



# **Nursing Home Care Compare Claims-Based Quality Measure Technical Specifications**

## **Appendices**

July 2025

*Prepared for:*  
Centers for Medicare and  
Medicaid Services  
7500 Security Blvd.  
Baltimore, MD 21244

*Submitted by:*  
Abt Global  
10 Fawcett Street  
Cambridge, MA 02138

---

## Contents

APPENDIX TABLE A.....	1
Risk-Adjustment Model for Short-Stay Residents who were Re-hospitalized after a Nursing Home Admission: Risk Variables and Coefficient Estimates .....	1
APPENDIX TABLE B.....	13
Coefficient Estimates for Short-Stay Residents who were Re-hospitalized after a Nursing Home Admission, Resident-Level Comorbidity Index .....	13
APPENDIX TABLE C.....	14
Risk-Adjustment Model for Hospitalizations per 1,000 Long-Stay Resident Days: Risk Variables and Coefficient Estimates .....	14
APPENDIX TABLE D.....	17
Coefficient Estimates for Hospitalizations per 1,000 Long-Stay Resident Days, Resident-Level Comorbidity Index.....	17
APPENDIX TABLE E .....	18
Risk-Adjustment Model for Short-Stay Residents who have had an Outpatient Emergency Department Visit: Risk Variables and Coefficient Estimates .....	18
APPENDIX TABLE F .....	28
Coefficient Estimates for Short-Stay Residents who have had an Outpatient Emergency Department Visit, Resident-Level Comorbidity Index .....	28
APPENDIX TABLE G.....	29
Risk-Adjustment Model for Outpatient Emergency Department Visits per 1,000 Long-Stay Resident Days: Risk Variables and Coefficient Estimates .....	29
APPENDIX TABLE H.....	32
Coefficient Estimates for Outpatient Emergency Department Visits per 1,000 Long-Stay Resident Days, Resident-Level Comorbidity Index .....	32

## APPENDIX TABLE A

### Risk-Adjustment Model for Short-Stay Residents who were Re-hospitalized after a Nursing Home Admission: Risk Variables and Coefficient Estimates

*Note:* This model is based on all SNF stays with admission from a hospital between January 1, 2024, and December 31, 2024.

Variable	Mean	Proportion of Residents with Covariate who Triggered the Numerator	Coefficient	p-Value
Female age 65–69 (ref)	.04784	.26282		
Female age 18–64	.03373	.28531	0.0103	0.5181
Female age 70–74	.07458	.24651	-0.0235	0.0741
Female age 75–79	.10336	.23160	-0.0392	0.0018
Female age 80–84	.11503	.21365	-0.0762	<.0001
Female age 85–89	.10917	.19726	-0.1184	<.0001
Female age 90–94	.07467	.18140	-0.1758	<.0001
Female age GT 94	.03454	.16197	-0.2902	<.0001
Male age 18–64	.04134	.29382	0.0193	0.2011
Male age 65–69	.04925	.27531	0.0138	0.3293
Male age 70–74	.06088	.26404	-0.00802	0.5555
Male age 75–79	.07131	.26933	0.0596	<.0001
Male age 80–84	.07474	.25989	0.0569	<.0001
Male age 85–89	.06278	.25064	0.0639	<.0001
Male age 90–94	.03512	.23677	0.0380	0.0195
Male age GT 94	.01165	.21145	-0.0801	0.0010

Length of stay 1–3 days (ref)	.16280	.18621		
Length of stay 4–7 days	.49331	.21407	0.1183	<.0001
Length of stay 8–14 days	.24890	.27804	0.3083	<.0001
Length of stay GT 14 days	.09499	.33240	0.4371	<.0001
0 hospitalizations in prior year (ref)	.41220	.17776		
1–3 hospitalizations in prior year	.48339	.25381	0.0817	<.0001
4–6 hospitalizations in prior year	.08343	.36314	0.3152	<.0001
7–9 hospitalizations in prior year	.01583	.47220	0.6428	<.0001
10+ hospitalizations in prior year	.00514	.57599	1.0569	<.0001
Ever disabled	.24324	.26549	-0.0100	0.1174
ESRD	.04837	.41673	0.4209	<.0001
At least 1 day ICU (y/n)	.13491	.30544	0.1169	<.0001
203 Osteoarthritis (Ref)	.01696	.09154		
2 Septicemia (except in labor)	.14156	.28262	0.6795	<.0001
3 Bacterial infection; unspecified site	.00094	.26091	0.6141	<.0001
4 Mycoses	.00080	.29303	0.7996	<.0001
5 HIV infection	.00010	.27027	0.5946	0.0083
6 Hepatitis	.00019	.39367	1.1591	<.0001
7 Viral infection	.00081	.17946	0.4319	<.0001
8 Other infections; including parasitic	.00015	.18391	0.4780	0.0173
11 Cancer of head and neck	.00053	.35188	0.7984	<.0001
12 Cancer of esophagus	.00033	.32353	0.7130	<.0001
13 Cancer of stomach	.00036	.32924	0.8170	<.0001
14 Cancer of colon	.00220	.26153	0.6574	<.0001
15 Cancer of rectum and anus	.00071	.29926	0.7389	<.0001
16 Cancer of liver and intrahepatic bile duct	.00035	.37284	1.1336	<.0001
17 Cancer of pancreas	.00068	.31565	0.9350	<.0001
18 Cancer of other GI organs; peritoneum	.00031	.33898	1.0048	<.0001
19 Cancer of bronchus; lung	.00165	.33316	0.9278	<.0001

20 Cancer; other respiratory and intrathoracic	.00004	.26829	0.5772	0.1111
21 Cancer of bone and connective tissue	.00022	.27451	0.6986	<.0001
22 Melanomas of skin	.00006	.35821	1.1945	<.0001
23 Other non-epithelial cancer of skin	.00021	.27236	0.7569	<.0001
24 Cancer of breast	.00038	.20872	0.5194	<.0001
25 Cancer of uterus	.00034	.32737	1.0097	<.0001
26 Cancer of cervix	.00006	.34375	0.9810	0.0004
27 Cancer of ovary	.00025	.32281	1.0465	<.0001
28 Cancer of the female genital organs	.00012	.34532	1.1507	<.0001
29 Cancer of prostate	.00033	.34565	0.9901	<.0001
30 Cancer of the testes	.00000	.66667	2.3481	0.0571
31 Cancer of other male genital organs	.00002	.46429	1.4777	0.0001
32 Cancer of bladder	.00081	.35676	1.0486	<.0001
33 Cancer of kidney and renal pelvis	.00046	.29868	0.8544	<.0001
34 Cancer of other urinary organs	.00008	.35632	1.1415	<.0001
35 Cancer of brain and nervous system	.00056	.27484	0.7346	<.0001
37 Hodgkin's disease	.00003	.40541	1.1975	0.0005
38 Non-Hodgkin's lymphoma	.00087	.40782	1.1910	<.0001
39 Leukemias	.00057	.42065	1.2406	<.0001
40 Multiple myeloma	.00055	.38766	1.1758	<.0001
41 Cancer: other and unspecified primary	.00008	.28866	0.8412	0.0003
42 Secondary malignancies	.00354	.36330	1.0593	<.0001
43 Malignant neoplasm without specification of site	.00027	.34528	1.0407	<.0001
44 Neoplasms of unspecified nature or uncertain behavior	.00078	.41433	1.4059	<.0001
45 Maintenance chemotherapy; radiotherapy	.00050	.29577	0.4930	<.0001
46 Benign neoplasm of uterus	.00005	.23636	0.7487	0.0211
47 Other and unspecified benign neoplasm	.00119	.22737	0.6043	<.0001
48 Thyroid disorders	.00077	.22348	0.6068	<.0001
50 Diabetes mellitus with complications	.02201	.27734	0.6876	<.0001

