injury (J1900B=1, 2 OR J1900C=1, 2)
A1000	Race/Ethnicity	Categorical	0: American Indian or Alaska Native or Other or Unknown 1: Non-Hispanic White 2: Black or African American 3: Asian or Native Hawaiian or Other Pacific Islander 4: Hispanic or Latino
A1100A ^a	Use of an interpreter to communicate	Categorical	0: No 1: Yes 9: Unable to determine
A1200	Marital Status	Categorical	1: Never married 2: Married

			3: Widowed 4: Separated or divorced
A1900	Date of admission	Categorical	0: Newly admitted within previous 100 days 1: Not admitted within previous 100 days
B0200	Hearing difficulty	Categorical	0: Adequate 1: Minimal difficulty 2: Moderate difficulty or highly impaired (2, 3)
B0300 ^a	Hearing aid used	Categorical	0: No 1: Yes
B0700, B0800	Ability to be understood	Categorical	0: Always or usually 1: Rarely or never
B1200 ^a	Corrective lenses	Categorical	0: No 1: Yes
C1310A ^a	Evidence of acute change in mental status	Categorical	0: No 1: Yes
C1310B-D ^a	Delirium	Categorical	0: Behavior not present 1: Behavior present
D0100 ^a	Mood Interview Conducted	Categorical	0: No 1: Yes
D0300, D0600	Depression (scores combined into 1 variable)	Categorical	0: Minimal (≤ 4) 1: Mild (5-9) 2: Moderate to severe (≥ 10)
E0100A ^a	Hallucinations	Categorical	0: No 1: Yes
E0100B ^a	Delusions	Categorical	0: No 1: Yes
E0200A-C, E0800 ^a	Agitated and Reactive Behavior Scale	Categorical	0: None 1: Mild 2: Moderate to severe
E0200A-C, E0300, E0800, E0900 ^a	Individual Behaviors	Categorical	0: Behavior not present 1: Behavior present
E0500A ^a	Behaviors put resident at risk for injury	Categorical	0: No 1: Yes
E0500B ^a	Behaviors interfere with care	Categorical	0: No 1: Yes
E0500C ^a	Behaviors interfere with social activities or interactions	Categorical	0: No 1: Yes

E1000A ^a	Wandering places resident at significant risk of getting to a potentially dangerous place	Categorical	0: No 1: Yes
E1000B ^a	Wandering significantly intrudes on privacy or activity of others	Categorical	0: No 1: Yes
E1100 ^a	Change in behaviors compared to prior assessment	Categorical	0: Same 1: Improved 2: Worse 3: N/A
G0110A1	Bed mobility – self performance	Categorical	0: Independent 1: Supervision 2: Limited assistance 3: Extensive assistance 4: Total dependence
G0110B1	Transfer – self performance	Categorical	0: Independent 1: Supervision 2: Limited assistance 3: Extensive assistance 4: Total dependence
G0110C1	Walk in room – self performance	Categorical	0: Independent 1: Supervision 2: Limited assistance 3: Extensive assistance 4: Total dependence
G0100D1	Walk in corridor – self performance	Categorical	0: Independent 1: Supervision 2: Limited assistance 3: Extensive assistance 4: Total dependence
G0110E1	Locomotion on unit – self performance	Categorical	0: Independent 1: Supervision 2: Limited assistance 3: Extensive assistance 4: Total dependence
G0110F1	Locomotion off unit – self performance	Categorical	0: Independent 1: Supervision

G0110G1	Dressing – self performance	Categorical	2: Limited assistance 3: Extensive assistance 4: Total dependence 0: Independent 1: Supervision
G0110H1	Eating – self performance	Categorical	2: Limited assistance 3: Extensive assistance 4: Total dependence 0: Independent 1: Supervision
G0110I1	Toilet use – self performance	Categorical	2: Limited assistance 3: Extensive assistance 4: Total dependence 0: Independent 1: Supervision
G0110J1	Personal hygiene – self performance	Categorical	2: Limited assistance 3: Extensive assistance 4: Total dependence 0: Independent 1: Supervision
G0110A2	Bed mobility – support provided	Categorical	2: Limited assistance 3: Extensive assistance 4: Total dependence 0: No setup or physical help from staff 1: Setup help only 2: One person physical assist
G0110B2	Transfer – support provided	Categorical	3: Two + persons physical assist 0: No setup or physical help from staff 1: Setup help only 2: One person physical assist
G0110C2	Walk in room – support provided	Categorical	3: Two + persons physical assist 0: No setup or physical help from staff 1: Setup help only 2: One person physical assist
G0110D2	Walk in corridor – support provided	Categorical	3: Two + persons physical assist 0: No setup or physical help from staff

			1: Setup help only 2: One person physical assist 3: Two + persons physical assist
G0110E2	Locomotion on unit – support provided	Categorical	0: No setup or physical help from staff 1: Setup help only 2: One person physical assist 3: Two + persons physical assist
G0110F2	Locomotion off unit – support provided	Categorical	0: No setup or physical help from staff 1: Setup help only 2: One person physical assist 3: Two + persons physical assist
G0110G2	Dressing – support provided	Categorical	0: No setup or physical help from staff 1: Setup help only 2: One person physical assist 3: Two + persons physical assist
G0110H2	Eating – support provided	Categorical	0: No setup or physical help from staff 1: Setup help only 2: One person physical assist 3: Two + persons physical assist
G0110I2	Toilet use – support provided	Categorical	0: No setup or physical help from staff 1: Setup help only 2: One person physical assist 3: Two + persons physical assist
G0110J2	Personal hygiene	Categorical	0: No setup or physical help from staff 1: Setup help only 2: One person physical assist 3: Two + persons physical assist
G0120A	Self-performance bathing	Categorical	0: Independent 1: Limited Assistance 2: Extensive assistance 3: Dependent 4: Total dependence
G0120B	Support-provided bathing	Categorical	0: Independent 1: Limited Assistance 2: Extensive assistance 3: Dependent

G0120A	Bathing - support	Categorical	4: 2+ persons physical assist 0: Independent 1: Supervision 2: Physical help limited to transfer only 3: Physical help in part of bathing activity 4: Total dependence 8: Activity itself did not occur
G0120B	Bathing-support	Categorical	0: No setup or physical help from staff 1: Setup help only 2: One person physical assist 3: Two+ persons physical assist 8: ADL itself did not occur or family and/or non-facility staff provided care 100% of the time
G0300A	Moving from seated to standing position	Categorical	0: Steady at all times 1: Not steady, but able to stabilize without staff assistance 2: Not steady, only able to stabilize with staff assistance 8: Activity did not occur
G0300B	Walking (with assistive device if used)	Categorical	0: Steady at all times 1: Not steady, but able to stabilize without staff assistance 2: Not steady, only able to stabilize with staff assistance 8: Activity did not occur
G0300C	Turning around	Categorical	0: Steady at all times 1: Not steady, but able to stabilize without staff assistance 2: Not steady, only able to stabilize with staff assistance 8: Activity did not occur
G0300D	Moving on and off toilet	Categorical	0: Steady at all times 1: Not steady, but able to stabilize without staff assistance 2: Not steady, only able to stabilize with staff assistance 8: Activity did not occur
G0300E	Surface-to-surface transfer	Categorical	0: Steady at all times 1: Not steady, but able to stabilize without staff assistance 2: Not steady, only able to stabilize with staff assistance 8: Activity did not occur
G0400A	Functional limitation in upper extremity range of motion	Categorical	0: No impairment 1: Impairment on one side 2: Impairment on both sides
G0400B	Functional limitation in lower extremity range of motion	Categorical	0: No impairment 1: Impairment on one side 2: Impairment on both sides

