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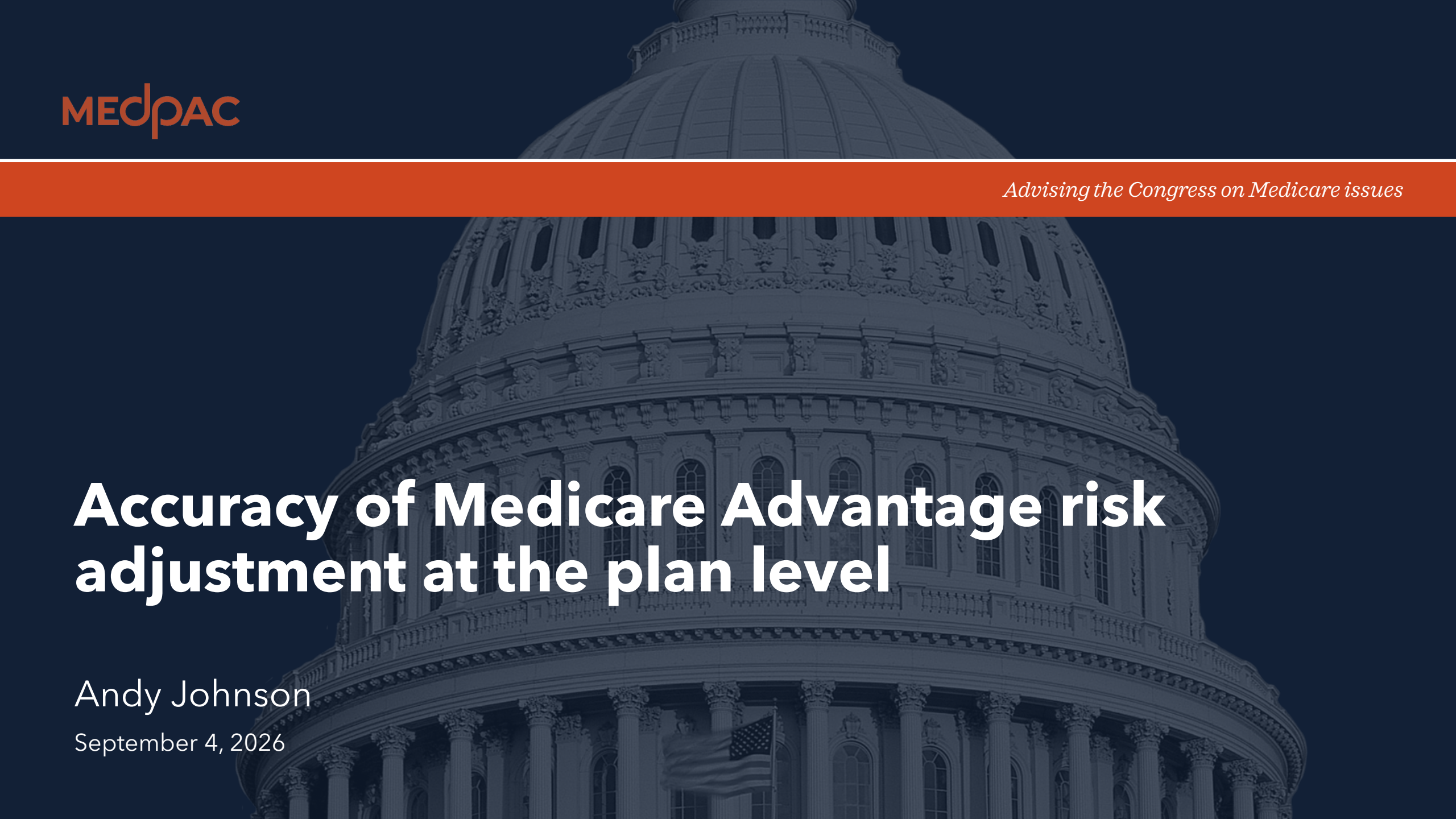

Accuracy of Medicare Advantage risk adjustment at the plan level

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September 4, 2026

Presentation outline

1. Accurate risk adjustment is important for MA plan competition
2. Preliminary assessment of risk-adjustment performance across MA plans
3. Aspects of the risk-adjustment model that affect performance
4. Policies that could improve plan-level accuracy of risk adjustment
5. Potential directions for future work

