

**CMS-HCC Risk Adjustment Model Tables for PACE:  
Community and Institutional Relative Factors**

Variable	Disease Group	Community Factor	Institutional Factor
<b>Female</b>			
0-34 Years		0.198	0.783
35-44 Years		0.212	0.723
45-54 Years		0.274	0.700
55-59 Years		0.359	0.805
60-64 Years		0.416	0.773
65-69 Years		0.283	1.004
70-74 Years		0.346	0.947
75-79 Years		0.428	0.874
80-84 Years		0.517	0.792
85-89 Years		0.632	0.699
90-94 Years		0.755	0.594
95 Years or Over		0.775	0.465
<b>Male</b>			
0-34 Years		0.079	0.994
35-44 Years		0.119	0.658
45-54 Years		0.165	0.687
55-59 Years		0.292	0.814
60-64 Years		0.332	0.877
65-69 Years		0.309	1.148
70-74 Years		0.378	1.195
75-79 Years		0.464	1.168
80-84 Years		0.565	1.104
85-89 Years		0.647	1.046
90-94 Years		0.776	0.928
95 Years or Over		0.963	0.842
<b>Medicaid and Originally Disabled Interactions with Age and Sex</b>			
Medicaid_Female_Aged		0.213	
Medicaid_Female_Disabled		0.104	
Medicaid_Male_Aged		0.210	
Medicaid_Male_Disabled		0.113	
Originally Disabled_Female		0.244	
Originally Disabled_Male		0.171	
<b>Medicaid and Originally Disabled</b>			
Medicaid			0.126
Originally Disabled			0.026
<b>Disease Coefficients</b>			
	<b>Description Label</b>		
HCC1	HIV/AIDS	0.492	1.374
HCC2	Septicemia, Sepsis, Systemic Inflammatory Response Syndrome/Shock	0.520	0.471
HCC6	Opportunistic Infections	0.557	0.541
HCC8	Metastatic Cancer and Acute Leukemia	2.425	0.928
HCC9	Lung and Other Severe Cancers	1.006	0.610
HCC10	Lymphoma and Other Cancers	0.695	0.363
HCC11	Colorectal, Bladder, and Other Cancers	0.330	0.255
HCC12	Breast, Prostate, and Other Cancers and Tumors	0.180	0.165
HCC17	Diabetes with Acute Complications	0.344	0.434
HCC18	Diabetes with Chronic Complications	0.344	0.434
HCC19	Diabetes without Complication	0.124	0.187
HCC21	Protein-Calorie Malnutrition	0.653	0.343
HCC22	Morbid Obesity	0.342	0.353
HCC23	Other Significant Endocrine and Metabolic Disorders	0.240	0.248
HCC27	End-Stage Liver Disease	1.003	0.637

