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**Date:** July 19, 2021

**Subject:** Updated 2022 Benefit Year Final HHS Risk Adjustment Model Coefficients

In part 2 of the HHS Notice of Benefit and Payment Parameters for 2022 final rule (2022 Payment Notice), we finalized the risk adjustment models for the 2022 benefit year, including the associated risk adjustment model coefficients.<sup>1</sup> The 2022 benefit year coefficients included in this final rule contained a few errors that impacted certain factors for the adult models. Consistent with 45 C.F.R. § 153.320(b)(1)(i), this document announces some minor revisions to the 2022 benefit year final risk adjustment adult model coefficients. The reason for these revisions is to apply a constraint to the enrollment duration factors (EDFs) that was missing in the 2022 Payment Notice’s risk adjustment model coefficients.

During all risk adjustment model recalibrations, we impose constraints on certain coefficients for a variety of reasons, such as small sample size or to maintain hierarchical condition category (HCC) groups.<sup>2</sup> Since the EDFs were added to the adult models,<sup>3</sup> we have imposed a constraint to ensure that the EDFs’ coefficients decrease monotonically as the number of months increases. That is, the 1-month EDFs are always equal to or larger than the 2-month EDFs, the 2-month EDFs are equal to or larger than the 3-month EDFs, and so on. During the 2022 benefit year model recalibration between the publication of the proposed coefficients (which reflected the proposed changes to the EDFs<sup>4</sup>) and the publication of the final coefficients in the 2022 Payment Notice (which did not include the proposed EDF changes), we did not apply the EDF constraint. This resulted in the 3-month EDFs having larger values than the 2-month EDFs in the 2022 risk adjustment models that were finalized in the 2022 Payment Notice.

CMS identified and recalibrated the impacted coefficients to incorporate the EDF constraint and is releasing updated final adult model coefficients for the 2022 benefit year accordingly. The

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<sup>1</sup> Patient Protection and Affordable Care Act; HHS Notice of Benefit and Payment Parameters for 2022 and Pharmacy Benefit Manager Standards; Final Rule, 86 FR 24140 (May 5, 2021), available at: <https://www.govinfo.gov/content/pkg/FR-2021-05-05/pdf/2021-09102.pdf>.

<sup>2</sup> See, e.g., *Potential Updates to HHS-HCCs for the HHS-operated Risk Adjustment Program*, June 17, 2019 and (Available at: <https://www.cms.gov/CCIIO/Resources/Regulations-and-Guidance/Downloads/Potential-Updates-to-HHS-HCCs-HHS-operated-Risk-Adjustment-Program.pdf>) and *HHS-Operated Risk Adjustment Methodology Meeting*, Discussion Paper, March 24, 2016 (Available at: <https://www.cms.gov/CCIIO/Resources/Forms-Reports-and-Other-Resources/Downloads/RA-March-31-White-Paper-032416.pdf>).

<sup>3</sup> Patient Protection and Affordable Care Act; HHS Notice of Benefit and Payment Parameters for 2018; Amendments to Special Enrollment Periods and the Consumer Operated and Oriented Plan Program; Final Rule, 81 FR 94058 (December 22, 2016).

<sup>4</sup> Patient Protection and Affordable Care Act; HHS Notice of Benefit and Payment Parameters for 2022 and Pharmacy Benefit Manager Standards; Updates to State Innovation Waiver (Section 1332 Waiver) Implementing Regulations; Proposed Rule, 85 FR 78572 at 78583 – 78586 (December 4, 2020).

correction involved the 1-month, 2-month, and 3-month EDFs, and the overall impact of this update is minimal.<sup>5,6</sup>

For convenience, we also include the final 2022 benefit year coefficients for the child and infant models in this document so that issuers will have the complete final set of coefficients in one document for reference, even though no changes were made to those coefficients. We highlighted the impacted adult model coefficients in Table 1 for ease of reference. These coefficients will replace the coefficients finalized in the 2022 Payment Notice and will apply to the 2022 benefit year risk adjustment program.

The tables below show the updated final coefficients for the 2022 benefit year for the adult risk adjustment models (Table 1), as well as the final coefficients for the 2022 benefit year child risk adjustment models (Table 2) and infant risk adjustment models (Table 3). All other tables that were published in the 2022 Payment Notice final rule are still applicable.

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<sup>5</sup> For example, the previously finalized silver model 2- and 3-month EDFs are 0.190 and 0.199, respectively. The updated coefficients published in this document fall between these values, so the difference between the current and updated coefficients is less than 0.01.

<sup>6</sup> The coefficients impacted include the 1-month, 2-month and 3-month EDFs in the adult models for all metal levels as well as HCC057 and RXC09 x HCC057 in the adult models for the silver and bronze metal levels. The small changes to HCC057 and RXC09 x HCC 057 (.001 each) are likely due to RXC09-related factors being blended from 2016 & 2017 only, and not using the (unchanged) 2018 coefficient estimates. See 86 FR at 24180. Additionally, constraining any coefficient in a multiple regression can slightly affect all other coefficients in the regression. The magnitude of the effect is dependent upon how closely related the variables are to the variable being constrained.

