



Nursing Home Compare Quality Measure Technical Specifications

Appendices

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APPENDIX TABLE A

Final risk-adjustment model for Short-Stay Residents who were Re-hospitalized after a Nursing Home Admission: risk variables and odds ratios

Note: Model C-statistic = 0.6952

Note: This model is based on all SNF stays with admission from a hospital between July 1, 2014 and June 30, 2015

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
Female age 18-65	0.05	25.3	1.08	1.06	1.11
Female age 65-69 (ref)	0.06	21.6	-	-	-
Female age 70-74	0.07	21.1	0.99	0.97	1.01
Female age 75-79	0.09	20.5	0.98	0.96	1.00
Female age 80-84	0.11	19.5	0.94	0.92	0.96
Female age 85-89	0.12	18.6	0.90	0.89	0.92
Female age 90-94	0.08	17.4	0.85	0.83	0.87
Female age GT 94	0.03	16.2	0.78	0.76	0.80
Male age 18-65	0.05	26.6	1.08	1.06	1.11
Male age 65-69	0.04	24.5	1.03	1.00	1.05
Male age 70-74	0.05	24.8	1.06	1.04	1.08
Male age 75-79	0.06	24.5	1.07	1.05	1.09
Male age 80-84	0.07	23.7	1.06	1.04	1.08
Male age 85-89	0.06	23.1	1.05	1.03	1.07
Male age 90-94	0.04	22.0	1.00	0.98	1.03
Male age GT 94	0.01	20.5	0.92	0.88	0.96
Length of stay 1-3 days (ref)	0.23	15.9	-	-	-
Length of stay 4-7 days	0.44	20.3	1.15	1.14	1.16
Length of stay 8-14 days	0.22	26.2	1.39	1.38	1.41
Length of stay > 14 days	0.12	28.6	1.43	1.41	1.45

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
0 hospitalizations in year before stay (ref)	0.40	15.5	-	-	-
1-3 hospitalizations in year before stay	0.48	23.0	1.11	1.10	1.12
4-6 hospitalizations in year before stay	0.09	33.3	1.39	1.36	1.41
7-9 hospitalizations	0.02	41.9	1.74	1.70	1.79
10+ hospitalizations	0.01	51.8	2.52	2.42	2.62
Ever disabled	0.18	24.4	0.97	0.96	0.98
ESRD	0.02	46.2	1.74	1.69	1.79
At least 1 day ICU (y/n)	0.15	28.4	1.12	1.11	1.14
<i>Clinical Classification of Hospitalization Preceding Start of Stay</i>					
1 Tuberculosis	0.00	27.2	2.01	1.31	3.11
2 Septicemia (except in labor)	0.09	26.6	2.10	2.04	2.16
3 Bacterial infection; unspecified site	0.00	24.6	2.07	1.62	2.65
4 Mycoses	0.00	30.6	2.55	2.33	2.80
5 HIV infection	0.00	35.1	2.79	2.40	3.24
6 Hepatitis	0.00	43.6	3.62	3.23	4.05
7 Viral infection	0.00	19.6	1.99	1.78	2.23
8 Other infections; including parasitic	0.00	18.8	1.70	1.32	2.20
9 Sexually transmitted infections (not HIV or hepatitis)	0.00	21.0	2.23	1.60	3.12
11 Cancer of head and neck	0.00	28.2	2.57	2.26	2.92
12 Cancer of esophagus	0.00	27.8	2.62	2.11	3.25
13 Cancer of stomach	0.00	28.4	2.79	2.40	3.24
14 Cancer of colon	0.00	22.0	2.42	2.26	2.60
15 Cancer of rectum and anus	0.00	27.3	2.87	2.57	3.20
16 Cancer of liver and intrahepatic bile duct	0.00	30.2	3.23	2.68	3.90
17 Cancer of pancreas	0.00	28.8	3.38	3.01	3.81
18 Cancer of other GI organs; peritoneum	0.00	28.6	3.26	2.79	3.81

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
19 Cancer of bronchus; lung	0.00	25.8	2.55	2.37	2.73
20 Cancer; other respiratory and intrathoracic	0.00	28.8	2.46	1.44	4.20
21 Cancer of bone and connective tissue	0.00	23.7	2.84	2.33	3.46
22 Melanomas of skin	0.00	19.7	2.32	1.44	3.73
23 Other non-epithelial cancer of skin	0.00	22.8	2.76	2.15	3.55
24 Cancer of breast	0.00	17.4	2.31	1.94	2.74
25 Cancer of uterus	0.00	21.2	2.62	2.20	3.10
26 Cancer of cervix	0.00	30.8	3.52	2.26	5.48
27 Cancer of ovary	0.00	26.5	3.25	2.75	3.84
28 Cancer of other female genital organs	0.00	23.0	3.07	2.34	4.03
29 Cancer of prostate	0.00	24.0	2.62	2.16	3.17
31 Cancer of other male genital organs	0.00	40.0	5.03	2.67	9.48
32 Cancer of bladder	0.00	33.3	3.81	3.44	4.22
33 Cancer of kidney and renal pelvis	0.00	21.2	2.33	2.01	2.69
34 Cancer of other urinary organs	0.00	24.7	3.05	2.21	4.22
35 Cancer of brain and nervous system	0.00	24.8	2.68	2.34	3.07
36 Cancer of thyroid	0.00	34.1	3.80	2.44	5.90
37 Hodgkin`s disease	0.00	40.7	5.87	3.33	10.32
38 Non-Hodgkin`s lymphoma	0.00	34.4	3.67	3.29	4.10
39 Leukemias	0.00	34.8	3.75	3.21	4.38
40 Multiple myeloma	0.00	34.7	3.80	3.29	4.40
41 Cancer; other and unspecified primary	0.00	30.2	3.27	2.24	4.79
42 Secondary malignancies	0.00	28.9	3.07	2.90	3.26
43 Malignant neoplasm without specification of site	0.00	26.2	2.81	2.16	3.65
44 Neoplasms of unspecified nature or uncertain behavior	0.00	32.8	3.93	3.51	4.40

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
45 Maintenance chemotherapy; radiotherapy	0.00	31.4	2.35	2.06	2.68
46 Benign neoplasm of uterus	0.00	18.7	1.69	0.93	3.06
47 Other and unspecified benign neoplasm	0.00	21.8	2.39	2.18	2.63
48 Thyroid disorders	0.00	23.0	2.46	2.12	2.86
49 Diabetes mellitus without complication	0.00	21.7	2.36	1.76	3.18
50 Diabetes mellitus with complications	0.02	23.9	1.97	1.90	2.05
51 Other endocrine disorders	0.00	22.1	2.41	2.24	2.58
52 Nutritional deficiencies	0.00	24.8	2.21	1.96	2.49
54 Gout and other crystal arthropathies	0.00	17.1	1.86	1.62	2.13
55 Fluid and electrolyte disorders	0.02	21.7	2.23	2.15	2.32
58 Other nutritional; endocrine; and metabolic disorders	0.00	24.2	2.47	2.31	2.65
59 Deficiency and other anemia	0.01	30.0	2.86	2.72	3.00
60 Acute posthemorrhagic anemia	0.00	26.1	2.31	2.14	2.49
61 Sickle cell anemia	0.00	34.0	2.69	1.89	3.83
62 Coagulation and hemorrhagic disorders	0.00	32.4	3.19	2.79	3.66
63 Diseases of white blood cells	0.00	27.0	2.57	2.26	2.92
64 Other hematologic conditions	0.00	33.6	3.54	2.38	5.27
76 Meningitis	0.00	23.0	2.15	1.73	2.69
77 Encephalitis	0.00	25.8	2.30	1.90	2.78
78 Other CNS infection and poliomyelitis	0.00	25.4	2.16	1.82	2.57
79 Parkinson`s disease	0.00	14.5	1.66	1.48	1.87
80 Multiple sclerosis	0.00	13.9	1.45	1.21	1.75
81 Other hereditary and degenerative nervous system conditions	0.00	17.5	1.85	1.70	2.01
82 Paralysis	0.00	19.6	1.97	1.56	2.49

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
83 Epilepsy; convulsions	0.01	21.0	2.02	1.92	2.13
84 Headache; including migraine	0.00	20.1	2.26	1.80	2.83
85 Coma; stupor; and brain damage	0.00	21.4	2.02	1.77	2.31
87 Retinal detachments; defects; vascular occlusion; and retinopathy	0.00	28.3	3.29	1.77	6.11
88 Glaucoma	0.00	25.7	3.00	1.39	6.48
90 Inflammation; infection of eye	0.00	20.9	2.30	1.76	3.01
91 Other eye disorders	0.00	17.9	1.91	1.33	2.75
92 Otitis media and related conditions	0.00	20.1	1.90	1.32	2.73
93 Conditions associated with dizziness or vertigo	0.00	11.2	1.48	1.30	1.68
94 Other ear and sense organ disorders	0.00	17.1	1.64	1.07	2.51
95 Other nervous system disorders	0.01	21.1	2.05	1.97	2.14
96 Heart valve disorders	0.01	25.4	2.46	2.34	2.58
97 Peri-; endo-; and myocarditis; cardiomyopathy	0.00	30.4	2.57	2.34	2.81
98 Essential hypertension	0.00	16.4	2.13	1.83	2.47
99 Hypertension with complications and secondary hypertension	0.01	29.1	2.44	2.33	2.55
100 Acute myocardial infarction	0.02	27.0	2.62	2.53	2.72
101 Coronary atherosclerosis and other heart disease	0.01	24.2	2.32	2.20	2.43
102 Nonspecific chest pain	0.00	23.9	2.34	2.18	2.51
103 Pulmonary heart disease	0.01	23.7	2.27	2.15	2.39
104 Other and ill-defined heart disease	0.00	23.7	2.39	1.91	2.98
105 Conduction disorders	0.00	17.6	1.85	1.70	2.02
106 Cardiac dysrhythmias	0.02	24.0	2.52	2.44	2.62
107 Cardiac arrest and ventricular fibrillation	0.00	24.9	1.75	1.42	2.16