G0600A ^a	Use of cane/crutch	Categorical	0: No 1: Yes
G0600B ^a	Use of walker	Categorical	0: No 1: Yes
G0600C ^a	Use of wheelchair	Categorical	0: No 1: Yes
G0600D ^a	Use of limb prosthesis	Categorical	0: No 1: Yes
H0100A ^a	Indwelling catheter	Categorical	0: No 1: Yes
H0100C ^a	Ostomy	Categorical	0: No 1: Yes
H0100D ^a	Intermittent catheterization	Categorical	0: No 1: Yes
H0300, H0400	Toileting continence	Categorical	0: Always continent 1: Occasionally incontinent 2: Frequently incontinent 3: Always incontinent 9: Not rated
H0600 ^a	Constipation	Categorical	0: No 1: Yes
I0100 ^a	Cancer	Categorical	0: No 1: Yes
I0200 ^a	Anemia	Categorical	0: No 1: Yes
I0300 ^a	Afib	Categorical	0: No 1: Yes
I0400 ^a	Coronary artery disease	Categorical	0: No 1: Yes
I0500 ^a	Deep Vein Thrombosis/Pulmonary Embolism	Categorical	0: No 1: Yes
I0600 ^a	Heart Failure	Categorical	0: No 1: Yes
I0700 ^a	Hypertension	Categorical	0: No 1: Yes
I0900 ^a		Categorical	0: No

	Peripheral Vascular Disease or Peripheral Arterial Disease		1: Yes
I1100 ^a	Cirrhosis	Categorical	0: No 1: Yes
I1200 ^a	Gastroesophageal Reflux Disease or Ulcer	Categorical	0: No 1: Yes
I1300 ^a	Ulcerative Colitis, Crohn's Disease, or Inflammatory Bowel Disease	Categorical	0: No 1: Yes
I1400 ^a	Benign Prostatic Hyperplasia	Categorical	0: No 1: Yes
I1500 ^a	Renal disease	Categorical	0: No 1: Yes
I1550 ^a	Neurogenic bladder	Categorical	0: No 1: Yes
I1650 ^a	Obstructive Uropathy	Categorical	0: No 1: Yes
I1700 ^a	Multidrug resistant organisms	Categorical	0: No 1: Yes
I2000 ^a	Pneumonia	Categorical	0: No 1: Yes
I2100 ^a	Septicemia	Categorical	0: No 1: Yes
I2200 ^a	Tuberculosis	Categorical	0: No
I2300 ^a	Urinary Tract Infection	Categorical	0: No 1: Yes
I2400 ^a	Viral Hepatitis	Categorical	0: No 1: Yes
I2500 ^a	Wound Infection	Categorical	0: No 1: Yes
I3100 ^a	Hyponatremia	Categorical	0: No 1: Yes
I3200 ^a	Hyperkalemia	Categorical	0: No 1: Yes
I3300 ^a	Hyperlipidemia	Categorical	0: No 1: Yes

I3400 ^a	Thyroid Disorder	Categorical	0: No 1: Yes
I3700 ^a	Arthritis	Categorical	0: No 1: Yes
I3800 ^a	Osteoporosis	Categorical	0: No 1: Yes
I4000 ^a	History of other fracture	Categorical	0: No 1: Yes
I4200 ^a	Alzheimer's	Categorical	0: No 1: Yes
I4300 ^a	Aphasia	Categorical	0: No 1: Yes
I4400 ^a	Cerebral Palsy	Categorical	0: No 1: Yes
I4500 ^a	Cerebrovascular accident, Transient Ischemic Attack, or Stroke	Categorical	0: No 1: Yes
I4800 ^a	Other dementia	Categorical	0: No 1: Yes
I4900 ^a	Hemiplegia	Categorical	0: No 1: Yes
I5000 ^a	Paraplegia	Categorical	0: No 1: Yes
I5100 ^a	Quadriplegia	Categorical	0: No 1: Yes
I5200 ^a	Multiple Sclerosis	Categorical	0: No 1: Yes
I5250 ^a	Huntington's Disease	Categorical	0: No 1: Yes
I5300 ^a	Parkinson's disease	Categorical	0: No 1: Yes
I5350 ^a	Tourette's Syndrome	Categorical	0: No 1: Yes
I5400 ^a	Seizure disorder or Epilepsy	Categorical	0: No 1: Yes
I5500 ^a	Traumatic Brain Injury	Categorical	0: No 1: Yes

I5600 ^a	Malnutrition	Categorical	0: No 1: Yes
I5700 ^a	Anxiety Disorder	Categorical	0: No 1: Yes
I5800 ^a	Depression	Categorical	0: No 1: Yes
I5900 ^a	Manic Depression	Categorical	0: No 1: Yes
I5950 ^a	Psychotic Disorder	Categorical	0: No 1: Yes
I6000 ^a	Schizophrenia	Categorical	0: No 1: Yes
I6100 ^a	Post-Traumatic Stress Disorder	Categorical	0: No 1: Yes
I6200 ^a	Asthma, Chronic Obstructive Pulmonary Disease or Chronic Lung Disease	Categorical	0: No 1: Yes
I6300 ^a	Respiratory Failure	Categorical	0: No 1: Yes
I6500 ^a	Cataracts, Glaucoma, or Macular Degeneration	Categorical	0: No 1: Yes
J0100A-C ^a	Pain level based on management	Categorical	0: No or minimal pain 1: Mild pain 2: Moderate pain 3: Severe pain
J0200, J0300, J0600A-B	Pain intensity	Categorical	0: No pain 1: Mild pain 2: Moderate pain 3: Severe to horrible pain 9: Unable to rate
J0800A-D	MDS Pain Behavior Scale	Categorical	0: No pain or mild pain 1: Moderate pain or worse
J1100A-C ^a	Shortness of breath	Categorical	0: No 1: Yes
J1300 ^a	Current tobacco use	Categorical	0: No 1: Yes

J1400 ^a	Prognosis – Life Expectancy of less than 6 months	Categorical	0: No 1: Yes
J1550A ^a	Fever	Categorical	0: No 1: Yes
J1550B ^a	Vomiting	Categorical	0: No 1: Yes
J1550C ^a	Dehydrated	Categorical	0: No 1: Yes
J1550D ^a	Internal Bleeding	Categorical	0: No 1: Yes
K0100A-D ^a	Swallowing disorders	Categorical	0: No 1: Yes
K0200A,B	Body Mass Index	Categorical	0: Underweight ($15 \leq \text{BMI} \leq 18.5$) 1: Normal weight ($18.5 < \text{BMI} \leq 25$) 2: Overweight ($25 < \text{BMI} \leq 30$) 3: Obesity class I ($30 < \text{BMI} \leq 35$) 4: Obesity class II/III ($35 < \text{BMI} \leq 45$) 5: Implausible ($\text{BMI} < 15$ or > 45)
K0300 ^a	Weight Loss	Categorical	0: No 1: Yes
K0310 ^a	Weight Gain	Categorical	0: No 1: Yes
K0510A2 ^a	Parenteral/IV feeding	Categorical	0: No 1: Yes
K0510B2 ^a	Feeding tube	Categorical	0: No 1: Yes
K0510C2 ^a	Mechanically altered diet	Categorical	0: No 1: Yes
L0200A ^a	Broken or loosely fitting full or partial dentures	Categorical	0: No 1: Yes
L0200B ^a	No natural teeth or tooth fragments	Categorical	0: No 1: Yes
L0200C ^a	Abnormal mouth tissue	Categorical	0: No 1: Yes
L0200D ^a	Obvious or likely cavity or broken natural teeth	Categorical	0: No 1: Yes