**TABLE 1: Final Adult Risk Adjustment Model Factors for 2022 Benefit Year**

HCC or RXC No.	Factor	Platinum	Gold	Silver	Bronze	Catastrophic
<b>Demographic Factors</b>						
	Age 21-24, Male	0.128	0.086	0.049	0.020	0.019
	Age 25-29, Male	0.128	0.086	0.049	0.019	0.017
	Age 30-34, Male	0.159	0.109	0.065	0.029	0.027
	Age 35-39, Male	0.187	0.129	0.077	0.034	0.033
	Age 40-44, Male	0.222	0.157	0.099	0.051	0.049
	Age 45-49, Male	0.251	0.181	0.117	0.062	0.060
	Age 50-54, Male	0.333	0.253	0.181	0.119	0.117
	Age 55-59, Male	0.372	0.283	0.204	0.135	0.132
	Age 60-64, Male	0.418	0.320	0.232	0.155	0.152
	Age 21-24, Female	0.217	0.151	0.093	0.047	0.045
	Age 25-29, Female	0.236	0.165	0.103	0.053	0.051
	Age 30-34, Female	0.306	0.226	0.155	0.097	0.095
	Age 35-39, Female	0.372	0.283	0.204	0.139	0.136
	Age 40-44, Female	0.425	0.326	0.238	0.163	0.160
	Age 45-49, Female	0.432	0.329	0.234	0.153	0.149
	Age 50-54, Female	0.470	0.366	0.269	0.185	0.181
	Age 55-59, Female	0.445	0.339	0.241	0.156	0.152
	Age 60-64, Female	0.446	0.337	0.235	0.147	0.144
<b>Diagnosis Factors</b>						
HCC001	HIV/AIDS	1.520	1.379	1.282	1.212	1.210
HCC002	Septicemia, Sepsis, Systemic Inflammatory Response Syndrome/Shock	7.045	6.891	6.847	6.864	6.867
HCC003	Central Nervous System Infections, Except Viral Meningitis	5.927	5.857	5.833	5.835	5.835
HCC004	Viral or Unspecified Meningitis	5.072	4.918	4.820	4.718	4.716
HCC006	Opportunistic Infections	6.319	6.275	6.237	6.187	6.185
HCC008	Metastatic Cancer	22.979	22.560	22.379	22.335	22.336
HCC009	Lung, Brain, and Other Severe Cancers, Including Pediatric Acute Lymphoid Leukemia	13.282	12.979	12.825	12.743	12.742
HCC010	Non-Hodgkin Lymphomas and Other Cancers and Tumors	5.575	5.376	5.248	5.144	5.141
HCC011	Colorectal, Breast (Age < 50), Kidney, and Other Cancers	3.845	3.648	3.517	3.409	3.405
HCC012	Breast (Age 50+) and Prostate Cancer, Benign/Uncertain Brain Tumors, and Other Cancers and Tumors	2.604	2.457	2.350	2.254	2.251

HCC or RXC No.	Factor	Platinum	Gold	Silver	Bronze	Catastrophic
HCC013	Thyroid Cancer, Melanoma, Neurofibromatosis, and Other Cancers and Tumors	1.132	1.017	0.903	0.780	0.775
HCC018	Pancreas Transplant Status	2.006	1.955	1.933	1.932	1.933
HCC019	Diabetes with Acute Complications	0.427	0.360	0.299	0.243	0.240
HCC020	Diabetes with Chronic Complications	0.427	0.360	0.299	0.243	0.240
HCC021	Diabetes without Complication	0.427	0.360	0.299	0.243	0.240
HCC022	Type 1 Diabetes Mellitus, add-on to Diabetes HCCs 19-21	0.384	0.350	0.319	0.257	0.255
HCC023	Protein-Calorie Malnutrition	10.719	10.711	10.746	10.828	10.831
HCC026	Mucopolysaccharidosis	29.195	29.017	28.940	28.930	28.931
HCC027	Lipidoses and Glycogenosis	29.195	29.017	28.940	28.930	28.931
HCC029	Amyloidosis, Porphyria, and Other Metabolic Disorders	7.748	7.653	7.595	7.554	7.553
HCC030	Adrenal, Pituitary, and Other Significant Endocrine Disorders	1.789	1.713	1.648	1.584	1.582
HCC034	Liver Transplant Status/Complications	9.695	9.633	9.608	9.605	9.604
HCC035_1 <sup>7</sup>	Acute Liver Failure/Disease, Including Neonatal Hepatitis	9.532	9.480	9.468	9.490	9.489
HCC035_2	Chronic Liver Failure/End-Stage Liver Disorders	3.107	2.965	2.901	2.873	2.872
HCC036	Cirrhosis of Liver	1.038	0.951	0.885	0.819	0.816
HCC037_1	Chronic Viral Hepatitis C	0.871	0.785	0.717	0.653	0.651
HCC037_2	Chronic Hepatitis, Except Chronic Viral Hepatitis C	0.871	0.785	0.717	0.653	0.651
HCC041	Intestine Transplant Status/Complications	33.660	33.619	33.587	33.545	33.545
HCC042	Peritonitis/Gastrointestinal Perforation/Necrotizing Enterocolitis	8.835	8.653	8.577	8.561	8.562
HCC045	Intestinal Obstruction	5.241	5.066	4.982	4.928	4.927
HCC046	Chronic Pancreatitis	3.546	3.407	3.355	3.341	3.342

<sup>7</sup> HCC numbers that appear with an underscore in this document will appear without the underscore in the DIY software. For example, HCC 35\_1 in this table will appear as HCC 351 in the DIY software.