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
108 Congestive heart failure; nonhypertensive	0.04	28.6	2.37	2.30	2.45
109 Acute cerebrovascular disease	0.03	20.4	1.98	1.91	2.05
110 Occlusion or stenosis of precerebral arteries	0.00	19.2	1.88	1.67	2.11
111 Other and ill-defined cerebrovascular disease	0.00	19.5	1.91	1.62	2.26
112 Transient cerebral ischemia	0.00	16.7	1.99	1.86	2.13
113 Late effects of cerebrovascular disease	0.00	19.1	1.54	1.39	1.70
114 Peripheral and visceral atherosclerosis	0.01	26.7	2.48	2.36	2.62
115 Aortic; peripheral; and visceral artery aneurysms	0.00	23.8	2.31	2.12	2.51
116 Aortic and peripheral arterial embolism or thrombosis	0.00	28.6	2.90	2.64	3.18
117 Other circulatory disease	0.00	21.8	2.21	2.09	2.34
118 Phlebitis; thrombophlebitis and thromboembolism	0.00	22.0	2.28	2.16	2.41
119 Varicose veins of lower extremity	0.00	16.2	1.55	1.02	2.35
120 Hemorrhoids	0.00	27.8	2.57	2.27	2.90
121 Other diseases of veins and lymphatics	0.00	20.2	1.80	1.61	2.02
122 Pneumonia (except that caused by tuberculosis or sexually transmitted disease)	0.04	23.2	1.98	1.91	2.04
123 Influenza	0.01	15.7	1.53	1.44	1.62
125 Acute bronchitis	0.00	16.2	1.73	1.57	1.91
126 Other upper respiratory infections	0.00	16.2	1.67	1.39	2.00
127 Chronic obstructive pulmonary disease and bronchiectasis	0.02	26.4	2.26	2.18	2.34
128 Asthma	0.00	24.8	2.22	2.08	2.37
129 Aspiration pneumonitis; food/vomitus	0.01	25.7	1.92	1.84	1.99
130 Pleurisy; pneumothorax; pulmonary collapse	0.00	27.8	2.27	2.13	2.42
131 Respiratory failure; insufficiency	0.02	31.7	2.06	1.99	2.13

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
132 Lung disease due to external agents	0.00	24.6	1.95	1.49	2.55
133 Other lower respiratory disease	0.00	25.5	2.19	2.02	2.37
134 Other upper respiratory disease	0.00	26.7	2.09	1.84	2.38
135 Intestinal infection	0.01	26.1	2.46	2.34	2.57
136 Disorders of teeth and jaw	0.00	16.7	1.65	1.22	2.23
137 Diseases of mouth; excluding dental	0.00	23.5	2.08	1.75	2.47
138 Esophageal disorders	0.00	24.2	2.24	2.08	2.42
139 Gastroduodenal ulcer (except hemorrhage)	0.00	20.6	1.95	1.73	2.20
140 Gastritis and duodenitis	0.00	24.3	2.19	2.01	2.39
141 Other disorders of stomach and duodenum	0.00	29.7	2.58	2.37	2.80
142 Appendicitis and other appendiceal conditions	0.00	20.3	2.22	1.91	2.57
143 Abdominal hernia	0.00	20.5	2.10	1.98	2.24
144 Regional enteritis and ulcerative colitis	0.00	31.0	3.46	3.04	3.93
145 Intestinal obstruction without hernia	0.01	23.2	2.22	2.13	2.33
146 Diverticulosis and diverticulitis	0.01	23.1	2.22	2.11	2.34
147 Anal and rectal conditions	0.00	23.1	2.14	1.92	2.38
148 Peritonitis and intestinal abscess	0.00	36.1	3.26	2.88	3.69
149 Biliary tract disease	0.01	21.5	2.15	2.04	2.27
151 Other liver diseases	0.00	39.5	3.43	3.24	3.63
152 Pancreatic disorders (not diabetes)	0.00	23.3	2.31	2.15	2.50
153 Gastrointestinal hemorrhage	0.01	25.7	2.21	2.13	2.30
154 Noninfectious gastroenteritis	0.00	21.6	2.40	2.20	2.62
155 Other gastrointestinal disorders	0.01	26.7	2.48	2.35	2.61
156 Nephritis; nephrosis; renal sclerosis	0.00	32.8	3.14	2.43	4.06
17 Acute and unspecified renal failure	0.03	25.0	2.43	2.36	2.51

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
158 Chronic kidney disease	0.00	31.4	2.02	1.73	2.36
159 Urinary tract infections	0.04	18.8	2.00	1.93	2.06
160 Calculus of urinary tract	0.00	22.1	2.17	1.94	2.43
161 Other diseases of kidney and ureters	0.00	21.8	2.10	1.83	2.41
162 Other diseases of bladder and urethra	0.00	23.6	2.18	1.92	2.49
163 Genitourinary symptoms and ill-defined conditions	0.00	24.3	2.22	2.01	2.45
164 Hyperplasia of prostate	0.00	22.0	2.19	1.92	2.50
165 Inflammatory conditions of male genital organs	0.00	19.2	1.61	1.34	1.93
166 Other male genital disorders	0.00	25.6	2.20	1.72	2.82
167 Nonmalignant breast conditions	0.00	19.4	1.79	1.24	2.58
168 Inflammatory diseases of female pelvic organs	0.00	23.4	2.24	1.69	2.96
170 Prolapse of female genital organs	0.00	12.8	1.62	1.07	2.46
173 Menopausal disorders	0.00	20.0	1.71	1.20	2.45
175 Other female genital disorders	0.00	25.4	2.55	2.10	3.10
197 Skin and subcutaneous tissue infections	0.02	19.0	1.82	1.75	1.89
198 Other inflammatory condition of skin	0.00	23.9	2.26	1.85	2.75
199 Chronic ulcer of skin	0.00	23.3	1.74	1.65	1.84
200 Other skin disorders	0.00	22.5	1.95	1.50	2.55
201 Infective arthritis and osteomyelitis	0.00	21.4	1.75	1.65	1.85
202 Rheumatoid arthritis and related disease	0.00	11.5	1.27	1.04	1.54
203 Osteoarthritis (Ref)	0.06	6.9	-	-	-
204 Other non-traumatic joint disorders	0.00	12.6	1.56	1.42	1.70
205 Spondylosis; intervertebral disc disorders; other back problems	0.01	15.0	1.82	1.75	1.89
206 Osteoporosis	0.00	29.3	4.05	2.03	8.08

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
207 Pathological fracture	0.01	17.7	2.08	1.98	2.19
208 Acquired foot deformities	0.00	13.0	1.60	1.45	1.76
209 Other acquired deformities	0.00	31.3	2.98	2.32	3.83
210 Systemic lupus erythematosus and connective tissue disorders	0.01	14.6	1.67	1.58	1.76
211 Other connective tissue disease	0.00	14.4	1.70	1.57	1.85
212 Other bone disease and musculoskeletal deformities	0.00	22.5	1.98	1.42	2.77
213 Cardiac and circulatory congenital anomalies	0.00	19.4	1.80	0.93	3.47
214 Digestive congenital anomalies	0.00	24.1	2.04	0.97	4.29
215 Genitourinary congenital anomalies	0.00	21.2	1.99	0.88	4.46
216 Nervous system congenital anomalies	0.00	11.2	1.45	1.18	1.79
225 Joint disorders and dislocations; trauma-related	0.00	13.1	1.59	1.39	1.83
226 Fracture of neck of femur (hip)	0.06	14.9	1.75	1.69	1.80
227 Spinal cord injury	0.00	23.6	2.16	1.83	2.54
228 Skull and face fractures	0.00	15.0	1.75	1.53	1.99
229 Fracture of upper limb	0.01	14.1	1.74	1.66	1.83
230 Fracture of lower limb	0.02	14.5	1.64	1.58	1.70
231 Other fractures	0.02	14.6	1.71	1.65	1.78
232 Sprains and strains	0.00	13.7	1.69	1.51	1.89
233 Intracranial injury	0.01	21.9	2.32	2.22	2.43
234 Crushing injury or internal injury	0.00	21.8	2.14	1.96	2.34
235 Open wounds of head; neck; and trunk	0.00	18.0	2.17	1.87	2.51
236 Open wounds of extremities	0.00	19.0	1.99	1.72	2.31
237 Complication of device; implant or graft	0.03	24.1	2.16	2.09	2.23
238 Complications of surgical procedures or medical care	0.01	27.1	2.20	2.12	2.28

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
239 Superficial injury; contusion	0.00	17.2	1.95	1.81	2.11
240 Burns	0.00	21.2	1.92	1.60	2.31
241 Poisoning by psychotropic agents	0.00	20.7	2.01	1.69	2.39
242 Poisoning by other medications and drugs	0.00	21.0	1.96	1.78	2.16
243 Poisoning by nonmedicinal substances	0.00	19.4	2.07	1.40	3.04
244 Other injuries and conditions due to external causes	0.00	20.1	2.02	1.85	2.19
245 Syncope	0.00	15.5	1.84	1.73	1.96
246 Fever of unknown origin	0.00	23.9	2.37	2.10	2.67
248 Gangrene	0.00	30.3	2.45	2.31	2.61
249 Shock	0.00	23.7	1.75	1.24	2.46
250 Nausea and vomiting	0.00	25.3	2.64	2.29	3.05
251 Abdominal pain	0.00	23.9	2.39	2.13	2.68
252 Malaise and fatigue	0.00	16.9	1.92	1.77	2.08
253 Allergic reactions	0.00	25.2	2.53	2.09	3.06
254 Rehabilitation care; fitting of prostheses; and adjustment of devices	0.03	16.4	1.30	1.25	1.34
256 Medical examination/evaluation	0.00	33.3	3.21	1.05	9.88
257 Other aftercare	0.00	20.0	1.43	1.27	1.61
258 Other screening for suspected conditions (not mental disorders or infectious disease)	0.00	33.8	4.20	2.55	6.93
259 Residual codes; unclassified	0.00	19.7	1.95	1.84	2.08
651 MHA: Anxiety disorders	0.00	22.1	2.42	1.93	3.03
652 MHA: Attention-deficit, conduct, and disruptive behavior disorders	0.00	18.0	1.64	1.13	2.38

