Summary and Analysis of HHS Risk Adjustment Technical Paper on Possible Model Changes

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Executive Summary

Department of Health and Human Services (HHS) released a technical paper titled "HHS-Operated Risk Adjustment Technical Paper on Possible Model Changes" on October 26, 2021.[1] In the technical paper, HHS discussed several possible changes to the risk adjustment model that were previously proposed in the 2022 proposed payment notice, including the following:

- Adding a two-stage model specification to the risk adjustment model.
- Updating enrollment duration factor to a HCC-contingent enrollment duration factor and limiting to 6 months of total adjustment.
- Including HCC-count variables based on HCC with severe illness indicator or organ transplant status.
- Modifying the current cost-sharing reduction (CSR) induced demand factors (IDF), but no earlier than in the 2024 payment notice.

In this white paper, we summarized the changes proposed by HHS in the technical paper and included our analysis of potential impact of these changes based on national data collected from Wakely National Risk Adjustment Reporting (WNRAR) project. We did not include any considerations for modifying the CSR IDF as HHS has not yet proposed any specific edits to the CSR IDF.

For our analysis, we used 2020 benefit year WNRAR data scored on both the 2022 final risk adjustment model and the 2022 proposed risk adjustment model. We used the 2022 final risk adjustment model as the baseline for our analysis. This is consistent with the simulation proposed by HHS in the technical paper. Note that the 2022 proposed risk adjustment incorporated the changes recommended in the technical paper. We compared risk transfers and risk score components between the two models.

Our key findings are:

- At the national level, we estimated issuers' relative risks[2] to move closer to the market average when rescored with the proposed model. In other words, receivers are likely to receive less risk transfers while payers are likely to pay less risk transfers.

[1] https://www.cms.gov/files/document/2021-ra-technical-paper.pdf

[2] Relative risks are calculated based on HHS risk adjustment formula. A relative risk above 1.0 represents issuers who will receive risk transfers (or receivers) while a relative risk below 1.0 represents issuers who will have a risk transfer payment (or payers). Market average relative risk is always 1.0 for all markets respectively.

- Results were different in the individual market compared to small group market.
    - Individual market observations:
        - Of all issuers estimated to be payers in the individual market, 82.6% are estimated to pay less under the 2022 proposed model. On average, individual payers had a 0.6% increase in relative risk between the 2022 final and 2022 proposed model.
        - Of all issuers estimated to be receivers in the individual market in the 2022 final model, 83.1% are estimated to receive less under the 2022 proposed model. On average, individual receivers had a 0.9% decrease in relative risk between the 2022 final and 2022 proposed model.
    - Small group market observations:
        - Of all issuers estimated to be payers in the small group market in the 2022 final model, 60.3% are estimated to pay less under the 2022 proposed model. On average, small group payers had a 0.2% increase in relative risk between the 2022 final and 2022 proposed model.
        - Of all issuers estimated to be receivers in the small group market in the 2022 final model, 65.6% are estimated to receive less under the 2022 proposed model. On average, small group receivers had a 0.2% decrease in relative risk between the 2022 final and 2022 proposed model.
- Based on our analysis of risk score components, we observed that the 2022 proposed risk adjustment model moves significant risk coefficients towards demographic component of risk scores. Consequently, risk score components for medical condition categories (HCC), prescription drug condition categories (RXC), and enrollment duration factors (EDF) decreased.

A full discussion of our methodology and observation can be found in the sections below.

Summary of HHS Risk Adjustment Technical Paper

Department of Health and Human Services (HHS) released a paper entitled "HHS-Operated Risk Adjustment Technical Paper on Possible Model Changes" on October 26, 2021.[3] In the paper, HHS discussed possible changes to the risk adjustment model that were previously proposed in the 2022 proposed payment notice but not finalized, including following:

1) Adding a two-stage model specification to the risk adjustment model.
    - Based on predictive ratios (PR)[4], HHS is concerned that enrollees without hierarchical condition categories (HCCs) are underpredicted.
    - By incorporating a two-stage model specification, HHS determined that it will improve prediction for the lowest-risk enrollees with limited trade off.
2) Updating enrollment duration factor to a HCC-contingent enrollment duration factor and limiting to 6 months of total adjustment.
    - HHS showed that PRs for partial year enrollees with and without HCCs are significantly different. For partial year enrollees, current model overpredicted for enrollees without HCC (i.e. PR is above 1.0) and underpredicted for enrollees with HCCs.
    - HHS considered a variety of options and determined that enrollment duration factors that include consideration of one-or-more HCC were the best predictor for partial year enrollees.
3) Including HCC counts variables based on HCC with severe illness indicator or transplant status.
    - Based on PR, HHS showed that the current risk adjustment model underpredicted for enrollees with the highest HCC counts and the top deciles by cost (highest cost enrollees).
    - The current risk adjustment model only includes a severity interaction term and HHS does not believe that it is accurately capturing the non-linear effect that leads to higher cost for the highest cost enrollees.
    - HHS believes that an interacted HCC counts approach based on severe illness HCC or transplant status HCC will improve prediction for the highest cost enrollees. Given that the interacted HCC counts approach is based on severe illness and transplant HCCs, HHS believes that this will also minimize gaming concerns and risk of coding proliferations by issuers.
4) Modifying current cost-sharing reduction (CSR) induced demand factors (IDF).

[3] https://www.cms.gov/files/document/2021-ra-technical-paper.pdf

[4] Predictive ratios (PR) are calculated using mean predicted expenditures as derived from the risk adjustment model over mean actual expenditures. A PR of 1.0 represents perfect prediction, which means predicted expenditures are equal to actual expenditures.

- HHS also discussed, in the appendix, modifying the current CSR IDF included in the risk adjustment model.
- HHS noted that they had received comments that believed the risk adjustment model currently overcompensates silver CSR plans which would reduce silver plan premiums and impact subsidy levels.
- HHS is considering a few changes to the CSR IDF:
    i. Reframe CSR IDF and recalibrate the factors based on EDGE server data
    ii. Use Platinum risk adjustment model factors for certain CSR members
    iii. Create a separate CSR risk adjustment model with varying risk coefficients
    iv. Update the current rating term (i.e., the 70% for silver AV) and adjust AV in individual market to reflect CSR member mix nationally for Silver plan

HHS believes the way to improve the current risk adjustment model across the risk spectrum is to incorporate the first three changes (#1 to #3 above) to the risk adjustment model. These changes are consistent with the changes found in the proposed 2022 payment notice risk adjustment model. Additionally, HHS stated that no changes will be made to the CSR IDF until 2024 benefit year at the earliest. Finally, HHS stated that they will be conducting a transfer simulation on 2020 benefit year plan-level data based on issuers' EDGE server data and provide issuer-specific risk scores and transfer estimates.[5]

Based on the information available, we estimated the impact of the proposed changes and discuss our methodology and our observations in the subsections below.

Background and Methodology

As discussed above, HHS noted that they will simulate the impact of model changes and provide issuer-specific estimate of risk transfers and risk scores based on both the proposed 2022 risk adjustment model and the final 2022 risk adjustment model. HHS intends to use issuers' 2020 EDGE server data to perform this simulation.

Wakely provided participants of the Wakely National Risk Adjustment Reporting (WNRAR) project with proposed 2022 risk adjustment model results in the 202012S reporting run. Each 202012S WNRAR participant received their estimate of risk transfers and risk scores based on the proposed 2022 model, with data incurred and paid from January 2020 through December 2020. Wakely collected the needed information in the distributed project codes based on the model changes proposed in the 2022 proposed payment notice.

[5] Additional details on the timing and methodology is discussed in Section 5.2 of the technical paper.

In the 202012R reporting run[6], Wakely did not provide risk transfer estimates based on the proposed 2022 risk adjustment model as the 2022 risk adjustment model was not finalized as proposed. However, Wakely collected the additional risk adjustment factors needed to rescore 202012R data based on the proposed 2022 risk adjustment model. [7,8] In this paper, Wakely simulated issuer risk transfers based on the proposed 2022 risk adjustment model using the 202012R data to provide a national comparison of both the proposed and final 2022 risk adjustment models. For purposes of this white paper, it is reasonable to assume that the proposed 2022 risk adjustment model represents the proposed changes covered in the HHS risk adjustment technical paper. We estimated issuer-specific risk transfers and risk scores, and summarized our findings at the national level separately for individual and small group markets. Catastrophic market results are not included in our analysis. This approach is consistent with our prior white papers that examined the change in risk adjustment model historically. [9,10]

