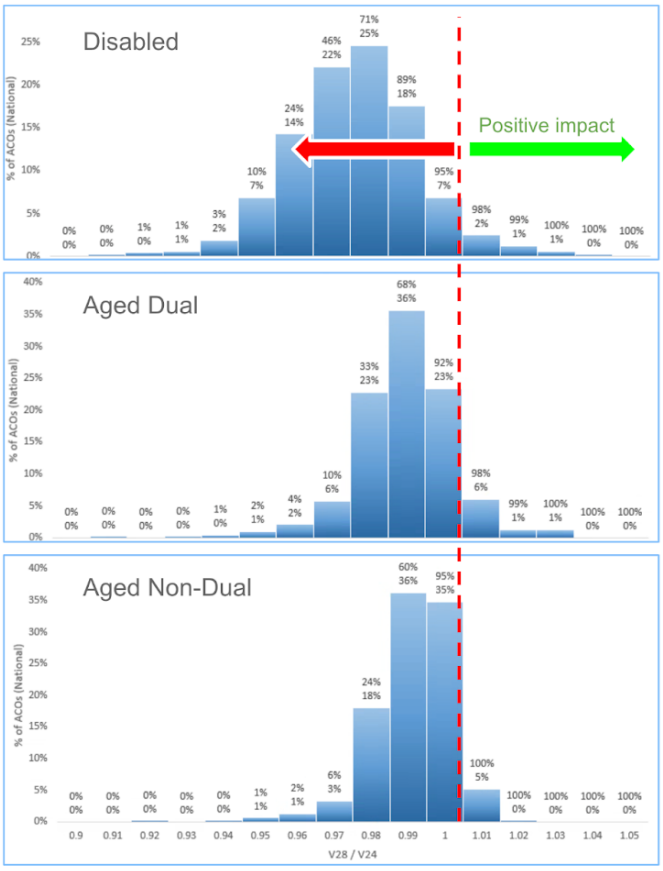
Results of National Study

- Methodology: Recalculate CMS-HCC risk scores under V24 and V28 using 100% national claims data
- Aggregated to ACO level on ~25M national assignable person years
- Finding: Distributions have a left skew, where means are less than medians, due to outliers. In other words, V28 skews towards lower risk scores
- Impact by ACO varies widely, depending on enrollment type, demographic segment (such as new enrollees), and ACO's mix of diagnoses that trigger an HCC

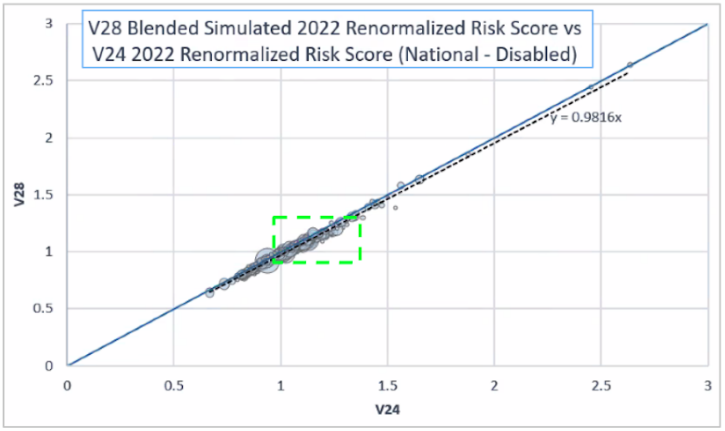


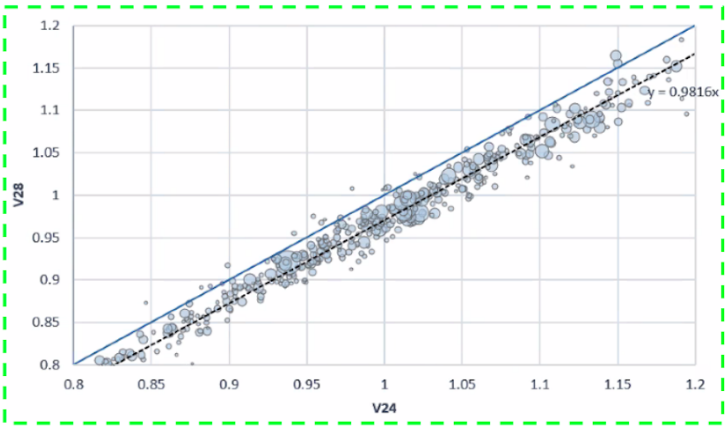
Enrl Type	ACOs	Mean	Median	% < Mean	% >= Mean
Disabled	483	97.1%	97.2%	49%	51%
Aged Dual	483	98.5%	98.5%	48%	52%
Aged Non-Dual	483	98.6%	98.8%	46%	54%