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
653 MHA: Delirium, dementia, and amnesic and other cognitive disorders	0.02	17.5	1.93	1.85	2.00
654 MHA: Developmental disorders	0.00	23.0	2.33	1.57	3.45
655 MHA: Disorders usually diagnosed in infancy, childhood, or adolescence	0.00	42.9	5.88	1.67	20.75
656 MHA: Impulse control disorders, NEC	0.00	20.9	2.11	1.56	2.85
657 MHA: Mood disorders	0.01	17.9	1.73	1.64	1.82
658 MHA: Personality disorders	0.00	19.8	1.91	1.14	3.17
659 MHA: Schizophrenia and other psychotic disorders	0.01	21.0	2.11	2.01	2.22
660 MHA: Alcohol-related disorders	0.00	22.4	2.23	2.08	2.39
661 MHA: Substance-related disorders	0.00	21.8	2.04	1.86	2.23
670 MHA: Miscellaneous mental disorders	0.00	19.0	2.02	1.53	2.68
CCS None	0.00	30.5	1.75	1.60	1.91
Nonsignificant CCS w/ protective effect	0.00	7.2	0.89	0.63	1.27
Nonsignificant CCS w/ increased risk	0.00	14.3	1.29	1.05	1.58
Readmissions-specific Comorbidity Index	-1.33	-	1.52	1.50	1.54
End-stage disease	0.01	12.2	0.27	0.26	0.29
Return to nursing home after hospitalization	0.23	25.8	1.04	1.03	1.05
Anemia	0.31	24.3	1.06	1.05	1.07
Diabetes mellitus	0.35	24.8	0.98	0.97	0.99
Diabetic foot ulcer	0.01	27.4	0.96	0.93	0.99
Respiratory failure	0.05	31.8	0.98	0.97	1.00
Septicemia	0.03	27.4	1.02	1.00	1.05
Vascular ulcer	0.03	27.8	1.04	1.02	1.07
Viral hepatitis	0.01	31.1	1.13	1.09	1.18
Heart failure	0.25	26.9	1.05	1.04	1.06
Internal bleeding	0.01	44.1	2.34	2.27	2.41

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
Daily pain	0.06	21.8	1.03	1.02	1.05
Ext. assistance/dependence eating	0.06	34.9	1.35	1.33	1.38
Two-person support needed with ADL(s)	0.55	23.8	1.05	1.05	1.06
Cognitive status not intact	0.65	23.4	1.18	1.17	1.19
Cognitive status assessment missing	0.02	58.0	4.25	4.16	4.34
Total bowel incontinence	0.48	24.8	1.10	1.09	1.11
Chemotherapy	0.01	28.8	1.36	1.31	1.41
Dialysis	0.04	36.2	0.97	0.95	0.99
Insulin	0.22	26.8	1.08	1.07	1.09
IV medications	0.51	22.3	0.97	0.96	0.97
Ostomy	0.03	29.7	1.19	1.16	1.21
Oxygen therapy	0.37	26.8	1.18	1.17	1.19
Radiation	0.00	31.4	1.35	1.27	1.42
Tracheostomy	0.01	38.2	0.87	0.84	0.91
Significant change in status assessment	0.04	16.5	0.58	0.57	0.59
Rarely/never makes self-understood	0.03	26.7	0.88	0.86	0.90
Acute onset mental status change	0.02	35.8	1.80	1.76	1.83
Reject care 4-7 days	0.02	25.8	1.14	1.10	1.17
Wander 1-7 days	0.02	21.7	1.15	1.11	1.19
Walks in room: indep/supervision/limited assistance	0.32	17.0	0.94	0.93	0.95
Walks in corridor indep/supervision/limited assistance	0.29	16.2	0.81	0.80	0.82
Wanders * Walks in room or corridor: indep/supervision/limited assistance	0.01	20.9	1.25	1.18	1.31
Alzheimer's disease	0.05	18.1	0.85	0.83	0.86
Non-Alzheimer's dementia	0.21	19.8	0.86	0.85	0.86
Cancer	0.06	18.7	0.71	0.70	0.72
Ulcerative Colitis/Crohn's/inflamm. bowel	0.01	16.8	0.76	0.72	0.79
Pneumonia	0.12	26.0	1.02	1.01	1.03
UTI	0.16	21.5	0.96	0.95	0.97

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
Wound infection	0.02	25.8	1.05	1.03	1.08
Seizure disorder	0.07	23.7	0.97	0.95	0.98
Shortness of breath with exertion	0.17	28.4	1.07	1.06	1.08
Shortness of breath when sitting at rest	0.07	37.9	1.58	1.55	1.60
Shortness of breath when lying flat	0.11	31.3	1.03	1.02	1.04
Dehydrated	0.00	29.1	1.16	1.10	1.23
Fell in last month	0.32	18.5	0.96	0.95	0.97
Fell in last 2-6 months	0.18	20.3	0.94	0.93	0.95
Trouble swallowing medications	0.02	23.8	0.95	0.93	0.97
Parenteral/IV feeding	0.01	35.7	1.59	1.54	1.63
Feeding tube	0.05	35.0	1.14	1.12	1.16
Foot infection	0.01	23.4	0.96	0.93	1.00
Surgical wound	0.28	18.1	0.97	0.96	0.98
Antibiotics	0.40	23.3	1.08	1.07	1.09
Ventilator or respirator	0.00	41.1	0.93	0.88	0.99
Transfusion	0.00	32.0	1.33	1.26	1.41
Constant	-	-	0.13	0.12	0.13

APPENDIX TABLE B

Coefficient estimates for Short-Stay Residents who were Re-hospitalized after a Nursing Home Admission, resident-level comorbidity index

Charlson Condition	Coefficient	SE	P-value
Myocardial infarction	0.138	0.006	<0.001
CHF	0.252	0.005	<0.001
Peripheral vascular disease	0.126	0.006	<0.001
Cerebrovascular disease	0.022	0.006	<0.001
Dementia	0.021	0.007	0.004
COPD	0.256	0.004	<0.001
Rheumatoid arthritis	0.117	0.009	<0.001
Ulcers	0.142	0.011	<0.001
Mild liver disease	0.267	0.009	<0.001
Diabetes mellitus	0.144	0.004	<0.001
Diabetes with sequelae	0.129	0.006	<0.001
Paralysis	0.113	0.009	<0.001
Chronic renal disease	0.297	0.005	<0.001
Cancer	0.313	0.008	<0.001
Moderate to severe liver disease	0.449	0.016	<0.001
Metastatic cancer	0.307	0.013	<0.001
HIV/AIDS	0.376	0.036	<0.001
Intercept	-1.646	0.002	<0.001

Note: This model is based on all SNF stays with admission from a hospital between July 1, 2014 and June 30, 2015

Note: Model C-statistic = 0.6115

APPENDIX TABLE C

Final risk-adjustment model for Short-Stay Residents who have had an Outpatient Emergency Department Visit: risk variables and odds ratios

Note: Model C-statistic = 0.6123

Note: This model is based on all SNF stays with admission from a hospital between July 1, 2014 and June 30, 2015

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
Female age 18-65	0.05	15.3	1.22	1.19	1.25
Female age 65-69 (ref)	0.06	11.3	-	-	-
Female age 70-74	0.07	10.7	0.96	0.93	0.98
Female age 75-79	0.09	10.2	0.91	0.89	0.93
Female age 80-84	0.11	9.8	0.89	0.87	0.91
Female age 85-89	0.12	9.3	0.85	0.83	0.87
Female age 90-94	0.08	8.7	0.80	0.78	0.82
Female age GT 94	0.03	8.2	0.76	0.73	0.79
Male age 18-65	0.05	16.0	1.22	1.19	1.26
Male age 65-69	0.04	12.6	1.04	1.01	1.07
Male age 70-74	0.05	12.2	1.02	0.99	1.05
Male age 75-79	0.06	12.0	1.01	0.99	1.04
Male age 80-84	0.07	11.4	0.98	0.95	1.00
Male age 85-89	0.06	11.2	0.97	0.95	1.00
Male age 90-94	0.04	10.9	0.96	0.93	0.99
Male age GT 94	0.01	10.2	0.91	0.86	0.96
LOS btw 1-3 days (ref)	0.23	10.1	-	-	-
LOS btw 4-7 days	0.44	10.7	0.99	0.98	1.00
LOS btw 8-14 days	0.22	11.9	1.03	1.01	1.04
LOS GT 14 days	0.12	12.6	1.00	0.98	1.02

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
0 hospitalizations (ref)	0.40	8.8	-	-	-
1-3 hospitalizations	0.48	11.5	1.18	1.16	1.19
4-6 hospitalizations	0.09	15.3	1.42	1.39	1.44
7-9 hospitalizations	0.02	18.7	1.63	1.58	1.68
10+ hospitalizations	0.01	27.0	2.40	2.30	2.51
Ever disabled	0.18	13.9	1.07	1.05	1.09
ESRD	0.02	20.7	1.22	1.18	1.25
At least 1 day ICU (y/n)	0.15	12.9	1.08	1.07	1.10
<i>Clinical Classification of Hospitalization Preceding Start of Stay</i>					
2 Septicemia (except in labor)	0.09	11.4	1.16	1.12	1.20
4 Mycoses	0.00	11.9	1.18	1.04	1.34
5 HIV infection	0.00	13.9	1.07	0.88	1.30
6 Hepatitis	0.00	19.2	1.54	1.34	1.76
7 Viral infection	0.00	10.7	1.33	1.16	1.53
8 Other infections; including parasitic	0.00	11.5	1.25	0.91	1.72
9 Sexually transmitted infections (not HIV or hepatitis)	0.00	14.4	1.65	1.11	2.46
11 Cancer of head and neck	0.00	19.6	1.72	1.49	1.97
12 Cancer of esophagus	0.00	17.3	1.78	1.41	2.27
13 Cancer of stomach	0.00	16.2	1.85	1.55	2.20
14 Cancer of colon	0.00	9.6	1.25	1.14	1.37
15 Cancer of rectum and anus	0.00	11.2	1.35	1.17	1.56
16 Cancer of liver and intrahepatic bile duct	0.00	12.2	1.43	1.12	1.83
17 Cancer of pancreas	0.00	12.7	1.60	1.38	1.86
18 Cancer of other GI organs; peritoneum	0.00	13.3	1.71	1.40	2.08
19 Cancer of bronchus; lung	0.00	11.1	1.38	1.26	1.51
21 Cancer of bone and connective tissue	0.00	14.3	1.83	1.45	2.32
25 Cancer of uterus	0.00	9.4	1.28	1.01	1.61
27 Cancer of ovary	0.00	10.1	1.38	1.09	1.74
29 Cancer of prostate	0.00	14.0	1.82	1.45	2.28