HCC or RXC No.	Factor	Platinum	Gold	Silver	Bronze	Catastrophic
HCC047	Acute Pancreatitis	3.034	2.855	2.755	2.665	2.664
HCC048	Inflammatory Bowel Disease	0.532	0.444	0.356	0.249	0.245
HCC054	Necrotizing Fasciitis	9.981	9.883	9.868	9.923	9.925
HCC055	Bone/Joint/Muscle Infections/Necrosis	5.231	5.080	5.019	5.016	5.016
HCC056	Rheumatoid Arthritis and Specified Autoimmune Disorders	1.372	1.265	1.169	1.076	1.072
HCC057	Systemic Lupus Erythematosus and Other Autoimmune Disorders	0.658	0.562	0.458	0.335	0.330
HCC061	Osteogenesis Imperfecta and Other Osteodystrophies	2.433	2.281	2.177	2.083	2.080
HCC062	Congenital/Developmental Skeletal and Connective Tissue Disorders	2.433	2.281	2.177	2.083	2.080
HCC063	Cleft Lip/Cleft Palate	1.904	1.780	1.690	1.604	1.601
HCC066	Hemophilia	70.009	69.723	69.594	69.568	69.568
HCC067	Myelodysplastic Syndromes and Myelofibrosis	14.086	13.994	13.949	13.929	13.928
HCC068	Aplastic Anemia	14.086	13.994	13.949	13.929	13.928
HCC069	Acquired Hemolytic Anemia, Including Hemolytic Disease of Newborn	14.086	13.994	13.949	13.929	13.928
HCC070	Sickle Cell Anemia (Hb-SS)	2.795	2.679	2.593	2.514	2.511
HCC071	Beta Thalassemia Major	2.795	2.679	2.593	2.514	2.511
HCC073	Combined and Other Severe Immunodeficiencies	4.770	4.683	4.639	4.615	4.614
HCC074	Disorders of the Immune Mechanism	4.770	4.683	4.639	4.615	4.614
HCC075	Coagulation Defects and Other Specified Hematological Disorders	2.606	2.537	2.486	2.442	2.441
HCC081	Drug Use with Psychotic Complications	2.622	2.446	2.303	2.144	2.138
HCC082	Drug Use Disorder, Moderate/Severe, or Drug Use with Non-Psychotic Complications	2.622	2.446	2.303	2.144	2.138
HCC083	Alcohol Use with Psychotic Complications	1.224	1.095	0.995	0.891	0.887

HCC or RXC No.	Factor	Platinum	Gold	Silver	Bronze	Catastrophic
HCC084	Alcohol Use Disorder, Moderate/Severe, or Alcohol Use with Specified Non-Psychotic Complications	1.224	1.095	0.995	0.891	0.887
HCC087_1	Schizophrenia	2.622	2.445	2.323	2.206	2.202
HCC087_2	Delusional and Other Specified Psychotic Disorders, Unspecified Psychosis	2.622	2.445	2.323	2.206	2.202
HCC088	Major Depressive Disorder, Severe, and Bipolar Disorders	1.379	1.249	1.132	1.003	0.999
HCC090	Personality Disorders	1.072	0.962	0.846	0.717	0.712
HCC094	Anorexia/Bulimia Nervosa	2.437	2.303	2.202	2.109	2.106
HCC096	Prader-Willi, Patau, Edwards, and Autosomal Deletion Syndromes	6.816	6.773	6.748	6.715	6.715
HCC097	Down Syndrome, Fragile X, Other Chromosomal Anomalies, and Congenital Malformation Syndromes	1.448	1.371	1.307	1.243	1.241
HCC102	Autistic Disorder	1.236	1.128	1.016	0.899	0.895
HCC103	Pervasive Developmental Disorders, Except Autistic Disorder	1.072	0.962	0.846	0.717	0.712
HCC106	Traumatic Complete Lesion Cervical Spinal Cord	11.562	11.447	11.385	11.344	11.343
HCC107	Quadriplegia	11.562	11.447	11.385	11.344	11.343
HCC108	Traumatic Complete Lesion Dorsal Spinal Cord	7.825	7.689	7.610	7.549	7.547
HCC109	Paraplegia	7.825	7.689	7.610	7.549	7.547
HCC110	Spinal Cord Disorders/Injuries	5.342	5.158	5.057	4.987	4.984
HCC111	Amyotrophic Lateral Sclerosis and Other Anterior Horn Cell Disease	3.336	3.164	3.042	2.918	2.913
HCC112	Quadriplegic Cerebral Palsy	1.238	1.070	0.963	0.872	0.870
HCC113	Cerebral Palsy, Except Quadriplegic	0.790	0.708	0.633	0.547	0.544
HCC114	Spina Bifida and Other Brain/Spinal/Nervous System Congenital Anomalies	1.374	1.273	1.197	1.120	1.117

HCC or RXC No.	Factor	Platinum	Gold	Silver	Bronze	Catastrophic
HCC115	Myasthenia Gravis/Myoneural Disorders and Guillain-Barre Syndrome/Inflammatory and Toxic Neuropathy	5.075	4.987	4.942	4.916	4.916
HCC117	Muscular Dystrophy	1.763	1.654	1.559	1.447	1.442
HCC118	Multiple Sclerosis	2.962	2.806	2.695	2.592	2.589
HCC119	Parkinson's, Huntington's, and Spinocerebellar Disease, and Other Neurodegenerative Disorders	1.763	1.654	1.559	1.447	1.442
HCC120	Seizure Disorders and Convulsions	1.068	0.955	0.861	0.763	0.759
HCC121	Hydrocephalus	8.307	8.209	8.151	8.116	8.116
HCC122	Coma, Brain Compression/Anoxic Damage	7.874	7.753	7.697	7.679	7.679
HCC123	Narcolepsy and Cataplexy	5.839	5.684	5.563	5.448	5.444
HCC125	Respirator Dependence/Tracheostomy Status	21.892	21.866	21.900	21.994	21.997
HCC126	Respiratory Arrest	6.658	6.534	6.520	6.581	6.585
HCC127	Cardio-Respiratory Failure and Shock, Including Respiratory Distress Syndromes	6.658	6.534	6.520	6.581	6.585
HCC128	Heart Assistive Device/Artificial Heart	26.896	26.755	26.704	26.706	26.708
HCC129	Heart Transplant Status/Complications	26.896	26.755	26.704	26.706	26.708
HCC130	Heart Failure	2.449	2.372	2.329	2.303	2.303
HCC131	Acute Myocardial Infarction	6.445	6.227	6.150	6.160	6.163
HCC132	Unstable Angina and Other Acute Ischemic Heart Disease	4.805	4.590	4.495	4.441	4.441
HCC135	Heart Infection/Inflammation, Except Rheumatic	5.740	5.651	5.598	5.557	5.557
HCC137	Hypoplastic Left Heart Syndrome and Other Severe Congenital Heart Disorders	2.586	2.489	2.409	2.341	2.338
HCC138	Major Congenital Heart/Circulatory Disorders	2.586	2.489	2.409	2.341	2.338

