



**Date: June 13, 2023**

**RE: 2021 Benefit Year HHS Risk Adjustment Data Validation (HHS-RADV) Results**

The Centers for Medicare & Medicaid Services (CMS) is making available summary information on issuers' 2021 benefit year HHS-RADV results. The 2021 benefit year HHS-RADV error rates will be applied to 2021 benefit year plan liability risk scores and risk adjustment transfers.<sup>1</sup> The 2021 benefit year HHS-RADV adjustments to 2021 benefit year risk adjustment transfers will be released in Summer 2023. This memo contains an overview of the 2021 benefit year HHS-RADV error rate methodology, a summary of the 2021 benefit year HHS-RADV results, and information to assist issuers in understanding their results.<sup>2</sup>

**1. Overview of the 2021 Benefit Year HHS-RADV Error Estimation Methodology**

Beginning with 2021 benefit year HHS-RADV, the 2023 Payment Notice<sup>3</sup> and the 2024 Payment Notice<sup>4</sup> finalized the following key changes to the HHS-RADV error estimation methodology:

- Define Super HCCs separately according to the age group model to which an enrollee is subject, except for where child and adult coefficient estimation groups have identical definitions.<sup>5,6</sup> When a coefficient estimation group has identical definitions in the Adult and

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<sup>1</sup> Beginning with the 2020 benefit year of HHS-RADV, plan liability risk scores and risk adjustment transfers will be adjusted based on the same benefit year's HHS-RADV results. Because the 2020 benefit year of HHS-RADV was the transitional year, issuers' 2020 benefit year HHS-RADV error rates were averaged with reissued 2019 HHS-RADV error rates and applied to adjust 2020 benefit year plan liability risk scores and risk adjustment transfers in each state market risk pool. See the Amendments to the HHS-Operated Risk Adjustment Data Validation (HHS-RADV) Under the Patient Protection and Affordable Care Act's HHS-Operated Risk Adjustment Program Final Rule; 85 FR 76979 at 77002-77005 (December 1, 2020) (2020 HHS-RADV Amendments Rule). Also see the Reissued 2019 Benefit Year Department of Health and Human Services Risk Adjustment Data Validation (HHS-RADV) Results and 2020 Benefit Year HHS-RADV Results (September 15, 2022) available at: <https://www.cms.gov/files/document/2019-and-2020-hhs-radw-results.pdf>.

<sup>2</sup> Issuers who participated in 2021 benefit year HHS-RADV will receive issuer-specific and enrollee-specific results in the HHS-RADV Audit Tool at the same time this memo is released. Issuers will also receive the 2021 benefit year issuer-specific demographic and enrollment (D&E) letters and reports and specific prescription drug (RXC) letters and reports in the Audit Tool in July 2023.

<sup>3</sup> See the Patient Protection and Affordable Care Act; HHS Notice of Benefit and Payment Parameters for 2023; 87 FR 27208 (May 6, 2022) (2023 Payment Notice).

<sup>4</sup> See the Patient Protection and Affordable Care Act; HHS Notice of Benefit and Payment Parameters for 2024; 88 FR 25740 (April 27, 2023) (2024 Payment Notice).

<sup>5</sup> See the 2023 Payment Notice, 87 FR at 27254 – 27255.

<sup>6</sup> These definitions are described in the relevant rows in the applicable benefit year's DIY software adult variable logic, child variable logic, and infant variable logic. For example, for 2021 HHS-RADV, in the 2021 Benefit Year DIY software tables, the adult coefficient group definitions are in the "HCC group" rows in Table 6: Additional Adult Variables, the child

Child risk adjustment models, all HCCs belonging to that HCC coefficient estimation group, no matter which model they are from, are aggregated into the same Super HCC.<sup>7</sup> If coefficient estimation groups are not structured the same way in the Adult and Child risk adjustment models, separate Super HCCs are created according to the applicable age group models.

- Extend the application of Super HCCs beyond the sorting step that assigns HCCs to failure rate groups<sup>8</sup> to also apply throughout the HHS-RADV error rate calculation processes. This is done by de-duplicating HCCs that share a Super HCC. Under this policy, if an enrollee’s EDGE Super HCCs or IVA (or SVA, as applicable) Super HCCs include duplications, a de-duplication procedure will be applied at the enrollee level. The unique (de-duplicated) EDGE Super HCCs and unique (de-duplicated) IVA (or SVA, as applicable) Super HCCs will be used in all succeeding steps of the error estimation process.<sup>9,10</sup>
- When calculating the issuer’s group adjustment factor (GAF), constrain the failure rate of any failure rate group in which an issuer is a negative failure rate outlier to zero regardless of whether the outlier issuer has a negative or positive error rate.<sup>11</sup>

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coefficient group definitions are in the “HCC group” rows in Table 7: Additional Child Variables, and the infant coefficient group definitions are in the “Severity level”, “Maturity level”, “Assign as IHCC AGE1 if needed”, “Impose hierarchy”, and “Maturity x severity level interactions” rows in Table 8: Additional Infant Variables. The final version of the 2021 benefit year DIY software tables is available at <https://www.cms.gov/files/document/cy2021-diy-tables-03312022.xlsx>. See also, the 2021 HHS-RADV Protocols, Appendix F, available at:

[https://regtap.cms.gov/uploads/library/HRADV\\_2021\\_Benefit\\_Year\\_Protocols\\_5CR\\_110922.pdf](https://regtap.cms.gov/uploads/library/HRADV_2021_Benefit_Year_Protocols_5CR_110922.pdf).

<sup>7</sup> Any HCC in the applicable risk adjustment model that is not aggregated with other HCCs because it is not in any coefficient estimation groups is considered a Super HCC on its own. Additionally, HCCs excluded from specific models indicated in “Table 12. Summary of V07 HHS-HCC Model Exclusions—Adult, Child, Infant” of the RA DIY Model for BY 2021 are not considered a Super HCC. See <https://www.cms.gov/files/document/cy2021-diy-tables-03312022.xlsx>. See also, the 2021 HHS-RADV Protocols, Appendix F, available at:

[https://regtap.cms.gov/uploads/library/HRADV\\_2021\\_Benefit\\_Year\\_Protocols\\_5CR\\_110922.pdf](https://regtap.cms.gov/uploads/library/HRADV_2021_Benefit_Year_Protocols_5CR_110922.pdf) for a complete list of Super HCCs.

<sup>8</sup> Beginning with the 2019 benefit year of HHS-RADV, CMS aggregates EDGE and IVA (or SVA, as applicable) HCC counts into “Super HCCs” based on coefficient estimation groups in the risk adjustment models for the purposes of sorting HCCs into failure rate groups. See the 2020 HHS-RADV Amendments Rule, 85 FR at 76984-76990.

<sup>9</sup> The de-duplication procedure ensures that a Super HCC for which the enrollee had multiple HCCs will only be counted once. For example: If an adult enrollee has both HCC 26 and HCC 27 in benefit year 2021 data, then that enrollee will be linked to only Super HCC G02B. In this scenario, the de-duplicated Super HCC frequency would decrease by one (1) compared to an HCC frequency or non-duplicated Super HCC frequency where the frequency is equal to two (2). For an infant enrollee, the frequency of Super HCCs derived from EDGE, IVA, or SVA will always be one (1) under the 2021 Super HCC policy no matter how many, if any, underlying HCCs are reported due to the categorical structure of the infant models. The infant enrollee is always linked to the Super HCC associated with their underlying highest severity level HCC. For example: If an infant enrollee has HCC 6, 127, 130, 138, 254 in benefit year 2021 data, then that enrollee will be linked to Super HCC AGE1\_X\_SEVERITY5 because HCC 130 has the highest severity level and maps to this Super HCC. In this scenario, the de-duplicated Super HCC frequency would decrease by four (4) compared to an HCC frequency.