51 Other endocrine disorders	.00454	.23546	0.7453	<.0001
52 Nutritional deficiencies	.00124	.22347	0.5585	<.0001
54 Gout and other crystal arthropathies	.00093	.17753	0.4779	<.0001
55 Fluid and electrolyte disorders	.01876	.24099	0.6708	<.0001
57 Immunity disorders	.00007	.32530	0.7910	0.0013
58 Other nutritional; endocrine; and metabolic disorders	.00522	.23137	0.6610	<.0001
59 Deficiency and other anemia	.00480	.29893	0.8465	<.0001
60 Acute post-hemorrhagic anemia	.00303	.30078	0.7875	<.0001
61 Sickle cell anemia	.00008	.44944	1.3103	<.0001
62 Coagulation and hemorrhagic disorders	.00217	.28485	0.7882	<.0001
63 Diseases of white blood cells	.00040	.28035	0.8149	<.0001
64 Other hematologic conditions	.00012	.26667	0.7087	0.0005
76 Meningitis	.00024	.34559	1.0349	<.0001
77 Encephalitis	.00038	.26941	0.6814	<.0001
78 Other CNS infection and poliomyelitis	.00045	.30368	0.7136	<.0001
80 Multiple sclerosis	.00044	.16174	0.3783	0.0025
81 Other hereditary and degenerative nervous system conditions	.00138	.17666	0.4044	<.0001
82 Paralysis	.00034	.21483	0.6187	<.0001
83 Epilepsy; convulsions	.00745	.22792	0.5942	<.0001
84 Headache; including migraine	.00030	.17201	0.4191	0.0047
85 Coma; stupor; and brain damage	.00005	.25806	0.5691	0.0657
87 Retinal detachments; defects; vascular occlusion; and retinopathy	.00006	.21429	0.6344	0.0353
89 Blindness and vision defects	.00015	.16766	0.3695	0.0854
90 Inflammation; infection of eye (except that caused by tuberculosis or sexually transmitted disease)	.00021	.19919	0.4275	0.0103
91 Other eye disorders	.00015	.16766	0.3096	0.1445
92 Otitis media and related conditions	.00012	.19286	0.3490	0.1193
93 Conditions associated with dizziness or vertigo	.00139	.14438	0.4300	<.0001
95 Other nervous system disorders	.02159	.21835	0.5633	<.0001

96 Heart valve disorders	.00322	.28552	0.8449	<.0001
97 Peri-, endo-, and myocarditis; cardiomyopathy	.00133	.32806	0.8669	<.0001
99 Hypertension with complications and secondary hypertension	.05560	.29689	0.7786	<.0001
100 Acute myocardial infarction	.00869	.28515	0.8864	<.0001
101 Coronary atherosclerosis and other heart disease	.00329	.24788	0.6680	<.0001
102 Nonspecific chest pain	.00154	.21889	0.5389	<.0001
103 Pulmonary heart disease	.00645	.22831	0.6036	<.0001
104 Other and ill-defined heart disease	.00034	.19023	0.4951	0.0002
105 Conduction disorders	.00286	.18512	0.4529	<.0001
106 Cardiac dysrhythmias	.01478	.24558	0.7626	<.0001
107 Cardiac arrest and ventricular fibrillation	.00031	.25843	0.3799	0.0033
108 Congestive heart failure; non-hypertensive	.00306	.29037	0.8159	<.0001
109 Acute cerebrovascular disease	.02511	.22378	0.6046	<.0001
110 Occlusion or stenosis of pre-cerebral arteries	.00090	.19786	0.4691	<.0001
111 Other and ill-defined cerebrovascular disease	.00057	.20948	0.4979	<.0001
112 Transient cerebral ischemia	.00261	.16533	0.4584	<.0001
113 Late effects of cerebrovascular disease	.00215	.19431	0.3931	<.0001
114 Peripheral and visceral atherosclerosis	.00282	.28929	0.8525	<.0001
115 Aortic; peripheral; and visceral artery aneurysms	.00140	.27472	0.7538	<.0001
116 Aortic and peripheral arterial embolism or thrombosis	.00046	.30077	1.0084	<.0001
117 Other circulatory disease	.00732	.20816	0.5669	<.0001
118 Phlebitis; thrombophlebitis and thromboembolism	.00345	.23073	0.6809	<.0001
119 Varicose veins of lower extremity	.00023	.16541	0.1964	0.2489
120 Hemorrhoids	.00068	.26982	0.6528	<.0001
121 Other diseases of veins and lymphatics	.00101	.17688	0.3220	0.0001
122 Pneumonia (except that caused by tuberculosis or sexually transmitted disease)	.02719	.24364	0.5868	<.0001
123 Influenza	.00428	.18221	0.3375	<.0001
124 Acute and chronic tonsillitis	.00001	.30769	1.1886	0.0564

125 Acute bronchitis	.00108	.19032	0.4847	<.0001
126 Other upper respiratory infections	.00045	.18431	0.4128	0.0006
127 Chronic obstructive pulmonary disease and bronchiectasis	.00826	.27423	0.7111	<.0001
128 Asthma	.00043	.23061	0.6642	<.0001
129 Aspiration pneumonitis; food/vomitus	.01145	.26651	0.5997	<.0001
130 Pleurisy; pneumothorax; pulmonary collapse	.00251	.29348	0.6805	<.0001
131 Respiratory failure; insufficiency	.01507	.31165	0.7152	<.0001
132 Lung disease due to external agents	.00028	.33229	0.7896	<.0001
133 Other lower respiratory disease	.00175	.28094	0.7719	<.0001
134 Other upper respiratory disease	.00044	.31028	0.8249	<.0001
135 Intestinal infection	.00493	.27044	0.8088	<.0001
136 Disorders of teeth and jaw	.00018	.22330	0.6116	0.0004
137 Diseases of mouth; excluding dental	.00036	.21550	0.4446	0.0004
138 Esophageal disorders	.00146	.24955	0.6656	<.0001
139 Gastroduodenal ulcer (except hemorrhage)	.00060	.22464	0.5549	<.0001
140 Gastritis and duodenitis	.00208	.30524	0.8174	<.0001
141 Other disorders of stomach and duodenum	.00076	.28291	0.7385	<.0001
142 Appendicitis and other appendiceal conditions	.00039	.19457	0.5071	<.0001
143 Abdominal hernia	.00340	.22379	0.6501	<.0001
144 Regional enteritis and ulcerative colitis	.00046	.30827	0.9171	<.0001
145 Intestinal obstruction without hernia	.00785	.23315	0.6137	<.0001
146 Diverticulosis and diverticulitis	.00526	.26067	0.7149	<.0001
147 Anal and rectal conditions	.00126	.26330	0.7047	<.0001
148 Peritonitis and intestinal abscess	.00046	.38476	1.0317	<.0001
149 Biliary tract disease	.00508	.24265	0.7224	<.0001
151 Other liver diseases	.00430	.43545	1.2705	<.0001
152 Pancreatic disorders (not diabetes)	.00160	.26820	0.8271	<.0001
153 Gastrointestinal hemorrhage	.01426	.29212	0.7284	<.0001
154 Noninfectious gastroenteritis	.00272	.22971	0.6670	<.0001