HCC or RXC No.	Factor	Platinum	Gold	Silver	Bronze	Catastrophic
HCC139	Atrial and Ventricular Septal Defects, Patent Ductus Arteriosus, and Other Congenital Heart/Circulatory Disorders	2.586	2.489	2.409	2.341	2.338
HCC142	Specified Heart Arrhythmias	2.265	2.157	2.070	1.983	1.983
HCC145	Intracranial Hemorrhage	6.694	6.498	6.395	6.327	6.327
HCC146	Ischemic or Unspecified Stroke	1.586	1.484	1.427	1.373	1.372
HCC149	Cerebral Aneurysm and Arteriovenous Malformation	2.546	2.415	2.323	2.233	2.230
HCC150	Hemiplegia/Hemiparesis	4.176	4.091	4.072	4.095	4.097
HCC151	Monoplegia, Other Paralytic Syndromes	2.985	2.887	2.823	2.764	2.762
HCC153	Atherosclerosis of the Extremities with Ulceration or Gangrene	8.710	8.634	8.643	8.727	8.731
HCC154	Vascular Disease with Complications	6.654	6.542	6.492	6.474	6.474
HCC156	Pulmonary Embolism and Deep Vein Thrombosis	3.510	3.396	3.316	3.234	3.232
HCC158	Lung Transplant Status/Complications	22.123	22.027	22.002	22.028	22.028
HCC159	Cystic Fibrosis	4.872	4.653	4.513	4.410	4.407
HCC160	Chronic Obstructive Pulmonary Disease, Including Bronchiectasis	0.771	0.673	0.576	0.472	0.468
HCC161_1	Severe Asthma	0.771	0.673	0.576	0.472	0.468
HCC161_2	Asthma, Except Severe	0.771	0.673	0.576	0.472	0.468
HCC162	Fibrosis of Lung and Other Lung Disorders	1.934	1.853	1.793	1.729	1.727
HCC163	Aspiration and Specified Bacterial Pneumonias and Other Severe Lung Infections	6.528	6.521	6.538	6.580	6.581
HCC174	Exudative Macular Degeneration	1.570	1.440	1.327	1.197	1.193
HCC183	Kidney Transplant Status/Complications	6.028	5.868	5.765	5.671	5.673
HCC184	End Stage Renal Disease	23.533	23.284	23.237	23.356	23.397
HCC187	Chronic Kidney Disease, Stage 5	0.953	0.912	0.900	0.910	0.911

HCC or RXC No.	Factor	Platinum	Gold	Silver	Bronze	Catastrophic
HCC188	Chronic Kidney Disease, Severe (Stage 4)	0.953	0.912	0.900	0.910	0.911
HCC203	Ectopic and Molar Pregnancy	2.088	1.879	1.688	1.430	1.421
HCC204	Miscarriage with Complications	0.848	0.732	0.579	0.375	0.365
HCC205	Miscarriage with No or Minor Complications	0.848	0.732	0.579	0.375	0.365
HCC207	Pregnancy with Delivery with Major Complications	4.049	3.741	3.498	3.132	3.123
HCC208	Pregnancy with Delivery with Complications	4.049	3.741	3.498	3.132	3.123
HCC209	Pregnancy with Delivery with No or Minor Complications	2.881	2.650	2.411	1.973	1.956
HCC210	(Ongoing) Pregnancy without Delivery with Major Complications	1.240	1.074	0.871	0.634	0.623
HCC211	(Ongoing) Pregnancy without Delivery with Complications	0.834	0.699	0.523	0.348	0.340
HCC212	(Ongoing) Pregnancy without Delivery with No or Minor Complications	0.365	0.274	0.172	0.103	0.100
HCC217	Chronic Ulcer of Skin, Except Pressure	1.879	1.795	1.748	1.715	1.715
HCC218	Extensive Third Degree Burns	18.976	18.728	18.594	18.523	18.520
HCC219	Major Skin Burn or Condition	2.884	2.767	2.683	2.612	2.609
HCC223	Severe Head Injury	15.439	15.331	15.260	15.212	15.210
HCC226	Hip and Pelvic Fractures	8.537	8.317	8.230	8.224	8.225
HCC228	Vertebral Fractures without Spinal Cord Injury	4.959	4.798	4.692	4.599	4.596
HCC234	Traumatic Amputations and Amputation Complications	5.447	5.311	5.258	5.255	5.256
HCC251	Stem Cell, Including Bone Marrow, Transplant Status/Complications	25.813	25.812	25.822	25.845	25.846
HCC253	Artificial Openings for Feeding or Elimination	7.305	7.240	7.229	7.258	7.259
HCC254	Amputation Status, Upper Limb or Lower Limb	1.987	1.884	1.830	1.795	1.795