Assumptions: Uses V28 blend as of 2024 along with 2024 norm factors. The V28 2024 model software simulates 2022 PY by using 2021 data collection year to compare to the V24 2022 PY. Uses 2022 Q2 MSSP assignment. Excludes effects due to regional risk scores

Highlighting the disabled population, which had the biggest average drop** of nearly 2% across all enrollment types

- Shows impact on all ACOs
  - Bubbles are blended V28 at 33% vs 100% V24
  - Size represents number of benes
  - Blue line: Set at risk ratio = 1.0 for comparison
  - Black line: Regression showing average drop due to model change
- Result
  - Regression is < 1.0, demonstrating drop
  - Most ACOs are below risk ratio of 1.0





**Assumes no change in coding patterns or intensity from diagnosis collection year 2021 to 2023

Comparison of V28 Impact Between Assigned and Non-Assigned

- *'% Difference Column Explanation:* This pivot table shows the renormalized risk score differences between beneficiaries assigned to ACOs ('Assigned') and beneficiaries who are eligible to be in an ACO ('Assignable-only'), but are not assigned to an ACO. The renormalized risk score for 'Assigned' beneficiaries is higher compared to 'Assignable-only' beneficiaries. The renormalization factors are lower for the 'Assignable-only' than the 'Assigned' population. This pressures ACO risk scores lower by using the total assignable population to calculate the renormalization factor.
- *'Bene-Level' and 'ACO-Level' Columns Explanation:* The percentage change is comparing the V28 model to the V24PY22 model. There is a difference in the drop depending on the level of detail. If you average bene-level average renormalized risk scores from V28 to V24, then the drop is lower compared to ACO-level average risk scores.
- NOTE: V24PY22 and V24PY23 models are assumed to be the same. There is a difference in the renormalized risk scores due to differences in the person years. This was caused by filtering to the beneficiaries from our set of county assignable beneficiaries for V24PY22 vs filtering from all possible beneficiaries to assigned beneficiaries for V24PY23. Therefore, the difference is due to the error in our definition of county assignable mentioned in the 'Limitations and Assumptions' section above.

		Assigned		Non-assigned		Assigned vs Non-assigned			V28 vs V24	
enrl type	model	avg reno rscor	person years	avg reno rscor	person years	Average	Weighted Average	% Difference	Bene-Level	ACO-Level
1: ESRD	V24PY22	1.0199	61,526	0.9959	184,957	1.0079	1.0019	2.41%		
2: DISA	V242386P1	1.0480	795,861	0.9827	1,745,026	1.0153	1.0031	6.65%		
	V24PY22	1.0480	795,719	0.9829	1,745,478	1.0154	1.0033	6.62%		
	V28 Blended	1.0416	795,861	0.9855	1,745,029	1.0135	1.0031	5.69%	-0.61%	-2.88%
	V2823T2P	1.0290	795,832	0.9910	1,744,991	1.0100	1.0029	3.84%	-1.81%	-4.17%
3: DUAL	V242386P1	1.0442	589,325	0.9813	1,708,689	1.0128	0.9974	6.41%		
	V24PY22	1.0464	588,440	0.9812	1,706,853	1.0138	0.9979	6.64%		
	V28 Blended	1.0409	589,335	0.9823	1,708,705	1.0116	0.9973	5.96%	-0.52%	-1.52%
	V2823T2P	1.0343	589,098	0.9842	1,708,178	1.0093	0.9971	5.09%	-1.15%	-2.44%
4: AGND	V242386P1	1.0575	8,272,832	0.9594	11,545,942	1.0084	1.0003	10.23%		
	V24PY22	1.0575	8,272,710	0.9594	11,548,136	1.0085	1.0003	10.23%		
	V28 Blended	1.0531	8,272,851	0.9625	11,545,976	1.0078	1.0003	9.41%	-0.42%	-1.45%
	V2823T2P	1.0445	8,272,209	0.9686	11,544,916	1.0065	1.0002	7.84%	-1.23%	-2.31%