155 Other gastrointestinal disorders	.00550	.28837	0.7912	<.0001
156 Nephritis; nephrosis; renal sclerosis	.00010	.37273	1.0981	<.0001
157 Acute and unspecified renal failure	.03093	.26329	0.7838	<.0001
158 Chronic kidney disease	.00011	.38760	0.8154	<.0001
159 Urinary tract infections	.04444	.20050	0.5646	<.0001
160 Calculus of urinary tract	.00058	.29023	0.8722	<.0001
161 Other diseases of kidney and ureters	.00104	.29732	0.9860	<.0001
162 Other diseases of bladder and urethra	.00067	.31771	1.0053	<.0001
163 Genitourinary symptoms and ill-defined conditions	.00099	.23738	0.6135	<.0001
164 Hyperplasia of prostate	.00073	.22275	0.5970	<.0001
165 Inflammatory conditions of male genital organs	.00052	.23350	0.4946	<.0001
166 Other male genital disorders	.00013	.27211	0.7582	<.0001
168 Inflammatory diseases of female pelvic organs	.00011	.28682	0.7876	0.0001
171 Menstrual disorders	.00000	.60000	2.3376	0.0116
173 Menopausal disorders	.00012	.25175	0.6975	0.0005
175 Other female genital disorders	.00027	.23856	0.5167	0.0002
197 Skin and subcutaneous tissue infections	.01330	.19456	0.4556	<.0001
198 Other inflammatory condition of skin	.00031	.28612	0.9015	<.0001
199 Chronic ulcer of skin	.00353	.25248	0.5700	<.0001
200 Other skin disorders	.00016	.26923	0.7652	<.0001
201 Infective arthritis and osteomyelitis	.00417	.24388	0.5740	<.0001
202 Rheumatoid arthritis and related disease	.00032	.20867	0.7046	<.0001
204 Other non-traumatic joint disorders	.00238	.14338	0.3172	<.0001
205 Spondylosis; intervertebral disc disorders; other back problems	.01507	.18210	0.5721	<.0001
207 Pathological fracture	.01596	.15815	0.3848	<.0001
209 Other acquired deformities	.00109	.17175	0.5497	<.0001
210 Systemic lupus erythematosus and connective tissue disorders	.00026	.24080	0.6419	<.0001
211 Other connective tissue disease	.00772	.15544	0.3558	<.0001
212 Other bone disease and musculoskeletal deformities	.00080	.20417	0.6262	<.0001

215 Genitourinary congenital anomalies	.00001	.81818	3.2147	<.0001
216 Nervous system congenital anomalies	.00007	.29412	1.0254	<.0001
225 Joint disorders and dislocations; trauma-related	.00090	.16812	0.4716	<.0001
226 Fracture of neck of femur (hip)	.05786	.15653	0.3951	<.0001
227 Spinal cord injury	.00039	.24832	0.7003	<.0001
228 Skull and face fractures	.00105	.17043	0.4569	<.0001
229 Fracture of upper limb	.01090	.14487	0.3477	<.0001
230 Fracture of lower limb	.02166	.15182	0.3206	<.0001
231 Other fractures	.03154	.15858	0.4040	<.0001
232 Sprains and strains	.00152	.12795	0.1944	0.0118
233 Intracranial injury	.01143	.23565	0.7117	<.0001
234 Crushing injury or internal injury	.00232	.21098	0.5551	<.0001
235 Open wounds of head; neck; and trunk	.00096	.16515	0.4321	<.0001
236 Open wounds of extremities	.00083	.18730	0.4742	<.0001
237 Complication of device; implant or graft	.04166	.28772	0.7081	<.0001
238 Complications of surgical procedures or medical care	.01765	.29814	0.6891	<.0001
239 Superficial injury; contusion	.00363	.19682	0.5847	<.0001
240 Burns	.00037	.20188	0.3815	0.0025
241 Poisoning by psychotropic agents	.00029	.19757	0.4862	0.0007
242 Poisoning by other medications and drugs	.00152	.22529	0.5929	<.0001
243 Poisoning by nonmedicinal substances	.00018	.20379	0.5554	0.0017
244 Other injuries and conditions due to external causes	.00526	.17046	0.4615	<.0001
245 Syncope	.00308	.15863	0.4167	<.0001
246 Fever of unknown origin	.00024	.20504	0.4727	0.0024
247 Lymphadenitis	.00002	.35714	1.3071	0.0012
248 Gangrene	.00172	.31723	0.8763	<.0001
249 Shock	.00039	.34157	0.8159	<.0001
250 Nausea and vomiting	.00033	.24672	0.7696	<.0001
251 Abdominal pain	.00038	.25799	0.7327	<.0001

252 Malaise and fatigue	.00412	.16260	0.3785	<.0001
253 Allergic reactions	.00027	.23794	0.6372	<.0001
257 Other aftercare	.00082	.14925	0.1579	0.1045
258 Other screening for suspected conditions (not mental disorders or infectious disease)	.00021	.21429	0.5842	0.0004
259 Residual codes; unclassified	.00156	.21100	0.6389	<.0001
650 MHA: Adjustment disorders	.00012	.21805	0.6240	0.0039
651 MHA: Anxiety disorders	.00031	.18056	0.4494	0.0017
653 MHA: Delirium, dementia, and amnestic and other cognitive disorders	.01425	.16775	0.4491	<.0001
657 MHA: Mood disorders	.00435	.17881	0.3493	<.0001
659 MHA: Schizophrenia and other psychotic disorders	.00699	.19215	0.4051	<.0001
660 MHA: Alcohol-related disorders	.00441	.26263	0.7842	<.0001
661 MHA: Substance-related disorders	.00042	.22059	0.6365	<.0001
662 MHA: Suicide and intentional self-inflicted injury	.00028	.20872	0.4955	0.0005
670 MHA: Miscellaneous mental disorders	.00027	.23052	0.6509	<.0001
No CCS code	.00729	.21239	0.5257	<.0001
Nonsignificant CCS w/ protective effect	.00046	.08397	-0.3167	0.0493
Nonsignificant CCS w/ increased risk	.02378	.21378	0.5564	<.0001
2617 Adverse effects of medical drugs	.00002	.46429	1.6390	<.0001
9999 COVID-19			0.3122	0.0009
Re-hospitalizations-specific comorbidity index	-1.20636		0.4719	<.0001
End-stage prognosis	.00680	.12526	-1.1412	<.0001
Returned to nursing home following hospitalization	.26459	.28029	0.0787	<.0001
Anemia	.40074	.27210	0.0877	<.0001
Asthma	.32516	.26947		
Diabetes	.39226	.27091		
Diabetic foot ulcer	.01720	.31557		
Respiratory failure	.19923	.30441		

Septicemia	.09880	.28840		
Venous/Arterial ulcer present	.03284	.30050	0.1026	<.0001
Viral hepatitis	.01060	.31207	0.0693	0.0010
Heart failure	.31944	.28377		
Internal bleeding	.00715	.50795	1.0329	<.0001
Daily pain	.00358	.25605		
Cognitive status not completely intact	.69998	.24330	0.1366	<.0001
Cognitive assessment missing	.04659	.37204	0.6884	<.0001
Total bowel incontinence	.26433	.28581		
Chemotherapy for cancer	.00600	.29081	0.0386	0.1731
Dialysis	.04543	.41063		
IV medications	.12120	.27880	0.0292	<.0001
Ostomy care	.02835	.32838	0.1968	<.0001
Oxygen therapy	.24697	.31209	0.2756	<.0001
Radiation for cancer	.00143	.32477	0.0604	0.2765
Tracheostomy care	.00736	.43251		
First assessment is for significant change in status	.03168	.19704	-0.3793	<.0001
Rarely/never makes self understood by others	.02818	.29486	-0.4560	<.0001
Ability to understand is rare	.02445	.29524		
Acute mental status change	.02243	.35556	0.4841	<.0001
Rejected care for past 4–7 days	.00814	.26757	0.0596	0.0155
Wandering once or more in the past week	.01711	.21909	0.1108	<.0001
Alzheimer's disease	.04476	.18688	-0.1436	<.0001
Non-Alzheimer's dementia	.22170	.20714	-0.1498	<.0001
Cancer	.12453	.29074	0.1267	<.0001
Orthostatic hypotension	.05997	.28193		
Ulcerative Colitis/Crohn's/inflammatory bowel disease	.02085	.26405	0.0756	<.0001
Multi-drug resistant organism (MDRO)	.04265	.29437		
Pneumonia	.13158	.27930		