<sup>10</sup> This policy impacts the number of distinct Super HCCs, the EDGE and IVA frequencies, issuer group failure rates, and enrollee adjustment factors. As finalized in the 2023 Payment Notice, an issuer is not considered an outlier for a failure rate group in which the issuer has fewer than 30 de-duplicated EDGE Super HCCs. Data from issuers with fewer than 30 de-duplicated EDGE Super HCCs in a Failure Rate Group will be included in the calculation of national metrics for that Failure Rate Group, including the national mean failure rate, standard deviation, and upper and lower confidence interval bounds. See 87 FR at 27254.

<sup>11</sup> Beginning with the 2019 benefit year of HHS-RADV, CMS constrained the failure rate of any failure rate group in which a negative error rate outlier was a negative failure rate outlier to zero. See 85 FR at 76994 – 76998. The 2024 Payment Notice extends this policy to all error rate outliers, including positive error rate outliers, that are negative failure rate outliers in any

- No longer exempt exiting issuers from adjustments to plan liability risk scores and risk adjustment transfers when they are negative error rate outliers in the applicable benefit year’s HHS-RADV results.<sup>12</sup> Under this policy, exiting and non-exiting outlier issuers are treated the same, and CMS uses the HHS-RADV results of all outlier issuers to adjust plan liability risk scores and risk adjustment transfers.<sup>13</sup>

In addition to the policies finalized in the 2023 Payment Notice and the 2024 Payment Notice, the 2021 Payment Notice finalized updates to the HHS-HCC classifications used in the HHS risk adjustment models beginning with the 2021 benefit year.<sup>14</sup> Starting with the 2021 benefit year, the HHS risk adjustment models and HHS-HCC classifications were updated to the Version 07 (“V07”) classification from the Version 05 (“V05”) classification used in previous years to align the HHS risk adjustment models with ICD-10 coding changes.<sup>15</sup> For example, some existing hierarchies were revised, such as HCC 35: End-Stage Liver Disease in the V05 classification, which was replaced in the V07 classification by HCC 35.1: Acute Liver Failure/Disease, Including Neonatal Hepatitis and HCC 35.2: Chronic Liver Failure/End Stage Liver Disorders. Some new payment hierarchies were also added, such as HCC 83: Alcohol Use with Psychotic Complications and HCC 84: Alcohol Use Disorder, Moderate/Severe, or Alcohol Use with Specified Non-Psychotic Complications. Since these changes first applied with the 2021 benefit year of risk adjustment, the newly added HCCs and the failure rates of associated Super HCCs have not been observed prior to 2021 benefit year HHS-RADV. For further information on the 2021 benefit year HHS-RADV error estimation methodology and the incorporation of all policy components (including the changes indicated above and other unchanged policy components), refer to the 2021 Benefit Year HHS-RADV Protocols.<sup>16</sup>

## **2. Highlights of the 2021 Benefit Year HHS-RADV Results**

In this section, CMS provides a high-level summary of the major trends identified in the 2021 benefit year HHS-RADV results.

### **Key Finding #1: There were several highly miscoded HCCs in 2021 benefit year HHS-RADV that have also been highly miscoded in prior benefit years.**

In the 2021 benefit year SVA findings, CMS identified several HCCs that were frequently miscoded on EDGE or that IVA Entities frequently abstracted incorrectly or without necessary supporting documentation. The most commonly miscoded HCCs as found by the SVA Entity for SVA-reviewed sample enrollees in the 2021 benefit year are noted in Table 1 below.<sup>17</sup> The numbers in Table 1 reflect

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failure rate group. See 87 FR at 27255 – 27256.

<sup>12</sup> See the 2024 Payment Notice, 88 FR at 25790.

<sup>13</sup> In the 2021 benefit year HHS-RADV results, there are no exiting issuers.

<sup>14</sup> See the Patient Protection and Affordable Care Act; HHS Notice of Benefit and Payment Parameters for 2021; Notice Requirement for Non-Federal Governmental Plans; 85 FR 29164 (May 14, 2020) (2021 Payment Notice).

<sup>15</sup> See the 2021 Payment Notice, 85 FR at 29175-29185.

<sup>16</sup> See the 2021 Benefit Year PPACA HHS Risk Adjustment Data Validation (HHS-RADV) Protocols (November 9, 2022) (2021 Benefit Year HHS-RADV Protocols) available at:

[https://regtap.cms.gov/uploads/library/HRADV\\_2021\\_Benefit\\_Year\\_Protocols\\_5CR\\_110922.pdf](https://regtap.cms.gov/uploads/library/HRADV_2021_Benefit_Year_Protocols_5CR_110922.pdf).

<sup>17</sup> Table 1 only shows highly miscoded HCCs for the 2021 benefit year. We do not offer a comparison to the highly miscoded HCCs in the 2020 benefit year due to the HHS-HCC classification changes in the HHS risk adjustment models. Beginning in the 2021 benefit year, the HHS risk adjustment models and HHS-HCC classifications were updated to the V07 classification

only the subset of sample enrollees reviewed during the SVA process. Despite model changes that recategorized HCCs in 2021 benefit year risk adjustment, conditions such as metastatic cancer, diabetes with chronic complications, specified heart arrhythmias, and pulmonary embolism and deep vein thrombosis continued to be highly miscoded, as seen in prior HHS-RADV audit years.<sup>18</sup>

Table 1: 2021 BY Commonly Miscoded HCCs Among SVA-Reviewed Sample Enrollees <sup>19</sup>					
HCC Name		Super HCC Frequency			Coding Clinic Guidance
		EDGE	IVA	SVA	
8	Metastatic Cancer	747	682	674	Coding Clinic, 4th Quarter, 1989, page: 10 (Multiple myeloma) and Coding Clinic 2nd Quarter, 1992, page 3 (Lymphomas)
20	Diabetes with Chronic Complications	559	567	539	Coding Clinic, 2nd Quarter, 2016, pages: 36-37 (Diabetes and associated conditions clarification)
138	Major Congenital Heart/Circulatory Disorders	100	81	71	Coding Clinic, 4th Quarter, 2010, page: 136 (Repaired Congenital Anomaly)
142	Specified Heart Arrhythmias	531	509	488	Official Guidelines for Coding and Reporting, Section IV., J. and Coding Clinic, 4th Quarter, 2008, pages: 305-306 (Additional Diagnoses Reporting Guidelines)
156	Pulmonary Embolism and Deep Vein Thrombosis	339	270	242	Coding Clinic, 2nd Quarter, 2020, pages: 20-21 (Pulmonary Embolism and Deep Vein Thrombosis)

**Key Finding #2: National program benchmarks between the 2021 benefit year and 2020 benefit year HHS-RADV were generally stable.**

For each failure rate group (low, medium and high), the national weighted mean and the standard deviation of the group failure rates are similar between the 2020 benefit year HHS-RADV and 2021 benefit year HHS-RADV.<sup>20</sup> Figure 1 below compares the distributions of group failure rates between the two benefit years. The weighted mean for both the low and medium failure rate groups slightly

from the V05 classification used in previous years to align the HHS risk adjustment models with ICD-10 coding changes.