Medicare Advantage relies on plan competition

- Plans offer Medicare Part A and Part B services, as well as supplemental benefits
- Beneficiaries choose plans based on premiums, cost sharing, provider networks, supplemental benefits, and other features
- Payments to plans are risk adjusted to reflect differences in the population of beneficiaries who enroll in the plan
  - Plans with higher average risk scores receive higher payments

The primary goal of risk adjustment is plan-level payment accuracy

- Accurate risk adjustment compensates plans fairly for enrolling higher- or lower-risk populations
- Over- and under-prediction errors at the individual level are expected
  - What matters for payment accuracy is whether errors balance across enrollees within a plan
- Systematic prediction errors at the plan level can result in over- or underpayments that undermine plan competition

Risk adjustment must balance other objectives

- Risk adjustment should maintain plan-level accuracy when confronted with strategic behavior such as coding efforts
- The process of risk adjustment can increase system costs, shift resources from productive uses, and disadvantage small plans
  - Policy makers may wish to minimize administrative burden for plans and providers
- Accuracy of overall MA payments relative to FFS is also important, but not the focus of this presentation

Note: MA (Medicare Advantage), FFS (fee-for-service).

Plan-level accuracy is important for competition

- Accurate risk adjustment supports plan competition
  - Encourages plans to compete on their cost-efficiency, benefit generosity, and quality metrics
  - Creates a level playing field across plans with different enrollee populations
- Plan-level inaccuracies can undermine competition
  - Plans with a risk-adjustment advantage receive higher rebates, improving their competitive position
  - These advantages can increase plans' ability to attract and retain enrollees and allow them to participate in additional markets
  - Risk-adjustment advantages encourage plans to invest in increasing risk scores or improving their risk profile, rather than activities that lower costs or improve quality

Illustration of how risk-adjustment inaccuracies can reduce rebates for disadvantaged plans

- Organizations with risk-score disadvantage receive lower rebates for enrolling the same enrollees
  - Illustrative example of two plans with the same enrollee risk profile*
    - Plan B has increased its average risk score from 1.035 to 1.085 through higher coding intensity

Plan A rebate = ($1,000 std benchmark * 1.035 – plan bid) x 65% rebate percentage = $88

Plan B rebate = ($1,000 std benchmark * 1.085 – plan bid) x 65% rebate percentage = $120

  - Difference in rebate is roughly equivalent to the plan achieving a quality bonus of a 5 percent increase to its benchmark
- Plan A may have to charge enrollees a premium to offer the same generosity of supplemental benefits as Plan B, or risk losing enrollees

Notes: *Illustrative example is for a county in a 100% benchmark quartile and for a plan with 3.5-star rating, which does not provide the plan with a quality bonus increase to the plan benchmark and provides the plan with a rebate percentage of 65%.

Concerns about plan-level accuracy under current system

- The risk model is calibrated using the FFS population
  - Model coefficients reflect relationships between spending and health conditions in FFS
  - Relationships may differ within MA due to coding patterns and utilization differences
  - Coefficients that don't reflect actual MA spending may disadvantage some plans
- Plans that code diagnoses more intensively have risk-score advantage; robust evidence of meaningful variation across MA plans [1,2,3,4]
- Concerns about certain plans being disadvantaged by risk adjustment, independent of coding intensity
  - Certain plans may attract a more favorable risk pool relative to others, net of risk adjustment
  - Stakeholders have reported that plans with certain health systems in their network may attract enrollees whose higher costs are not fully compensated by risk adjustment

Note: MA (Medicare Advantage). FFS (fee-for-service).

[1] Curto, V. E., E. Politzer, T. S. Anderson, et al. 2025. Coding intensity variation in Medicare Advantage. *Health Affairs Scholar* 3, no. 1 (January): qxae176. [2] Kronick, R., F. M. Chua, R. Krauss, et al. 2025b. Insurer-level estimates of revenue from differential coding in Medicare Advantage. *Annals of Internal Medicine* (April 8). [3] Marr, J., A. M. Ryan, and D. J. Meyers. 2026. Exposure to the new Medicare Advantage risk-adjustment model varies across insurers. *Health Affairs Scholar* 4, no. 5 (May): qxag092. [4] Medicare Payment Advisory Commission. 2026. *Report to the Congress: Medicare payment policy*. Washington, DC: MedPAC.