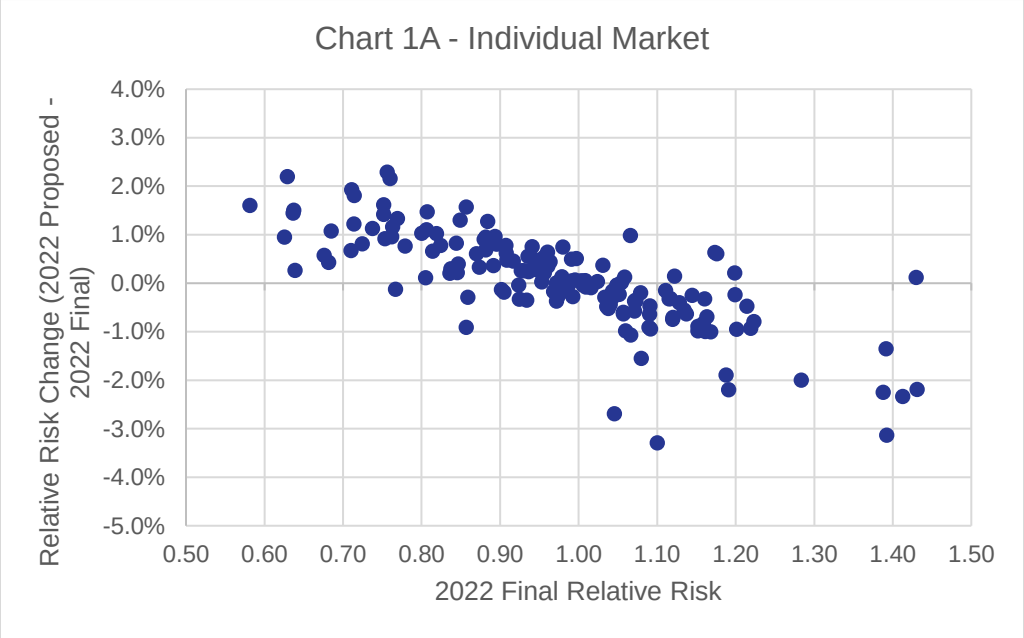
Wakely did not make adjustments to the results collected, so the analysis and its accompanying estimates did not consider year-over-year changes in demographics, morbidity, coding improvement, or changes in laws and regulations after 2020. In addition, we did not adjust the data to reflect any potential differences due to the COVID-19 pandemic or any change in enrollment patterns in 2021. The membership distribution and diagnosis codes were held constant year-over-year in this analysis.

Observations

First, we examined the relative risk[11] change for issuers nationally from the 2022 final model to the 2022 proposed model. Charts 1A and 1B below show the relative risk change for issuers in the individual and small group markets respectively. Each observation (dots) in the charts below represents a unique HIOS ID in our WNRAR data.

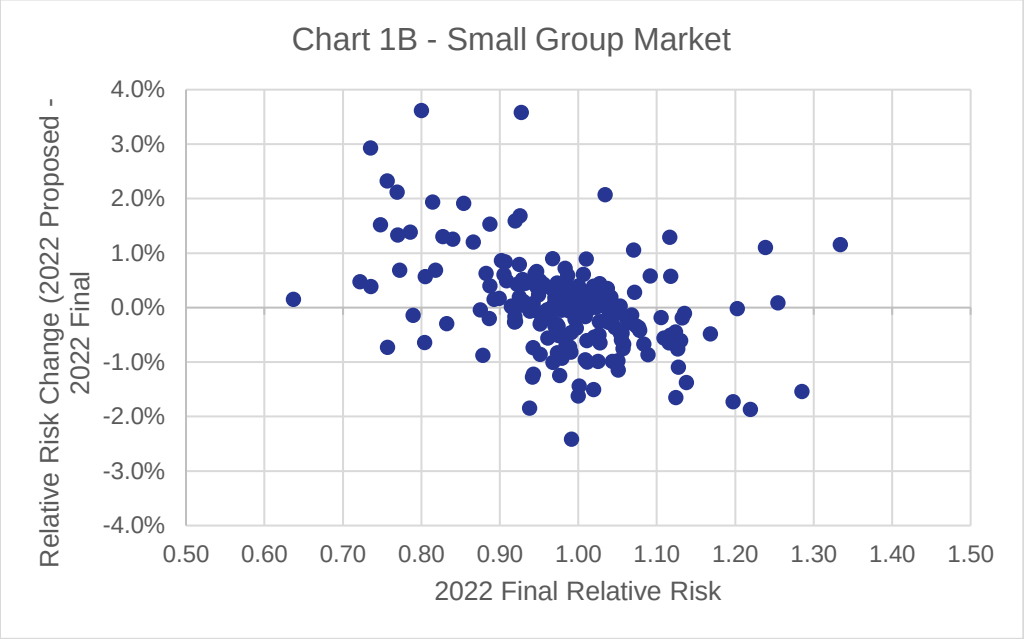
[6] 202012R reporting run includes data incurred from January 2020 through December 2020, paid through April 2021.
[7] Wakely provided estimates based on the 2022 finalized risk adjustment model for the 202012R reporting run instead. Wakely will provide results based on 2022 proposed risk adjustment model starting with the 202110 reporting run.
[8] The additional variables include HCC-contingent EDF as well as interacted HCC counts for adult and child model separately.
[9] Impact of 2022 Proposed Model: https://www.wakely.com/sites/default/files/files/content/wakely-2021-final-2022-proposed-hhs-hcc-model-impact.pdf
[10] Impact of 2022 Final Model: https://www.wakely.com/sites/default/files/files/content/wakely-2021-final-2022-final-hhs-hcc-model-impact-20210920-v2.pdf
[11] Since the risk adjustment program ultimately transfers premiums from issuers with higher risk to issuers with lower risk within a given market, we are using "relative risk" to determine the impact of these model changes. Market average relative risk is always 1.0 for each specific state-market combination. To elaborate, issuer with a relative risk that is higher than 1.0 is considered riskier than market average, and will receive risk transfer payments, and vice versa. Relative risk includes other risk adjustment factors such as allowable rating factors, induced demand factors and geographic cost factors.