Tuberculosis	.00023	.28571		
Urinary tract infection	.17308	.23701		
Would infection	.03007	.27684		
Seizure disorder or epilepsy	.08486	.25893	-0.0294	0.0006
Shortness of breath with exertion	.15344	.27916	-0.0428	<.0001
Shortness of breath when sitting at rest	.05618	.36764	0.4177	<.0001
Shortness of Breath when lying flat	.29243	.27550		
Dehydration	.00476	.27346		
Fall in the last month	.38086	.20105		
Fall in the last two to six months	.22556	.22028		
Choke/cough during meals or swallowing medications	.09524	.26200	0.00998	0.1986
Parenteral/IV feeding	.02636	.31944	0.2897	<.0001
Feeding tube	.03717	.39003	0.2505	<.0001
Foot infection	.02595	.24714		
Surgical wound	.22214	.21804	-0.00608	0.3744
Burns	.00146	.25030		
Anticoagulant received	.39583	.25051		
Antibiotic received	.36546	.25334	0.0534	<.0001
Suctioning	.00748	.43660		
Ventilator or respirator	.05082	.29875	-0.0329	0.0013
Transfusion	.00471	.33915	0.1637	<.0001
Isolation/Quarantine for active infectious disease	.04395	.23601		
Speech therapy	.35525	.24224		
Respiratory therapy	.11732	.25191	-0.0583	<.0001
Walks 10 feet independently or with limited assistance	.22732	.19341	-0.0983	<.0001
Walks 50 feet and makes two turns independently or with limited assistance	.14426	.18217	-0.1125	<.0001
Wanders and walks 10 feet independently or with limited assistance	.00712	.20613	0.1556	<.0001

---

Has Alzheimer's or dementia and walks 50 feet and makes two turns independently or with limited assistance	.03965	.16492	0.00809	0.6050
Extensive Eating Dependence	.08526	.31373	0.1511	<.0001
Dependent for one or more Activities of Daily Living (ADL)	.59492	.25461	0.1177	<.0001
Constant			-1.8783	<.0001

## APPENDIX TABLE B

### Coefficient Estimates for Short-Stay Residents who were Re-hospitalized after a Nursing Home Admission, Resident-Level Comorbidity Index

*Note:* This model is based on all SNF stays with admission from a hospital between January 1, 2024, and December 31, 2024.

Charlson Condition	Coefficient	Standard Error	p-value
Myocardial infarction	0.1339	0.0071	<.0001
CHF	0.2247	0.0059	<.0001
Peripheral vascular disease	0.1477	0.0070	<.0001
Cerebrovascular disease	0.0207	0.0074	0.0048
Dementia	-0.0556	0.0063	<.0001
COPD	0.1889	0.0056	<.0001
Rheumatoid arthritis	0.1049	0.0114	<.0001
Ulcers	0.2082	0.0144	<.0001
Mild liver disease	0.2286	0.0103	<.0001
Diabetes mellitus	0.1617	0.0064	<.0001
Diabetes with sequelae	0.1125	0.0074	<.0001
Paralysis	0.1596	0.0120	<.0001
Chronic renal disease	0.2595	0.0063	<.0001
Cancer	0.2892	0.0093	<.0001
Moderate to severe liver disease	0.4832	0.0199	<.0001
Metastatic cancer	0.3118	0.0155	<.0001
HIV/AIDS	0.2802	0.0476	<.0001
Constant	-1.5074	0.0032	<.0001

## APPENDIX TABLE C

### Risk-Adjustment Model for Hospitalizations per 1,000 Long-Stay Resident Days: Risk Variables and Coefficient Estimates

*Note:* This model assumes a negative binomial distribution for the number of hospitalizations per long-stay resident.

*Note:* This model is based on all days, between January 1, 2024, and December 31, 2024, that residents were in the nursing home after they attained long-term resident status (i.e., after 100 cumulative days in the facility).

Variable	Mean	Mean Number of Hospitalizations Among Those with Covariate	Coefficient	p-Value
Number of long-stay days in target period	241.6599		0.0177	<.0001
Number of long-stay days in target period, squared	76594.9971		0.0000	<.0001
Long-stay hospitalizations-specific comorbidity index	0.1076		2.4734	<.0001
White (ref)	0.8055	0.4177		
Black	0.1301	0.5852	0.2550	<.0001
Hispanic	0.0200	0.5885	0.3114	<.0001
Asian	0.0179	0.5278	0.2983	<.0001
Other race/ethnicity	0.0184	0.4779	0.1210	<.0001
Unknown race/ethnicity	0.0081	0.5032	0.0195	0.4498
0 hospitalizations in prior year (ref)	0.5064	0.3264		
1–3 hospitalizations in prior year	0.4309	0.5066	0.2229	<.0001
4–6 hospitalizations in prior year	0.0531	0.9222	0.5461	<.0001
7–9 hospitalizations in prior year	0.0077	1.3835	0.7817	<.0001
10+ hospitalizations in prior year	0.0019	1.8335	0.9768	<.0001
Female age 65–69 (ref)	0.0441	0.5779		
Female age 18–64	0.0443	0.6156	0.0222	0.1314
Female age 70–74	0.0644	0.5329	-0.0163	0.2351

Female age 75–79	0.0857	0.4733	-0.0820	<.0001
Female age 80–84	0.1047	0.4094	-0.1575	<.0001
Female age 85–89	0.1160	0.3564	-0.2414	<.0001
Female age 90–94	0.0999	0.3048	-0.3358	<.0001
Female age GT 94	0.0649	0.2381	-0.5037	<.0001
Male age 18–64	0.0586	0.6152	0.0202	0.1447
Male age 65–69	0.0539	0.5613	0.0010	0.9427
Male age 70–74	0.0607	0.5293	-0.0181	0.1944
Male age 75–79	0.0600	0.4956	-0.0396	0.0053
Male age 80–84	0.0551	0.4758	-0.0304	0.0373
Male age 85–89	0.0466	0.4298	-0.0807	<.0001
Male age 90–94	0.0294	0.3742	-0.1715	<.0001
Male age GT 94	0.0120	0.3068	-0.3114	<.0001
Entered nursing home from a psychiatric facility	0.0176	0.4477	0.0094	0.6066
Rarely/never makes self understood by others	0.0614	0.4167	0.0275	0.0469
Moderate cognitive impairment	0.2377	0.4552	-0.0451	<.0001
Severe cognitive impairment	0.2950	0.3633	-0.0876	<.0001
Staff assessed cognitive impairment	0.0439	0.3503	-0.1126	<.0001
Cognitive assessment missing	0.0923	0.4031	-0.0719	<.0001
Rejected care for past 4–7 days	0.0180	0.4358	0.0207	0.2598
Wandering once or more in the past week	0.0425	0.3214	-0.1302	<.0001
Shortness of breath with exertion	0.0701	0.5954	0.0249	0.0111
Shortness of Breath when lying flat	0.1490	0.5834	0.0211	0.0034
End-stage prognosis	0.0683	0.0904	-0.4574	<.0001
Internal bleeding	0.0018	0.7035	0.1811	0.0003
Respiratory failure	0.0927	0.7551	0.1483	<.0001
Anticoagulant received	0.2318	0.5577	0.1047	<.0001
Antibiotic received	0.1316	0.6177	0.1475	<.0001
Diuretic received	0.3090	0.5177	0.1164	<.0001

Chemotherapy for cancer	0.0031	0.5925	0.1451	0.0003
Radiation for cancer	0.0005	0.5425	0.0097	0.9235
Oxygen therapy	0.1243	0.6737	0.1902	<.0001
IV medications	0.0240	0.8155	0.1658	<.0001
Transfusion	0.0007	0.8318	0.2476	0.0012
Hospice care after nursing home admission	0.0749	0.0782	-1.2638	<.0001
Isolation or quarantine for active infectious disease	0.0163	0.5371	-0.0104	0.5666
Speech therapy	0.1167	0.5391	0.0438	<.0001
Respiratory therapy	0.0324	0.6891	0.0229	0.0666
Ulcerative Colitis/Crohn's/inflammatory bowel disease	0.0133	0.5409	0.1093	<.0001
Multi-drug resistant organism (MDRO)	0.0109	0.8216	0.0665	0.0009
Septicemia	0.0219	0.8174	0.1265	<.0001
Cerebrovascular accident , transient ischemic attack, or stroke	0.1891	0.4985	0.0522	<.0001
Quadriplegia	0.0069	0.8900	0.1519	<.0001
Multiple Sclerosis	0.0149	0.6237	0.1236	<.0001
Parkinson's disease	0.0629	0.4513	0.0674	<.0001
Anxiety disorder	0.3561	0.4558	0.0595	<.0001
Gastroesophageal reflux disease (GERD) or ulcer	0.1022	0.5049	0.1605	<.0001
Neurogenic bladder	0.0464	0.7698	0.2991	<.0001
Walks 10 feet independently or with limited assistance	0.1480	0.4311	0.1162	<.0001
Walks 50 feet and makes two turns independently or with limited assistance	0.1255	0.4187	-0.0425	0.0097
Extensive Eating Dependence	0.0643	0.4479	0.0591	<.0001
Constant			-2.7301	<.0001

## APPENDIX TABLE D

### Coefficient Estimates for Hospitalizations per 1,000 Long-Stay Resident Days, Resident-Level Comorbidity Index

*Note:* This model assumes a negative binomial distribution for the number of hospitalizations per long-stay resident.