HCC or RXC No.	Factor	Platinum	Gold	Silver	Bronze	Catastrophic
<b>Severity Factors</b>						
SEVERE x HCC006	Severe illness x Opportunistic Infections	6.236	6.388	6.514	6.663	6.667
SEVERE x HCC008	Severe illness x Metastatic Cancer	6.236	6.388	6.514	6.663	6.667
SEVERE x HCC009	Severe illness x Lung, Brain, and Other Severe Cancers, Including Pediatric Acute Lymphoid Leukemia	6.236	6.388	6.514	6.663	6.667
SEVERE x HCC010	Severe illness x Non-Hodgkin Lymphomas and Other Cancers and Tumors	6.236	6.388	6.514	6.663	6.667
SEVERE x HCC115	Severe illness x Myasthenia Gravis/Myoneural Disorders and Guillain-Barre Syndrome/Inflammatory and Toxic Neuropathy	6.236	6.388	6.514	6.663	6.667
SEVERE x HCC135	Severe illness x Heart Infection/Inflammation, Except Rheumatic	6.236	6.388	6.514	6.663	6.667
SEVERE x HCC145	Severe illness x Intracranial Hemorrhage	6.236	6.388	6.514	6.663	6.667
SEVERE x G06A	Severe illness x HCC group G06A (HCC 67 Myelodysplastic Syndromes and Myelofibrosis or HCC 68 Aplastic Anemia or HCC 69 Acquired Hemolytic Anemia, Including Hemolytic Disease of Newborn)	6.236	6.388	6.514	6.663	6.667
SEVERE x G08	Severe illness x HCC group G08 (HCC 73 Combined and Other Severe Immunodeficiencies or HCC 74 Disorders of the Immune Mechanism)	6.236	6.388	6.514	6.663	6.667
<b>Enrollment Duration Factors</b>						
	1 month of enrollment	0.281	0.230	0.209	0.192	0.191
	2 months of enrollment	0.269	0.218	0.196	0.181	0.180
	3 months of enrollment	0.268	0.217	0.193	0.178	0.177
	4 months of enrollment	0.217	0.171	0.148	0.136	0.136
	5 months of enrollment	0.203	0.162	0.139	0.127	0.127
	6 months of enrollment	0.170	0.134	0.113	0.102	0.101

HCC or RXC No.	Factor	Platinum	Gold	Silver	Bronze	Catastrophic
	7 months of enrollment	0.128	0.101	0.084	0.074	0.074
	8 months of enrollment	0.088	0.069	0.055	0.048	0.048
	9 months of enrollment	0.049	0.036	0.027	0.021	0.021
	10 months of enrollment	0.004	0.001	0.000	0.000	0.000
	11 months of enrollment	0.001	0.000	0.000	0.000	0.000
<b>Prescription Drug Factors</b>						
RXC 01	Anti-HIV Agents	8.719	8.138	7.742	7.323	7.313
RXC 02	Anti-Hepatitis C (HCV) Agents, Direct Acting Agents	6.743	6.306	6.111	6.038	6.042
RXC 03	Antiarrhythmics	0.113	0.103	0.100	0.067	0.049
RXC 04	Phosphate Binders	2.045	2.052	2.043	1.988	1.911
RXC 05	Inflammatory Bowel Disease Agents	1.805	1.670	1.528	1.322	1.314
RXC 06	Insulin	1.626	1.437	1.238	1.043	1.035
RXC 07	Anti-Diabetic Agents, Except Insulin and Metformin Only	0.785	0.676	0.555	0.397	0.391
RXC 08	Multiple Sclerosis Agents	23.781	22.923	22.485	22.214	22.215
RXC 09	Immune Suppressants and Immunomodulators <sup>8</sup>	17.156	16.640	16.445	16.445	16.448
RXC 10	Cystic Fibrosis Agents	17.919	17.605	17.496	17.496	17.499
RXC 01 x HCC001	Additional effect for enrollees with RXC 01 and HCC 001	2.213	2.397	2.671	3.133	3.148
RXC 02 x HCC037_1, 036, 035_2, 035_1, 34	Additional effect for enrollees with RXC 02 and (HCC 037_1 or 036 or 035_2 or 035_1 or 034)	-0.658	-0.550	-0.444	-0.312	-0.308
RXC 03 x HCC142	Additional effect for enrollees with RXC 03 and HCC 142	0.000	0.000	0.000	0.000	0.000

<sup>8</sup> The coefficients for RXC 09 Immune Suppressants and Immunomodulators, the HCC factors relevant for RXC 09 (e.g., HCC041, HCC048, HCC056, HCC057), and the related RXC 09 interactions (RXC 09 x HCC056 or 057 and 048 or 041; RXC 09 x HCC056; RXC 09 x HCC057; RXC 09 x HCC048, 041) result from the equally weighted (averaged) blended factors from separately solved models using only the 2016 and 2017 enrollee-level EDGE data. See 86 FR 24140 at 24180.

HCC or RXC No.	Factor	Platinum	Gold	Silver	Bronze	Catastrophic
RXC 04 x HCC184, 183, 187, 188	Additional effect for enrollees with RXC 04 and (HCC 184 or 183 or 187 or 188)	0.000	0.000	0.000	0.000	0.000
RXC 05 x HCC048, 041	Additional effect for enrollees with RXC 05 and (HCC 048 or 041)	-0.374	-0.313	-0.248	-0.170	-0.167
RXC 06 x HCC018, 019, 020, 021	Additional effect for enrollees with RXC 06 and (HCC 018 or 019 or 020 or 021)	0.214	0.281	0.371	0.402	0.404
RXC 07 x HCC018, 019, 020, 021	Additional effect for enrollees with RXC 07 and (HCC 018 or 019 or 020 or 021)	-0.427	-0.360	-0.299	-0.243	-0.240
RXC 08 x HCC118	Additional effect for enrollees with RXC 08 and HCC 118	-0.256	0.207	0.550	0.938	0.944
RXC 09 x HCC056 or 057 and 048 or 041	Additional effect for enrollees with RXC 09 and (HCC 048 or 041) and (HCC 056 or 057)	0.859	0.989	1.098	1.229	1.234
RXC 09 x HCC056	Additional effect for enrollees with RXC 09 and HCC 056	-1.372	-1.265	-1.169	-1.076	-1.072
RXC 09 x HCC057	Additional effect for enrollees with RXC 09 and HCC 057	-0.658	-0.562	-0.458	-0.335	-0.330
RXC 09 x HCC048, 041	Additional effect for enrollees with RXC 09 and (HCC 048 or 041)	-0.250	-0.202	-0.156	-0.098	-0.096
RXC 10 x HCC159, 158	Additional effect for enrollees with RXC 10 and (HCC 159 or 158)	47.572	47.627	47.694	47.819	47.822