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
32 Cancer of bladder	0.00	12.6	1.49	1.30	1.71
33 Cancer of kidney and renal pelvis	0.00	12.4	1.60	1.34	1.90
35 Cancer of brain and nervous system	0.00	13.2	1.50	1.28	1.77
38 Non-Hodgkin`s lymphoma	0.00	12.0	1.46	1.26	1.70
39 Leukemias	0.00	13.0	1.55	1.26	1.90
40 Multiple myeloma	0.00	11.3	1.32	1.08	1.63
42 Secondary malignancies	0.00	10.6	1.28	1.18	1.38
43 Malignant neoplasm without specification of site	0.00	11.1	1.39	0.99	1.96
44 Neoplasms of unspecified nature or uncertain behavior	0.00	14.1	1.73	1.50	2.00
47 Other and unspecified benign neoplasm	0.00	11.2	1.36	1.20	1.53
48 Thyroid disorders	0.00	11.7	1.44	1.19	1.74
50 Diabetes mellitus with complications	0.02	12.8	1.25	1.19	1.30
51 Other endocrine disorders	0.00	10.2	1.24	1.13	1.36
52 Nutritional deficiencies	0.00	14.0	1.43	1.24	1.65
54 Gout and other crystal arthropathies	0.00	9.8	1.28	1.08	1.51
55 Fluid and electrolyte disorders	0.02	11.8	1.36	1.30	1.42
58 Other nutritional; endocrine; and metabolic disorders	0.00	11.2	1.28	1.18	1.40
59 Deficiency and other anemia	0.01	12.4	1.36	1.28	1.45
60 Acute posthemorrhagic anemia	0.00	11.2	1.22	1.10	1.34
61 Sickle cell anemia	0.00	19.9	1.62	1.08	2.42
62 Coagulation and hemorrhagic disorders	0.00	11.0	1.20	0.99	1.46
63 Diseases of white blood cells	0.00	11.5	1.27	1.08	1.51
76 Meningitis	0.00	13.4	1.51	1.16	1.96
77 Encephalitis	0.00	11.2	1.18	0.92	1.52
78 Other CNS infection and poliomyelitis	0.00	14.9	1.49	1.21	1.83
79 Parkinson`s disease	0.00	9.9	1.22	1.07	1.40
81 Other hereditary and degenerative nervous system conditions	0.00	11.5	1.32	1.20	1.46
82 Paralysis	0.00	12.2	1.37	1.03	1.81

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
83 Epilepsy; convulsions	0.01	14.4	1.48	1.39	1.57
84 Headache; including migraine	0.00	13.9	1.64	1.25	2.14
85 Coma; stupor; and brain damage	0.00	14.3	1.62	1.39	1.88
90 Inflammation; infection of eye	0.00	12.3	1.55	1.11	2.18
91 Other eye disorders	0.00	12.1	1.49	0.97	2.29
93 Conditions associated with dizziness or vertigo	0.00	9.3	1.32	1.15	1.52
94 Other ear and sense organ disorders	0.00	12.0	1.34	0.82	2.18
95 Other nervous system disorders	0.01	12.2	1.36	1.30	1.42
96 Heart valve disorders	0.01	11.4	1.44	1.35	1.53
97 Peri-; endo-; and myocarditis; cardiomyopathy	0.00	14.0	1.46	1.30	1.64
98 Essential hypertension	0.00	11.3	1.57	1.32	1.87
99 Hypertension with complications and secondary hypertension	0.01	13.1	1.37	1.30	1.45
100 Acute myocardial infarction	0.02	12.4	1.50	1.44	1.57
101 Coronary atherosclerosis and other heart disease	0.01	14.1	1.70	1.60	1.80
102 Nonspecific chest pain	0.00	16.8	1.91	1.76	2.06
103 Pulmonary heart disease	0.01	13.1	1.68	1.58	1.78
104 Other and ill-defined heart disease	0.00	10.3	1.27	0.94	1.72
105 Conduction disorders	0.00	10.0	1.26	1.14	1.40
106 Cardiac dysrhythmias	0.02	11.5	1.44	1.38	1.51
107 Cardiac arrest and ventricular fibrillation	0.00	17.3	1.84	1.46	2.32
108 Congestive heart failure; nonhypertensive	0.04	11.5	1.31	1.27	1.36
109 Acute cerebrovascular disease	0.03	12.3	1.48	1.42	1.53
110 Occlusion or stenosis of precerebral arteries	0.00	11.4	1.33	1.15	1.54
111 Other and ill-defined cerebrovascular disease	0.00	13.5	1.53	1.26	1.85
112 Transient cerebral ischemia	0.00	11.3	1.47	1.37	1.59
113 Late effects of cerebrovascular disease	0.00	12.4	1.26	1.12	1.41
114 Peripheral and visceral atherosclerosis	0.01	11.7	1.33	1.25	1.42
115 Aortic; peripheral; and visceral artery aneurysms	0.00	12.8	1.59	1.44	1.76

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
116 Aortic and peripheral arterial embolism or thrombosis	0.00	13.0	1.61	1.43	1.82
117 Other circulatory disease	0.00	12.6	1.45	1.35	1.55
118 Phlebitis; thrombophlebitis and thromboembolism	0.00	12.8	1.62	1.52	1.73
120 Hemorrhoids	0.00	12.2	1.33	1.14	1.56
121 Other diseases of veins and lymphatics	0.00	9.4	1.10	0.95	1.27
122 Pneumonia (except that caused by tuberculosis or sexually transmitted disease)	0.04	10.9	1.25	1.20	1.29
123 Influenza	0.01	8.5	1.09	1.02	1.18
125 Acute bronchitis	0.00	8.8	1.12	0.99	1.27
126 Other upper respiratory infections	0.00	10.0	1.18	0.95	1.47
127 Chronic obstructive pulmonary disease and bronchiectasis	0.02	11.1	1.24	1.19	1.30
128 Asthma	0.00	11.2	1.30	1.20	1.42
129 Aspiration pneumonitis; food/vomitus	0.01	11.7	1.18	1.12	1.23
130 Pleurisy; pneumothorax; pulmonary collapse	0.00	13.0	1.42	1.31	1.54
131 Respiratory failure; insufficiency	0.02	12.5	1.19	1.14	1.24
132 Lung disease due to external agents	0.00	11.7	1.31	1.19	1.45
133 Other lower respiratory disease	0.00	17.7	1.86	1.61	2.15
134 Other upper respiratory disease	0.01	11.5	1.26	1.19	1.34
135 Intestinal infection	0.00	12.3	1.33	0.95	1.87
136 Disorders of teeth and jaw	0.00	12.3	1.34	1.08	1.65
137 Diseases of mouth; excluding dental	0.00	13.6	1.48	1.35	1.62
138 Esophageal disorders	0.00	13.4	1.66	1.44	1.90
139 Gastroduodenal ulcer (except hemorrhage)	0.00	11.9	1.30	1.17	1.45
140 Gastritis and duodenitis	0.00	13.9	1.49	1.34	1.65
141 Other disorders of stomach and duodenum	0.00	11.7	1.49	1.24	1.79
142 Appendicitis and other appendiceal conditions	0.00	11.2	1.41	1.31	1.52
143 Abdominal hernia	0.00	11.0	1.23	1.03	1.46
144 Regional enteritis and ulcerative colitis	0.01	11.1	1.33	1.26	1.41

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
145 Intestinal obstruction without hernia	0.01	11.0	1.32	1.24	1.41
146 Diverticulosis and diverticulitis	0.00	11.2	1.24	1.08	1.42
147 Anal and rectal conditions	0.00	15.1	1.50	1.28	1.76
148 Peritonitis and intestinal abscess	0.01	11.1	1.35	1.26	1.44
149 Biliary tract disease	0.00	15.3	1.41	1.31	1.51
152 Pancreatic disorders (not diabetes)	0.00	13.7	1.62	1.48	1.77
153 Gastrointestinal hemorrhage	0.01	11.2	1.21	1.16	1.27
154 Noninfectious gastroenteritis	0.00	10.6	1.29	1.16	1.44
155 Other gastrointestinal disorders	0.01	12.3	1.33	1.25	1.42
156 Nephritis; nephrosis; renal sclerosis	0.00	16.1	1.81	1.31	2.51
157 Acute and unspecified renal failure	0.03	10.8	1.24	1.19	1.28
158 Chronic kidney disease	0.00	18.2	1.43	1.20	1.70
159 Urinary tract infections	0.04	10.7	1.24	1.20	1.29
160 Calculus of urinary tract	0.00	11.5	1.27	1.11	1.46
161 Other diseases of kidney and ureters	0.00	13.7	1.61	1.37	1.89
162 Other diseases of bladder and urethra	0.00	14.8	1.71	1.46	1.99
163 Genitourinary symptoms and ill-defined conditions	0.00	14.4	1.63	1.45	1.83
164 Hyperplasia of prostate	0.00	14.3	1.69	1.45	1.97
165 Inflammatory conditions of male genital organs	0.00	13.6	1.39	1.13	1.69
166 Other male genital disorders	0.00	17.4	1.83	1.38	2.42
167 Nonmalignant breast conditions	0.00	13.6	1.50	1.00	2.26
168 Inflammatory diseases of female pelvic organs	0.00	13.3	1.54	1.10	2.15
175 Other female genital disorders	0.00	12.8	1.54	1.21	1.97
197 Skin and subcutaneous tissue infections	0.02	10.4	1.19	1.14	1.25
198 Other inflammatory condition of skin	0.00	10.6	1.21	0.93	1.58
199 Chronic ulcer of skin	0.00	10.3	1.02	0.95	1.10
200 Other skin disorders	0.00	13.5	1.31	0.94	1.81
201 Infective arthritis and osteomyelitis	0.00	12.0	1.22	1.14	1.31
203 Osteoarthritis (Ref)	0.06	6.7	-	-	-