*Note:* This model is based on all days, between January 1, 2024, and December 31, 2024, that residents were in the nursing home after they attained long-term resident status (i.e., after 100 cumulative days in the facility).

\* Coefficients with p-values greater than .05 and for the number of long-stay days were excluded from the comorbidity construct.

Charlson Condition	Coefficient	Standard Error	p-value
Myocardial infarction	0.0624	0.0093	<.0001
CHF	0.2131	0.0071	<.0001
Peripheral vascular disease	0.1176	0.0092	<.0001
Cerebrovascular disease	0.0464	0.0080	<.0001
Dementia	-0.0446	0.0060	<.0001
COPD	0.3348	0.0068	<.0001
Rheumatoid arthritis	0.0558	0.0165	0.0007
Ulcers	0.1347	0.0193	<.0001
Mild liver disease	0.1872	0.0141	<.0001
Diabetes mellitus	0.2350	0.0073	<.0001
Diabetes with sequelae	0.2290	0.0089	<.0001
Paralysis	0.3063	0.0118	<.0001
Chronic renal disease	0.2235	0.0078	<.0001
Cancer	0.0823	0.0148	<.0001
Moderate to severe liver disease	0.2679	0.0327	<.0001
Metastatic cancer*	0.0355	0.0288	0.2176
HIV/AIDS	0.3815	0.0535	<.0001
Number of long-stay days in target period	0.0178	0.0001	<.0001
Number of long-stay days in target period, squared	0.0000	0.0000	<.0001
Constant	-2.5259	0.0099	<.0001

## APPENDIX TABLE E

### Risk-Adjustment Model for Short-Stay Residents who have had an Outpatient Emergency Department Visit: Risk Variables and Coefficient Estimates

*Note:* This model is based on all SNF stays with admission from a hospital between January 1, 2024, and December 31, 2024.

Variable	Mean	Proportion of Residents with Covariate who Triggered the Numerator	Coefficient	p-Value
Female age 65–69 (ref)	0.0478	0.1224		
Female age 18–64	0.0337	0.1555	0.1807	<.0001
Female age 70–74	0.0746	0.1117	-0.0674	<.0001
Female age 75–79	0.1034	0.1058	-0.0961	<.0001
Female age 80–84	0.1150	0.0993	-0.1399	<.0001
Female age 85–89	0.1092	0.0953	-0.1633	<.0001
Female age 90–94	0.0747	0.0866	-0.2422	<.0001
Female age GT 94	0.0345	0.0800	-0.3047	<.0001
Male age 18–64	0.0413	0.1573	0.1567	<.0001
Male age 65–69	0.0493	0.1328	0.0475	0.0091
Male age 70–74	0.0609	0.1225	-0.0138	0.4349
Male age 75–79	0.0713	0.1217	0.0026	0.8785
Male age 80–84	0.0747	0.1207	0.0173	0.3179
Male age 85–89	0.0628	0.1164	0.0037	0.8382
Male age 90–94	0.0351	0.1089	-0.0402	0.0602
Male age GT 94	0.0117	0.1001	-0.1052	0.0011
Length of stay 1–3 days (ref)	0.1628	0.1061		
Length of stay 4–7 days	0.4933	0.1060	-0.0067	0.4484

Length of stay 8–14 days	0.2489	0.1191	0.0541	<.0001
Length of stay GT 14 days	0.0950	0.1335	0.0773	<.0001
0 hospitalizations in prior year (ref)	0.4122	0.0932		
1–3 hospitalizations in prior year	0.4834	0.1171	0.1427	<.0001
4–6 hospitalizations in prior year	0.0834	0.1514	0.3290	<.0001
7–9 hospitalizations in prior year	0.0158	0.1897	0.5263	<.0001
10+ hospitalizations in prior year	0.0051	0.2482	0.8053	<.0001
Ever disabled	0.2432	0.1321	0.0682	<.0001
ESRD	0.0484	0.1659	0.2582	<.0001
At least 1 day ICU (y/n)	0.1349	0.1269	0.0660	<.0001
203 Osteoarthritis (Ref)	0.0170	0.0763		
2 Septicemia (except in labor)	0.1416	0.1100	0.1155	0.0001
3 Bacterial infection; unspecified site	0.0009	0.1328	0.2976	0.0017
4 Mycoses	0.0008	0.1231	0.2573	0.0144
5 HIV infection	0.0001	0.1802	0.5273	0.0363
6 Hepatitis	0.0002	0.1674	0.5696	0.002
7 Viral infection	0.0008	0.1005	0.2214	0.0509
11 Cancer of head and neck	0.0005	0.1686	0.3831	0.0008
12 Cancer of esophagus	0.0003	0.1658	0.3901	0.0066
13 Cancer of stomach	0.0004	0.1327	0.3108	0.0383
14 Cancer of colon	0.0022	0.1006	0.1143	0.1146
15 Cancer of rectum and anus	0.0007	0.1158	0.2160	0.0587
17 Cancer of pancreas	0.0007	0.1203	0.3181	0.0057
19 Cancer of bronchus; lung	0.0016	0.1208	0.3539	<.0001
21 Cancer of bone and connective tissue	0.0002	0.1373	0.3903	0.0353
24 Cancer of breast	0.0004	0.1170	0.3873	0.011
28 Cancer of the female genital organs	0.0001	0.1511	0.6298	0.0086
29 Cancer of prostate	0.0003	0.1293	0.3662	0.0194
32 Cancer of bladder	0.0008	0.1405	0.4601	<.0001

34 Cancer of other urinary organs	0.0001	0.2069	0.9674	0.0003
35 Cancer of brain and nervous system	0.0006	0.1335	0.3815	0.0015
37 Hodgkin's disease	0.0000	0.1892	0.8107	0.0554
38 Non-Hodgkin's lymphoma	0.0009	0.1122	0.1813	0.0841
39 Leukemias	0.0006	0.1402	0.4306	0.0003
40 Multiple myeloma	0.0006	0.1313	0.4170	0.0006
42 Secondary malignancies	0.0035	0.1099	0.2228	0.0001
44 Neoplasms of unspecified nature or uncertain behavior	0.0008	0.1624	0.6413	<.0001
45 Maintenance chemotherapy; radiotherapy	0.0005	0.1285	0.1981	0.1265
46 Benign neoplasm of uterus	0.0000	0.2000	0.8942	0.0086
47 Other and unspecified benign neoplasm	0.0012	0.1141	0.2490	0.0058
48 Thyroid disorders	0.0008	0.1095	0.2428	0.0299
50 Diabetes mellitus with complications	0.0220	0.1235	0.1883	<.0001
51 Other endocrine disorders	0.0045	0.1061	0.2387	<.0001
52 Nutritional deficiencies	0.0012	0.1089	0.1167	0.1964
55 Fluid and electrolyte disorders	0.0188	0.1128	0.2229	<.0001
58 Other nutritional; endocrine; and metabolic disorders	0.0052	0.1078	0.1981	<.0001
59 Deficiency and other anemia	0.0048	0.1240	0.3073	<.0001
60 Acute post-hemorrhagic anemia	0.0030	0.1296	0.3265	<.0001
62 Coagulation and hemorrhagic disorders	0.0022	0.1229	0.3278	<.0001
64 Other hematologic conditions	0.0001	0.1407	0.4787	0.0563
77 Encephalitis	0.0004	0.1301	0.3065	0.0358
78 Other CNS infection and poliomyelitis	0.0005	0.1509	0.3367	0.0081
81 Other hereditary and degenerative nervous system conditions	0.0014	0.1369	0.4680	<.0001
82 Paralysis	0.0003	0.1304	0.3989	0.0094
83 Epilepsy; convulsions	0.0074	0.1446	0.3828	<.0001
84 Headache; including migraine	0.0003	0.1516	0.6007	<.0001
86 Cataract	0.0000	0.6667	3.0454	0.0132