Preliminary assessment of risk-adjustment performance across plans

Approach to assessing risk-adjustment performance at the plan level

- Plan costs include medical expenses (about 86%), admin costs, and profit
  - Vary based on the enrollee population, geographic practice patterns, the factors related to plans' ability to manage costs
  - Risk adjustment is intended to reflect variation in costs related to enrollee population
- Goal: Assess how well risk adjustment accounts for enrollee-related variation in plans' costs
  - We use plan bids as a measure of the cost to provide Part A and Part B benefits
  - Plans with higher-cost populations should have higher bids and higher risk scores
- We compare bids before and after risk standardization to assess how much variation remains after accounting for differences in plan risk scores
  - Risk-standardized bid = plan bid ÷ plan average risk score
  - Adjust all bids to account for differences in the geographic composition of plan enrollment[1]

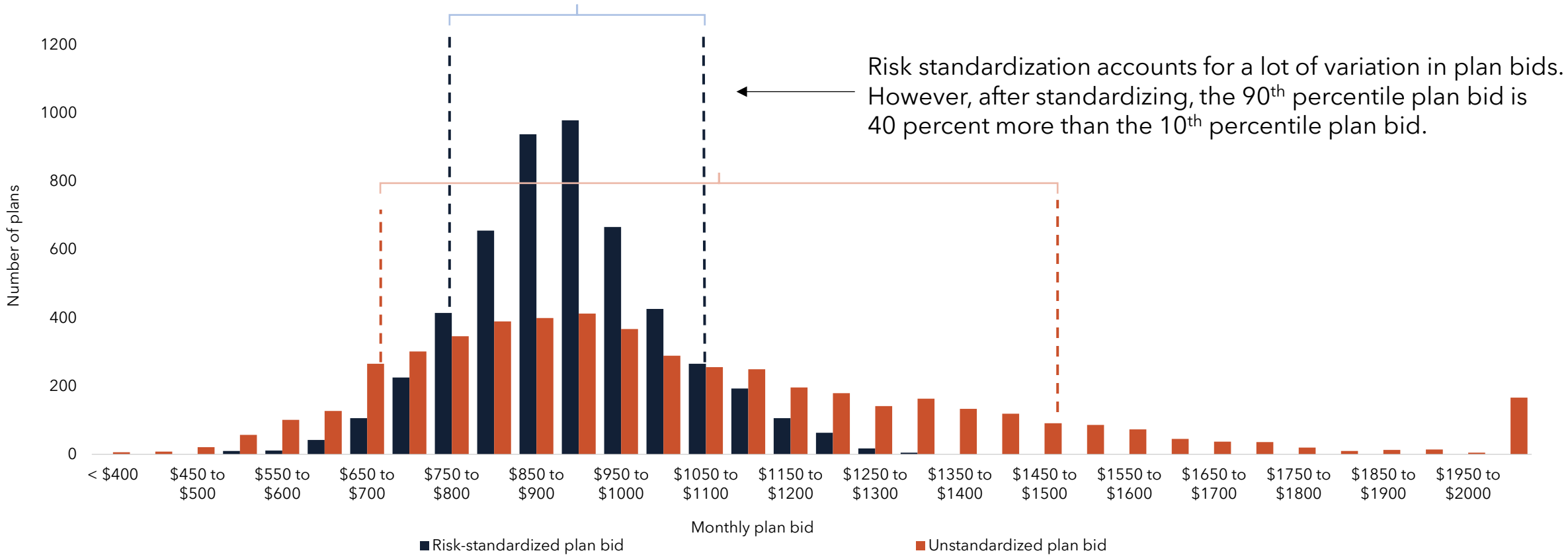
Notes: [1] We used plan payment rates, which are based on plan bids. Both plan payment rates and bids reflect the expected costs of providing Medicare Part A and Part B services, but payment rates reflect actual enrollment patterns and risk scores where bids reflected projected amounts. To account for geographic patterns, we divided payment rates by a plan specific area geographic adjustment (AGA), which is calculated as the plan enrollment-weighted average of county-level AGA. CMS calculates county-level AGAs as the relative risk-standardized FFS spending in a county relative to national risk-standardized FFS spending.