L0200E ^a	Inflamed or bleeding gums or loose natural teeth	Categorical	0: No 1: Yes
L0200F ^a	Mouth of facial pain, discomfort, or difficulty chewing	Categorical	0: No 1: Yes
L0200G ^a	Unable to examine dentition	Categorical	0: No 1: Yes
M0100A-C ^a	Pressure ulcer evaluation	Categorical	0: No 1: Yes
M0210 ^a	Unhealed pressure ulcer	Categorical	0: No 1: Yes
M1040A-H ^a	Other ulcers, wounds, and skin problems	Categorical	0: No 1: Yes
M1200A-I ^a	Skin and Ulcer Treatments	Categorical	0: No 1: Yes
N0350A ^a	Insulin Use in Last 7 days	Categorical	0: Not administered 1: Administered 1-6 days in the last week 2: Administered daily
N0410A-G ^a	Medication Use in Last 7 days	Categorical	0: Not administered 1: Administered 1-6 days in the last week 2: Administered daily
O0100C2, G2, H2, M2 ^a	Oxygen, BiPAP, IV Medications, or Isolation while a resident	Categorical	0: No 1: Yes
O0250A ^a	Influenza vaccine	Categorical	0: No 1: Yes
O0300A ^a	Pneumococcal vaccine	Categorical	0: No 1: Yes
O0400A4, B4, C4 ^a	Number of days of therapy (Speech Language Pathology, Physical Therapy, Occupational Therapy)	Categorical	0: Did not received therapy 1: Received 1-4 days of therapy 2: Received 5-7 days of therapy
O0400D2, E2, F2 ^a	Number of days of therapy (Respiratory, Psychology, Recreational Therapy)	Categorical	0: Did not receive therapy 1: Received at least 1 day of therapy
O0500A-J ^a	Days receiving restorative nursing	Categorical	0: Never 1: At least once, but not daily 2: Daily
O0600 ^a	Days physician examined resident	Categorical	0: 0 days

			1: 1 to 2 days
			2: 3 or more days
P0100A-H ^a	Were restraints used?	Categorical	0: No
			1: Yes
V0200A11A-B ^a	Fall Care Plan	Categorical	0: No
			1: Yes
Hospitalized ^c	Hospitalization in 1 year baseline assessment period	Categorical	0: No
			1: Yes

Numbers in parentheses denote categories that were combined to create the designated number of categories in the table.

^aVariables where missing values were coded as “0=no” consistent with the directions in the MDS.

^bPhysical function was measured using Activities of Daily Living (ADL) via the Minimum Data Set Morris 16-point ADL Short Form score. The ADL scores range from 0 to 16, with 0 indicating total independence and 16 indicating total dependence in all ADLs. This score is composed on MDS variables G0110E1, H1, I1, and J1.

^cVariable obtained from Medicare claims. Any individual with a claim for hospitalization in the 1-year prior to the start of follow-up was assigned “Yes” for this variable with all others assumed to have no hospitalization.

Supplemental Table S2. Predictors of fall-related injuries included in the final 2-year Fine-Gray sub-distribution hazards regression model (INJURE-NH), development sample.

Predictor	Code	SHR	Lower 95% CI	Upper 95% CI	Coefficient	Std Error
Age group						
>65 to 75	0	REF	REF	REF	REF	REF
>75 to 85	1	1.06	1.02	1.10	0.06	0.02
>85 to 100	2	1.04	1.00	1.08	0.04	0.02
≥100	3	0.92	0.82	1.03	-0.08	0.06
Sex						
Male	1	REF	REF	REF	REF	REF
Female	2	1.38	1.34	1.42	0.32	0.01
Race						
Native/Other/Unknown	0	1.51	1.34	1.71	0.41	0.06
Non-Hispanic White	1	1.56	1.48	1.64	0.45	0.03
Black/African American	2	REF	REF	REF	REF	REF
Asian/Pacific Islander	3	1.41	1.26	1.57	0.34	0.06
Hispanic	4	1.62	1.51	1.75	0.48	0.04
Visual impairment						
No	0	1.03	0.99	1.07	0.03	0.02
Yes	1	REF	REF	REF	REF	REF
Cognitive Function Scale						
Intact	1	0.99	0.92	1.06	-0.01	0.04
Mildly Impaired	2	1.00	0.93	1.07	0.00	0.04
Moderately Impaired	3	1.03	0.96	1.09	0.03	0.03
Severely Impaired	4	REF	REF	REF	REF	REF
ADL Short Form						
0-8	0	1.23	1.11	1.35	0.20	0.05
9-12	1	1.18	1.09	1.29	0.17	0.04
13-16	2	REF	REF	REF	REF	REF
Orthostatic Hypotension						
No	0	REF	REF	REF	REF	REF
Yes	1	1.13	1.04	1.23	0.12	0.04
Diabetes mellitus						
No	0	REF	REF	REF	REF	REF
Yes	1	1.03	1.00	1.05	0.03	0.01
Hip fracture						
No	0	REF	REF	REF	REF	REF
Yes	1	1.41	1.32	1.49	0.34	0.03
Recent fall						
No fall	0	REF	REF	REF	REF	REF
Fell without injury	1	1.40	1.36	1.44	0.33	0.01
Fall resulting in injury	2	1.66	1.61	1.71	0.50	0.02
Newly admitted in previous 100 days						
No	0	REF	REF	REF	REF	REF
Yes	1	1.33	1.29	1.37	0.29	0.02
Depression (combined)						
Minimal	0	REF	REF	REF	REF	REF
Mild	1	1.03	1.00	1.07	0.03	0.02
Moderate to Severe	2	1.08	1.02	1.14	0.07	0.03

Body Mass Index ^a						
Underweight (15 ≤ BMI ≤ 18.5)	0	1.05	1.01	1.10	0.05	0.02
Normal weight (18.5 < BMI ≤ 25)	1	REF	REF	REF	REF	REF
Overweight (25 < BMI ≤ 30)	2	0.85	0.82	0.87	-0.17	0.01
Obesity Class I (30 < BMI ≤ 35)	3	0.74	0.71	0.77	-0.30	0.02
Obesity Class II/III (35 < BMI ≤ 45)	4	0.67	0.63	0.70	-0.41	0.03
Implausible (BMI < 15 or > 45)	5	0.78	0.72	0.84	-0.25	0.04
Makes self understood						
No	0	1.05	1.00	1.10	0.05	0.02
Yes	1	REF	REF	REF	REF	REF
Disorganized thinking						
No	0	REF	REF	REF	REF	REF
Yes	1	1.13	0.95	1.35	0.13	0.09
Should mood interview be conducted						
No	0	REF	REF	REF	REF	REF
Yes	1	0.98	0.92	1.03	-0.03	0.03
Behavioral symptoms put individual at risk						
No	0	REF	REF	REF	REF	REF
Yes	1	1.10	1.00	1.21	0.09	0.05
Behavioral symptoms interfere with care						
No	0	REF	REF	REF	REF	REF
Yes	1	0.95	0.88	1.02	-0.06	0.04
Wandering						
No	0	REF	REF	REF	REF	REF
Yes	1	1.26	1.20	1.32	0.23	0.02
Wandering intrudes on privacy						
No	0	REF	REF	REF	REF	REF
Yes	1	1.07	0.99	1.16	0.07	0.04
Change in behavior						
Same	0	REF	REF	REF	REF	REF
Improved	1	1.07	1.00	1.16	0.07	0.04
Worse	2	1.07	0.99	1.14	0.06	0.04
N/A	3	1.02	0.99	1.05	0.02	0.01
Transfer - support						
No setup or help	0	1.17	1.09	1.26	0.16	0.04
Setup help only	1	1.16	1.09	1.23	0.15	0.03
One person assist	2	1.21	1.17	1.26	0.19	0.02
Two+ people assist	3	REF	REF	REF	REF	REF
Walk in room - self-performance						
Independent	0	1.37	1.27	1.47	0.31	0.04
Supervision	1	1.33	1.25	1.41	0.28	0.03
Limited assistance	2	1.28	1.22	1.34	0.24	0.02
Extensive assistance	3	1.24	1.18	1.29	0.21	0.02
Total dependence	4	REF	REF	REF	REF	REF
Walk in corridor - support						
No setup or help	0	1.14	1.05	1.22	0.13	0.04
Setup help only	1	1.16	1.09	1.23	0.15	0.03
One person assist	2	1.10	1.06	1.15	0.10	0.02