Chart 1A: Individual Market Issuer Relative Risk Change (2022 final to 2022 proposed) Based On Estimated 2022 Relative Risk



As shown in Chart 1A above, the relative risk of individual issuers in the 2022 final risk adjustment model moves closer to 1.0 when data is rescored on the 2022 proposed risk adjustment model. We also observed that issuers with higher than market average relative risk (i.e. risk transfer receivers based on the 2022 final risk adjustment model) tends to have a decrease in relative risk, while issuers with lower than market average relative risk (i.e. risk transfer payers), tend to have an increase in relative risk when we rescored issuers using the 2022 proposed risk adjustment model. In other words, the proposed model appears to move most individual issuers closer to the market average.

Chart 1B: Small Group Market Issuer Relative Risk Change (2022 final to 2022 proposed) Based On Estimated 2022 Relative Risk



In Chart 1B, the results for small group market does not appear to follow the trend as shown for the individual market in Chart 1A. Majority of the HIOS ID captured in our small group market appears to be concentrated close to the market relative risk (high concentration of observations between 0.9 and 1.1 relative risk) with mixed results on the impact of the proposed model changes. However, we note that there are large increases in relative risk for majority of the issuers below a 0.9 relative risk based on the 2022 final relative risk.

We further summarize the estimated impact of the proposed changes in the technical paper in Table 1A and Table 1B below.

Table 1A: Individual Market Payer and Receiver Improve/Deteriorate Transfer Status and Average Impact

	% of Issuers		Average Change in Relative Risk		
Issuers	**Improve**	**Deteriorate**	**Improve**	**Deteriorate**	**Average**
Payer	82.6%	17.4%	0.8%	-0.2%	0.6%
Receiver	16.9%	83.1%	0.3%	-1.1%	-0.9%

Table 1B: Small Group Market Payer and Receiver Improve/Deteriorate Transfer Status and Average Impact

	% of Issuers		Average Change in Relative Risk		
Issuers	**Improve**	**Deteriorate**	**Improve**	**Deteriorate**	**Average**
Payer	60.3%	39.7%	0.7%	-0.5%	0.2%
Receiver	34.4%	65.6%	0.4%	-0.6%	-0.2%

We observe the following changes in payer and receiver transfer status[12]:

1) As shown in Table 1A above, of all issuers estimated to be payers in the individual market in the 2022 final model (below 1.0 relative risk), 82.6% are estimated to pay less under the 2022 proposed model. On average, all payers had a 0.6% increase in relative risk between the 2022 final and 2022 proposed model. Of all issuers estimated to be receivers in the individual market in the 2022 final model (above 1.0 relative risk), 83.1% are estimated to receive less under the 2022 proposed model. On average, all payers had a 0.9% decrease in relative risk between the 2022 final and 2022 proposed model.

2) As shown in Table 1B above, of all issuers estimated to be payers in the small group market in the 2022 final model (below 1.0 relative risk), 60.3% are estimated to pay less under the 2022 proposed model. On average, all payers had a 0.2% increase in relative risk between the 2022 final and 2022 proposed model. Of all issuers estimated to be receivers in the small group market in the 2022 final model (above 1.0 relative risk), 65.6% are estimated to receive less under the 2022 proposed model. On average, all payers had a 0.2% decrease in relative risk between the 2022 final and 2022 proposed model. It appears that small group market has significantly different impact than as observed in the individual market.