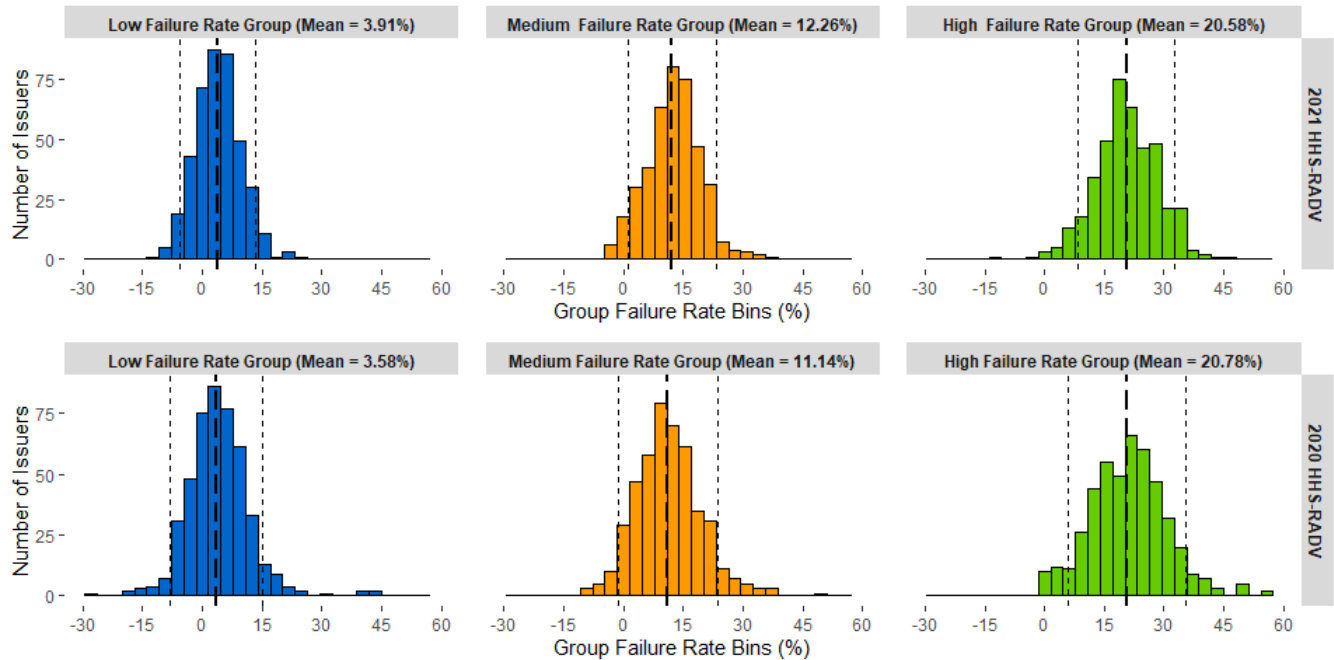
<sup>18</sup> See, for example, the Reissued 2019 Benefit Year Department of Health and Human Services Risk Adjustment Data Validation (HHS-RADV) Results and 2020 Benefit Year HHS-RADV Results (September 15, 2022) available at: <https://www.cms.gov/files/document/2019-and-2020-hhs-radv-results.pdf>.

<sup>19</sup> Due to the policy change for the 2021 benefit year HHS-RADV that bases the error estimation methodology on de-duplicated Super HCCs, not HCCs, beginning with 2021 benefit year HHS-RADV, the miscoded HCCs do not directly reflect the failure rates of the 2021 benefit year.

<sup>20</sup> See Appendix A for additional detail.

increased between the 2020 benefit year and 2021 benefit year of HHS-RADV while the high failure rate group saw a slight decrease in weighted mean; for all three failure rate groups, the standard deviation decreased during the same time period. As a result, in the 2021 benefit year, there is a slightly narrower distribution of failure rates that are centered closer to the mean compared to the 2020 benefit year.

**Figure 1: Distribution of Group Failure Rates Across 2020 Benefit Year and 2021 Benefit Year HHS-RADV**



**Key Finding #3: The proportion of outlier issuers in 2021 benefit year HHS-RADV increased, while the dispersion of outlier issuers decreased.**

The 2021 benefit year of HHS-RADV had an increased proportion of issuers identified as outliers. As shown in Table 2, 22 percent of issuers in 2021 benefit year HHS-RADV are outliers. Of all issuers in 2021 benefit year HHS-RADV, 11 percent have negative error rates and 11 percent have positive error rates. In 2020 benefit year HHS-RADV, 16 percent of issuers were outliers. Of all issuers in 2020 benefit year HHS-RADV, 8 percent were negative error rate outlier issuers and 8 percent were positive error rate outlier issuers.

**Table 2: Outlier Issuers Across Benefit Years**

RADV Year	All Issuers Participating in HHS-RADV	Issuers with Zero Error Rates	Issuers with Negative Error Rates	Issuers with Positive Error Rates	Percent of Issuers		
					Issuers with Zero Error Rates	Issuers with Negative Error Rates	Issuers with Positive Error Rates
<b>Number of Issuers</b>					<b>Percent of Issuers</b>		
<b>2021 HHS-RADV Results</b>	407	316	46	45	78%	11%	11%

<b>2020 HHS-RADV Results</b>	461	386	37	38	84%	8%	8%
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Table 3 provides a closer look at how outlier issuers were dispersed around the national mean in each failure rate group in the 2020 and 2021 benefit years of HHS-RADV. In the 2021 benefit year, 92.5 percent of outliers fall between 1.645 and 3 standard deviations of the weighted mean failure rate for the failure rate group and 7.5 percent of outliers fall outside of 3 standard deviations of the weighted mean failure rate for the failure rate group. In the 2020 benefit year of HHS-RADV, a smaller proportion of outliers (85.5 percent) fell within 1.645 and 3 standard deviations of the weighted mean failure rate for the failure rate group and a larger proportion of outliers (14.5 percent) fell outside of 3 standard deviations of the weighted mean failure rate for the failure rate group.

<b>Table 3: Outlier Counts By Outlier Identification Threshold</b>						
<b>Failure Rate Group</b>	<b>2020 Benefit Year</b>			<b>2021 Benefit Year</b>		
	<b>Within 1.645 and 3 SD</b>	<b>Outside 3 SD</b>	<b>Total</b>	<b>Within 1.645 and 3 SD</b>	<b>Outside 3 SD</b>	<b>Total</b>
<b>Number of Outliers</b>						
Low	30	5	35	28	3	31
Medium	31	5	36	33	4	37
High	33	6	39	50	2	52
Total	94	16	110	111	9	120
<b>Proportion of Outliers</b>						
Low	85.7%	14.3%	100.0%	90.3%	9.7%	100.0%
Medium	86.1%	13.9%	100.0%	89.2%	10.8%	100.0%
High	84.6%	15.4%	100.0%	96.2%	3.8%	100.0%
Total	85.5%	14.5%	100.0%	92.5%	7.5%	100.0%

**Key Finding #4: The magnitude of error rates for positive error rate outliers continues to be greater than the magnitude of error rates for negative error rate outliers.**

Figure 2 below illustrates the distribution of 2021 error rates where the negative error rate outliers are closer to zero and the positive error rate outliers are further from zero compared to 2020 error rates. As shown, the magnitude of error rates among positive error rate outliers is greater and more varied than the magnitude of error rates among negative error rate outliers in the 2021 HHS-RADV results. We attribute this difference in part to the negative group failure rate constraint policy, which constrains the failure rate of any failure rate group in which an issuer is a negative failure rate outlier to zero. As seen in Figure 2, the greatest magnitude negative error rate is -5.59 percent, while the greatest magnitude positive error rate is 42.20 percent, which is significantly higher than other issuers. As illustrated in Figure 2, the magnitude of positive error rates in the 2021 benefit year HHS-RADV is generally lower compared to 2020 benefit year HHS-RADV, which is indicated by the boxplots shifting towards zero and their widths narrowing. One possible driver of this trend is the narrower confidence intervals of group failure rates in the 2021 benefit year compared to the prior benefit year, which reduces the magnitude of adjustments for outliers as they locate closer to the national mean. Also, in 2021 benefit year HHS-RADV, there were more issuers that moved to within the sliding scale adjustment range (between 1.645 and 3 standard

deviations from the mean) from the full adjustment range (more than 3 standard deviations from the mean), as shown in Table 3 above. This trend could also lead to a reduction in the magnitude of positive error rates year-over-year as shown in Figure 2.