Two+ people assist	3	REF	REF	REF	REF	REF
Locomotion on unit - self-performance						
Independent	0	1.13	1.02	1.26	0.12	0.05
Supervision	1	1.18	1.09	1.29	0.17	0.04
Limited assistance	2	1.22	1.13	1.32	0.20	0.04
Extensive assistance	3	1.08	1.01	1.15	0.08	0.03
Total dependence	4	REF	REF	REF	REF	REF
Locomotion on unit - support						
No setup or help	0	1.06	0.94	1.18	0.05	0.06
Setup help only	1	1.10	0.99	1.21	0.09	0.05
One person assist	2	1.07	0.99	1.15	0.06	0.04
Two+ people assist	3	REF	REF	REF	REF	REF
Locomotion off unit - self-performance						
Independent	0	1.07	0.98	1.16	0.06	0.04
Supervision	1	1.06	1.00	1.13	0.06	0.03
Limited assistance	2	1.04	0.99	1.10	0.04	0.03
Extensive assistance	3	1.06	1.02	1.11	0.06	0.02
Total dependence	4	REF	REF	REF	REF	REF
Locomotion off unit - support						
No setup or help	0	1.00	0.92	1.10	0.00	0.04
Setup help only	1	0.95	0.88	1.03	-0.05	0.04
One person assist	2	0.99	0.94	1.05	-0.01	0.03
Two+ people assist	3	REF	REF	REF	REF	REF
Dressing - self-performance						
Independent	0	0.99	0.90	1.09	-0.01	0.05
Supervision	1	0.97	0.89	1.06	-0.03	0.04
Limited assistance	2	1.03	0.96	1.12	0.03	0.04
Extensive assistance	3	0.98	0.91	1.05	-0.02	0.04
Total dependence	4	REF	REF	REF	REF	REF
Eating - self-performance						
Independent	0	1.20	1.08	1.34	0.18	0.06
Supervision	1	1.19	1.07	1.33	0.18	0.05
Limited assistance	2	1.21	1.09	1.35	0.19	0.06
Extensive assistance	3	1.07	0.97	1.19	0.07	0.05
Total dependence	4	REF	REF	REF	REF	REF
Limited ROM - upper extremity						
No impairment	0	REF	REF	REF	REF	REF
Impairment on one side	1	1.01	0.96	1.05	0.01	0.02
Impairment on two sides	2	0.97	0.91	1.03	-0.03	0.03
Limited ROM - lower extremity						
No impairment	0	REF	REF	REF	REF	REF
Impairment on one side	1	1.07	1.03	1.12	0.07	0.02
Impairment on two sides	2	0.95	0.91	0.99	-0.05	0.02
Cane/crutch						
No	0	REF	REF	REF	REF	REF
Yes	1	1.11	1.03	1.19	0.10	0.04
Walker						
No	0	REF	REF	REF	REF	REF
Yes	1	0.99	0.96	1.02	-0.01	0.02

Wheelchair						
No	0	REF	REF	REF	REF	REF
Yes	1	0.92	0.89	0.95	-0.09	0.02
Ostomy						
No	0	REF	REF	REF	REF	REF
Yes	1	1.01	0.85	1.21	0.01	0.09
Urinary continence						
Always continent	0	1.34	1.26	1.42	0.29	0.03
Occasionally incontinent	1	1.31	1.24	1.39	0.27	0.03
Frequently incontinent	2	1.11	1.05	1.17	0.10	0.03
Always incontinent	3	REF	REF	REF	REF	REF
Not rated	9	0.99	0.92	1.07	-0.01	0.04
Bowel continence						
Always continent	0	1.03	0.97	1.09	0.03	0.03
Occasionally incontinent	1	1.04	0.97	1.10	0.03	0.03
Frequently incontinent	2	1.02	0.97	1.08	0.02	0.03
Always incontinent	3	REF	REF	REF	REF	REF
Not rated	9	0.86	0.72	1.04	-0.15	0.10
Cancer						
No	0	REF	REF	REF	REF	REF
Yes	1	0.89	0.85	0.94	-0.11	0.03
GERD/Ulcer						
No	0	REF	REF	REF	REF	REF
Yes	1	1.06	1.04	1.09	0.06	0.01
UTI in last 30 days						
No	0	REF	REF	REF	REF	REF
Yes	1	1.06	1.00	1.11	0.06	0.03
Arthritis						
No	0	REF	REF	REF	REF	REF
Yes	1	0.98	0.95	1.00	-0.02	0.01
Other fracture						
No	0	REF	REF	REF	REF	REF
Yes	1	1.69	1.61	1.77	0.52	0.02
Aphasia						
No	0	REF	REF	REF	REF	REF
Yes	1	0.91	0.85	0.99	-0.09	0.04
Cerebral palsy						
No	0	REF	REF	REF	REF	REF
Yes	1	0.60	0.45	0.79	-0.52	0.14
Malnutrition						
No	0	REF	REF	REF	REF	REF
Yes	1	1.05	0.99	1.13	0.05	0.03
Schizophrenia						
No	0	REF	REF	REF	REF	REF
Yes	1	0.88	0.83	0.93	-0.13	0.03
Cataracts, glaucoma, macular degeneration						
No	0	REF	REF	REF	REF	REF
Yes	1	0.97	0.94	1.01	-0.03	0.02

Dyspnea at rest						
No	0	1.17	1.07	1.27	0.15	0.04
Yes	1	REF	REF	REF	REF	REF
<6month life expectancy?						
No	0	1.48	1.14	1.91	0.39	0.13
Yes	1	REF	REF	REF	REF	REF
Mechanically altered diet						
No	0	1.05	1.02	1.07	0.04	0.01
Yes	1	REF	REF	REF	REF	REF
Skin tear						
No	0	REF	REF	REF	REF	REF
Yes	1	1.11	1.05	1.16	0.10	0.02
Pressure-reducing device for chair						
No	0	1.08	1.05	1.11	0.08	0.01
Yes	1	REF	REF	REF	REF	REF
Pressure-reducing device for bed						
No	0	1.03	1.00	1.07	0.03	0.02
Yes	1	REF	REF	REF	REF	REF
Application of ointments/skin meds						
No	0	1.05	1.02	1.07	0.05	0.01
Yes	1	REF	REF	REF	REF	REF
Days receiving antianxiety treatment in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.16	1.10	1.21	0.14	0.03
Administered daily	2	1.11	1.08	1.15	0.11	0.02
Days receiving antidepressant treatment in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.19	1.12	1.27	0.18	0.03
Administered daily	2	1.17	1.14	1.20	0.16	0.01
Days receiving hypnotic treatment in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.10	0.99	1.23	0.10	0.05
Administered daily	2	1.11	1.04	1.19	0.11	0.03
Days receiving anticoagulant treatment in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.16	1.07	1.25	0.14	0.04
Administered daily	2	1.09	1.05	1.13	0.09	0.02
Days receiving antibiotic treatment in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.04	0.99	1.09	0.04	0.02
Administered daily	2	1.11	1.05	1.17	0.10	0.03
Days receiving diuretic treatment in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	0.97	0.91	1.03	-0.03	0.03
Administered daily	2	0.96	0.94	0.99	-0.04	0.01