Variation in risk-standardized bids can indicate potential risk-adjustment inaccuracies

- Variation in plan bids after standardizing for risk scores and geography is expected and reflects multiple factors
  - Plans differ in their ability to manage medical costs, administrative costs, profit, and actuarial assumptions used to develop their bid
  - There is no ideal level of risk-standardized variation in plan bids
- However, substantial systematic variation after standardization may indicate that risk adjustment does not fully compensate plans for differences in enrollee populations
- Analysis is conceptually similar to the Commission's analysis of relative accuracy of Part D risk adjustment across PDPs and MA-PDs (June 2025)

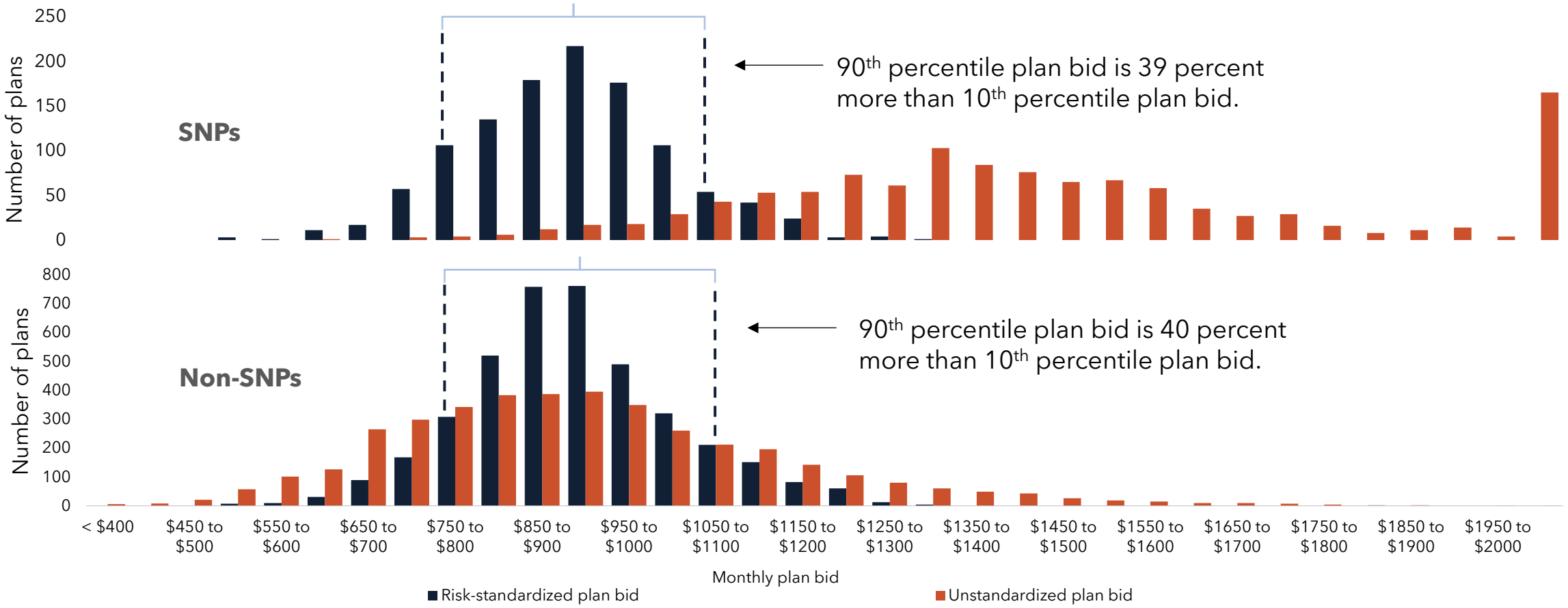
Notes: Prescription Drug Plan (PDP), Medicare Advantage Prescription Drug Plan (MA-PD).
Chapter 4: Medicare Payment Advisory Commission. June 2025. *Report to the Congress: Medicare and the health care delivery system.* Washington, DC: MedPAC.

Some variation remains after risk standardizing plan bids, 2024



Notes: Analysis of monthly plan bids for Part A and Part B services; does not include payment for rebates. All bid values have been adjusted to account for geographic variation by dividing the bid amount by each plan's average Area Geographic Adjustment (AGA) values, calculated as the county AGA weighted by county enrollment. Risk-standardized plan bid is the monthly bid divided by the plan's average risk score used for payment. Analysis excludes Puerto Rico and plan types other than HMO and PPO.