**Figure 2: Distribution of Error Rates Across HHS-RADV Benefit Years**



**Key Finding #5: The number of state market risk pools being adjusted in 2021 benefit year HHS-RADV is slightly higher compared to 2020 benefit year HHS -RADV.**

In 2021 benefit year HHS-RADV, 33 states’ individual market non-catastrophic risk pools<sup>21</sup>, 35 states’ small group market risk pools, and 21 states’ catastrophic risk pools were impacted due to the identification of outliers. In 2020 benefit year HHS-RADV, 30 states’ individual market non-catastrophic risk pools, 28 states’ small group market risk pools and 20 states’ catastrophic risk pools were impacted due to the identification of outliers.<sup>22</sup>

Table 4: State Market Risk Pools Being Adjusted Across Benefit Years			
HHS-RADV Year	Individual (Excluding Catastrophic)	Small Group	Catastrophic
<b>2021 HHS-RADV Results</b>	<b>33</b>	<b>35</b>	<b>21</b>
<b>2020 HHS-RADV Results</b>	<b>30</b>	<b>28</b>	<b>20</b>

<sup>21</sup> In Appendix B, only 32 individual market non-catastrophic risk pools are listed because one individual market outlier is the only issuer in a state market risk pool and therefore, no adjustment will be applied in that market.

<sup>22</sup> Issuers’ 2020 benefit year HHS-RADV error rates were averaged with reissued 2019 HHS-RADV error rates and applied to adjust 2020 benefit year plan liability risk scores and risk adjustment transfers in each state market risk pool. See Appendix B of the Reissued 2019 Benefit Year Department of Health and Human Services Risk Adjustment Data Validation (HHS-RADV) Results and 2020 Benefit Year HHS-RADV Results available at:

<https://www.cms.gov/files/document/2019-and-2020-hhs-radv-results.pdf>.

### **3. Benefit Year HHS-RADV Results: Key Metrics and Reports:**

The HHS-RADV Audit Tool<sup>23</sup> provides the following documents for 2021 benefit year HHS-RADV results:<sup>24</sup>

1. **National Program Benchmarks – 2021 Benefit Year HHS-RADV (Appendix A):** Provides the national program benchmarks for failure rate group means and confidence intervals, and summary statistics based on all issuers' results used to establish the national failure rate group metrics for the 2021 benefit year HHS-RADV results.
2. **2021 Benefit Year RA State Market Risk Pool Weighted Average HHS-RADV Error Rates (Appendix B):** Provides information that shows which state market risk pools are impacted by 2021 benefit year HHS-RADV error rates.<sup>25</sup> State market risk pools will have 2021 benefit year risk adjustment state transfers impacted if there is at least one error rate outlier in the state market risk pool in the 2021 benefit year of HHS-RADV.<sup>26</sup>
3. **2021 Benefit Year HHS-RADV Failure Rate Group Definitions (Appendix C):** Provides a listing of HCCs, the associated Super HCC, and the group detail (i.e., Low Failure Rate Group, Medium Failure Rate Group, and High Failure Rate Group) for the 2021 benefit year.
4. **2021 Benefit Year Issuer-Specific Metrics Report:** Provides issuer-specific results for the 2021 benefit year HHS-RADV on each HIOS ID's HCC group failure rates and error rate, if applicable. This is available to issuers in the History and Results tab of the Audit Tool. Issuers with more than one HIOS ID will receive separate Issuer HCC Group Metrics Reports for each HIOS ID.
5. **2021 Benefit Year Enrollee-Level Metrics Report:** Provides issuer-specific results for the 2021 benefit year of HHS-RADV that provide the enrollee-level findings for each HIOS ID's HHS-RADV sampled enrollees' HCCs and applicable adjustments.<sup>27</sup> This is available to issuers in the History and Results tab of the Audit Tool.

To help issuers understand the results, CMS is also providing a 2021 Benefit Year HHS-RADV Results Job Aid, which includes definitions for each of the data fields in the results that will be available in the HHS-RADV Audit Tool. The 2021 Benefit Year HHS-RADV Results Job Aid includes an addendum,

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<sup>23</sup> The HHS-RADV Audit Tool can be accessed by issuers (issuer SO, back-up SO, and RADV coordinators) at: <https://ccrms-rari.force.com/HHSRADVAuditTool/>.

<sup>24</sup> IVA Entities will have access to this memo and the HHS-RADV Results Job Aid, but they will not receive issuer specific results (i.e., documents #4 - #5 in the list). Issuers may choose to share their issuer specific results with their IVA Entities.

<sup>25</sup> We note that the state market risk pool weighted average risk score error rates account for all risk adjustment EDGE discrepancies to date. The information on impacted state market risk pools is subject to change as it does not take into account any adjustments for any potential actionable HHS-RADV discrepancies or successful HHS-RADV appeals.

<sup>26</sup> Under the policies finalized in the 2024 Payment Notice, HHS will apply the error rates of both positive and negative error rate outlier exiting issuers to the risk adjustment transfers for the benefit year being audited. See the 2024 Payment Notice, 88 FR at 25790.

<sup>27</sup> Issuers should note that the HIOS ID's error rate may be a zero (0) or a non-zero rate.



called “Error Rate Calculation Example,” that provides step-by-step directions for calculating an issuer’s 2021 HHS-RADV error rate.

#### **4. Impact of HHS-RADV Error Rates and Outlier Status on 2021 Benefit Year Risk Adjustment Transfers:**

The impact of a risk score error rate on an issuer’s risk adjustment transfers depends on whether the issuer was identified as an outlier and whether additional outliers exist in the state market risk pool. As previously mentioned, issuers’ 2021 benefit year HHS-RADV error rates will be used to adjust 2021 benefit year plan liability risk scores and risk adjustment transfers.<sup>28</sup>

- **Exempt Issuers:** Exempt issuers will receive a zero error rate.
  - Issuers that did not participate in the 2021 benefit year of HHS-RADV will receive a zero error rate. Exempt issuers will have a zero error rate applied to their respective 2021 benefit year plan liability risk scores. However, due to the budget neutral nature of the HHS-operated risk adjustment program, exempt issuers’ 2021 benefit year risk adjustment transfers may still be subject to HHS-RADV adjustments if other issuers in their state market risk pool are identified as outliers in the 2021 benefit year of HHS-RADV.
- **Non-Outlier Issuers:** Non-outlier issuers will receive a zero error rate.
  - The majority of participating issuers’ 2021 HHS-RADV results are within the confidence intervals of the national group failure rates. Non-outlier issuers will not have an adjustment made to their 2021 benefit year plan liability risk scores. Due to the budget neutral nature of the HHS-operated risk adjustment program, 2021 benefit year risk adjustment transfers will be impacted for issuers that were non-outliers if other issuers in the state market risk pool are identified as outliers in the 2021 benefit year of HHS-RADV.
- **Outlier Issuers:** Outlier issuers will receive non-zero error rates that could be positive or negative.<sup>29,30</sup>
  - If the outlier issuer’s error rate is positive, the issuer’s 2021 benefit year plan liability risk scores will be adjusted downward by the error rate. Assuming no adjustments to other issuers’ risk scores in the same state market risk pool, this would result in a higher 2021 benefit year risk adjustment charge or lower risk adjustment payment, or shift the transfer amount from a payment to a charge.
  - If the outlier issuer’s error rate is negative, the issuer’s 2021 benefit year plan liability risk scores will be adjusted upwards by the error rate. Again, assuming no adjustments to other issuers’ risk scores in the same state market risk pool, this would result in a lower 2021 benefit year risk adjustment charge or higher risk adjustment

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<sup>28</sup> See *supra* note 1.