95 Other nervous system disorders	0.0216	0.1175	0.2718	<.0001
96 Heart valve disorders	0.0032	0.1127	0.2535	<.0001
97 Peri-, endo-, and myocarditis; cardiomyopathy	0.0013	0.1515	0.4711	<.0001
99 Hypertension with complications and secondary hypertension	0.0556	0.1094	0.2130	<.0001
100 Acute myocardial infarction	0.0087	0.1293	0.4211	<.0001
101 Coronary atherosclerosis and other heart disease	0.0033	0.1298	0.3630	<.0001
102 Nonspecific chest pain	0.0015	0.1538	0.5532	<.0001
103 Pulmonary heart disease	0.0065	0.1198	0.3749	<.0001
105 Conduction disorders	0.0029	0.0939	0.1013	0.1258
106 Cardiac dysrhythmias	0.0148	0.1114	0.2911	<.0001
108 Congestive heart failure; non-hypertensive	0.0031	0.1046	0.1916	0.0022
109 Acute cerebrovascular disease	0.0251	0.1225	0.3589	<.0001
110 Occlusion or stenosis of pre-cerebral arteries	0.0009	0.1248	0.3470	0.0005
111 Other and ill-defined cerebrovascular disease	0.0006	0.1193	0.2534	0.0421
112 Transient cerebral ischemia	0.0026	0.1064	0.2799	<.0001
113 Late effects of cerebrovascular disease	0.0021	0.1183	0.1974	0.0042
114 Peripheral and visceral atherosclerosis	0.0028	0.1290	0.3825	<.0001
115 Aortic; peripheral; and visceral artery aneurysms	0.0014	0.1458	0.4877	<.0001
116 Aortic and peripheral arterial embolism or thrombosis	0.0005	0.1609	0.6940	<.0001
117 Other circulatory disease	0.0073	0.1184	0.3294	<.0001
118 Phlebitis; thrombophlebitis and thromboembolism	0.0034	0.1136	0.3051	<.0001
120 Hemorrhoids	0.0007	0.1202	0.2594	0.0234
122 Pneumonia (except that caused by tuberculosis or sexually transmitted disease)	0.0272	0.1084	0.2011	<.0001
127 Chronic obstructive pulmonary disease and bronchiectasis	0.0083	0.1106	0.2239	<.0001
129 Aspiration pneumonitis; food/vomitus	0.0115	0.1176	0.1862	<.0001
130 Pleurisy; pneumothorax; pulmonary collapse	0.0025	0.1220	0.2570	<.0001
131 Respiratory failure; insufficiency	0.0151	0.1119	0.1857	<.0001

133 Other lower respiratory disease	0.0018	0.1038	0.1743	0.0274
134 Other upper respiratory disease	0.0004	0.1245	0.2536	0.0678
135 Intestinal infection	0.0049	0.1107	0.1885	0.0002
137 Diseases of mouth; excluding dental	0.0004	0.1235	0.2748	0.0731
138 Esophageal disorders	0.0015	0.1320	0.3304	<.0001
139 Gastroduodenal ulcer (except hemorrhage)	0.0006	0.1145	0.2476	0.0449
140 Gastritis and duodenitis	0.0021	0.1270	0.2944	<.0001
141 Other disorders of stomach and duodenum	0.0008	0.1397	0.4036	<.0001
142 Appendicitis and other appendiceal conditions	0.0004	0.1199	0.3222	0.0314
143 Abdominal hernia	0.0034	0.1071	0.2074	0.0004
145 Intestinal obstruction without hernia	0.0079	0.1130	0.2387	<.0001
146 Diverticulosis and diverticulitis	0.0053	0.1184	0.2906	<.0001
147 Anal and rectal conditions	0.0013	0.1085	0.1473	0.1003
148 Peritonitis and intestinal abscess	0.0005	0.1924	0.6343	<.0001
149 Biliary tract disease	0.0051	0.1185	0.3060	<.0001
151 Other liver diseases	0.0043	0.1525	0.3869	<.0001
152 Pancreatic disorders (not diabetes)	0.0016	0.1149	0.2511	0.0015
153 Gastrointestinal hemorrhage	0.0143	0.1172	0.1987	<.0001
154 Noninfectious gastroenteritis	0.0027	0.1293	0.4228	<.0001
155 Other gastrointestinal disorders	0.0055	0.1297	0.3106	<.0001
156 Nephritis; nephrosis; renal sclerosis	0.0001	0.1818	0.7034	0.0051
157 Acute and unspecified renal failure	0.0309	0.1140	0.2660	<.0001
158 Chronic kidney disease	0.0001	0.1783	0.4833	0.0391
159 Urinary tract infections	0.0444	0.1077	0.2232	<.0001
161 Other diseases of kidney and ureters	0.0010	0.1374	0.4414	<.0001
162 Other diseases of bladder and urethra	0.0007	0.1315	0.3481	0.0017
163 Genitourinary symptoms and ill-defined conditions	0.0010	0.1541	0.5607	<.0001
164 Hyperplasia of prostate	0.0007	0.1413	0.4737	<.0001
165 Inflammatory conditions of male genital organs	0.0005	0.1421	0.3183	0.009

197 Skin and subcutaneous tissue infections	0.0133	0.1051	0.1694	<.0001
198 Other inflammatory condition of skin	0.0003	0.1275	0.3866	0.0176
199 Chronic ulcer of skin	0.0035	0.1177	0.1738	0.0023
201 Infective arthritis and osteomyelitis	0.0042	0.1220	0.1776	0.0008
205 Spondylosis; intervertebral disc disorders; other back problems	0.0151	0.1023	0.2489	<.0001
207 Pathological fracture	0.0160	0.0947	0.2111	<.0001
209 Other acquired deformities	0.0011	0.1091	0.3054	0.0013
211 Other connective tissue disease	0.0077	0.0971	0.1829	<.0001
212 Other bone disease and musculoskeletal deformities	0.0008	0.1065	0.2175	0.0509
213 Cardiac and circulatory congenital anomalies	0.0001	0.1594	0.5517	0.0195
226 Fracture of neck of femur (hip)	0.0579	0.0988	0.2291	<.0001
227 Spinal cord injury	0.0004	0.1387	0.5028	0.0003
228 Skull and face fractures	0.0010	0.1153	0.3455	0.0003
229 Fracture of upper limb	0.0109	0.0903	0.1893	<.0001
231 Other fractures	0.0315	0.0932	0.2055	<.0001
233 Intracranial injury	0.0114	0.1377	0.4870	<.0001
234 Crushing injury or internal injury	0.0023	0.1083	0.2460	0.0003
235 Open wounds of head; neck; and trunk	0.0010	0.1177	0.3860	<.0001
236 Open wounds of extremities	0.0008	0.1122	0.2965	0.0057
237 Complication of device; implant or graft	0.0417	0.1398	0.3125	<.0001
238 Complications of surgical procedures or medical care	0.0176	0.1433	0.2920	<.0001
239 Superficial injury; contusion	0.0036	0.0977	0.1934	0.0011
241 Poisoning by psychotropic agents	0.0003	0.1277	0.3302	0.0503
242 Poisoning by other medications and drugs	0.0015	0.1184	0.2829	0.0004
243 Poisoning by nonmedicinal substances	0.0002	0.1422	0.4902	0.0145
244 Other injuries and conditions due to external causes	0.0053	0.0964	0.1805	0.0005
245 Syncope	0.0031	0.0968	0.1912	0.0027
246 Fever of unknown origin	0.0002	0.1403	0.4487	0.0109