For SNPs and non-SNPs, similar amount of variation remains after standardization, 2024



Notes: Special-needs plan (SNP). Analysis of monthly plan bids for Part A and Part B services; does not include payment for rebates. All bid values have been adjusted to account for geographic variation by dividing the bid amount by each plan's average Area Geographic Adjustment (AGA) values, calculated as the county AGA weighted by county enrollment. Risk-standardized plan bid is the actual monthly bid amount divided by the plan's average risk score used for payment. Analysis excludes Puerto Rico and plan types other than HMO and PPO.

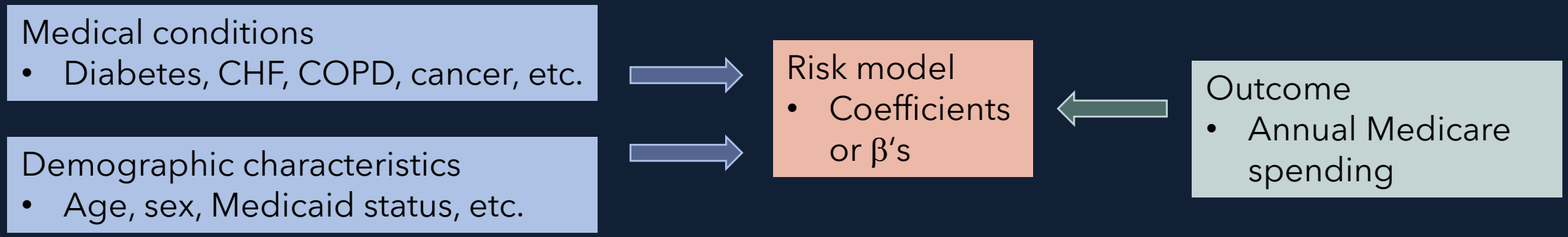
Summary of preliminary analysis of plan-level accuracy

- Risk adjustment narrows the distribution of plan bids, indicating risk scores account for some variation due to plans' differing enrollee populations
- After risk and geographic standardization, 90th percentile bid was about 40 percent higher than 10th percentile bid
  - Similar amount of variation in standardized bids for SNPs and non-SNPs
  - Either medical expenses, administrative costs, and profit were actually 40 percent higher, or some systematic inaccuracies in risk adjustment remain
  - Future work could use historical medical costs to remove additional sources of variation
- Some plans may have higher bids in part because their risk scores do not fully reflect their higher-cost enrollees, which would create a competitive disadvantage
- Plan-level inaccuracies could result from
  - Some plans coding diagnoses less intensively than others
  - Some plans experiencing unfavorable selection, net of risk adjustment

Aspects of the current risk-adjustment model that affect plan-level accuracy

Risk-adjustment models are developed from a beneficiary-level regression

- Models the association between
  - Model inputs: Medical conditions (groups of diagnoses) and demographic characteristics
  - Outcome variable: Annual spending for Medicare services



- The regression outputs are coefficients (β's), one for each explanatory variable

$$\textit{Annual spending} = \beta_m \times (\textit{medical conditions}) + \beta_d \times (\textit{demographic characteristics})$$

Note: CHF (congestive heart failure), COPD (chronic obstructive pulmonary disease).

Normalization converts dollars to risk-score coefficients

- Model coefficients are converted from dollars to risk-score units by dividing by average annual spending (average outcome value)
  - Establishes a risk score of 1.0 for a beneficiary with average annual spending, called "normalizing" the model
  - Risk scores are a beneficiary-specific index of predicted spending relative to national average spending

Example calculation of a beneficiary's risk score

Model Component	Dollar coefficient	Score coefficient (β's)
Female, 74, community, no Medicaid benefits	$4,170	0.395
Diabetes with chronic complications	$1,753	0.166
Vascular disease with complications	$4,804	0.455
Predicted annual spending	**$10,727**	
Risk score		**1.016**

Notes: End-stage renal disease (ESRD). Each score coefficient is equal to the dollar coefficient divided by $10,558, which is the risk-model denominator for the 2024 risk model updated to the 2024 payment year (average 2019 spending for non-ESRD model calibration population multiplied by the normalization factor for 2024). Numbers may not sum due to rounding.

Challenges with the current risk-adjustment system can be grouped into three categories

- Calibration population
  - Population used to estimate the model coefficients
- Model inputs
  - Set of variables used to explain annual Medicare spending
- Model fit
  - The relationship between model inputs and Medicare spending used for model calibration

➢ Challenges with current model may contribute to risk adjustment inaccuracy, which undermines plan competition

Challenges with the calibration population

- The MA risk model is calibrated using the FFS population
  - Risk scores reflect FFS Medicare relative spending on health conditions
  - Risk model does not reflect MA population characteristics, effects of utilization management, or differing coding practices
  - Differences in predicted and actual spending for MA enrollees likely provides an advantage to some organizations

Note: MA (Medicare Advantage), FFS (fee-for-service).