<sup>29</sup> Issuers with failure rates that fall outside of one or more of the failure group confidence intervals and have at least 30 Super de-duplicated HCCs in the applicable failure rate group are considered outliers.

<sup>30</sup> As finalized in the 2024 Payment Notice, issuers who exited all markets in a state after the 2021 benefit year and who are identified as error rate outliers in 2021 benefit year HHS-RADV will have their 2021 benefit year HHS-RADV error rates applied to adjust 2021 benefit year risk scores and transfers, regardless of whether the exiting issuer is a negative or positive error rate outlier issuer. See the 2024 Payment Notice, 88 FR at 25790.

- payment, or shift the transfer amount from a charge to a payment.<sup>31</sup>
- As described below, we note that the magnitude and direction of 2021 benefit year transfer adjustments may change if other issuers in the state market risk pool are identified as outliers in the 2021 benefit year of HHS-RADV.

The application of the 2021 benefit year HHS-RADV error rates to outlier issuers' 2021 benefit year plan liability risk scores affects the state average risk score for a state market risk pool, which in turn affects other issuers' 2021 benefit year risk adjustment transfer calculations in that state market risk pool, even if those issuers had zero error rates for the 2021 benefit years of HHS-RADV. As a result, exempt issuers and non-outlier issuers may receive adjustments to their 2021 benefit year risk adjustment transfers due to the identification of outliers in their state market risk pools and the application of outlier issuer averaged error rates.

We provide the weighted average risk score error rates by state market risk pool in Appendix B so that issuers can compare this information to the data that was released in the Summary Report on Permanent Risk Adjustment Transfers for the 2021 Benefit Year.<sup>32</sup> The weighted average risk score error rates are calculated by taking the weighted average of issuers' 2021 benefit year HHS-RADV error rates for each state market risk pool, weighted by each issuer's billable member months and plan liability risk scores. Issuers can use these data in conjunction with issuer-specific 2021 benefit year risk adjustment data, the state tables, and the payment transfer denominator amounts that were included in the Summary Report on Permanent Risk Adjustment Transfers for the 2021 Benefit Year to estimate the impact of averaged error rates and their HHS-RADV adjusted 2021 benefit year risk adjustment transfers. Information on the HHS-RADV adjustments to 2021 benefit year risk adjustment transfers will be available when the Summary Report of 2021 Benefit Year Risk Adjustment Data Validation Adjustments to Risk Adjustment Transfers is released in Summer 2023.

To further explain Appendix B, issuers in state market risk pools with zero (0) weighted average risk score error rates can generally<sup>33</sup> expect no change to their 2021 benefit year risk adjustment transfer amount(s) as a result of HHS-RADV. For issuers in state market risk pools with non-zero weighted average risk score error rates, issuers may apply the weighted average risk score error rate to the state average risk score to help understand the HHS-RADV impact in the same manner that issuers' risk score error rates are applied to issuers' risk scores – that is, a negative weighted average risk score error rate will increase a state average risk score, while a positive average risk score error rate will decrease a state average risk score. For “zero” error rate issuers in state risk pools<sup>34</sup> with a “non-zero” weighted average risk score error rate:

- In state market risk pools with a negative weighted average risk score error rate, “zero” error rate issuers can generally expect their charge to increase, their payment to decrease, or a shift in

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<sup>31</sup> If an issuer operates in both a single issuer market and another market with multiple issuers within the same state, and does not meet any other exemption requirements, then this issuer may be selected to participate in HHS-RADV and receive a positive or negative error rate. In the single issuer market, however, the risk adjustment transfer amount remains zero after applying the error rate.

<sup>32</sup> This report is available at <https://www.cms.gov/CCIIO/Programs-and-Initiatives/Premium-Stabilization-Programs/Downloads/RA-Report-BY2021.pdf>.

<sup>33</sup> In Appendix B below, there are instances in individual, small group, and catastrophic market risk pools where Appendix B shows 0.00% but a risk adjustment transfer amount change will occur. This is a result of the small non-zero value of the weighted average risk score error rate rounding to 0.00% at two (2) decimal places. These values are the ones which read as 0.00% but are not greyed out.

<sup>34</sup> Exempt issuers and non-outlier issuers have zero (0) error rates.

- the transfer amount from a payment to a charge, due to the state average risk score increasing.
- In state market risk pools with a positive weighted average risk score error rate, “zero” error rate issuers can generally expect their charge to decrease, their payment to increase, or a shift in the transfer amount from a charge to a payment, due to the state average risk score decreasing.

## **5. Next Steps:**

Based on these results, issuers in state market risk pools with weighted average non-zero error rates will see these risk score adjustments applied to 2021 benefit year risk adjustment transfers in a separate report to be released in Summer 2023.

**Error Rate Calculation Attestation and Discrepancy Reporting Process:** All issuers subject to 2021 benefit year HHS-RADV are required to attest to the 2021 benefit year error rate calculation<sup>35</sup> or qualify the attestation by filing a discrepancy (see 45 CFR 153.630(d)(2)). Beginning on June 13, 2023, issuers have thirty (30) calendar days, until July 13, 2023, to attest to findings or qualify their attestation with a discrepancy related to the 2021 benefit year HHS-RADV risk score error rate calculation. Issuers will need to attest by completing the Error Rate Attestation and Discrepancy Reporting Process in the HHS-RADV Audit Tool. A separate communication will be distributed to issuers with instructions for completing the HHS-RADV Error Rate Attestation and Discrepancy Form.

Issuers are encouraged to review their results and contact CMS with any questions at: [CCIIOACARADatavalidation@cms.hhs.gov](mailto:CCIIOACARADatavalidation@cms.hhs.gov).

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<sup>35</sup> Both outlier and non-outlier issuers are required to attest to their respective error rate calculation or qualify the attestation by filing a discrepancy. Exempt issuers are not subject to this requirement.