**TABLE 2: Final Child Risk Adjustment Model Factors for 2022 Benefit Year**

Factor	Platinum	Gold	Silver	Bronze	Catastrophic
<b>Demographic Factors</b>					
Age 2-4, Male	0.230	0.162	0.112	0.073	0.072
Age 5-9, Male	0.170	0.112	0.071	0.045	0.044
Age 10-14, Male	0.203	0.143	0.099	0.072	0.071
Age 15-20, Male	0.243	0.179	0.126	0.087	0.086
Age 2-4, Female	0.177	0.118	0.079	0.051	0.050

<b>Factor</b>	<b>Platinum</b>	<b>Gold</b>	<b>Silver</b>	<b>Bronze</b>	<b>Catastrophic</b>
Age 5-9, Female	0.122	0.070	0.037	0.016	0.015
Age 10-14, Female	0.191	0.134	0.092	0.068	0.067
Age 15-20, Female	0.265	0.187	0.122	0.073	0.071
<b>Diagnosis Factors</b>					
HIV/AIDS	5.846	5.446	5.222	5.058	5.054
Septicemia, Sepsis, Systemic Inflammatory Response Syndrome/Shock	13.076	12.930	12.869	12.835	12.836
Central Nervous System Infections, Except Viral Meningitis	8.033	7.897	7.841	7.828	7.829
Viral or Unspecified Meningitis	2.626	2.467	2.337	2.169	2.164
Opportunistic Infections	14.919	14.904	14.887	14.864	14.863
Metastatic Cancer	35.966	35.740	35.635	35.613	35.613
Lung, Brain, and Other Severe Cancers, Including Pediatric Acute Lymphoid Leukemia	9.220	8.990	8.841	8.727	8.723
Non-Hodgkin Lymphomas and Other Cancers and Tumors	7.178	6.963	6.810	6.674	6.670
Colorectal, Breast (Age < 50), Kidney, and Other Cancers	4.342	4.197	4.079	3.955	3.950
Breast (Age 50+) and Prostate Cancer, Benign/Uncertain Brain Tumors, and Other Cancers and Tumors	4.342	4.197	4.079	3.955	3.950
Thyroid Cancer, Melanoma, Neurofibromatosis, and Other Cancers and Tumors	0.924	0.809	0.700	0.579	0.575
Pancreas Transplant Status	8.841	8.686	8.586	8.485	8.483
Diabetes with Acute Complications	2.612	2.363	2.134	1.805	1.795
Diabetes with Chronic Complications	2.612	2.363	2.134	1.805	1.795
Diabetes without Complication	2.612	2.363	2.134	1.805	1.795
Protein-Calorie Malnutrition	13.566	13.485	13.464	13.485	13.486
Mucopolysaccharidosis	39.839	39.617	39.513	39.472	39.471
Lipidoses and Glycogenosis	39.839	39.617	39.513	39.472	39.471
Congenital Metabolic Disorders, Not Elsewhere Classified	5.822	5.719	5.642	5.576	5.573
Amyloidosis, Porphyria, and Other Metabolic Disorders	5.822	5.719	5.642	5.576	5.573
Adrenal, Pituitary, and Other Significant Endocrine Disorders	6.837	6.621	6.500	6.442	6.440
Liver Transplant Status/Complications	8.841	8.686	8.586	8.485	8.483
Acute Liver Failure/Disease, Including Neonatal Hepatitis	17.574	17.546	17.579	17.664	17.668
Chronic Liver Failure/End-Stage Liver Disorders	13.757	13.669	13.631	13.602	13.601
Cirrhosis of Liver	4.121	4.067	4.026	3.972	3.974
Chronic Viral Hepatitis C	2.621	2.479	2.402	2.390	2.391
Chronic Hepatitis, Except Chronic Viral Hepatitis C	0.132	0.091	0.054	0.016	0.015
Intestine Transplant Status/Complications	16.842	16.819	16.822	16.830	16.829
Peritonitis/Gastrointestinal Perforation/Necrotizing Enterocolitis	11.679	11.439	11.329	11.294	11.295
Intestinal Obstruction	5.173	5.010	4.892	4.779	4.775
Chronic Pancreatitis	12.085	11.919	11.851	11.844	11.845