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
204 Other non-traumatic joint disorders	0.00	8.2	1.09	0.98	1.21
205 Spondylosis; intervertebral disc disorders; other back problems	0.01	9.9	1.31	1.25	1.37
207 Pathological fracture	0.01	9.6	1.29	1.21	1.37
209 Other acquired deformities	0.00	9.8	1.27	1.14	1.42
210 Systemic lupus erythematosus and connective tissue disorders	0.00	14.4	1.46	1.07	1.99
211 Other connective tissue disease	0.01	9.2	1.16	1.09	1.23
212 Other bone disease and musculoskeletal deformities	0.00	9.7	1.20	1.09	1.32
213 Cardiac and circulatory congenital anomalies	0.00	15.4	1.73	1.21	2.47
214 Digestive congenital anomalies	0.00	16.1	2.08	1.05	4.10
216 Nervous system congenital anomalies	0.00	24.2	2.75	1.22	6.23
217 Other congenital anomalies	0.00	9.3	1.26	1.01	1.58
225 Joint disorders and dislocations; trauma-related	0.00	9.7	1.27	1.09	1.48
226 Fracture of neck of femur (hip)	0.06	9.3	1.21	1.17	1.25
227 Spinal cord injury	0.00	11.5	1.24	1.00	1.54
228 Skull and face fractures	0.00	10.5	1.28	1.10	1.48
229 Fracture of upper limb	0.01	8.6	1.13	1.06	1.19
230 Fracture of lower limb	0.02	8.0	0.99	0.94	1.03
231 Other fractures	0.02	8.9	1.17	1.13	1.23
233 Intracranial injury	0.01	13.6	1.57	1.49	1.66
234 Crushing injury or internal injury	0.00	12.6	1.48	1.33	1.64
235 Open wounds of head; neck; and trunk	0.00	10.8	1.35	1.13	1.62
237 Complication of device; implant or graft	0.03	13.0	1.35	1.30	1.40
238 Complications of surgical procedures or medical care	0.01	14.3	1.38	1.33	1.44
239 Superficial injury; contusion	0.00	9.5	1.19	1.08	1.31
241 Poisoning by psychotropic agents	0.00	13.1	1.38	1.13	1.70
242 Poisoning by other medications and drugs	0.00	11.9	1.25	1.11	1.40
243 Poisoning by nonmedicinal substances	0.00	13.9	1.58	1.01	2.47

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
244 Other injuries and conditions due to external causes	0.00	10.4	1.18	1.06	1.32
245 Syncope	0.00	10.0	1.27	1.18	1.37
246 Fever of unknown origin	0.00	11.5	1.25	1.07	1.46
248 Gangrene	0.00	13.0	1.29	1.19	1.40
250 Nausea and vomiting	0.00	11.6	1.31	1.08	1.58
251 Abdominal pain	0.00	15.1	1.73	1.52	1.97
252 Malaise and fatigue	0.00	10.1	1.23	1.12	1.36
253 Allergic reactions	0.00	11.8	1.35	1.05	1.75
254 Rehabilitation care; fitting of prostheses; and adjustment of devices	0.03	9.5	1.05	1.01	1.10
258 Other screening for suspected conditions (not mental disorders or infectious disease)	0.00	26.0	3.45	2.07	5.75
259 Residual codes; unclassified	0.00	11.6	1.31	1.22	1.41
651 MHA: Anxiety disorders	0.00	12.0	1.36	1.03	1.80
653 MHA: Delirium, dementia, and amnestic and other cognitive disorders	0.02	11.2	1.31	1.26	1.37
654 MHA: Developmental disorders	0.00	14.3	1.49	0.96	2.33
655 MHA: Disorders usually diagnosed in infancy, childhood, or adolescence	0.00	35.7	4.17	1.27	13.74
656 MHA: Impulse control disorders, NEC	0.00	17.1	1.89	1.39	2.57
657 MHA: Mood disorders	0.01	11.8	1.27	1.19	1.35
658 MHA: Personality disorders	0.00	22.9	2.63	1.62	4.25
659 MHA: Schizophrenia and other psychotic disorders	0.01	10.7	1.06	1.00	1.13
660 MHA: Alcohol-related disorders	0.00	13.8	1.44	1.33	1.57
661 MHA: Substance-related disorders	0.00	13.3	1.41	1.27	1.57
670 MHA: Miscellaneous mental disorders	0.00	20.8	2.40	1.84	3.12
CCS None	0.00	15.1	1.26	1.13	1.40
Nonsignificant CCS w/ protective effect	0.00	5.8	0.60	0.39	0.93
Nonsignificant CCS w/ increased risk	0.01	9.4	1.07	1.01	1.13

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
ED-specific Comorbidity Index	-2.11	-	1.19	1.15	1.23
End-stage disease	0.01	7.4	0.58	0.54	0.61
Anemia	0.31	11.5	0.98	0.97	0.99
Asthma/COPD	0.27	11.9	1.02	1.01	1.03
Respiratory failure	0.05	12.6	0.93	0.91	0.95
Vascular ulcer	0.03	11.6	0.92	0.89	0.95
Viral hepatitis	0.01	16.2	1.07	1.02	1.12
Heart failure	0.25	11.9	1.03	1.02	1.04
Internal bleeding	0.01	18.6	1.68	1.62	1.74
Daily pain	0.06	13.0	1.19	1.17	1.21
Two-person support needed with ADL(s)	0.55	11.6	1.06	1.04	1.07
Cognitive status not intact	0.65	11.6	1.14	1.13	1.16
Cognitive status assessment missing	0.02	16.4	1.41	1.37	1.45
Dialysis	0.04	18.8	1.34	1.30	1.37
Insulin	0.22	12.8	1.04	1.03	1.05
Ostomy	0.03	13.4	1.09	1.06	1.12
Oxygen therapy	0.37	11.8	1.03	1.02	1.04
Radiation	0.00	12.5	1.08	1.01	1.17
Tracheostomy care	0.01	16.8	1.20	1.15	1.26
Significant change in status assessment	0.04	11.5	0.96	0.94	0.99
Rarely/never makes self-understood	0.03	11.4	0.83	0.79	0.87
Rarely/never understands others	0.02	11.2	0.94	0.89	1.00
Acute onset mental status change	0.02	15.0	1.30	1.27	1.34
Reject care 4-7 days	0.02	15.4	1.29	1.25	1.33
Wander 1-7 days	0.02	15.2	1.46	1.42	1.50
Walks in room: indep/supervision/limited assistance	0.32	10.5	1.05	1.03	1.07
Walks in corridor indep/supervision/limited assistance	0.29	10.3	0.97	0.95	0.99
Cancer	0.06	10.7	0.96	0.94	0.98
Orthostatic hypotension	0.02	12.8	1.04	1.01	1.08

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
Pneumonia	0.12	11.4	0.96	0.94	0.98
UTI	0.16	11.4	1.03	1.02	1.05
Seizure disorder	0.07	13.7	1.07	1.05	1.08
Shortness of breath with exertion	0.17	12.2	1.04	1.03	1.06
Shortness of breath when sitting at rest	0.07	13.6	1.14	1.12	1.16
Dehydrated	0.00	12.7	1.10	1.02	1.18
Fell in last month	0.32	10.8	1.07	1.06	1.08
Fell in last 2-6 months	0.18	11.7	1.06	1.04	1.07
Parenteral/IV feeding	0.01	13.8	1.16	1.12	1.21
Feeding tube	0.05	17.1	1.50	1.47	1.54
Surgical wound	0.28	10.4	1.04	1.03	1.05
Anticoagulants	0.35	10.5	0.96	0.95	0.97
Antibiotics	0.40	11.9	1.14	1.13	1.15
Ventilator	0.00	12.8	0.63	0.58	0.68
Transfusion	0.00	19.2	1.75	1.65	1.87
Iso/Quar for infectious disease	0.01	12.1	0.94	0.91	0.98
Speech Therapy	0.34	11.8	1.06	1.05	1.07
Respiratory therapy	0.07	11.4	0.91	0.89	0.92
Constant	-	-	0.09	0.08	0.09

APPENDIX TABLE D

Coefficient estimates for Short-Stay Residents who have had an Outpatient Emergency Department Visit, resident level comorbidity index

Charlson Condition	Coefficient	SE	P-value
Myocardial infarction	0.128	0.007	<0.001
CHF	0.046	0.006	<0.001
Peripheral vascular disease	0.038	0.007	<0.001
Cerebrovascular disease	0.081	0.007	<0.001
Dementia	0.075	0.009	<0.001
COPD	0.143	0.006	<0.001
Rheumatoid arthritis	0.032	0.012	0.006
Ulcers	0.102	0.014	<0.001
Mild liver disease	0.230	0.012	<0.001
Diabetes mellitus	0.107	0.006	<0.001
Diabetes with sequelae	0.158	0.008	<0.001
Paralysis	0.117	0.012	<0.001
Chronic renal disease	0.145	0.006	<0.001
Cancer	0.104	0.010	<0.001
Moderate to severe liver disease	0.168	0.020	<0.001
<i>Metastatic cancer*</i>	<i>0.016</i>	<i>0.018</i>	<i>0.383</i>
HIV/AIDS	0.374	0.044	<0.001
Intercept	-2.278	0.003	<0.001

Note: This model is based on all SNF stays with admission from a hospital between July 1, 2014 and June 30, 2015

Note: Model C-statistic = 0.5621

* Coefficients with probabilities greater than 0.05 excluded from the comorbidity construct.

APPENDIX TABLE E

Final risk-adjustment model for Short-Stay Residents who were Successfully Discharged to the Community: risk variables and odds ratios

Note: Model C-statistic = 0.7787

Note: “Nonsignificant CCS w/ protective risk” was dropped from this model due to perfect prediction of successful 100-day community discharge.

Note: This model is based on all SNF episodes with admission from a hospital between July 1, 2014 and June 30, 2015

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
Female age 18-65	0.05	49.6	0.8	0.83	0.87
Female age 65-69 (ref)	0.06	59.1	-	-	-
Female age 70-74	0.08	58.4	1.0	0.96	1.00
Female age 75-79	0.09	57.4	1.0	0.96	1.00
Female age 80-84	0.11	55.2	1.0	0.94	0.97
Female age 85-89	0.12	52.3	0.9	0.91	0.95
Female age 90-94	0.08	49.2	0.9	0.88	0.92
Female age GT 94	0.03	44.6	0.8	0.82	0.87
Male age 18-65	0.05	44.3	0.8	0.79	0.83
Male age 65-69	0.04	50.8	0.9	0.88	0.93
Male age 70-74	0.05	50.9	0.9	0.89	0.93
Male age 75-79	0.06	49.7	0.9	0.86	0.90
Male age 80-84	0.07	48.6	0.9	0.83	0.87
Male age 85-89	0.06	46.1	0.8	0.79	0.83
Male age 90-94	0.03	44.0	0.8	0.77	0.81
Male age GT 94	0.01	40.4	0.7	0.72	0.78