**Appendix A. National Program Benchmarks – 2021 Benefit Year HHS-RADV**

**Table A1: National Failure Rate Group Summary Statistics**

RADV Year	Failure Rate Group	National Confidence Interval Point Values					Weighted Standard Deviation of GFR	Number of Outliers
		Lower 99.7% CI Threshold	Lower 90% CI Threshold	National Weighted Mean	Upper 90% CI Threshold	Upper 99.7% CI Threshold		
2021	Low	-0.135489938	-0.056632534	0.039102099	0.134836734	0.213694138	0.058197346	31
	Medium	-0.079405217	0.011815867	0.122560284	0.233304701	0.324525786	0.067321834	37
	High	-0.017647315	0.083256162	0.205755217	0.328254273	0.429157751	0.074467511	52

**Table A2: National Error Rate Summary Statistics**

Metric	2021
HIOS ID Count	407
Total # Issuers Receiving an Error Rate (+ or -)	91
Count of Issuers with Final Negative Error Rate	46
Average National Negative (Total) Error Rate	-0.013578871
Negative (Total) Error Rate (Max)	-0.055896871
Count of Issuers with Final Positive Error Rate	45
Average National Positive (Total) Error Rate	0.029397598
Positive (Total) Error Rate (Max)	0.421992812

**Appendix B. 2021 Benefit Year RA State Market Risk Pool Weighted Average HHS-RADV Error Rates**

Appendix B provides comparison information that shows which state market risk pools are impacted by 2021 benefit year HHS-RADV error rates due to the presence of at least one error rate outlier in the state market risk pool and the associated average error rates.<sup>36,37</sup> Issuers’ 2021 benefit year HHS-RADV error rates will be used to calculate HHS-RADV adjustments to 2021 benefit year risk adjustment state transfers. For more information on interpreting this table, refer to the “Impact of HHS-RADV Error Rates and Outlier Status on 2021 Benefit Year Risk Adjustment Transfers” section of this memo.

State	Individual (Excluding Catastrophic)	Small Group	Catastrophic
AK	0.00%	0.00%	N/A
AL	7.23%	7.17%	7.10%
AR	0.00%	0.00%	N/A
AZ	0.00%	0.00%	0.00%
CA	-0.01%	0.00%	0.05%
CO	-1.06%	-0.76%	-0.40%
CT	0.17%	0.30%	0.20%
DC	-0.24%	0.03%	-0.01%
DE	-0.98%	-0.89%	-0.98%
FL	-0.03%	0.22%	0.17%
GA	-0.01%	0.00%	-0.01%
HI	-1.44%	-1.67%	0.00%
IA	0.00%	0.42%	0.00%
ID	-0.06%	-0.12%	0.00%
IL	-0.07%	0.00%	0.00%
IN	0.00%	0.43%	N/A
KS	0.00%	0.02%	0.00%
KY	0.00%	0.00%	0.00%
LA	0.44%	0.82%	N/A
MA	0.08%	N/A	0.00%
MD	-0.21%	-0.04%	-0.08%
ME	1.53%	1.33%	1.60%
MI	-0.02%	-0.01%	-0.02%
MN	0.00%	0.00%	0.00%
MO	0.00%	0.00%	0.00%
MS	-0.13%	0.01%	N/A

State	Individual (Excluding Catastrophic)	Small Group	Catastrophic
MT	0.00%	0.00%	0.00%
NC	-3.65%	-2.62%	-4.13%
ND	0.00%	0.05%	0.00%
NE	0.00%	0.00%	0.00%
NH	0.00%	0.07%	0.00%
NJ	0.10%	0.01%	1.71%
NM	-0.26%	0.00%	0.00%
NV	-0.01%	0.00%	-0.04%
NY	0.39%	0.24%	2.08%
OH	0.02%	0.25%	0.00%
OK	0.00%	0.00%	0.00%
OR	-0.21%	-0.14%	0.00%
PA	-0.39%	-0.12%	-0.65%
RI	0.00%	0.00%	N/A
SC	0.00%	0.00%	0.00%
SD	0.00%	0.00%	0.00%
TN	-1.20%	-0.02%	0.00%
TX	0.00%	0.00%	0.01%
UT	0.08%	0.02%	0.00%
VA	-0.11%	-0.04%	-0.18%
VT	0.00%	N/A	0.00%
WA	-0.25%	-0.22%	0.00%
WI	0.15%	0.03%	0.09%
WV	-0.49%	-0.13%	-0.86%
WY	0.45%	0.35%	N/A

- Notes:** (1) “N/A” represents states with no issuers operating in that state market risk pool and are therefore grayed out.  
(2) Values for merged market states (Massachusetts and Vermont) are displayed in the Individual (Excluding Catastrophic) column with an “N/A” in the small group column.  
(3) Values which read “0.00%” and are greyed out are values of zero (0) out to the ninth decimal place; values which read “0.00%” and are not greyed out are very small values that round to 0.00%.

<sup>36</sup> The state market risk pool weighted average risk score error rate is calculated by taking the weighted average of issuers’ error rates among all issuers within the state market risk pool. The weight for an issuer is equal to the total risk score of the issuer within the state market risk pool, which is calculated as the summation of the plan liability risk score multiplied by the plan-level billable member months among all plans for the issuer within the state market risk pool.

<sup>37</sup> We note that the state market risk pool weighted average risk score error rates account for all risk adjustment EDGE discrepancies to date. The information on impacted state market risk pools in this appendix is subject to change as it does not take into account any adjustments for any potential actionable HHS-RADV discrepancies or successful HHS-RADV appeals..

## Appendix C. 2021 Benefit Year HHS-RADV Failure Rate Group Definitions

Appendix C provides a listing of HCCs, the associated Super HCC, and the group detail for the 2021 benefit year HHS-RADV.

Super HCC	RA Age Group Model	Failure Rate Group	HCC	HCC Label <sup>38</sup>
1	Adult, Child	Low Failure Rate Group	1	HIV/AIDS
2	Adult, Child	Medium Failure Rate Group	2	Septicemia, Sepsis, Systemic Inflammatory Response Syndrome/Shock
3	Adult, Child	High Failure Rate Group	3	Central Nervous System Infections, Except Viral Meningitis
4	Adult, Child	High Failure Rate Group	4	Viral or Unspecified Meningitis
6	Adult, Child	High Failure Rate Group	6	Opportunistic Infections
8	Adult, Child	Medium Failure Rate Group	8	Metastatic Cancer
9	Adult, Child	High Failure Rate Group	9	Lung, Brain, and Other Severe Cancers, Including Pediatric Acute Lymphoid Leukemia
10	Adult, Child	Medium Failure Rate Group	10	Non-Hodgkin Lymphomas and Other Cancers and Tumors
11	Adult, Child	High Failure Rate Group	11	Colorectal, Breast (Age < 50), Kidney, and Other Cancers
12	Adult, Child	Medium Failure Rate Group	12	Breast (Age 50+) and Prostate Cancer, Benign/Uncertain Brain Tumors, and Other Cancers and Tumors
13	Adult, Child	High Failure Rate Group	13	Thyroid Cancer, Melanoma, Neurofibromatosis, and Other Cancers and Tumors
18	Adult, Child	Low Failure Rate Group	18	Pancreas Transplant Status
G01	Adult, Child	Low Failure Rate Group	19	Diabetes with Acute Complications
			20	Diabetes with Chronic Complications
			21	Diabetes without Complication
22	Adult	High Failure Rate Group	22	Type 1 Diabetes Mellitus, add-on to Diabetes HCCs 19-21
23	Adult, Child	Low Failure Rate Group	23	Protein-Calorie Malnutrition
G02B	Adult, Child	High Failure Rate Group	26	Mucopolysaccharidosis
			27	Lipidoses and Glycogenesis
G02D	Child	Medium Failure Rate Group	28	Congenital Metabolic Disorders, Not Elsewhere Classified
			29	Amyloidosis, Porphyria, and Other Metabolic Disorders
29	Adult	High Failure Rate Group	29	Amyloidosis, Porphyria, and Other Metabolic Disorders
30	Adult, Child	Medium Failure Rate Group	30	Adrenal, Pituitary, and Other Significant Endocrine Disorders
34	Adult, Child	Medium Failure Rate Group	34	Liver Transplant Status/Complications
35_1	Adult, Child	High Failure Rate Group	35_1	Acute Liver Failure/Disease, Including Neonatal Hepatitis
35_2	Adult, Child	Low Failure Rate Group	35_2	Chronic Liver Failure/End-Stage Liver Disorders
36	Adult, Child	Low Failure Rate Group	36	Cirrhosis of Liver
37_1	Adult, Child	High Failure Rate Group	37_1	Chronic Viral Hepatitis C
37_2	Adult, Child	Medium Failure Rate Group	37_2	Chronic Hepatitis, Except Chronic Viral Hepatitis C
41	Adult, Child	High Failure Rate Group	41	Intestine Transplant Status/Complications
42	Adult, Child	High Failure Rate Group	42	Peritonitis/Gastrointestinal Perforation/Necrotizing Enterocolitis
45	Adult, Child	High Failure Rate Group	45	Intestinal Obstruction
46	Adult, Child	High Failure Rate Group	46	Chronic Pancreatitis

