



PQA Sociodemographic Status (SDS) Risk Adjustment FAQs

Health outcomes can be influenced by many factors other than the healthcare services received, including patient-related factors such as existing clinical conditions and sociodemographic status (SDS), which refers to a variety of socioeconomic (e.g., income, education, occupation) and demographic factors (e.g., age, race, ethnicity, primary language). While risk adjustment for clinical conditions is a common consideration for quality measures in certain situations (particularly outcome measures), consensus on the appropriateness of adjusting quality measures for SDS-related risk factors is still evolving. Careful evaluation of SDS risk adjustment reflects an important component of health equity by ensuring that organizations that care for disadvantaged populations are measured fairly.^{1,2}

This Frequently Asked Questions (FAQ) document addresses risk adjustment of three PQA (Pharmacy Quality Alliance) adherence measures. The information provided supports [PQA's SDS risk adjustment recommendations](#). The document is divided into two sections: (1) Risk Adjustment and SDS: Background and Basics; and (2) PQA Risk Adjustment Recommendations for Adherence Measures in Medicare Part D.

Risk Adjustment and SDS: Background and Basics

What is risk adjustment?

Risk adjustment (or case-mix adjustment) is a statistical method to account for patient-related factors (e.g., age, comorbidity, illness severity) that may impact health outcomes but may be outside the direct control of the measured entity (e.g., health plans, providers).^{1,2} For example, a hospital measure capturing readmissions may be risk adjusted to account for the fact certain clinical conditions carry greater risk of readmission.

The goal of risk adjustment is to account for factors that are unrelated to the quality of care provided and improve the ability to make fair and correct conclusions about the quality of care provided.

What is sociodemographic status (SDS)?

SDS refers to a variety of socioeconomic (e.g., income, education, occupation) and demographic factors (e.g., age, gender, race, primary language) that may be associated with differential health outcomes.^{1,2}

Why is risk adjustment important?

Ensuring accurate conclusions and inferences about quality of care is important to both patients and healthcare entities. Appropriate measurement allows patients to make informed decisions about where to obtain care. For measured entities, inaccurate measurement can have implications on rewards and penalties as well as their reputation and ability to improve care for the various subpopulations they serve, since measurement is critical to successful quality improvement.^{1,2} By risk adjusting quality measures, the likelihood of penalizing accountable entities for factors outside of their control is reduced. Finally, risk adjustment is important to preserve access to care by reducing incentives to avoid patients who have characteristics that may be associated with poorer health outcomes.

What are the limitations or potential drawbacks for risk adjustment?

There are the potential unintended consequences of risk adjustment for social factors which include establishing a lower standard of care for certain patients, and obscuring the differences in quality among providers. Additionally, risk adjustment only addresses patient characteristics when there could be provider level characteristics impacting performance on a measure such as the robustness of the local healthcare workforce. See the [2022 National Quality Forum \(NQF\) Final Technical Guidance \(Phase 2\) for Developing and Testing Risk Adjustment Models for Social and Functional Status-Related Risk Within Healthcare Performance Measurement¹](#) for more information. Overall, a balanced and thorough consideration of the pros and cons are critical to deciding if and how to risk adjust in quality measurement.

What is the difference between quality measure risk adjustment and stratification?

Risk adjustment (or case-mix adjustment) accounts for patient-related factors when calculating overall performance scores by using statistical modeling. Generally, a single, risk-adjusted performance score is computed for a population.¹

Stratification refers to the process of calculating performance separately for different strata or groupings of patients based on some patient-level characteristic(s). That is, rather than a single overall performance score, one score is instead reported for each group. Stratification highlights differences in care by comparing scores across groups.¹

Risk Adjustment Recommendations for Three PQA Adherence Measures in Medicare Part D

Why did PQA develop a risk adjustment model for its Proportion of Days Covered (PDC) measures for Diabetes All Class Medications, Renin Angiotensin System Antagonists (RASA), and Statins?

In its [2014 Technical Report for Risk Adjustment for Socioeconomic Status or Other Sociodemographic Factors](#),³ NQF recommended SDS risk adjustment of performance measures if (1) there is a conceptual relationship between SDS and the outcome of interest, and (2) there is empirical evidence that SDS affects the outcome of interest. In response to NQF recommendations for SDS risk adjustment, PQA convened the Risk Adjustment Advisory Panel (RAAP) to determine which PQA measures may be appropriate for SDS risk adjustment, and to recommend a risk adjustment methodology for the measures. The panel consisted of representatives from PQA's multistakeholder member organizations with expertise in risk adjustment methodology, medication adherence, healthcare disparities research, and health plans currently participating in the Centers for Medicare & Medicaid Services (CMS) Part C and D Star Ratings program.