<b>Factor</b>	<b>Platinum</b>	<b>Gold</b>	<b>Silver</b>	<b>Bronze</b>	<b>Catastrophic</b>
Acute Pancreatitis	7.147	6.966	6.850	6.733	6.731
Inflammatory Bowel Disease	9.151	8.799	8.595	8.441	8.437
Necrotizing Fasciitis	3.587	3.403	3.278	3.181	3.178
Bone/Joint/Muscle Infections/Necrosis	3.587	3.403	3.278	3.181	3.178
Rheumatoid Arthritis and Specified Autoimmune Disorders	5.087	4.860	4.711	4.609	4.606
Systemic Lupus Erythematosus and Other Autoimmune Disorders	0.678	0.566	0.450	0.321	0.316
Osteogenesis Imperfecta and Other Osteodystrophies	1.313	1.210	1.124	1.042	1.039
Congenital/Developmental Skeletal and Connective Tissue Disorders	1.313	1.210	1.124	1.042	1.039
Cleft Lip/Cleft Palate	1.185	1.042	0.922	0.789	0.784
Hemophilia	71.879	71.450	71.242	71.155	71.154
Myelodysplastic Syndromes and Myelofibrosis	15.280	15.144	15.071	15.026	15.025
Aplastic Anemia	15.280	15.144	15.071	15.026	15.025
Acquired Hemolytic Anemia, Including Hemolytic Disease of Newborn	15.280	15.144	15.071	15.026	15.025
Sickle Cell Anemia (Hb-SS)	5.410	5.204	5.058	4.935	4.931
Beta Thalassemia Major	5.410	5.204	5.058	4.935	4.931
Combined and Other Severe Immunodeficiencies	5.839	5.714	5.636	5.578	5.576
Disorders of the Immune Mechanism	5.839	5.714	5.636	5.578	5.576
Coagulation Defects and Other Specified Hematological Disorders	4.605	4.499	4.413	4.331	4.329
Drug Use with Psychotic Complications	2.924	2.758	2.632	2.496	2.491
Drug Use Disorder, Moderate/Severe, or Drug Use with Non-Psychotic Complications	2.924	2.758	2.632	2.496	2.491
Alcohol Use with Psychotic Complications	1.113	0.972	0.844	0.716	0.712
Alcohol Use Disorder, Moderate/Severe, or Alcohol Use with Specified Non-Psychotic Complications	1.113	0.972	0.844	0.716	0.712
Schizophrenia	4.606	4.331	4.146	3.976	3.970
Delusional and Other Specified Psychotic Disorders, Unspecified Psychosis	3.008	2.800	2.630	2.454	2.448
Major Depressive Disorder, Severe, and Bipolar Disorders	2.668	2.474	2.307	2.135	2.128
Personality Disorders	0.452	0.356	0.244	0.126	0.121
Anorexia/Bulimia Nervosa	2.154	1.987	1.858	1.740	1.736
Prader-Willi, Patau, Edwards, and Autosomal Deletion Syndromes	1.637	1.531	1.457	1.379	1.376
Down Syndrome, Fragile X, Other Chromosomal Anomalies, and Congenital Malformation Syndromes	1.447	1.334	1.245	1.151	1.148
Autistic Disorder	2.668	2.474	2.307	2.135	2.128
Pervasive Developmental Disorders, Except Autistic Disorder	0.457	0.369	0.267	0.166	0.162
Traumatic Complete Lesion Cervical Spinal Cord	11.900	11.756	11.694	11.680	11.681
Quadriplegia	11.900	11.756	11.694	11.680	11.681

<b>Factor</b>	<b>Platinum</b>	<b>Gold</b>	<b>Silver</b>	<b>Bronze</b>	<b>Catastrophic</b>
Traumatic Complete Lesion Dorsal Spinal Cord	8.823	8.627	8.523	8.442	8.440
Paraplegia	8.823	8.627	8.523	8.442	8.440
Spinal Cord Disorders/Injuries	3.939	3.770	3.640	3.514	3.509
Amyotrophic Lateral Sclerosis and Other Anterior Horn Cell Disease	31.125	30.906	30.769	30.671	30.669
Quadriplegic Cerebral Palsy	3.767	3.620	3.568	3.551	3.553
Cerebral Palsy, Except Quadriplegic	0.599	0.481	0.379	0.257	0.252
Spina Bifida and Other Brain/Spinal/Nervous System Congenital Anomalies	2.207	2.103	2.029	1.960	1.957
Myasthenia Gravis/Myoneural Disorders and Guillain-Barre Syndrome/Inflammatory and Toxic Neuropathy	11.008	10.884	10.839	10.844	10.845
Muscular Dystrophy	4.534	4.387	4.277	4.164	4.161
Multiple Sclerosis	12.970	12.611	12.453	12.402	12.402
Parkinson's, Huntington's, and Spinocerebellar Disease, and Other Neurodegenerative Disorders	4.534	4.387	4.277	4.164	4.161
Seizure Disorders and Convulsions	2.113	1.977	1.844	1.705	1.699
Hydrocephalus	4.439	4.348	4.290	4.251	4.250
Coma, Brain Compression/Anoxic Damage	4.611	4.505	4.439	4.386	4.385
Narcolepsy and Cataplexy	5.128	4.967	4.827	4.671	4.664
Respirator Dependence/Tracheostomy Status	31.476	31.422	31.478	31.622	31.628
Respiratory Arrest	10.252	10.067	9.988	9.945	9.946
Cardio-Respiratory Failure and Shock, Including Respiratory Distress Syndromes	10.252	10.067	9.988	9.945	9.946
Heart Assistive Device/Artificial Heart	16.842	16.819	16.822	16.830	16.829
Heart Transplant Status/Complications	16.842	16.819	16.822	16.830	16.829
Heart Failure	6.072	5.984	5.925	5.881	5.879
Acute Myocardial Infarction	2.568	2.506	2.484	2.472	2.473
Unstable Angina and Other Acute Ischemic Heart Disease	2.568	2.506	2.484	2.472	2.473
Heart Infection/Inflammation, Except Rheumatic	11.667	11.585	11.544	11.523	11.522
Hypoplastic Left Heart Syndrome and Other Severe Congenital Heart Disorders	3.945	3.787	3.648	3.536	3.532
Major Congenital Heart/Circulatory Disorders	1.238	1.131	1.010	0.907	0.903
Atrial and Ventricular Septal Defects, Patent Ductus Arteriosus, and Other Congenital Heart/Circulatory Disorders	0.750	0.653	0.558	0.481	0.479
Specified Heart Arrhythmias	3.495	3.352	3.245	3.157	3.154
Intracranial Hemorrhage	9.192	9.061	9.001	8.970	8.969
Ischemic or Unspecified Stroke	2.749	2.696	2.677	2.666	2.667
Cerebral Aneurysm and Arteriovenous Malformation	3.235	3.082	2.980	2.885	2.881
Hemiplegia/Hemiparesis	6.650	6.551	6.492	6.441	6.439
Monoplegia, Other Paralytic Syndromes	4.100	3.979	3.898	3.817	3.813
Atherosclerosis of the Extremities with Ulceration or Gangrene	12.487	12.317	12.221	12.151	12.150
Vascular Disease with Complications	10.670	10.600	10.582	10.602	10.604
Pulmonary Embolism and Deep Vein Thrombosis	16.697	16.623	16.602	16.606	16.607