Received oxygen therapy while admitted						
No	0	1.06	1.02	1.10	0.06	0.02
Yes	1	REF	REF	REF	REF	REF
Received most recent influenza vaccine						
No	0	1.08	1.05	1.11	0.07	0.01
Yes	1	REF	REF	REF	REF	REF
Days receiving SLP therapy in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.02	0.98	1.05	0.02	0.02
Administered daily	2	1.08	1.04	1.11	0.08	0.02
Days receiving OT therapy in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.06	1.02	1.11	0.06	0.02
Administered daily	2	1.08	1.03	1.12	0.07	0.02
Days receiving PT therapy in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.04	1.00	1.09	0.04	0.02
Administered daily	2	1.07	1.03	1.12	0.07	0.02
Days receiving passive ROM therapy in last 7						
Not administered	0	1.21	1.07	1.37	0.19	0.06
Administered 1-6 days	1	1.02	0.89	1.18	0.02	0.07
Administered daily	2	REF	REF	REF	REF	REF
Days receiving therapy for eating/swallowing						
Not administered	0	1.18	1.07	1.30	0.16	0.05
Administered at least once	1	REF	REF	REF	REF	REF
Decision care planning for falls triggered						
No	0	REF	REF	REF	REF	REF
Yes	1	1.01	0.96	1.06	0.01	0.03
Hospitalization in 1-year baseline ^b						
No	0	REF	REF	REF	REF	REF
Yes	1	1.15	1.12	1.19	0.14	0.02

Abbreviations: CI, Confidence Interval; SHR, Sub-distribution Hazard Ratio

^aBody Mass Index classifications are derived from World Health Organization classifications

^bObtained from Medicare claims

Supplemental Table S3. Predictors of fall-related injuries included in the final 2-year Fine-Gray sub-distribution hazards regression model (INJURE-NH), validation sample.

Predictor	Code	SHR	Lower 95% CI	Upper 95% CI	Coefficient	Std Error
Age group						
>65 to 75	0	REF	REF	REF	REF	REF
>75 to 85	1	1.06	1.01	1.12	0.06	0.03
>85 to 100	2	1.05	1.00	1.11	0.05	0.03
≥100	3	0.86	0.74	1.00	-0.15	0.08
Sex						
Male	1	REF	REF	REF	REF	REF
Female	2	1.38	1.32	1.43	0.32	0.02
Race						
Native/Other/Unknown	0	1.37	1.14	1.64	0.31	0.09
Non-Hispanic White	1	1.59	1.48	1.71	0.46	0.04
Black/African American	2	REF	REF	REF	REF	REF
Asian/Pacific Islander	3	1.27	1.08	1.49	0.23	0.08
Hispanic	4	1.71	1.55	1.90	0.54	0.05
Visual impairment						
No	0	1.05	0.99	1.11	0.05	0.03
Yes	1	REF	REF	REF	REF	REF
Cognitive Function Scale						
Intact	1	0.95	0.87	1.05	-0.05	0.05
Mildly Impaired	2	0.99	0.90	1.10	-0.01	0.05
Moderately Impaired	3	1.01	0.93	1.11	0.01	0.04
Severely Impaired	4	REF	REF	REF	REF	REF
ADL Short Form						
0-8	0	1.27	1.10	1.47	0.24	0.07
9-12	1	1.26	1.12	1.42	0.23	0.06
13-16	2	REF	REF	REF	REF	REF
Orthostatic Hypotension						
No	0	REF	REF	REF	REF	REF
Yes	1	1.16	1.03	1.31	0.15	0.06
Diabetes mellitus						
No	0	REF	REF	REF	REF	REF
Yes	1	1.03	0.99	1.06	0.03	0.02
Hip fracture						
No	0	REF	REF	REF	REF	REF
Yes	1	1.31	1.20	1.43	0.27	0.04
Recent fall						
No fall	0	REF	REF	REF	REF	REF
Fell without injury	1	1.34	1.29	1.39	0.29	0.02
Fall resulting in injury	2	1.55	1.48	1.61	0.43	0.02
Newly admitted in previous 100 days						
No	0	REF	REF	REF	REF	REF
Yes	1	1.31	1.25	1.37	0.27	0.02
Depression (combined)						
Minimal	0	REF	REF	REF	REF	REF
Mild	1	1.04	0.99	1.09	0.04	0.02
Moderate to Severe	2	1.03	0.95	1.11	0.03	0.04

Body Mass Index ^a						
Underweight (15 ≤ BMI ≤ 18.5)	0	1.16	1.09	1.23	0.14	0.03
Normal weight (18.5 < BMI ≤ 25)	1	REF	REF	REF	REF	REF
Overweight (25 < BMI ≤ 30)	2	0.82	0.79	0.86	-0.19	0.02
Obesity Class I (30 < BMI ≤ 35)	3	0.72	0.68	0.76	-0.33	0.03
Obesity Class II/III (35 < BMI ≤ 45)	4	0.72	0.67	0.77	-0.33	0.04
Implausible (BMI < 15 or > 45)	5	0.75	0.67	0.84	-0.29	0.06
Makes self understood						
No	0	0.98	0.92	1.05	-0.02	0.03
Yes	1	REF	REF	REF	REF	REF
Disorganized thinking						
No	0	REF	REF	REF	REF	REF
Yes	1	1.30	1.02	1.65	0.26	0.12
Should mood interview be conducted						
No	0	REF	REF	REF	REF	REF
Yes	1	1.02	0.94	1.10	0.02	0.04
Behavioral symptoms put individual at risk						
No	0	REF	REF	REF	REF	REF
Yes	1	1.09	0.96	1.24	0.09	0.06
Behavioral symptoms interfere with care						
No	0	REF	REF	REF	REF	REF
Yes	1	1.01	0.91	1.12	0.01	0.05
Wandering						
No	0	REF	REF	REF	REF	REF
Yes	1	1.20	1.13	1.28	0.19	0.03
Wandering intrudes on privacy						
No	0	REF	REF	REF	REF	REF
Yes	1	1.19	1.07	1.33	0.17	0.06
Change in behavior						
Same	0	REF	REF	REF	REF	REF
Improved	1	1.10	0.99	1.23	0.10	0.05
Worse	2	1.04	0.94	1.15	0.04	0.05
N/A	3	1.01	0.97	1.05	0.01	0.02
Transfer - support						
No setup or help	0	1.19	1.08	1.32	0.18	0.05
Setup help only	1	1.16	1.06	1.27	0.15	0.04
One person assist	2	1.16	1.11	1.22	0.15	0.03
Two+ people assist	3	REF	REF	REF	REF	REF
Walk in room - self-performance						
Independent	0	1.33	1.20	1.48	0.28	0.05
Supervision	1	1.34	1.23	1.46	0.30	0.04
Limited assistance	2	1.25	1.17	1.34	0.22	0.03
Extensive assistance	3	1.17	1.10	1.24	0.15	0.03
Total dependence	4	REF	REF	REF	REF	REF
Walk in corridor - support						
No setup or help	0	1.07	0.96	1.18	0.06	0.05
Setup help only	1	1.20	1.09	1.31	0.18	0.05
One person assist	2	1.11	1.05	1.17	0.10	0.03