Limitations and Assumptions

1. First year of phase-in only: ⅓ blend of V28
2. All MSSP ACOs were simulated under 2023 agreement start/renewal with most recent benchmark year of 2022
3. The MSSP assigned Population was taken as of 2022 Q2
4. New MSSP rules for 2024 agreement starters/renewals were not taken into account i.e. the Pathways to Success risk ratio capping rules were used
5. ESRD beneficiaries were excluded since they are under a separate CMS-HCC risk model
6. Full national claims data were used to recalculate risk scores using a 2021 diagnosis collection year
7. The 2021 diagnosis collection window was used to approximate the 2023 diagnosis collection window. This assumes no behavior in HCC coding behavior between 2022 and 2024 risk scores. The center of the distributions when comparing V28 blended and V24PY22 would likely increase in the future assuming risk scores increase year-over-year due to improving coding practices.
8. Long-term institutional (LTI) beneficiary flag is not used in the segment selection under either model
9. V24PY22 model population is constrained by county assignable definition (which has error). All other models ran for this analysis were not constrained and were ran for all benes. The overall effect is the following (in person years):

	V24PY22	V28Sim22 Blended	
1	246,484		
2	2,541,197	2,540,890	-0.01%
3	2,295,291	2,298,038	0.12%
4	19,820,843	19,818,824	-0.01%

10. National renormalization factors were calculated using an average rolling up the beneficiary-level risk scores as opposed to using a weighted average to aggregate
11. Definition of full Medicaid dual enrollment is defined as a dual status code of 02,04, or 08. The definition of partial medicaid is a dual status code of 01, 03, 05, or 06. Dual status is determined based on months in the performance year.
12. Definition of enrollment types are as follows:
    a. No enrollment type: Medicare entitlement buy-in indicator = '0' OR NULL
    b. ESRD: Medicare status code equal to 11,12, or 31. Link to medicare status code definition: https://resdac.org/cms-data/variables/medicare-status-code-january
    c. Disabled: Medicare status code equal to 20. Link to medicare status code definition: https://resdac.org/cms-data/variables/medicare-status-code-january
    d. Aged Dual: Dual status code equal to 01, 02, 04, or 08. Link to dual status code definition: https://resdac.org/cms-data/variables/medicare-medicaid-dual-eligibility-code-january
    e. Aged Non-Dual: All beneficiaries who do not fit the definition for any of the other enrollment types

Assumptions to Validate with CMS

CMS officials have not been able to provide answers to these questions. They had to be deduced from backtests on actual data.

1. High level: Summary of **modifications** applied to claims specifically for the **MSSP** program to generate Person and Diagnosis tables (before the data flows through to the **standard MA** risk scoring calculations).
2. Logic for **segment** picking and model inputs:
    a. **Partial vs full dual** segment: Confirm the **lookback** period used. Confirm **MBSF** fields and logic used.
    b. **LTI** segment: Confirm the **lookback** period. Confirm **MDS** fields and logic are used.
    c. **ESRD** segment: Confirm **source** data and **logic** used.
    d. **Dual** enrollment type input flag: Confirm window used to define enrollment type for Medicaid.
3. What are the coefficients of the **demographic-only** model used for adjusting the risk ratio cap?
4. Confirm methodology for diagnosis filtering during historical **RAPS vs EDS blend** years.
    a. Verify filtering on provider **specialty code** for the RAPS claims data source portion of the blend
    b. Verify filtering on only **CPT/HCPCS** codes for the EDS claims data source portion of the blend
5. Calculation of **national renormalization factor**: Confirm calculation is straight average rather than person year weighted average
6. Is the original reason for entitlement code field or the current reason for entitlement code field used to identify beneficiary enrollment type?