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
LOS btw 1-3 days (ref)	0.21	64.9	-	-	-
LOS btw 4-7 days	0.43	53.9	0.9	0.89	0.91
LOS btw 8-14 days	0.23	44.8	0.7	0.74	0.76
LOS GT 14 days	0.13	34.5	0.6	0.63	0.65
0 hospitalizations (ref)	0.48	59.4	-	-	-
1-3 hospitalizations	0.43	47.4	0.9	0.91	0.93
4-6 hospitalizations	0.07	32.7	0.7	0.65	0.68
7-9 hospitalizations	0.01	23.1	0.5	0.44	0.48
10+ hospitalizations	0.00	14.5	0.2	0.22	0.26
Ever disabled	0.17	50.0	1.1	1.10	1.13
ESRD	0.02	16.1	0.4	0.35	0.38
At least 1 day ICU (y/n)	0.15	45.2	1.0	1.00	1.03
<i>Clinical Classification of Hospitalization Preceding Start of Episode</i>					
1 Tuberculosis	0.00	27.4	0.3	0.16	0.47
2 Septicemia (except in labor)	0.07	43.3	0.5	0.48	0.51
3 Bacterial infection; unspecified site	0.00	49.2	0.5	0.40	0.68
4 Mycoses	0.00	36.7	0.4	0.37	0.48
5 HIV infection	0.00	34.9	0.4	0.30	0.44
6 Hepatitis	0.00	27.5	0.2	0.19	0.27
7 Viral infection	0.00	54.7	0.6	0.51	0.63
8 Other infections; including parasitic	0.00	56.2	0.5	0.41	0.65
9 Sexually transmitted infections (not HIV or hepatitis)	0.00	56.5	0.6	0.42	0.82
10 Immunizations and screening for infectious disease	0.00	41.7	0.3	0.10	0.89
11 Cancer of head and neck	0.00	41.1	0.4	0.37	0.49
12 Cancer of esophagus	0.00	29.3	0.2	0.17	0.28
13 Cancer of stomach	0.00	44.4	0.4	0.32	0.44
14 Cancer of colon	0.00	58.0	0.5	0.51	0.58

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
15 Cancer of rectum and anus	0.00	48.4	0.4	0.37	0.46
16 Cancer of liver and intrahepatic bile duct	0.00	32.6	0.2	0.19	0.29
17 Cancer of pancreas	0.00	36.7	0.2	0.22	0.28
18 Cancer of other GI organs; peritoneum	0.00	45.9	0.3	0.28	0.39
19 Cancer of bronchus; lung	0.00	39.8	0.3	0.29	0.33
20 Cancer; other respiratory and intrathoracic	0.00	46.2	0.4	0.21	0.69
21 Cancer of bone and connective tissue	0.00	51.0	0.4	0.32	0.47
22 Melanomas of skin	0.00	53.8	0.5	0.33	0.83
23 Other non-epithelial cancer of skin	0.00	45.8	0.3	0.24	0.40
24 Cancer of breast	0.00	54.9	0.5	0.38	0.53
25 Cancer of uterus	0.00	57.6	0.4	0.38	0.53
26 Cancer of cervix	0.00	41.4	0.4	0.22	0.65
27 Cancer of ovary	0.00	49.8	0.3	0.29	0.40
28 Cancer of other female genital organs	0.00	56.0	0.5	0.37	0.62
29 Cancer of prostate	0.00	43.4	0.4	0.33	0.50
31 Cancer of other male genital organs	0.00	39.3	0.3	0.11	0.82
32 Cancer of bladder	0.00	40.0	0.3	0.28	0.36
33 Cancer of kidney and renal pelvis	0.00	61.2	0.6	0.51	0.67
34 Cancer of other urinary organs	0.00	60.6	0.5	0.37	0.69
35 Cancer of brain and nervous system	0.00	28.6	0.2	0.15	0.21
36 Cancer of thyroid	0.00	38.8	0.4	0.19	0.65
37 Hodgkin`s disease	0.00	28.9	0.2	0.10	0.39
38 Non-Hodgkin`s lymphoma	0.00	26.3	0.2	0.16	0.21
39 Leukemias	0.00	26.1	0.2	0.17	0.25
40 Multiple myeloma	0.00	33.1	0.3	0.22	0.31
41 Cancer; other and unspecified primary	0.00	35.2	0.2	0.16	0.38
42 Secondary malignancies	0.00	26.6	0.2	0.18	0.20

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
43 Malignant neoplasm without specification of site	0.00	28.4	0.2	0.14	0.25
44 Neoplasms of unspecified nature or uncertain behavior	0.00	39.6	0.3	0.24	0.31
45 Maintenance chemotherapy; radiotherapy	0.00	24.0	0.2	0.18	0.28
46 Benign neoplasm of uterus	0.00	70.4	0.8	0.40	1.58
47 Other and unspecified benign neoplasm	0.00	55.2	0.4	0.39	0.46
48 Thyroid disorders	0.00	45.2	0.4	0.34	0.47
49 Diabetes mellitus without complication	0.00	38.9	0.3	0.21	0.39
50 Diabetes mellitus with complications	0.02	45.1	0.4	0.40	0.43
51 Other endocrine disorders	0.00	51.2	0.4	0.41	0.47
52 Nutritional deficiencies	0.00	34.3	0.3	0.27	0.35
54 Gout and other crystal arthropathies	0.00	62.1	0.6	0.51	0.65
55 Fluid and electrolyte disorders	0.01	46.1	0.4	0.40	0.43
57 Immunity disorders	0.00	50.0	0.9	0.35	2.57
58 Other nutritional; endocrine; and metabolic disorders	0.00	41.1	0.4	0.33	0.38
59 Deficiency and other anemia	0.00	39.7	0.3	0.32	0.36
60 Acute posthemorrhagic anemia	0.00	44.7	0.4	0.37	0.45
61 Sickle cell anemia	0.00	34.7	0.3	0.17	0.45
62 Coagulation and hemorrhagic disorders	0.00	40.9	0.4	0.30	0.44
63 Diseases of white blood cells	0.00	42.2	0.4	0.32	0.44
64 Other hematologic conditions	0.00	39.5	0.3	0.19	0.48
76 Meningitis	0.00	56.8	0.7	0.54	0.83
77 Encephalitis	0.00	47.1	0.5	0.41	0.60
78 Other CNS infection and poliomyelitis	0.00	44.4	0.4	0.32	0.46
79 Parkinson`s disease	0.00	49.8	0.4	0.36	0.44
80 Multiple sclerosis	0.00	52.6	0.4	0.37	0.51
81 Other hereditary and degenerative nervous system conditions	0.00	49.2	0.4	0.39	0.46
82 Paralysis	0.00	40.1	0.3	0.24	0.38

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
83 Epilepsy; convulsions	0.00	48.8	0.5	0.47	0.53
84 Headache; including migraine	0.00	64.3	0.6	0.49	0.78
85 Coma; stupor; and brain damage	0.00	43.6	0.5	0.41	0.56
87 Retinal detachments; defects; vascular occlusion; and retinopathy	0.00	56.3	0.5	0.25	1.18
88 Glaucoma	0.00	46.4	0.5	0.21	1.05
89 Blindness and vision defects	0.00	58.3	0.6	0.39	0.84
90 Inflammation; infection of eye	0.00	50.0	0.5	0.35	0.65
91 Other eye disorders	0.00	52.1	0.4	0.29	0.58
92 Otitis media and related conditions	0.00	50.8	0.4	0.29	0.64
93 Conditions associated with dizziness or vertigo	0.00	69.9	0.6	0.58	0.70
94 Other ear and sense organ disorders	0.00	54.5	0.5	0.34	0.77
95 Other nervous system disorders	0.01	47.9	0.5	0.45	0.48
96 Heart valve disorders	0.01	60.0	0.5	0.46	0.50
97 Peri-; endo-; and myocarditis; cardiomyopathy	0.00	44.7	0.4	0.36	0.45
98 Essential hypertension	0.00	54.2	0.5	0.39	0.52
99 Hypertension with complications and secondary hypertension	0.01	41.1	0.4	0.37	0.41
100 Acute myocardial infarction	0.02	46.8	0.4	0.38	0.41
101 Coronary atherosclerosis and other heart disease	0.01	61.0	0.5	0.46	0.51
102 Nonspecific chest pain	0.00	44.9	0.4	0.32	0.39
103 Pulmonary heart disease	0.01	51.1	0.5	0.46	0.52
104 Other and ill-defined heart disease	0.00	56.1	0.5	0.41	0.65
105 Conduction disorders	0.00	60.9	0.6	0.53	0.62
106 Cardiac dysrhythmias	0.02	48.0	0.4	0.38	0.40
107 Cardiac arrest and ventricular fibrillation	0.00	49.8	0.5	0.42	0.65
108 Congestive heart failure; nonhypertensive	0.04	41.4	0.4	0.40	0.42
109 Acute cerebrovascular disease	0.03	43.4	0.4	0.41	0.44

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
110 Occlusion or stenosis of precerebral arteries	0.00	55.2	0.5	0.41	0.52
111 Other and ill-defined cerebrovascular disease	0.00	43.5	0.4	0.35	0.49
112 Transient cerebral ischemia	0.00	55.7	0.5	0.45	0.51
113 Late effects of cerebrovascular disease	0.00	42.4	0.5	0.42	0.52
114 Peripheral and visceral atherosclerosis	0.01	47.0	0.4	0.36	0.40
115 Aortic; peripheral; and visceral artery aneurysms	0.00	57.0	0.5	0.43	0.51
116 Aortic and peripheral arterial embolism or thrombosis	0.00	44.3	0.3	0.30	0.36
117 Other circulatory disease	0.00	51.6	0.4	0.40	0.45
118 Phlebitis; thrombophlebitis and thromboembolism	0.00	48.3	0.4	0.41	0.46
119 Varicose veins of lower extremity	0.00	50.0	0.4	0.30	0.62
120 Hemorrhoids	0.00	45.8	0.4	0.33	0.46
121 Other diseases of veins and lymphatics	0.00	46.6	0.4	0.36	0.45
122 Pneumonia (except that caused by tuberculosis or sexually transmitted disease)	0.03	48.0	0.5	0.48	0.51
123 Influenza	0.01	62.0	0.8	0.78	0.87
125 Acute bronchitis	0.00	57.0	0.6	0.54	0.66
126 Other upper respiratory infections	0.00	60.4	0.7	0.59	0.85
127 Chronic obstructive pulmonary disease and bronchiectasis	0.02	45.8	0.4	0.41	0.44
128 Asthma	0.00	51.0	0.5	0.46	0.53
129 Aspiration pneumonitis; food/vomitus	0.01	36.5	0.5	0.49	0.54
130 Pleurisy; pneumothorax; pulmonary collapse	0.00	44.5	0.4	0.39	0.46
131 Respiratory failure; insufficiency	0.02	34.6	0.5	0.47	0.50
132 Lung disease due to external agents	0.00	41.4	0.5	0.34	0.63
133 Other lower respiratory disease	0.00	46.0	0.4	0.38	0.45
134 Other upper respiratory disease	0.00	46.5	0.5	0.41	0.58
135 Intestinal infection	0.01	44.6	0.4	0.40	0.44
136 Disorders of teeth and jaw	0.00	57.9	0.6	0.48	0.88