Challenges with risk-model inputs

- Demographic characteristics alone do not account for much variation in health spending
- Use of diagnosis codes creates incentive to document more medical conditions for MA enrollees
  - Some diagnosis codes are prone to discretion, contributing to diagnostic coding variation across MA plans
  - Some organizations have a competitive advantage by receiving larger rebates due to higher coding intensity
  - Documenting more diagnosis codes adds administrative burden for providers
- Other inputs could improve accuracy, but also need to balance goals to avoid influence from strategic behavior or adding administrative burden

Note: MA (Medicare Advantage).

Challenges with risk-model fit

- Health spending is skewed and difficult to predict
  - Majority of spending concentrated among small share of beneficiaries
  - Difficult to capture with payments based on averages
- Model accuracy (or "fit") is commonly measured by an R^2 statistic or predictive ratios
- Tradeoff between predictive power and interpretability
  - Current model uses simple, linear modeling
  - More complex models have potential to improve prediction, but may be less interpretable
- Model inputs are a factor in determining model fit

Policies that could improve plan-level accuracy of risk adjustment

Calibration population: Implement an MA encounter-based risk model

- In March 2026, the Commission discussed considerations for implementing an encounter-based risk model
  - Technical considerations: Calculating annual spending, use standard prices or provider payments, include denials and out-of-network services
  - Policy choices: Use a single MA-based model for all beneficiaries, how to address any coding intensity differences, separate normalization factors
- Discussion focused on implications of choices for the overall level of payment between MA and FFS
- Commissioners expressed interest in better understanding the implications of an encounter-based model

Note: FFS (fee-for-service), MA (Medicare Advantage).
MedPAC March 2026 presentation: Considerations for implementing Medicare Advantage encounter data in risk adjustment.
https://www.medpac.gov/wp-content/uploads/2026/03/Tab-F-MA-encounter-data-Mar-26.pdf

Encounter-based risk model has the potential to improve plan-level accuracy

- An encounter-based model would better align with MA enrollee characteristics, coding patterns, and treatment costs
  - Coefficients that more accurately reflect the relationship between spending and health conditions in MA will improve plan-level accuracy
  - Incentives to code more diagnoses would remain, undermining competition
- Calibrating an encounter-based model would change coefficients and payments relative to current model
  - Current coefficient for diabetes is 0.166, but could be higher or lower under an encounter-based model
  - We could model an encounter-based model to help understand these changes

Note: MA (Medicare Advantage).

Improving model inputs: Examples of policies that reduce discretionary model inputs

- Remove HRAs and chart reviews as a source of diagnoses (March 2016)
- Remove discretionary diagnoses or conditions that generate coding differences within MA
- Apply a tiered coding adjustment based on parent organization coding level

Note: HRA (health risk assessment), MA (Medicare Advantage).
Source: Chapter 12: Medicare Payment Advisory Commission. March 2016. *Report to the Congress: Medicare payment policy.* Washington, DC: MedPAC.

Improving model inputs: Examples of policies that incorporate additional data for inputs

- Incorporate information from patient survey data
- Use utilization data to enhance diagnoses
- Develop a model incorporating utilization data or medical record data

Improving model fit: Examples of policies

- Use machine learning or other more sophisticated modeling approaches
- Incorporate additional approaches to adjust plan payments for very high-cost beneficiaries, for whom risk models tend to underpredict
- Use a concurrent risk model with diagnoses from the payment year to determine risk scores

Potential directions for future work

Potential future work

- Refine analysis assessing risk-adjustment accuracy at the plan-level
  - Use historical Part A and Part B costs excluding administrative costs, profit, and projection error
- Explore mechanics of alternative risk model approaches
  - Calibrate an encounter-based risk model
  - Model approaches to reducing discretionary inputs
  - Explore using additional data or alternative model fit approaches
- Conduct interviews with MA actuaries
- Discuss advantages and disadvantages of alternative policy approaches to risk-model calibration population, inputs, and fit

Note: MA (Medicare Advantage).

Discussion

- Questions about material
- Feedback about potential future work
- Spring presentation and potential June 2027 chapter

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