<sup>38</sup> For information regarding which Infant HCCs map to the Infant Super HCCs in this table, see DIY Table 8: Additional Infant Variables located at <https://www.cms.gov/files/document/cy2021-diy-tables-03312022.xlsx>. See also the 2021 HHS-RADV Protocols, Appendix F, available at:

[https://regtap.cms.gov/uploads/library/HRADV\\_2021\\_Benefit\\_Year\\_Protocols\\_5CR\\_110922.pdf](https://regtap.cms.gov/uploads/library/HRADV_2021_Benefit_Year_Protocols_5CR_110922.pdf).

Super HCC	RA Age Group Model	Failure Rate Group	HCC	HCC Label <sup>38</sup>
47	Adult, Child	Low Failure Rate Group	47	Acute Pancreatitis
48	Adult, Child	Low Failure Rate Group	48	Inflammatory Bowel Disease
54	Adult	High Failure Rate Group	54	Necrotizing Fasciitis
55	Adult	Medium Failure Rate Group	55	Bone/Joint/Muscle Infections/Necrosis
G03	Child	High Failure Rate Group	54	Necrotizing Fasciitis
			55	Bone/Joint/Muscle Infections/Necrosis
56	Adult, Child	Low Failure Rate Group	56	Rheumatoid Arthritis and Specified Autoimmune Disorders
57	Adult, Child	High Failure Rate Group	57	Systemic Lupus Erythematosus and Other Autoimmune Disorders
G04	Adult, Child	High Failure Rate Group	61	Osteogenesis Imperfecta and Other Osteodystrophies
			62	Congenital/Developmental Skeletal and Connective Tissue Disorders
63	Adult, Child	High Failure Rate Group	63	Cleft Lip/Cleft Palate
66	Adult, Child	Low Failure Rate Group	66	Hemophilia
G06A	Adult, Child	High Failure Rate Group	67	Myelodysplastic Syndromes and Myelofibrosis
			68	Aplastic Anemia
			69	Acquired Hemolytic Anemia, Including Hemolytic Disease of Newborn
G07A	Adult, Child	Low Failure Rate Group	70	Sickle Cell Anemia (Hb-SS)
			71	Beta Thalassemia Major
G08	Adult, Child	Low Failure Rate Group	73	Combined and Other Severe Immunodeficiencies
			74	Disorders of the Immune Mechanism
75	Adult, Child	High Failure Rate Group	75	Coagulation Defects and Other Specified Hematological Disorders
G09A	Adult, Child	Medium Failure Rate Group	81	Drug Use with Psychotic Complications
			82	Drug Use Disorder, Moderate/Severe, or Drug Use with Non-Psychotic Complications
G09C	Adult, Child	Low Failure Rate Group	83	Alcohol Use with Psychotic Complications
			84	Alcohol Use Disorder, Moderate/Severe, or Alcohol Use with Specified Non-Psychotic Complications
87_1	Adult, Child	Medium Failure Rate Group	87_1	Schizophrenia
87_2	Adult, Child	High Failure Rate Group	87_2	Delusional and Other Specified Psychotic Disorders, Unspecified Psychosis
88	Adult, Child	High Failure Rate Group	88	Major Depressive Disorder, Severe, and Bipolar Disorders
90	Adult, Child	High Failure Rate Group	90	Personality Disorders
94	Adult, Child	High Failure Rate Group	94	Anorexia/Bulimia Nervosa
96	Adult, Child	Low Failure Rate Group	96	Prader-Willi, Patau, Edwards, and Autosomal Deletion Syndromes
97	Adult, Child	Medium Failure Rate Group	97	Down Syndrome, Fragile X, Other Chromosomal Anomalies, and Congenital Malformation Syndromes
102	Adult, Child	High Failure Rate Group	102	Autistic Disorder
103	Adult, Child	Low Failure Rate Group	103	Pervasive Developmental Disorders, Except Autistic Disorder
G10	Adult, Child	Low Failure Rate Group	106	Traumatic Complete Lesion Cervical Spinal Cord
			107	Quadriplegia
G11	Adult, Child	Low Failure Rate Group	108	Traumatic Complete Lesion Dorsal Spinal Cord
			109	Paraplegia
110	Adult, Child	High Failure Rate Group	110	Spinal Cord Disorders/Injuries
111	Adult, Child	Medium Failure Rate Group	111	Amyotrophic Lateral Sclerosis and Other Anterior Horn Cell Disease
112	Adult, Child	Low Failure Rate Group	112	Quadriplegic Cerebral Palsy
113	Adult, Child	Low Failure Rate Group	113	Cerebral Palsy, Except Quadriplegic
114	Adult, Child	Low Failure Rate Group	114	Spina Bifida and Other Brain/Spinal/Nervous System Congenital Anomalies