Two+ people assist	3	REF	REF	REF	REF	REF
Locomotion on unit - self-performance						
Independent	0	1.35	1.17	1.57	0.30	0.08
Supervision	1	1.35	1.19	1.52	0.30	0.06
Limited assistance	2	1.29	1.16	1.44	0.26	0.05
Extensive assistance	3	1.15	1.05	1.26	0.14	0.05
Total dependence	4	REF	REF	REF	REF	REF
Locomotion on unit - support						
No setup or help	0	1.06	0.91	1.25	0.06	0.08
Setup help only	1	1.05	0.92	1.21	0.05	0.07
One person assist	2	1.07	0.96	1.20	0.07	0.06
Two+ people assist	3	REF	REF	REF	REF	REF
Locomotion off unit - self-performance						
Independent	0	1.09	0.97	1.23	0.09	0.06
Supervision	1	1.07	0.98	1.16	0.06	0.04
Limited assistance	2	1.12	1.03	1.20	0.11	0.04
Extensive assistance	3	1.10	1.03	1.17	0.09	0.03
Total dependence	4	REF	REF	REF	REF	REF
Locomotion off unit - support						
No setup or help	0	0.96	0.84	1.09	-0.04	0.06
Setup help only	1	0.96	0.85	1.07	-0.05	0.06
One person assist	2	0.98	0.90	1.06	-0.03	0.04
Two+ people assist	3	REF	REF	REF	REF	REF
Dressing - self-performance						
Independent	0	0.84	0.74	0.96	-0.17	0.07
Supervision	1	0.78	0.69	0.88	-0.25	0.06
Limited assistance	2	0.93	0.83	1.04	-0.07	0.06
Extensive assistance	3	0.88	0.80	0.97	-0.13	0.05
Total dependence	4	REF	REF	REF	REF	REF
Eating - self-performance						
Independent	0	1.24	1.06	1.46	0.22	0.08
Supervision	1	1.25	1.07	1.46	0.22	0.08
Limited assistance	2	1.25	1.07	1.47	0.23	0.08
Extensive assistance	3	1.22	1.05	1.41	0.20	0.07
Total dependence	4	REF	REF	REF	REF	REF
Limited ROM - upper extremity						
No impairment	0	REF	REF	REF	REF	REF
Impairment on one side	1	1.03	0.97	1.10	0.03	0.03
Impairment on two sides	2	1.00	0.92	1.09	0.00	0.04
Limited ROM - lower extremity						
No impairment	0	REF	REF	REF	REF	REF
Impairment on one side	1	1.02	0.96	1.08	0.02	0.03
Impairment on two sides	2	0.92	0.86	0.98	-0.08	0.03
Cane/crutch						
No	0	REF	REF	REF	REF	REF
Yes	1	1.01	0.91	1.13	0.01	0.06
Walker						
No	0	REF	REF	REF	REF	REF
Yes	1	1.02	0.97	1.06	0.01	0.02

Wheelchair						
No	0	REF	REF	REF	REF	REF
Yes	1	0.91	0.86	0.95	-0.10	0.03
Ostomy						
No	0	REF	REF	REF	REF	REF
Yes	1	1.11	0.88	1.40	0.11	0.12
Urinary continence						
Always continent	0	1.37	1.26	1.49	0.32	0.04
Occasionally incontinent	1	1.36	1.25	1.47	0.31	0.04
Frequently incontinent	2	1.14	1.06	1.22	0.13	0.04
Always incontinent	3	REF	REF	REF	REF	REF
Not rated	9	0.97	0.86	1.08	-0.04	0.06
Bowel continence						
Always continent	0	1.04	0.96	1.13	0.04	0.04
Occasionally incontinent	1	1.11	1.02	1.20	0.10	0.04
Frequently incontinent	2	1.08	1.00	1.16	0.07	0.04
Always incontinent	3	REF	REF	REF	REF	REF
Not rated	9	0.87	0.68	1.12	-0.14	0.13
Cancer						
No	0	REF	REF	REF	REF	REF
Yes	1	0.96	0.89	1.03	-0.05	0.04
GERD/Ulcer						
No	0	REF	REF	REF	REF	REF
Yes	1	1.04	1.01	1.08	0.04	0.02
UTI in last 30 days						
No	0	REF	REF	REF	REF	REF
Yes	1	1.05	0.97	1.13	0.05	0.04
Arthritis						
No	0	REF	REF	REF	REF	REF
Yes	1	0.99	0.95	1.02	-0.01	0.02
Other fracture						
No	0	REF	REF	REF	REF	REF
Yes	1	1.69	1.58	1.80	0.52	0.03
Aphasia						
No	0	REF	REF	REF	REF	REF
Yes	1	0.92	0.83	1.03	-0.08	0.06
Cerebral palsy						
No	0	REF	REF	REF	REF	REF
Yes	1	0.53	0.35	0.81	-0.64	0.22
Malnutrition						
No	0	REF	REF	REF	REF	REF
Yes	1	1.00	0.91	1.10	0.00	0.05
Schizophrenia						
No	0	REF	REF	REF	REF	REF
Yes	1	0.85	0.79	0.93	-0.16	0.04
Cataracts, glaucoma, macular degeneration						
No	0	REF	REF	REF	REF	REF
Yes	1	0.97	0.92	1.01	-0.04	0.02

Dyspnea at rest						
No	0	1.25	1.11	1.41	0.22	0.06
Yes	1	REF	REF	REF	REF	REF
<6month life expectancy?						
No	0	1.46	1.02	2.08	0.38	0.18
Yes	1	REF	REF	REF	REF	REF
Mechanically altered diet						
No	0	1.04	1.00	1.09	0.04	0.02
Yes	1	REF	REF	REF	REF	REF
Skin tear						
No	0	REF	REF	REF	REF	REF
Yes	1	1.11	1.04	1.19	0.11	0.04
Pressure-reducing device for chair						
No	0	1.10	1.06	1.14	0.09	0.02
Yes	1	REF	REF	REF	REF	REF
Pressure-reducing device for bed						
No	0	0.99	0.95	1.03	-0.01	0.02
Yes	1	REF	REF	REF	REF	REF
Application of ointments/skin meds						
No	0	1.08	1.04	1.12	0.07	0.02
Yes	1	REF	REF	REF	REF	REF
Days receiving antianxiety treatment in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.19	1.11	1.27	0.17	0.03
Administered daily	2	1.14	1.09	1.19	0.13	0.02
Days receiving antidepressant treatment in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.24	1.13	1.36	0.22	0.05
Administered daily	2	1.16	1.12	1.20	0.14	0.02
Days receiving hypnotic treatment in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.04	0.89	1.21	0.04	0.08
Administered daily	2	1.23	1.12	1.35	0.21	0.05
Days receiving anticoagulant treatment in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.15	1.03	1.28	0.14	0.06
Administered daily	2	1.14	1.08	1.19	0.13	0.02
Days receiving antibiotic treatment in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.00	0.94	1.07	0.00	0.03
Administered daily	2	1.10	1.03	1.19	0.10	0.04
Days receiving diuretic treatment in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.09	1.00	1.19	0.09	0.04
Administered daily	2	0.94	0.91	0.98	-0.06	0.02

Received oxygen therapy while admitted						
No	0	1.05	0.99	1.11	0.05	0.03
Yes	1	REF	REF	REF	REF	REF
Received most recent influenza vaccine						
No	0	1.09	1.05	1.13	0.08	0.02
Yes	1	REF	REF	REF	REF	REF
Days receiving SLP therapy in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.03	0.99	1.08	0.03	0.02
Administered daily	2	1.09	1.05	1.14	0.09	0.02
Days receiving OT therapy in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.00	0.94	1.07	0.00	0.03
Administered daily	2	1.03	0.97	1.09	0.02	0.03
Days receiving PT therapy in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.05	0.99	1.12	0.05	0.03
Administered daily	2	1.13	1.06	1.19	0.12	0.03
Days receiving passive ROM therapy in last 7						
Not administered	0	1.31	1.10	1.56	0.27	0.09
Administered 1-6 days	1	1.13	0.92	1.39	0.12	0.11
Administered daily	2	REF	REF	REF	REF	REF
Days receiving therapy for eating/swallowing						
Not administered	0	0.98	0.87	1.11	-0.02	0.06
Administered at least once	1	REF	REF	REF	REF	REF
Decision care planning for falls triggered						
No	0	REF	REF	REF	REF	REF
Yes	1	1.00	0.93	1.07	0.00	0.04
Hospitalization in 1-year baseline ^a						
No	0	REF	REF	REF	REF	REF
Yes	1	1.16	1.11	1.21	0.15	0.02

Abbreviations: CI, Confidence Interval; SHR, Sub-distribution Hazard Ratio

^aBody Mass Index classifications are derived from World Health Organization classifications

^bObtained from Medicare claims

Supplemental Table S4. Predictors of fall-related injuries included in the final 6-month Fine-Gray sub-distribution hazards regression model (INJURE-NH), development sample.