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
137 Diseases of mouth; excluding dental	0.00	42.9	0.5	0.36	0.60
138 Esophageal disorders	0.00	45.5	0.4	0.37	0.45
139 Gastroduodenal ulcer (except hemorrhage)	0.00	55.2	0.5	0.45	0.57
140 Gastritis and duodenitis	0.00	48.6	0.4	0.40	0.49
141 Other disorders of stomach and duodenum	0.00	46.2	0.4	0.37	0.46
142 Appendicitis and other appendiceal conditions	0.00	65.5	0.7	0.56	0.75
143 Abdominal hernia	0.00	62.8	0.6	0.56	0.63
144 Regional enteritis and ulcerative colitis	0.00	43.5	0.3	0.29	0.38
145 Intestinal obstruction without hernia	0.01	54.0	0.6	0.53	0.58
146 Diverticulosis and diverticulitis	0.01	55.9	0.5	0.49	0.54
147 Anal and rectal conditions	0.00	54.0	0.5	0.46	0.59
148 Peritonitis and intestinal abscess	0.00	38.8	0.3	0.29	0.39
149 Biliary tract disease	0.01	58.0	0.6	0.54	0.60
151 Other liver diseases	0.00	32.8	0.3	0.25	0.28
152 Pancreatic disorders (not diabetes)	0.00	52.8	0.5	0.44	0.52
153 Gastrointestinal hemorrhage	0.01	46.4	0.5	0.44	0.48
154 Noninfectious gastroenteritis	0.00	50.6	0.4	0.39	0.46
155 Other gastrointestinal disorders	0.00	46.1	0.4	0.39	0.44
156 Nephritis; nephrosis; renal sclerosis	0.00	37.5	0.3	0.21	0.39
157 Acute and unspecified renal failure	0.03	42.6	0.4	0.38	0.41
158 Chronic kidney disease	0.00	32.7	0.4	0.31	0.46
159 Urinary tract infections	0.03	45.4	0.4	0.43	0.46
160 Calculus of urinary tract	0.00	54.0	0.5	0.46	0.60
161 Other diseases of kidney and ureters	0.00	48.6	0.5	0.39	0.52
162 Other diseases of bladder and urethra	0.00	50.6	0.5	0.45	0.61
163 Genitourinary symptoms and ill-defined conditions	0.00	45.9	0.5	0.42	0.54
164 Hyperplasia of prostate	0.00	47.6	0.5	0.41	0.54

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
165 Inflammatory conditions of male genital organs	0.00	51.0	0.6	0.46	0.68
166 Other male genital disorders	0.00	43.4	0.5	0.35	0.61
167 Nonmalignant breast conditions	0.00	55.4	0.5	0.34	0.76
168 Inflammatory diseases of female pelvic organs	0.00	47.8	0.4	0.29	0.52
170 Prolapse of female genital organs	0.00	71.8	0.8	0.54	1.10
171 Menstrual disorders	0.00	50.0	0.6	0.20	1.64
172 Ovarian cyst	0.00	68.8	0.8	0.43	1.65
173 Menopausal disorders	0.00	50.6	0.5	0.33	0.86
175 Other female genital disorders	0.00	53.7	0.5	0.39	0.62
197 Skin and subcutaneous tissue infections	0.02	51.9	0.5	0.48	0.52
198 Other inflammatory condition of skin	0.00	45.3	0.4	0.34	0.55
199 Chronic ulcer of skin	0.00	30.8	0.4	0.42	0.48
200 Other skin disorders	0.00	48.7	0.4	0.31	0.55
201 Infective arthritis and osteomyelitis	0.00	47.2	0.5	0.46	0.52
202 Rheumatoid arthritis and related disease	0.00	66.8	0.5	0.47	0.62
203 Osteoarthritis (Ref)	0.08	86.6	-	-	-
204 Other non-traumatic joint disorders	0.00	66.6	0.6	0.56	0.65
205 Spondylosis; intervertebral disc disorders; other back problems	0.02	68.6	0.6	0.55	0.58
206 Osteoporosis	0.00	37.5	0.2	0.11	0.52
207 Pathological fracture	0.01	55.0	0.4	0.42	0.46
208 Acquired foot deformities	0.00	80.1	1.0	0.76	1.26
209 Other acquired deformities	0.00	77.9	0.7	0.63	0.75
210 Systemic lupus erythematosus and connective tissue disorders	0.00	39.5	0.3	0.22	0.37
211 Other connective tissue disease	0.01	56.5	0.5	0.48	0.52
212 Other bone disease and musculoskeletal deformities	0.00	71.9	0.6	0.58	0.67
213 Cardiac and circulatory congenital anomalies	0.00	62.1	0.6	0.43	0.83

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
214 Digestive congenital anomalies	0.00	49.0	0.4	0.19	0.76
215 Genitourinary congenital anomalies	0.00	59.5	0.6	0.29	1.07
216 Nervous system congenital anomalies	0.00	58.6	0.6	0.27	1.51
217 Other congenital anomalies	0.00	78.0	0.7	0.62	0.86
225 Joint disorders and dislocations; trauma-related	0.00	69.2	0.7	0.59	0.75
226 Fracture of neck of femur (hip)	0.07	57.8	0.5	0.51	0.54
227 Spinal cord injury	0.00	43.4	0.4	0.38	0.52
228 Skull and face fractures	0.00	58.1	0.5	0.48	0.59
229 Fracture of upper limb	0.01	61.3	0.5	0.53	0.57
230 Fracture of lower limb	0.02	57.8	0.5	0.51	0.55
231 Other fractures	0.03	59.9	0.6	0.57	0.61
232 Sprains and strains	0.00	66.6	0.6	0.59	0.70
233 Intracranial injury	0.01	47.5	0.5	0.44	0.48
234 Crushing injury or internal injury	0.00	56.4	0.6	0.52	0.61
235 Open wounds of head; neck; and trunk	0.00	51.5	0.4	0.38	0.50
236 Open wounds of extremities	0.00	53.9	0.5	0.40	0.53
237 Complication of device; implant or graft	0.03	54.7	0.5	0.47	0.49
238 Complications of surgical procedures or medical care	0.01	47.9	0.5	0.44	0.48
239 Superficial injury; contusion	0.00	55.9	0.5	0.47	0.54
240 Burns	0.00	49.8	0.5	0.43	0.61
241 Poisoning by psychotropic agents	0.00	50.8	0.5	0.39	0.54
242 Poisoning by other medications and drugs	0.00	52.6	0.5	0.45	0.55
243 Poisoning by nonmedicinal substances	0.00	50.7	0.5	0.35	0.77
244 Other injuries and conditions due to external causes	0.00	47.2	0.4	0.41	0.48
245 Syncope	0.00	55.1	0.5	0.45	0.50
246 Fever of unknown origin	0.00	53.7	0.6	0.51	0.70
247 Lymphadenitis	0.00	43.9	0.3	0.17	0.62

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
248 Gangrene	0.00	33.3	0.3	0.29	0.34
249 Shock	0.00	41.1	0.5	0.31	0.72
250 Nausea and vomiting	0.00	50.7	0.4	0.37	0.51
251 Abdominal pain	0.00	46.9	0.4	0.35	0.45
252 Malaise and fatigue	0.00	48.4	0.4	0.37	0.43
253 Allergic reactions	0.00	52.4	0.5	0.42	0.68
254 Rehabilitation care; fitting of prostheses; and adjustment of devices	0.04	49.1	0.5	0.51	0.54
256 Medical examination/evaluation	0.00	50.0	0.4	0.12	1.22
257 Other aftercare	0.00	47.7	0.6	0.52	0.66
258 Other screening for suspected conditions (not mental disorders or infectious disease)	0.00	29.0	0.2	0.08	0.46
259 Residual codes; unclassified	0.00	44.7	0.4	0.40	0.45
650 MHSA: Adjustment disorders	0.00	28.2	0.3	0.16	0.39
651 MHSA: Anxiety disorders	0.00	39.2	0.3	0.25	0.41
652 MHSA: Attention-deficit, conduct, and disruptive behavior disorders	0.00	11.5	0.1	0.06	0.33
653 MHSA: Delirium, dementia, and amnestic and other cognitive disorders	0.02	24.3	0.3	0.26	0.28
654 MHSA: Developmental disorders	0.00	28.0	0.3	0.17	0.43
655 MHSA: Disorders usually diagnosed in infancy, childhood, or adolescence	0.00	16.7	0.1	0.01	1.84
656 MHSA: Impulse control disorders, NEC	0.00	6.9	0.1	0.04	0.23
657 MHSA: Mood disorders	0.01	28.6	0.3	0.25	0.28
658 MHSA: Personality disorders	0.00	20.4	0.2	0.09	0.38
659 MHSA: Schizophrenia and other psychotic disorders	0.01	18.7	0.2	0.18	0.21
660 MHSA: Alcohol-related disorders	0.00	53.7	0.5	0.45	0.52