248 Gangrene	0.0017	0.1327	0.3369	<.0001
249 Shock	0.0004	0.1348	0.2903	0.0424
250 Nausea and vomiting	0.0003	0.1732	0.7596	<.0001
251 Abdominal pain	0.0004	0.1553	0.5670	<.0001
252 Malaise and fatigue	0.0041	0.0965	0.1559	0.0062
253 Allergic reactions	0.0003	0.1736	0.7253	<.0001
258 Other screening for suspected conditions (not mental disorders or infectious disease)	0.0002	0.1261	0.3888	0.0505
259 Residual codes; unclassified	0.0016	0.1111	0.2432	0.0026
651 MHSA: Anxiety disorders	0.0003	0.1306	0.4124	0.01
653 MHSA: Delirium, dementia, and amnestic and other cognitive disorders	0.0142	0.1160	0.2796	<.0001
654 MHSA: Developmental disorders	0.0000	0.3077	1.3546	0.0017
656 MHSA: Impulse control disorders, NEC	0.0001	0.1781	0.6358	0.0399
657 MHSA: Mood disorders	0.0044	0.1413	0.3795	<.0001
660 MHSA: Alcohol-related disorders	0.0044	0.1424	0.3908	<.0001
661 MHSA: Substance-related disorders	0.0004	0.1429	0.4518	0.0008
662 MHSA: Suicide and intentional self-inflicted injury	0.0003	0.1340	0.3974	0.0177
670 MHSA: Miscellaneous mental disorders	0.0003	0.2305	0.9347	<.0001
No CCS code	0.0073	0.1206	0.3247	<.0001
Nonsignificant CCS w/ protective effect	0.0251	0.0778	-0.0461	0.191
Nonsignificant CCS w/ increased risk	0.0517	0.0989	0.1450	<.0001
9999 COVID-19			0.0983	0.0036
ED-specific Comorbidity Index	-2.0845		0.2563	<.0001
End-stage prognosis	0.0068	0.0621	-0.6983	<.0001
Returned to nursing home following hospitalization	0.2646	0.1247	-0.0030	0.6909
Anemia	0.4007	0.1180		
Asthma	0.3252	0.1166		
Diabetes	0.3923	0.1190		

Diabetic foot ulcer	0.0172	0.1321		
Respiratory failure	0.1992	0.1137	-0.0773	<.0001
Septicemia	0.0988	0.1158		
Venous/Arterial ulcer present	0.0328	0.1106	-0.0959	<.0001
Viral hepatitis	0.0106	0.1421	0.0548	0.0404
Heart failure	0.3194	0.1172		
Internal bleeding	0.0071	0.1806	0.4731	<.0001
Daily pain	0.0036	0.1261		
Cognitive status not completely intact	0.7000	0.1154	0.1226	<.0001
Cognitive assessment missing	0.0466	0.1283	0.1027	<.0001
Total bowel incontinence	0.2643	0.1156		
Chemotherapy for cancer	0.0060	0.1138		
Dialysis	0.0454	0.1694		
IV medications	0.1212	0.1293	0.0585	<.0001
Ostomy care	0.0283	0.1382	0.0914	<.0001
Oxygen therapy	0.2470	0.1163	0.0323	0.0001
Radiation for cancer	0.0014	0.1346		
Tracheostomy care	0.0074	0.1573	-0.0422	0.2152
First assessment is for significant change in status	0.0317	0.1194	0.0121	0.4902
Rarely/never makes self understood by others	0.0282	0.1159	-0.2656	<.0001
Ability to understand is rare	0.0245	0.1143		
Acute mental status change	0.0224	0.1451	0.2351	<.0001
Rejected care for past 4–7 days	0.0081	0.1556	0.2532	<.0001
Wandering once or more in the past week	0.0171	0.1664	0.4909	<.0001
Alzheimer's disease	0.0448	0.1090		
Non-Alzheimer's dementia	0.2217	0.1145		
Cancer	0.1245	0.1165	0.0085	0.3639
Orthostatic hypotension	0.0600	0.1254		
Ulcerative Colitis/Crohn's/inflammatory bowel disease	0.0209	0.1172		

Multi-drug resistant organism (MDRO)	0.0427	0.1254		
Pneumonia	0.1316	0.1116		
Tuberculosis	0.0002	0.1158		
Urinary tract infection	0.1731	0.1149		
Wound infection	0.0301	0.1254		
Seizure disorder or epilepsy	0.0849	0.1352	0.0611	<.0001
Shortness of breath with exertion	0.1534	0.1175	0.0497	<.0001
Shortness of breath when sitting at rest	0.0562	0.1292	0.1293	<.0001
Shortness of Breath when lying flat	0.2924	0.1138		
Dehydration	0.0048	0.1385		
Fall in the last month	0.3809	0.1097		
Fall in the last two to six months	0.2256	0.1185		
Choke/cough during meals or swallowing medications	0.0952	0.1191	0.0177	0.0929
Parenteral/IV feeding	0.0264	0.1346	0.1472	<.0001
Feeding tube	0.0372	0.1763	0.4399	<.0001
Foot infection	0.0260	0.1071		
Surgical wound	0.2221	0.1137	0.0727	<.0001
Burns	0.0015	0.1261	0.0839	0.2604
Anticoagulant received	0.3958	0.1124	0.0145	0.0218
Antibiotic received	0.3655	0.1205	0.1211	<.0001
Suctioning	0.0075	0.1519		
Ventilator or respirator	0.0508	0.1125	-0.0822	<.0001
Transfusion	0.0047	0.1895	0.4885	<.0001
Isolation/Quarantine for active infectious disease	0.0439	0.1084		
Speech therapy	0.3553	0.1174	0.0618	<.0001
Respiratory therapy	0.1173	0.1031	-0.1428	<.0001
Walks 10 feet independently or with limited assistance	0.2273	0.1097	0.0157	0.1736
Walks 50 feet and makes two turns independently or with limited assistance	0.1443	0.1103	-0.0034	0.7921

---

Wanders and walks 10 feet independently or with limited assistance	0.0071	0.1599	-0.1102	0.0071
Has Alzheimer's or dementia and walks 50 feet and makes two turns independently or with limited assistance	0.0396	0.1162	0.0402	0.0194
Extensive Eating Dependence	0.0853	0.1242	-0.0425	0.0003
Dependent for one or more Activities of Daily Living (ADL)	0.5949	0.1117	-0.0193	0.0043
Constant			-2.0999	<.0001

## APPENDIX TABLE F

### Coefficient Estimates for Short-Stay Residents who have had an Outpatient Emergency Department Visit, Resident-Level Comorbidity Index

*Note:* This model is based on all SNF stays with admission from a hospital between January 1, 2024, and December 31, 2024.

\* Coefficients with p-values greater than .05 are excluded from the comorbidity construct.

Charlson Condition	Coefficient	Standard Error	p-Value
Myocardial infarction	0.1029	0.0096	<.0001
CHF	0.0173	0.0080	0.0313
Peripheral vascular disease	0.0566	0.0095	<.0001
Cerebrovascular disease	0.0846	0.0097	<.0001
Dementia	0.0762	0.0082	<.0001
COPD	0.1072	0.0076	<.0001
Rheumatoid arthritis	0.0332	0.0156	0.0332
Ulcers	0.1055	0.0194	<.0001
Mild liver disease	0.1482	0.0138	<.0001
Diabetes mellitus	0.0994	0.0086	<.0001
Diabetes with sequelae	0.0720	0.0100	<.0001
Paralysis	0.1499	0.0157	<.0001
Chronic renal disease	0.0956	0.0086	<.0001
Cancer	0.0755	0.0129	<.0001
Moderate to severe liver disease	0.2173	0.0264	<.0001
Metastatic cancer*	0.0245	0.0220	0.2661
HIV/AIDS*	0.0938	0.0645	0.146
Constant	-2.2311	0.0041	<.0001

## APPENDIX TABLE G

### Risk-Adjustment Model for Outpatient Emergency Department Visits per 1,000 Long-Stay Resident Days: Risk Variables and Coefficient Estimates

*Note:* This model assumes a negative binomial distribution for the number of outpatient emergency department visits per long-stay resident.