Predictor	Code	SHR	Lower 95% CI	Upper 95% CI	Coefficient	Std Error
Age group						
>65 to 75	0	REF	REF	REF	REF	REF
>75 to 85	1	1.11	1.06	1.16	0.10	0.02
>85 to 100	2	1.10	1.05	1.16	0.10	0.03
≥100	3	1.04	0.90	1.19	0.04	0.07
Sex						
Male	1	REF	REF	REF	REF	REF
Female	2	1.36	1.31	1.41	0.31	0.02
Race						
Native/Other/Unknown	0	1.65	1.41	1.94	0.50	0.08
Non-Hispanic White	1	1.59	1.49	1.71	0.46	0.04
Black/African American	2	REF	REF	REF	REF	REF
Asian/Pacific Islander	3	1.28	1.10	1.48	0.24	0.08
Hispanic	4	1.64	1.49	1.81	0.50	0.05
Visual impairment						
No	0	1.06	1.01	1.12	0.06	0.03
Yes	1	REF	REF	REF	REF	REF
Cognitive Function Scale						
Intact	1	0.97	0.88	1.06	-0.03	0.05
Mildly Impaired	2	0.96	0.88	1.06	-0.04	0.05
Moderately Impaired	3	1.00	0.92	1.09	0.00	0.04
Severely Impaired	4	REF	REF	REF	REF	REF
ADL Short Form						
0-8	0	1.08	0.95	1.23	0.08	0.07
9-12	1	1.06	0.95	1.18	0.06	0.05
13-16	2	REF	REF	REF	REF	REF
Orthostatic Hypotension						
No	0	REF	REF	REF	REF	REF
Yes	1	1.15	1.03	1.28	0.14	0.06
Diabetes mellitus						
No	0	REF	REF	REF	REF	REF
Yes	1	1.03	1.00	1.07	0.03	0.02
Hip fracture						
No	0	REF	REF	REF	REF	REF
Yes	1	1.39	1.29	1.50	0.33	0.04
Recent fall						
No fall	0	REF	REF	REF	REF	REF
Fell without injury	1	1.46	1.41	1.51	0.38	0.02
Fall resulting in injury	2	1.81	1.74	1.88	0.59	0.02
Newly admitted in previous 100 days						
No	0	REF	REF	REF	REF	REF
Yes	1	1.39	1.33	1.45	0.33	0.02
Depression (combined)						
Minimal	0	REF	REF	REF	REF	REF
Mild	1	1.06	1.01	1.11	0.06	0.02

Moderate to Severe	2	1.07	1.00	1.14	0.06	0.04
Body Mass Index ^a						
Underweight (15 ≤ BMI ≤ 18.5)	0	1.05	0.99	1.11	0.05	0.03
Normal weight (18.5 < BMI ≤ 25)	1	REF	REF	REF	REF	REF
Overweight (25 < BMI ≤ 30)	2	0.83	0.79	0.86	-0.19	0.02
Obesity Class I (30 < BMI ≤ 35)	3	0.72	0.68	0.76	-0.33	0.03
Obesity Class II/III (35 < BMI ≤ 45)	4	0.63	0.59	0.68	-0.46	0.04
Implausible (BMI < 15 or > 45)	5	0.78	0.70	0.86	-0.25	0.05
Makes self understood						
No	0	1.03	0.97	1.09	0.03	0.03
Yes	1	REF	REF	REF	REF	REF
Disorganized thinking						
No	0	REF	REF	REF	REF	REF
Yes	1	1.35	1.10	1.65	0.30	0.10
Should mood interview be conducted						
No	0	REF	REF	REF	REF	REF
Yes	1	0.98	0.91	1.05	-0.02	0.04
Behavioral symptoms put individual at risk						
No	0	REF	REF	REF	REF	REF
Yes	1	1.14	1.02	1.29	0.13	0.06
Behavioral symptoms interfere with care						
No	0	REF	REF	REF	REF	REF
Yes	1	0.90	0.82	0.99	-0.10	0.05
Wandering						
No	0	REF	REF	REF	REF	REF
Yes	1	1.27	1.20	1.35	0.24	0.03
Wandering intrudes on privacy						
No	0	REF	REF	REF	REF	REF
Yes	1	1.06	0.95	1.17	0.06	0.05
Change in behavior						
Same	0	REF	REF	REF	REF	REF
Improved	1	1.09	0.99	1.21	0.09	0.05
Worse	2	1.16	1.06	1.27	0.15	0.04
N/A	3	1.04	1.00	1.08	0.03	0.02
Transfer - support						
No setup or help	0	1.15	1.05	1.27	0.14	0.05
Setup help only	1	1.11	1.02	1.20	0.10	0.04
One person assist	2	1.18	1.12	1.23	0.16	0.02
Two+ people assist	3	REF	REF	REF	REF	REF
Walk in room - self-performance						
Independent	0	1.38	1.25	1.53	0.32	0.05
Supervision	1	1.33	1.23	1.43	0.28	0.04
Limited assistance	2	1.24	1.17	1.32	0.22	0.03
Extensive assistance	3	1.23	1.16	1.30	0.20	0.03
Total dependence	4	REF	REF	REF	REF	REF
Walk in corridor - support						
No setup or help	0	1.09	0.99	1.21	0.09	0.05
Setup help only	1	1.13	1.03	1.22	0.12	0.04