Super HCC	RA Age Group Model	Failure Rate Group	HCC	HCC Label <sup>38</sup>
115	Adult, Child	Low Failure Rate Group	115	Myasthenia Gravis/Myoneural Disorders and Guillain-Barre Syndrome/Inflammatory and Toxic Neuropathy
G12	Adult, Child	Low Failure Rate Group	117	Muscular Dystrophy
			119	Parkinson's, Huntington's, and Spinocerebellar Disease, and Other Neurodegenerative Disorders
118	Adult, Child	Low Failure Rate Group	118	Multiple Sclerosis
120	Adult, Child	Medium Failure Rate Group	120	Seizure Disorders and Convulsions
121	Adult, Child	High Failure Rate Group	121	Hydrocephalus
122	Adult, Child	Medium Failure Rate Group	122	Coma, Brain Compression/Anoxic Damage
123	Adult, Child	Low Failure Rate Group	123	Narcolepsy and Cataplexy
125	Adult, Child	Medium Failure Rate Group	125	Respirator Dependence/Tracheostomy Status
G13	Adult, Child	Medium Failure Rate Group	126	Respiratory Arrest
			127	Cardio-Respiratory Failure and Shock, Including Respiratory Distress Syndromes
G14	Adult, Child	Medium Failure Rate Group	128	Heart Assistive Device/Artificial Heart
			129	Heart Transplant Status/Complications
130	Adult, Child	High Failure Rate Group	130	Heart Failure
131	Adult	High Failure Rate Group	131	Acute Myocardial Infarction
132	Adult	High Failure Rate Group	132	Unstable Angina and Other Acute Ischemic Heart Disease
G23	Child	High Failure Rate Group	131	Acute Myocardial Infarction
			132	Unstable Angina and Other Acute Ischemic Heart Disease
135	Adult, Child	High Failure Rate Group	135	Heart Infection/Inflammation, Except Rheumatic
137	Child	High Failure Rate Group	137	Hypoplastic Left Heart Syndrome and Other Severe Congenital Heart Disorders
138	Child	High Failure Rate Group	138	Major Congenital Heart/Circulatory Disorders
139	Child	Medium Failure Rate Group	139	Atrial and Ventricular Septal Defects, Patent Ductus Arteriosus, and Other Congenital Heart/Circulatory Disorders
G21	Adult	High Failure Rate Group	137	Hypoplastic Left Heart Syndrome and Other Severe Congenital Heart Disorders
			138	Major Congenital Heart/Circulatory Disorders
			139	Atrial and Ventricular Septal Defects, Patent Ductus Arteriosus, and Other Congenital Heart/Circulatory Disorders
142	Adult, Child	Low Failure Rate Group	142	Specified Heart Arrhythmias
145	Adult, Child	High Failure Rate Group	145	Intracranial Hemorrhage
146	Adult, Child	High Failure Rate Group	146	Ischemic or Unspecified Stroke
149	Adult, Child	High Failure Rate Group	149	Cerebral Aneurysm and Arteriovenous Malformation
150	Adult, Child	Low Failure Rate Group	150	Hemiplegia/Hemiparesis
151	Adult, Child	High Failure Rate Group	151	Monoplegia, Other Paralytic Syndromes
153	Adult, Child	High Failure Rate Group	153	Atherosclerosis of the Extremities with Ulceration or Gangrene
154	Adult, Child	High Failure Rate Group	154	Vascular Disease with Complications
156	Adult, Child	High Failure Rate Group	156	Pulmonary Embolism and Deep Vein Thrombosis
158	Adult, Child	High Failure Rate Group	158	Lung Transplant Status/Complications
159	Adult, Child	Low Failure Rate Group	159	Cystic Fibrosis
160	Child	High Failure Rate Group	160	Chronic Obstructive Pulmonary Disease, Including Bronchiectasis
161_1	Child	Medium Failure Rate Group	161_1	Severe Asthma
161_2	Child	High Failure Rate Group	161_2	Asthma, Except Severe
G15A	Adult	Medium Failure Rate Group	160	Chronic Obstructive Pulmonary Disease, Including Bronchiectasis
			161_1	Severe Asthma
			161_2	Asthma, Except Severe
162	Adult, Child	Medium Failure Rate Group	162	Fibrosis of Lung and Other Lung Disorders



Super HCC	RA Age Group Model	Failure Rate Group	HCC	HCC Label <sup>38</sup>
163	Adult, Child	High Failure Rate Group	163	Aspiration and Specified Bacterial Pneumonias and Other Severe Lung Infections
174	Adult	Medium Failure Rate Group	174	Exudative Macular Degeneration
183	Adult, Child	Low Failure Rate Group	183	Kidney Transplant Status/Complications
184	Adult, Child	High Failure Rate Group	184	End Stage Renal Disease
G16	Adult, Child	Low Failure Rate Group	187	Chronic Kidney Disease, Stage 5
			188	Chronic Kidney Disease, Severe (Stage 4)
203	Adult, Child	High Failure Rate Group	203	Ectopic and Molar Pregnancy
G17A	Adult, Child	Medium Failure Rate Group	204	Miscarriage with Complications
			205	Miscarriage with No or Minor Complications
G18A	Adult, Child	High Failure Rate Group	207	Pregnancy with Delivery with Major Complications
			208	Pregnancy with Delivery with Complications
209	Adult, Child	Low Failure Rate Group	209	Pregnancy with Delivery with No or Minor Complications
210	Adult	High Failure Rate Group	210	(Ongoing) Pregnancy without Delivery with Major Complications
211	Adult	Low Failure Rate Group	211	(Ongoing) Pregnancy without Delivery with Complications
G19B	Child	High Failure Rate Group	210	(Ongoing) Pregnancy without Delivery with Major Complications
			211	(Ongoing) Pregnancy without Delivery with Complications
212	Adult, Child	Low Failure Rate Group	212	(Ongoing) Pregnancy without Delivery with No or Minor Complications
217	Adult, Child	Low Failure Rate Group	217	Chronic Ulcer of Skin, Except Pressure
218	Adult, Child	High Failure Rate Group	218	Extensive Third Degree Burns
219	Adult, Child	High Failure Rate Group	219	Major Skin Burn or Condition
223	Adult, Child	High Failure Rate Group	223	Severe Head Injury
226	Adult, Child	High Failure Rate Group	226	Hip and Pelvic Fractures
228	Adult, Child	High Failure Rate Group	228	Vertebral Fractures without Spinal Cord Injury
234	Adult	High Failure Rate Group	234	Traumatic Amputations and Amputation Complications
			234	Traumatic Amputations and Amputation Complications
G22	Child	Low Failure Rate Group	234	Traumatic Amputations and Amputation Complications
			254	Amputation Status, Upper Limb or Lower Limb
251	Adult, Child	Low Failure Rate Group	251	Stem Cell, Including Bone Marrow, Transplant Status/Complications
253	Adult, Child	Low Failure Rate Group	253	Artificial Openings for Feeding or Elimination
254	Adult	Low Failure Rate Group	254	Amputation Status, Upper Limb or Lower Limb
AGE1_X_SEVERITY1	Infant	Low Failure Rate Group		
AGE1_X_SEVERITY2	Infant	Low Failure Rate Group		
AGE1_X_SEVERITY3	Infant	Low Failure Rate Group		
AGE1_X_SEVERITY4	Infant	Low Failure Rate Group		
AGE1_X_SEVERITY5	Infant	High Failure Rate Group		
EXTREMELY_IMMATURE_SEVERITY1	Infant	Low Failure Rate Group		
EXTREMELY_IMMATURE_SEVERITY3	Infant	Low Failure Rate Group		

Super HCC	RA Age Group Model	Failure Rate Group	HCC	HCC Label <sup>38</sup>
EXTREMELY_IMMATURE_X_SEVERITY4	Infant	Medium Failure Rate Group		
EXTREMELY_IMMATURE_X_SEVERITY5	Infant	High Failure Rate Group		
IMMATURE_X_SEVERITY1	Infant	Low Failure Rate Group		
IMMATURE_X_SEVERITY2	Infant	Low Failure Rate Group		
IMMATURE_X_SEVERITY3	Infant	High Failure Rate Group		
IMMATURE_X_SEVERITY4	Infant	Medium Failure Rate Group		
IMMATURE_X_SEVERITY5	Infant	High Failure Rate Group		
PREMATURE_MULTIPLES_X_SEVERITY1	Infant	Low Failure Rate Group		
PREMATURE_MULTIPLES_X_SEVERITY2	Infant	High Failure Rate Group		
PREMATURE_MULTIPLES_X_SEVERITY3	Infant	High Failure Rate Group		
PREMATURE_MULTIPLES_X_SEVERITY4	Infant	Low Failure Rate Group		
PREMATURE_MULTIPLES_X_SEVERITY5	Infant	High Failure Rate Group		
TERM_X_SEVERITY1	Infant	Low Failure Rate Group		
TERM_X_SEVERITY2	Infant	High Failure Rate Group		
TERM_X_SEVERITY3	Infant	Low Failure Rate Group		
TERM_X_SEVERITY4	Infant	Medium Failure Rate Group		
TERM_X_SEVERITY5	Infant	High Failure Rate Group		