*Note:* This model is based on all days, between January 1, 2024, and December 31, 2024, that residents were in the nursing home after they attained long-term resident status (i.e., after 100 cumulative days in the facility).

Variable	Mean	Mean Number of Outpatient ED Visits Among Those with Covariate	Coefficient	p-Value
Number of long-stay days in target period	241.6599		0.0171	<.0001
Number of long-stay days in target period, squared	76594.9971		0.0000	<.0001
Long-stay outpatient ED visits-specific comorbidity index	0.0632		3.7776	<.0001
White (ref)	0.8055	0.3926		
Black	0.1301	0.4599	0.0591	<.0001
Hispanic	0.0200	0.4160	-0.0074	0.7059
Asian	0.0179	0.3151	-0.1823	<.0001
Other race/ethnicity	0.0184	0.4033	0.0196	0.3391
Unknown race/ethnicity	0.0081	0.3895	-0.1211	<.0001
0 hospitalizations in prior year (ref)	0.5064	0.3452		
1–3 hospitalizations in prior year	0.4309	0.4278	0.2517	<.0001
4–6 hospitalizations in prior year	0.0531	0.6151	0.5623	<.0001
7–9 hospitalizations in prior year	0.0077	0.8594	0.8393	<.0001
10+ hospitalizations in prior year	0.0019	1.1916	1.1371	<.0001
Female age 65–69 (ref)	0.0441	0.4936		
Female age 18–64	0.0443	0.6168	0.1912	<.0001
Female age 70–74	0.0644	0.4338	-0.0969	<.0001
Female age 75–79	0.0857	0.4077	-0.1358	<.0001
Female age 80–84	0.1047	0.3662	-0.2042	<.0001
Female age 85–89	0.1160	0.3442	-0.2332	<.0001

Variable	Mean	Mean Number of Outpatient ED Visits Among Those with Covariate	Coefficient	p-Value
Female age 90–94	0.0999	0.3067	-0.3014	<.0001
Female age GT 94	0.0649	0.2527	-0.4254	<.0001
Male age 18–64	0.0586	0.5907	0.1334	<.0001
Male age 65–69	0.0539	0.4796	-0.0292	0.0795
Male age 70–74	0.0607	0.4338	-0.0986	<.0001
Male age 75–79	0.0600	0.4109	-0.1115	<.0001
Male age 80–84	0.0551	0.3923	-0.1223	<.0001
Male age 85–89	0.0466	0.3718	-0.1281	<.0001
Male age 90–94	0.0294	0.3343	-0.1890	<.0001
Male age GT 94	0.0120	0.2727	-0.3361	<.0001
Entered nursing home from a psychiatric facility	0.0176	0.4978	0.0518	0.0090
Rarely/never makes self understood by others	0.0614	0.3747	0.0630	0.0094
Ability to understand is rare	0.0526	0.3623	-0.0958	0.0001
Moderate cognitive impairment	0.2377	0.3982	-0.0063	0.3951
Severe cognitive impairment	0.2950	0.3633	0.0264	0.0004
Staff assessed cognitive impairment	0.0439	0.3527	0.0050	0.7383
Cognitive assessment missing	0.0923	0.3833	0.0685	<.0001
Rejected care for past 4–7 days	0.0180	0.4348	0.0416	0.0422
Wandering once or more in the past week	0.0425	0.4831	0.2769	<.0001
Shortness of breath with exertion	0.0701	0.5148	0.1747	<.0001
Shortness of Breath when lying flat	0.1490	0.4537	-0.0092	0.2856
End-stage prognosis	0.0683	0.1235	-0.2906	<.0001
Internal bleeding	0.0018	0.4901	0.0865	0.1706
Surgical wound	0.0269	0.4761	0.0176	0.2961
Respiratory failure	0.0927	0.4888	-0.0011	0.9188
Antibiotic received	0.1316	0.4988	0.1764	<.0001
Diuretic received	0.3090	0.4346	0.1014	<.0001
Chemotherapy for cancer	0.0031	0.4588	0.1009	0.0400
Radiation for cancer	0.0005	0.4052	0.1153	0.3513
Oxygen therapy	0.1243	0.4688	0.0889	<.0001
IV medications	0.0240	0.5580	0.0776	<.0001

Variable	Mean	Mean Number of Outpatient ED Visits Among Those with Covariate	Coefficient	p-Value
Transfusion	0.0007	0.6825	0.4008	<.0001
Hospice care after nursing home admission	0.0749	0.1150	-0.8052	<.0001
Speech therapy	0.1167	0.4491	0.0523	<.0001
Respiratory therapy	0.0324	0.4483	-0.0640	<.0001
Tracheostomy care	0.0093	0.6396	0.2265	<.0001
Ventilator or respirator	0.0109	0.4079	-0.3282	<.0001
Septicemia	0.0219	0.5081	-0.0124	0.5038
Cerebrovascular accident, transient ischemic attack, or stroke	0.1891	0.4407	0.0634	<.0001
Quadriplegia	0.0069	0.7136	0.1653	<.0001
Multiple Sclerosis	0.0149	0.4687	-0.1159	<.0001
Parkinson's disease	0.0629	0.4475	0.1499	<.0001
Gastroesophageal reflux disease (GERD) or ulcer	0.1022	0.4652	0.1590	<.0001
Neurogenic bladder	0.0464	0.6094	0.2633	<.0001
Cancer	0.0782	0.3757	0.0059	0.5859
Walks 10 feet independently or with limited assistance	0.1480	0.5269	0.2795	<.0001
Constant			-3.1787	<.0001

## APPENDIX TABLE H

### Coefficient Estimates for Outpatient Emergency Department Visits per 1,000 Long-Stay Resident Days, Resident-Level Comorbidity Index

*Note:* This model assumes a negative binomial distribution for the number of outpatient emergency department visits per long-stay resident.

*Note:* This model is based on all days, between January 1, 2024, and December 31, 2024, that residents were in the nursing home after they attained long-term resident status (i.e., after 100 cumulative days in the facility).

\* Coefficients with p-value greater than .05 excluded from the comorbidity construct, as are coefficients for the number of long-stay days.

Charlson Condition	Coefficient	Standard Error	p-Value
Myocardial infarction	0.0705	0.0114	<.0001
CHF	0.0918	0.0086	<.0001
Peripheral vascular disease	0.0453	0.0114	<.0001
Cerebrovascular disease	0.0841	0.0095	<.0001
Dementia	0.0437	0.0070	<.0001
COPD	0.2298	0.0083	<.0001
Rheumatoid arthritis	0.0429	0.0201	0.0331
Ulcers	0.0873	0.0238	0.0002
Mild liver disease	0.1841	0.0173	<.0001
Diabetes mellitus	0.1775	0.0088	<.0001
Diabetes with sequelae	0.1378	0.0109	<.0001
Paralysis	0.2884	0.0142	<.0001
Chronic renal disease	0.1260	0.0095	<.0001
Cancer*	0.0086	0.0184	0.6387
Moderate to severe liver disease	0.2514	0.0413	<.0001
Metastatic cancer*	0.0171	0.0363	0.6370
HIV/AIDS*	0.1123	0.0694	0.1059
Number of long-stay days in target period	0.0173	0.0001	<.0001
Number of long-stay days in target period, squared	0.0000	0.0000	<.0001
Constant	-2.9578	0.0127	<.0001