<b>Factor</b>	<b>Platinum</b>	<b>Gold</b>	<b>Silver</b>	<b>Bronze</b>	<b>Catastrophic</b>
Lung Transplant Status/Complications	16.842	16.819	16.822	16.830	16.829
Cystic Fibrosis	48.890	48.432	48.224	48.173	48.173
Chronic Obstructive Pulmonary Disease, Including Bronchiectasis	2.923	2.793	2.682	2.564	2.561
Severe Asthma	0.807	0.642	0.473	0.284	0.277
Asthma, Except Severe	0.326	0.244	0.155	0.081	0.078
Fibrosis of Lung and Other Lung Disorders	1.481	1.388	1.299	1.221	1.218
Aspiration and Specified Bacterial Pneumonias and Other Severe Lung Infections	6.551	6.508	6.495	6.508	6.509
Kidney Transplant Status/Complications	8.841	8.686	8.586	8.485	8.483
End Stage Renal Disease	41.577	41.472	41.473	41.558	41.561
Chronic Kidney Disease, Stage 5	4.600	4.492	4.394	4.283	4.279
Chronic Kidney Disease, Severe (Stage 4)	4.600	4.492	4.394	4.283	4.279
Ectopic and Molar Pregnancy	1.923	1.710	1.517	1.269	1.263
Miscarriage with Complications	0.748	0.621	0.449	0.237	0.227
Miscarriage with No or Minor Complications	0.748	0.621	0.449	0.237	0.227
Pregnancy with Delivery with Major Complications	3.475	3.173	2.908	2.463	2.447
Pregnancy with Delivery with Complications	3.475	3.173	2.908	2.463	2.447
Pregnancy with Delivery with No or Minor Complications	2.381	2.158	1.902	1.424	1.402
(Ongoing) Pregnancy without Delivery with Major Complications	0.695	0.548	0.358	0.177	0.172
(Ongoing) Pregnancy without Delivery with Complications	0.695	0.548	0.358	0.177	0.172
(Ongoing) Pregnancy without Delivery with No or Minor Complications	0.349	0.244	0.120	0.014	0.011
Chronic Ulcer of Skin, Except Pressure	2.815	2.721	2.638	2.567	2.565
Extensive Third Degree Burns	16.569	16.375	16.274	16.231	16.229
Major Skin Burn or Condition	2.060	1.921	1.808	1.694	1.690
Severe Head Injury	16.569	16.375	16.274	16.231	16.229
Hip and Pelvic Fractures	4.530	4.320	4.167	4.054	4.052
Vertebral Fractures without Spinal Cord Injury	3.934	3.751	3.603	3.446	3.440
Traumatic Amputations and Amputation Complications	4.758	4.565	4.430	4.284	4.279
Stem Cell, Including Bone Marrow, Transplant Status/Complications	16.842	16.819	16.822	16.830	16.829
Artificial Openings for Feeding or Elimination	10.291	10.196	10.202	10.268	10.272
Amputation Status, Upper Limb or Lower Limb	4.758	4.565	4.430	4.284	4.279

**TABLE 3: Final Infant Risk Adjustment Model Factors for 2022 Benefit Year**

<b>Group</b>	<b>Platinum</b>	<b>Gold</b>	<b>Silver</b>	<b>Bronze</b>	<b>Catastrophic</b>
Extremely Immature * Severity Level 5 (Highest)	219.854	218.550	217.927	217.743	217.744
Extremely Immature * Severity Level 4	142.713	141.194	140.396	140.023	140.018
Extremely Immature * Severity Level 3	32.417	31.185	30.495	30.117	30.109
Extremely Immature * Severity Level 2	32.417	31.185	30.495	30.117	30.109

<b>Group</b>	<b>Platinum</b>	<b>Gold</b>	<b>Silver</b>	<b>Bronze</b>	<b>Catastrophic</b>
Extremely Immature * Severity Level 1 (Lowest)	32.417	31.185	30.495	30.117	30.109
Immature * Severity Level 5 (Highest)	130.150	128.727	128.031	127.783	127.781
Immature * Severity Level 4	68.882	67.469	66.748	66.449	66.443
Immature * Severity Level 3	32.417	31.185	30.495	30.117	30.109
Immature * Severity Level 2	25.400	24.244	23.568	23.149	23.138
Immature * Severity Level 1 (Lowest)	25.400	24.244	23.568	23.149	23.138
Premature/Multiples * Severity Level 5 (Highest)	107.912	106.702	106.087	105.833	105.828
Premature/Multiples * Severity Level 4	28.422	27.186	26.499	26.110	26.103
Premature/Multiples * Severity Level 3	14.035	13.101	12.435	11.838	11.817
Premature/Multiples * Severity Level 2	7.977	7.290	6.663	5.951	5.922
Premature/Multiples * Severity Level 1 (Lowest)	5.674	5.092	4.517	3.966	3.945
Term * Severity Level 5 (Highest)	81.816	80.759	80.174	79.859	79.852
Term * Severity Level 4	15.824	14.941	14.315	13.754	13.738
Term * Severity Level 3	5.991	5.423	4.855	4.253	4.230
Term * Severity Level 2	3.567	3.090	2.524	1.922	1.897
Term * Severity Level 1 (Lowest)	1.808	1.450	1.001	0.720	0.710
Age1 * Severity Level 5 (Highest)	62.403	61.770	61.417	61.239	61.234
Age1 * Severity Level 4	12.415	11.949	11.629	11.372	11.364
Age1 * Severity Level 3	3.129	2.858	2.629	2.433	2.426
Age1 * Severity Level 2	1.972	1.743	1.522	1.314	1.306
Age1 * Severity Level 1 (Lowest)	0.571	0.494	0.441	0.403	0.402
Age 0 Male	0.606	0.567	0.529	0.460	0.457
Age 1 Male	0.103	0.086	0.069	0.050	0.049