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HCC28	Cirrhosis of Liver	0.425	0.343
HCC29	Chronic Hepatitis	0.313	0.343
HCC33	Intestinal Obstruction/Perforation	0.337	0.302
HCC34	Chronic Pancreatitis	0.257	0.175
HCC35	Inflammatory Bowel Disease	0.279	0.250
HCC39	Bone/Joint/Muscle Infections/Necrosis	0.423	0.386
HCC40	Rheumatoid Arthritis and Inflammatory Connective Tissue Disease	0.376	0.222
HCC46	Severe Hematological Disorders	1.078	0.638
HCC47	Disorders of Immunity	0.306	0.436
HCC48	Coagulation Defects and Other Specified Hematological Disorders	0.258	0.197
HCC51	Dementia With Complications	0.616	☒
HCC52	Dementia Without Complication	0.343	☒
HCC54	Drug/Alcohol Psychosis	0.358	0.051
HCC55	Drug/Alcohol Dependence	0.358	0.051
HCC57	Schizophrenia	0.471	0.274
HCC58	Major Depressive, Bipolar, and Paranoid Disorders	0.318	0.274
HCC70	Quadriplegia	1.075	0.497
HCC71	Paraplegia	0.868	0.497
HCC72	Spinal Cord Disorders/Injuries	0.441	0.191
HCC73	Amyotrophic Lateral Sclerosis and Other Motor Neuron Disease	1.016	0.294
HCC74	Cerebral Palsy	0.036	☒
HCC75	Polyneuropathy	0.281	0.256
HCC76	Muscular Dystrophy	0.460	0.247
HCC77	Multiple Sclerosis	0.482	☒
HCC78	Parkinson's and Huntington's Diseases	0.555	0.110
HCC79	Seizure Disorders and Convulsions	0.252	0.173
HCC80	Coma, Brain Compression/Anoxic Damage	0.533	0.103
HCC82	Respirator Dependence/Tracheostomy Status	1.732	1.567
HCC83	Respiratory Arrest	0.769	0.611
HCC84	Cardio-Respiratory Failure and Shock	0.326	0.346
HCC85	Congestive Heart Failure	0.361	0.226
HCC86	Acute Myocardial Infarction	0.283	0.394
HCC87	Unstable Angina and Other Acute Ischemic Heart Disease	0.283	0.394
HCC88	Angina Pectoris	0.210	0.366
HCC96	Specified Heart Arrhythmias	0.276	0.227
HCC99	Cerebral Hemorrhage	0.371	0.175
HCC100	Ischemic or Unspecified Stroke	0.333	0.175
HCC103	Hemiplegia/Hemiparesis	0.481	0.063
HCC104	Monoplegia, Other Paralytic Syndromes	0.212	0.063
HCC106	Atherosclerosis of the Extremities with Ulceration or Gangrene	1.313	0.773
HCC107	Vascular Disease with Complications	0.417	0.257
HCC108	Vascular Disease	0.288	0.146
HCC110	Cystic Fibrosis	0.388	0.323
HCC111	Chronic Obstructive Pulmonary Disease	0.388	0.323
HCC112	Fibrosis of Lung and Other Chronic Lung Disorders	0.294	0.252
HCC114	Aspiration and Specified Bacterial Pneumonias	0.691	0.239
HCC115	Pneumococcal Pneumonia, Empyema, Lung Abscess	0.212	0.194
HCC122	Proliferative Diabetic Retinopathy and Vitreous Hemorrhage	0.223	0.366
HCC124	Exudative Macular Degeneration	0.248	0.178

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HCC134	Dialysis Status	0.617	0.538
HCC135	Acute Renal Failure	0.617	0.538
HCC136	Chronic Kidney Disease, Stage 5	0.227	0.304
HCC137	Chronic Kidney Disease, Severe (Stage 4)	0.227	0.304
HCC138	Chronic Kidney Disease, Moderate (Stage 3)	0.227	0.304
HCC139	Chronic Kidney Disease, Mild or Unspecified (Stages 1-2 or Unspecified)	0.227	0.304
HCC140	Unspecified Renal Failure	0.227	0.304
HCC141	Nephritis	0.075	0.235
HCC157	Pressure Ulcer of Skin with Necrosis Through to Muscle, Tendon, or Bone	1.071	0.284
HCC158	Pressure Ulcer of Skin with Full Thickness Skin Loss	1.071	0.284
HCC159	Pressure Ulcer of Skin with Partial Thickness Skin Loss	1.071	0.284
HCC160	Pressure Pre-Ulcer Skin Changes or Unspecified Stage	1.071	0.284
HCC161	Chronic Ulcer of Skin, Except Pressure	0.473	0.226
HCC162	Severe Skin Burn or Condition	0.458	☐
HCC166	Severe Head Injury	0.533	0.103
HCC167	Major Head Injury	0.141	☐
HCC169	Vertebral Fractures without Spinal Cord Injury	0.441	0.179
HCC170	Hip Fracture/Dislocation	0.363	☐
HCC173	Traumatic Amputations and Complications	0.379	0.067
HCC176	Complications of Specified Implanted Device or Graft	0.555	0.369
HCC186	Major Organ Transplant or Replacement Status	1.032	1.120
HCC188	Artificial Openings for Feeding or Elimination	0.609	0.658
HCC189	Amputation Status, Lower Limb/Amputation Complications	0.804	0.384
<b>Disease Interactions</b>			
SEPSIS_CARD_RESP_FAIL	Sepsis*Cardiorespiratory Failure	0.634	
CANCER_IMMUNE	Cancer*Immune Disorders	1.101	
DIABETES_CHF	Diabetes*Congestive Heart Failure	0.237	0.143
CHF_COPD	Congestive Heart Failure*Chronic Obstructive Pulmonary Disease	0.255	0.159
CHF_RENAL	Congestive Heart Failure*Renal Disease	0.201	
COPD_CARD_RESP_FAIL	Chronic Obstructive Pulmonary Disease*Cardiorespiratory Failure	0.420	
CRFAIL_COPD	Cardiorespiratory Failure*Chronic Obstructive Pulmonary Disease		0.524
SEPSIS_PRESSURE_ULCER	Sepsis*Pressure Ulcer		0.538
SEPSIS_ARTIF_OPENINGS	Sepsis*Artificial Openings for Feeding or Elimination		0.453
ARTIF_OPENINGS_PRESSURE_ULCER	Artificial Openings for Feeding or Elimination*Pressure Ulcer		0.361
COPD_ASP_SPEC_BACT_PNEUM	Chronic Obstructive Pulmonary Disease*Aspiration and Specified Bacterial Pneumonias		0.249
ASP_SPEC_BACT_PNEUM_PRES_ULCER	Aspiration and Specified Bacterial Pneumonias*Pressure Ulcer		0.325
SEPSIS_ASP_SPEC_BACT_PNEUM	Sepsis*Aspiration and Specified Bacterial Pneumonias		0.387
SCHIZOPHRENIA_COPD	Schizophrenia*Chronic Obstructive Pulmonary Disease		0.187
SCHIZOPHRENIA_CHF	Schizophrenia*Congestive Heart Failure		0.220