As shown in Charts 1 and Tables 1 above, while there are some key patterns in our results, relative risk changes may vary significantly from one issuer to another (regardless of relative risk status, payer/receiver status or market). Therefore, each issuer's risk transfer changes due to model changes may vary significantly. In Table 2 below, we show issuer absolute risk transfer changes as a percent of statewide market average premium to illustrate the financial impact when comparing the 2022 final risk adjustment model to the 2022 proposed risk adjustment model. On average, the proposed risk adjustment model would impact risk transfers by 0.63% and 0.39% of market average premium for individual and small group markets separately.

[12] Please reference Appendix A for more information on payer/receiver status

Table 2: Issuer Absolute Transfer Change from 2022 Final to 2022 Proposed Model as a Percent of Statewide Market Average Premium

	Absolute Transfer Change as % of Statewide Market Average Premium	
Metric	**Individual**	**Small Group**
Average	0.63%	0.39%
10th Percentile	0.05%	0.02%
25th Percentile	0.22%	0.04%
50th Percentile	0.53%	0.21%
75th Percentile	0.85%	0.64%
90th Percentile	1.35%	1.01%

To further understand the risk score changes due to the 2022 proposed risk adjustment model, we compared how the different components of risk scores as a percentage of total risk score changed between the 2022 final and the 2022 proposed models. Table 3 below show changes in the components of risk scores.

Table 3: Percentage of Total Risk Score by Component (2022 Final v 2022 Proposed Model)

	Individual			Small Group		
	2022 Final Risk Score[1]	**2022 Proposed Risk Score[1]**	**Change in Percentage (Proposed-Final)**	**2022 Final Risk Score[1]**	**2022 Proposed Risk Score[1]**	**Change in Percentage (Proposed-Final)**
Demo	12.1%	18.5%	6.4%	17.3%	23.6%	6.3%
HCC	69.2%	64.6%	-4.6%	64.1%	60.1%	-4.0%
RXC	17.7%	16.3%	-1.4%	17.2%	15.5%	-1.7%
EDF	1.0%	0.6%	-0.4%	1.4%	0.8%	-0.6%

[1]Risk values presented exclude CSR and billable member month adjustments.

As shown in Table 3, the change in model weights appear to increase the proportion of demographic risk scores. In both individual and small group markets, demographic risk scores represent 18.5% and 23.6% of total risk scores respectively. This observation is consistent with the increase in relative risk for majority of the payers as they may have a higher proportion of members with demographic risk scores only (i.e. less number of members with HCC coded). On the other hand, HCC, RXC and EDF risk scores as a proportion of total risk scores will decrease as a result of the proposed model changes. Therefore, issuers with higher HCC and RXC prevalence rates (typically risk transfer receivers) will likely see their relative risks and consequently risk transfer receipts decrease, while the opposite scenario will hold true for payers.

Issuers who are current WNRAR participants have received their estimated 2022 proposed risk transfer impact in the 202012S WNRAR deliverables (with data paid and incurred through December 2020 only).

In addition, we have provided issuer specific results estimated under the 2022 final risk transfer impact in the results in the 2020212R WNRAR deliverables. If you are not a current participant and you are interested in participating in this important project, please contact us at WNRARSupport@Wakely.com.

Disclosures and Limitations

This analysis applied the 2022 final and proposed risk adjustment model to WNRAR participants' 2020 data with claims incurred and paid through April 2021. Wakely did not make any adjustments or changes to collected data. The underlying market population, data, coding, morbidity and renewal patterns (EDFs) may change, potentially materially, from the time of the data collection to the release of this paper. Furthermore, no adjustments were made for improved risk score optimization efforts such as coding and supplemental claims efforts. We also did not make any adjustments for the COVID-19 crisis.

This paper and the analysis contained herein are based on our interpretation and understanding of HHS's published guidance. Results may vary significantly by issuer and market.

The PLRS changes provided above are inherently uncertain and rely upon data provided by WNRAR participants. We extensively reviewed the data and worked with issuers to correct any observed issues but cannot completely guarantee the accuracy of any single issuer's data submission.

Users of this analysis should be qualified to use it and understand the results and its inherent uncertainty. We advise all WNRAR participants to discuss the analysis and appropriateness of application with Wakely before using these estimates.

Please contact Chia Yi Chin at 720.226.9819 | chiac@wakely.com with any questions or to follow up on any of the concepts presented here.

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