One person assist	2	1.09	1.04	1.15	0.09	0.03
Two+ people assist	3	REF	REF	REF	REF	REF
Locomotion on unit - self-performance						
Independent	0	1.10	0.96	1.27	0.10	0.07
Supervision	1	1.16	1.04	1.30	0.15	0.06
Limited assistance	2	1.25	1.14	1.38	0.22	0.05
Extensive assistance	3	1.11	1.02	1.21	0.11	0.04
Total dependence	4	REF	REF	REF	REF	REF
Locomotion on unit - support						
No setup or help	0	1.23	1.06	1.43	0.21	0.08
Setup help only	1	1.24	1.09	1.41	0.22	0.07
One person assist	2	1.14	1.03	1.26	0.13	0.05
Two+ people assist	3	REF	REF	REF	REF	REF
Locomotion off unit - self-performance						
Independent	0	1.06	0.95	1.18	0.06	0.06
Supervision	1	1.05	0.98	1.14	0.05	0.04
Limited assistance	2	1.04	0.97	1.11	0.04	0.04
Extensive assistance	3	1.04	0.98	1.10	0.04	0.03
Total dependence	4	REF	REF	REF	REF	REF
Locomotion off unit - support						
No setup or help	0	0.94	0.84	1.06	-0.06	0.06
Setup help only	1	0.90	0.81	0.99	-0.11	0.05
One person assist	2	0.97	0.90	1.04	-0.03	0.04
Two+ people assist	3	REF	REF	REF	REF	REF
Dressing - self-performance						
Independent	0	0.97	0.86	1.10	-0.03	0.06
Supervision	1	0.96	0.86	1.08	-0.04	0.06
Limited assistance	2	1.04	0.94	1.16	0.04	0.05
Extensive assistance	3	1.02	0.93	1.12	0.02	0.05
Total dependence	4	REF	REF	REF	REF	REF
Eating - self-performance						
Independent	0	1.21	1.05	1.39	0.19	0.07
Supervision	1	1.21	1.05	1.39	0.19	0.07
Limited assistance	2	1.20	1.05	1.38	0.18	0.07
Extensive assistance	3	1.08	0.95	1.23	0.08	0.07
Total dependence	4	REF	REF	REF	REF	REF
Limited ROM - upper extremity						
No impairment	0	REF	REF	REF	REF	REF
Impairment on one side	1	1.00	0.94	1.06	0.00	0.03
Impairment on two sides	2	0.93	0.86	1.01	-0.07	0.04
Limited ROM - lower extremity						
No impairment	0	REF	REF	REF	REF	REF
Impairment on one side	1	1.07	1.02	1.13	0.07	0.03
Impairment on two sides	2	0.96	0.91	1.02	-0.04	0.03
Cane/crutch						
No	0	REF	REF	REF	REF	REF
Yes	1	1.08	0.97	1.19	0.07	0.05
Walker						
No	0	REF	REF	REF	REF	REF

Yes	1	1.02	0.98	1.06	0.02	0.02
Wheelchair						
No	0	REF	REF	REF	REF	REF
Yes	1	0.92	0.88	0.97	-0.08	0.02
Ostomy						
No	0	REF	REF	REF	REF	REF
Yes	1	0.95	0.75	1.20	-0.05	0.12
Urinary continence						
Always continent	0	1.40	1.30	1.52	0.34	0.04
Occasionally incontinent	1	1.37	1.27	1.47	0.31	0.04
Frequently incontinent	2	1.16	1.09	1.24	0.15	0.03
Always incontinent	3	REF	REF	REF	REF	REF
Not rated	9	1.00	0.91	1.11	0.00	0.05
Bowel continence						
Always continent	0	0.98	0.91	1.06	-0.02	0.04
Occasionally incontinent	1	1.01	0.93	1.09	0.01	0.04
Frequently incontinent	2	0.98	0.92	1.05	-0.02	0.04
Always incontinent	3	REF	REF	REF	REF	REF
Not rated	9	0.85	0.66	1.09	-0.16	0.13
Cancer						
No	0	REF	REF	REF	REF	REF
Yes	1	0.95	0.89	1.01	-0.05	0.03
GERD/Ulcer						
No	0	REF	REF	REF	REF	REF
Yes	1	1.04	1.01	1.08	0.04	0.02
UTI in last 30 days						
No	0	REF	REF	REF	REF	REF
Yes	1	1.05	0.98	1.12	0.04	0.03
Arthritis						
No	0	REF	REF	REF	REF	REF
Yes	1	0.97	0.94	1.01	-0.03	0.02
Other fracture						
No	0	REF	REF	REF	REF	REF
Yes	1	1.77	1.67	1.87	0.57	0.03
Aphasia						
No	0	REF	REF	REF	REF	REF
Yes	1	0.90	0.81	1.00	-0.11	0.05
Cerebral palsy						
No	0	REF	REF	REF	REF	REF
Yes	1	0.57	0.39	0.83	-0.57	0.20
Malnutrition						
No	0	REF	REF	REF	REF	REF
Yes	1	1.06	0.97	1.15	0.06	0.04
Schizophrenia						
No	0	REF	REF	REF	REF	REF
Yes	1	0.91	0.84	0.98	-0.10	0.04
Cataracts, glaucoma, macular degeneration						
No	0	REF	REF	REF	REF	REF

Yes	1	0.97	0.92	1.01	-0.04	0.02
Dyspnea at rest						
No	0	1.19	1.07	1.33	0.18	0.05
Yes	1	REF	REF	REF	REF	REF
<6month life expectancy?						
No	0	1.36	0.99	1.87	0.31	0.16
Yes	1	REF	REF	REF	REF	REF
Mechanically altered diet						
No	0	1.04	1.00	1.08	0.04	0.02
Yes	1	REF	REF	REF	REF	REF
Skin tear						
No	0	REF	REF	REF	REF	REF
Yes	1	1.15	1.09	1.23	0.14	0.03
Pressure-reducing device for chair						
No	0	1.07	1.03	1.11	0.06	0.02
Yes	1	REF	REF	REF	REF	REF
Pressure-reducing device for bed						
No	0	1.05	1.01	1.10	0.05	0.02
Yes	1	REF	REF	REF	REF	REF
Application of ointments/skin meds						
No	0	1.07	1.03	1.10	0.07	0.02
Yes	1	REF	REF	REF	REF	REF
Days receiving antianxiety treatment in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.23	1.15	1.30	0.20	0.03
Administered daily	2	1.09	1.05	1.14	0.09	0.02
Days receiving antidepressant treatment in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.26	1.16	1.37	0.23	0.04
Administered daily	2	1.19	1.15	1.23	0.17	0.02
Days receiving hypnotic treatment in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.09	0.95	1.25	0.08	0.07
Administered daily	2	1.15	1.06	1.26	0.14	0.04
Days receiving anticoagulant treatment in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.16	1.05	1.28	0.14	0.05
Administered daily	2	1.10	1.05	1.15	0.09	0.02
Days receiving antibiotic treatment in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.05	0.99	1.11	0.05	0.03
Administered daily	2	1.13	1.06	1.21	0.12	0.03
Days receiving diuretic treatment in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	0.98	0.90	1.06	-0.02	0.04

Administered daily	2	0.97	0.93	1.00	-0.03	0.02
Received oxygen therapy while admitted						
No	0	1.01	0.96	1.06	0.01	0.03
Yes	1	REF	REF	REF	REF	REF
Received most recent influenza vaccine						
No	0	1.11	1.07	1.15	0.11	0.02
Yes	1	REF	REF	REF	REF	REF
Days receiving SLP therapy in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.03	0.98	1.07	0.03	0.02
Administered daily	2	1.10	1.05	1.14	0.09	0.02
Days receiving OT therapy in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.06	1.00	1.13	0.06	0.03
Administered daily	2	1.07	1.01	1.13	0.07	0.03
Days receiving PT therapy in last 7						
Not administered	0	REF	REF	REF	REF	REF
Administered 1-6 days	1	1.05	0.99	1.11	0.04	0.03
Administered daily	2	1.09	1.03	1.15	0.09	0.03
Days receiving passive ROM therapy in last 7						
Not administered	0	1.20	1.03	1.41	0.18	0.08
Administered 1-6 days	1	0.97	0.80	1.17	-0.03	0.10
Administered daily	2	REF	REF	REF	REF	REF
Days receiving therapy for eating/swallowing						
Not administered	0	1.10	0.98	1.24	0.10	0.06
Administered at least once	1	REF	REF	REF	REF	REF
Decision care planning for falls triggered						
No	0	REF	REF	REF	REF	REF
Yes	1	1.01	0.95	1.08	0.01	0.03
Hospitalization in 1 year baseline ^b						
No	0	REF	REF	REF	REF	REF
Yes	1	1.16	1.11	1.21	0.15	0.02

Abbreviations: CI, Confidence Interval; SHR, Sub-distribution Hazard Ratio

^aBody Mass Index classifications are derived from World Health Organization classifications.

^bObtained from Medicare claims