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
661 MHA: Substance-related disorders	0.00	52.2	0.5	0.48	0.57
662 MHA: Suicide and intentional self-inflicted injury	0.00	36.4	0.3	0.06	1.30
663 MHA: Screening and history of mental health and substance abuse codes	0.00	45.0	0.7	0.42	1.29
670 MHA: Miscellaneous mental disorders	0.00	49.6	0.4	0.29	0.49
CCS None	0.00	28.4	0.4	0.39	0.49
Nonsignificant CCS w/ increased risk	0.00	57.7	0.5	0.30	0.96
Community discharge-specific Comorbidity Index	0.06	-	1.4	1.37	1.41
RUG IV: low nursing, no therapy (ref)	0.06	29.4	-	-	-
RUG IV: moderate/high nursing, no therapy	0.03	15.9	0.9	0.91	0.98
RUG IV: very low nursing and therapy	0.03	55.6	1.6	1.59	1.68
RUG IV: lower nursing and therapy, but both	0.07	31.3	1.5	1.43	1.50
RUG IV: moderate nursing, moderate /high therapy (RVA)	0.07	65.0	2.1	2.08	2.19
RUG IV: moderate nursing, moderate /high therapy (RVB)	0.09	53.7	2.3	2.25	2.36
RUG IV: moderate nursing, moderate /high therapy (RVC)	0.08	37.8	2.0	1.96	2.06
RUG IV: moderate nursing, moderate /high therapy (RUA)	0.13	70.2	2.5	2.40	2.51
RUG IV: moderate nursing, high therapy (RUB)	0.25	62.0	2.9	2.80	2.92
RUG IV: moderate nursing, high therapy (RUC)	0.18	45.6	2.5	2.42	2.53
RUG IV: high nursing, low therapy	0.00	27.3	1.7	1.52	1.82
RUG IV: high nursing, high therapy	0.01	36.1	2.3	2.21	2.40
Married	0.34	54.2	1.2	1.18	1.20
Vision impaired	0.10	44.1	0.9	0.93	0.96
Vision moderately/highly/severely impaired	0.05	36.9	0.9	0.93	0.96
Makes self understood usually	0.09	36.1	1.0	0.94	0.98
Makes self understood sometimes/rarely/never	0.06	22.8	1.0	0.97	1.04
Understands usually	0.12	38.7	1.0	0.94	0.97
Understands sometimes/rarely/never	0.06	24.1	1.0	0.94	1.01

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
Moderate cognitive impairment	0.17	46.9	0.8	0.77	0.84
Severe cognitive impairment	0.11	36.2	0.5	0.52	0.58
Staff assessed cognitive impairment	0.05	28.0	0.8	0.77	0.86
Cognitive status assessment missing	0.02	20.2	0.6	0.62	0.68
Any sign/symptom of delirium	0.10	30.3	0.9	0.85	0.88
Major depression	0.03	43.5	0.8	0.81	0.85
Mood assessment missing	0.03	20.6	0.7	0.64	0.68
Any hallucination, delusion, or behavior	0.06	30.2	0.8	0.80	0.83
Ext. assistance/dependence bed mobility	0.74	48.0	0.9	0.92	0.96
Ext. assistance/dependence transfer	0.74	47.6	0.9	0.92	0.95
Ext. assistance/dependence walking in room	0.64	44.7	1.0	0.95	0.97
Ext. assistance/dependence walking in corridor	0.67	44.9	0.8	0.80	0.82
Ext. assistance/dependence locomotion on unit	0.66	46.2	0.9	0.91	0.94
Locomotion on unit missing	0.00	31.9	0.8	0.69	0.92
Ext. assistance/dependence dressing	0.74	47.4	1.0	0.97	0.99
Ext. assistance/dependence eating	0.14	26.9	0.9	0.84	0.87
Ext. assistance/dependence toilet use	0.76	47.8	1.0	0.94	0.97
Toilet use missing	0.00	31.5	1.5	1.30	1.78
Ext. assistance/dependence personal hygiene	0.60	43.8	0.9	0.86	0.88
ADL summary * Mild cognitive impairment	8.05	63.9	1.0	1.02	1.02
ADL summary * Moderate cognitive impairment	2.63	40.5	1.0	1.02	1.03
ADL summary * Severe cognitive impairment	1.85	24.6	1.0	1.04	1.04
ADL summary * Staff assessed cognitive impairment	0.87	47.1	1.0	0.99	1.00
ADL summary missing	0.00	33.5	1.1	0.96	1.17
Bathing: supervision	0.03	68.2	0.9	0.85	0.92
Bathing: help transferring	0.07	65.8	0.8	0.75	0.81
Bathing: physical help in part	0.62	55.1	0.7	0.72	0.77

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
Bathing: Dependent/activity did not occur	0.26	37.2	0.7	0.65	0.70
Bathing assessment: missing	0.00	37.3	0.7	0.63	0.74
Balance seated to standing: steady, stabilizes without staff assistance	0.15	64.4	0.9	0.86	0.92
Balance seated to standing: not steady, stabilizes with staff assistance	0.71	51.6	0.9	0.83	0.89
Balance seated to standing: activity did not occur	0.08	21.6	0.7	0.71	0.77
Balance seated to standing: missing	0.01	30.5	0.9	0.79	0.94
Balance walking: stabilizes without staff assistance	0.17	65.5	0.9	0.91	0.97
Balance walking: stabilizes with staff assistance	0.51	55.8	0.9	0.83	0.89
Balance walking: activity did not occur	0.26	32.6	0.7	0.68	0.73
Balance walking: missing	0.01	32.7	0.7	0.61	0.71
Balance turning around: activity did not occur	0.32	35.8	0.9	0.88	0.91
Balance moving on and off toilet: stabilizes with staff assistance	0.70	52.5	1.0	0.94	0.99
Balance moving on and off toilet: activity did not occur	0.10	22.8	0.8	0.77	0.81
Urinary incontinence: frequently/always	0.27	36.9	0.9	0.88	0.90
Urinary incontinence: not rated	0.08	32.1	0.7	0.71	0.73
Bowel incontinence: frequently/always	0.27	33.5	0.8	0.82	0.84
Bowel incontinence: not rated	0.03	36.7	0.8	0.76	0.80
Maximum number of injections	2.36	53.2	1.0	1.00	1.01
Antipsychotics	0.10	38.1	1.0	0.95	0.98
Swallowing disorder	0.04	37.1	0.9	0.91	0.95
Weight loss	0.04	48.9	1.0	1.03	1.06
Shortness of breath with exertion	0.16	43.4	0.9	0.91	0.94
Shortness of breath while seated	0.06	30.3	0.7	0.69	0.72
Shortness of Breath while lying	0.09	36.8	0.9	0.93	0.97
Wound infection	0.02	46.7	0.9	0.85	0.90

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
Hemiplegia	0.03	39.2	1.1	1.05	1.10
Paraplegia	0.00	35.8	1.6	1.49	1.70
Oxygen therapy	0.25	39.8	0.8	0.78	0.80
Ventilator	0.00	5.2	0.7	0.62	0.84
Dialysis	0.03	31.8	1.0	0.94	1.00
Chemotherapy	0.01	43.7	0.8	0.77	0.86
Radiation	0.00	29.1	0.6	0.56	0.66
Suction	0.01	11.6	0.7	0.63	0.72
IV medications	0.08	44.9	1.0	0.95	0.98
Transfusion	0.00	42.3	0.8	0.72	0.83
Anemia	0.28	48.7	0.9	0.93	0.95
Heart failure	0.22	42.7	0.9	0.87	0.89
Hypertension	0.76	51.8	1.0	1.00	1.02
Pneumonia	0.10	44.5	1.0	1.03	1.07
Septicemia	0.02	43.1	1.0	1.01	1.06
UTI	0.14	46.4	1.0	1.01	1.03
Viral hepatitis	0.01	41.9	0.8	0.80	0.89
Diabetes mellitus	0.33	47.8	0.9	0.93	0.94
Hyperkalemia	0.01	41.3	0.9	0.82	0.89
Hip fracture	0.07	56.7	1.1	1.04	1.09
Other fracture	0.10	55.9	1.1	1.05	1.08
Alzheimer's disease	0.03	37.6	1.1	1.04	1.09
Stroke	0.11	43.7	1.0	1.00	1.03
Non-Alzheimer's Dementia	0.16	40.1	1.0	1.01	1.03
Huntington's disease	0.00	29.9	0.6	0.46	0.75
Malnutrition	0.03	38.5	0.9	0.91	0.95
Anxiety	0.19	49.0	1.0	0.94	0.96

Variable	Mean	Percentage of residents with covariate who trigger the numerator	Odds Ratio	95% Confidence Interval lower limit	95% Confidence Interval lower limit
Depression	0.29	49.8	1.0	0.98	1.00
Manic Depression	0.02	45.6	0.9	0.91	0.97
Psychotic	0.02	33.4	0.9	0.89	0.95
Schizophrenia	0.02	34.7	0.8	0.77	0.82
Asthma/COPD	0.24	47.4	1.0	0.97	0.99
Cancer	0.07	47.5	0.9	0.91	0.94
Quadriplegia	0.00	26.3	1.5	1.38	1.73
Multiple Sclerosis	0.01	50.7	1.2	1.13	1.26
Parkinson's disease	0.03	47.0	1.1	1.04	1.08
Seizure disorder	0.05	43.7	1.0	1.01	1.05
Interpreter needed	0.02	45.1	1.1	1.03	1.09
ID/DD condition	0.01	45.8	1.4	1.33	1.49
Entered from psychiatric hospital	0.01	16.7	0.6	0.60	0.68
Acute change in mental status	0.02	23.8	0.7	0.65	0.70
Wandered	0.02	34.1	0.9	0.83	0.89
Fell in last month	0.36	52.3	1.0	0.98	1.00
Fell in last 2-6 months	0.17	49.6	1.0	0.96	0.98
Nutrition altered	0.22	34.8	0.8	0.83	0.85
Foot infection	0.01	46.1	0.9	0.90	0.97
Diabetic foot ulcer	0.01	40.2	0.9	0.84	0.91
Surgical wound	0.32	64.5	1.3	1.27	1.30
Expects to remain in SNF	0.08	17.0	0.3	0.29	0.30
Constant	-	-	5.3	5.01	5.52

APPENDIX TABLE F

Coefficient estimates for Short-Stay Residents who were Successfully Discharged to the Community, resident level comorbidity index

Charlson Condition	Coefficient	SE	P-value
Myocardial infarction	-0.070	0.007	<0.001
CHF	-0.311	0.005	<0.001
Peripheral vascular disease	-0.147	0.007	<0.001
Cerebrovascular disease	-0.127	0.007	<0.001
Dementia	-0.611	0.010	<0.001
COPD	-0.205	0.005	<0.001
Rheumatoid arthritis	-0.021	0.010	0.039
Ulcers	-0.122	0.013	<0.001
Mild liver disease	-0.218	0.012	<0.001
Diabetes mellitus	-0.142	0.005	<0.001
Diabetes with sequelae	-0.149	0.008	<0.001
Paralysis	-0.415	0.012	<0.001
Chronic renal disease	-0.304	0.005	<0.001
Cancer	-0.305	0.009	<0.001
Moderate to severe liver disease	-0.438	0.022	<0.001
Metastatic cancer	-0.595	0.017	<0.001
HIV/AIDS	-0.481	0.049	<0.001
Intercept	0.356	0.002	<0.001

Note: This model is based on all SNF episodes with admission from a hospital between July 1, 2014 and June 30, 2015.

Note: Model C-statistic = 0.6023