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SCHIZOPHRENIA_SEIZURES	Schizophrenia*Seizure Disorders and Convulsions		0.303
<b>Disabled/Disease Interactions</b>			
DISABLED_HCC6	Disabled, Opportunistic Infections	0.564	
DISABLED_HCC34	Disabled, Chronic Pancreatitis	0.757	
DISABLED_HCC46	Disabled, Severe Hematological Disorders	0.818	
DISABLED_HCC54	Disabled, Drug/Alcohol Psychosis	0.432	
DISABLED_HCC55	Disabled, Drug/Alcohol Dependence	0.147	
DISABLED_HCC110	Disabled, Cystic Fibrosis	2.397	
DISABLED_HCC176	Disabled, Complications of Specified Implanted Device or Graft	0.495	
DISABLED_HCC85	Disabled, Congestive Heart Failure		0.320
DISABLED_PRESSURE_ULCER	Disabled, Pressure Ulcer		0.421
DISABLED_HCC161	Disabled, Chronic Ulcer of the Skin, Except Pressure Ulcer		0.337
DISABLED_HCC39	Disabled, Bone/Joint Muscle Infections/Necrosis		0.624
DISABLED_HCC77	Disabled, Multiple Sclerosis		0.344
DISABLED_HCC6	Disabled, Opportunistic Infections		0.914

**NOTES**

1. The relative risk scores in this table were calculated by dividing the parameter estimates by the Part C national average predicted expenditures (CMS Part C Denominator). The Part C Denominator value used is \$8,034.71.
2. The relative factor for HCC 160 is based on pressure ulcer, any stage, for all anatomical sites codes. The relative factor for HCC 160 is also assigned to HCCs 157, 158, and 159 in the constrained regression because the ICD9 codes for the stages of pressure ulcers are not implemented until FY09.

In the "disease interactions," the variables are defined as follows:

- Artificial Openings for Feeding or Elimination = HCC 188.
- Aspiration and Specified Bacterial Pneumonias = HCC 114.
- Bone/Joint/Muscle Infections/Necrosis = HCC 39.
- Cancer = HCCs 8-12.
- Cardiorespiratory Failure = HCCs 82-84.
- Chronic Obstructive Pulmonary Disease = HCCs 110-111.
- Chronic Ulcer of Skin, except Pressure = HCC 161.
- Congestive Heart Failure = HCC 85.
- Diabetes = HCCs 17, 18, 19.
- Immune Disorders = HCC 47.
- Multiple Sclerosis = HCC 77.
- Opportunistic Infections = HCC 6.
- Pressure Ulcer = HCCs 157-160.
- Renal Disease = HCCs 134-141.
- Schizophrenia = HCC 57.
- Seizure Disorders and Convulsions = HCC 79.
- Sepsis = HCC 2.

**SOURCE:** RTI International analysis of 2006/2007 Medicare 5% sample.

**SOURCE:** RTI International analysis of 2006/2007 Medicare 100% institutional sample.