The RAAP identified three PQA medication adherence measures, assessed by Proportion of Days Covered (PDC), that are currently used in the CMS Medicare Part D Star Ratings program as appropriate to consider for risk adjustment in part because they are intermediate outcome measures, which are broadly considered more appropriate for risk adjustment than process measures. Additionally, the RAAP identified a conceptual relationship between SDS and adherence in literature. PQA contracted with CMS to conduct a study to assess the impact of SDS variables on these three measures.

How were the SDS factors identified?

The RAAP determined a list of potential risk factors to examine based on a conceptual framework focused on medication adherence and a systematic review of published literature. Eleven potential risk factors were identified to include in the analysis inclusive of beneficiary-, community-, and county-level factors (see Table 1). Risk factors were only included if they were present prior to the measurement period and not directly under the control of the health plan.

How was risk adjustment applied to the three PQA measures?

Once the risk factors were identified through the conceptual model and literature review, the RAAP selected a multivariable logistic regression model as the statistical method for risk adjustment. The evaluation was designed to assess to what degree beneficiaries who are enrolled in the same contract have dissimilar outcomes. To ensure that beneficiary comparisons were made within contracts, a random-effects logistic regression model was employed which controlled for the Part D contract for each PDC measure of interest. This approach acknowledged the variability in an outcome that is attributable to the contract and only allowed comparisons among beneficiaries that are in the same contract.

A risk-adjusted score was calculated for each Medicare Part D contract, separately for all three PDC measures of interest, to determine the extent of score change after risk adjustment. For each Part D contract and for each measure, the expected measure rate was calculated as the average of the patient-predicted probabilities of adherence for the contract based on the multivariable logistic regression model. The risk-adjusted measure score for each contract was then calculated as the ratio of observed (or unadjusted) measure score to the expected (adjusted) score, multiplied by the aggregate unadjusted score for all Part D contracts.

Why did PQA recommend a reduced SDS risk adjustment model?

PQA conducted analyses of a full model using beneficiary-level data from CMS, as well as additional community-, and county- level data from other data partners (See Table 1). However, given the challenges associated with obtaining SDS data, PQA also explored a reduced model that included only beneficiary-level data readily available to CMS and health plans.

Table 1: Variables Included in SDS Analysis for Three PQA PDC (Adherence) Measures

Variable Level	Variable	Full Model	Reduced Model
Beneficiary	Age	✓	✓
	Gender	✓	✓
	Low-Income Subsidy (LIS) status or Dual eligibility status	✓	✓
	Disability as original reason for Medicare entitlement	✓	✓
	Race	✓	
Community (9-digit zip code)	Median income	✓	
	Percent of households where residents are married	✓	
	Percent of households where residents completed college	✓	
	Percent of households where residents own their home	✓	
County	Federally designated primary care professional shortage area	✓	
	Federally designated mental healthcare professional shortage area*	✓	

**This variable was included during testing but was not significant in the multivariable logistic regression model and was removed. Results below describe the full model without including this variable.*

Overall, the results of the full and reduced model were similar for all three measures with respect to both direction and strength of impact.

Why was race not a recommended variable for risk adjustment?

Race was the only beneficiary-level factor not recommended for inclusion. The RAAP raised concerns regarding the race variable which included caution about the accuracy and completeness (e.g., missing data) of the variable, the impression that race was being used as a proxy for socioeconomic status, and the idea that including race creates a differential quality standard by race. Therefore, PQA looked at a beneficiary-level model with and without race (i.e., analysis limited to age, gender, low-income subsidy (LIS)/dual status, and disability status). A comparison of the models showed similar risk-adjusted rates for the Part D contracts. As a result, PQA recommended the most parsimonious model, which includes the following patient factors: age, gender, LIS/dual status, and disability status.

Why were clinical risk factors not included?

As a first step in the risk adjustment of PQA measures, PQA staff, based on recommendations from the RAAP, decided to focus on SDS factors. PQA recognizes the importance of clinical factors (e.g., comorbidities) for use in risk adjustment of quality measures and continues to work with technical expert panels to improve our measures.

Does risk adjustment of PQA measures impact plans' performance on the measures?

CMS issued a [final rule](#),⁴ published on April 12, 2023, that finalizes revisions to regulations governing Medicare Advantage (MA or Part C), the Medicare Prescription Drug Benefit (Part D), Medicare cost plans and Programs of All-Inclusive Care for the Elderly (PACE) for Contract Year 2024. In the final rule, CMS finalized implementation of PQA's recommended methodology for SDS risk adjustment, a substantive change, for the 2026 measurement year and 2028 star ratings for PQA's three adherence measures implemented in the Part D Star Ratings. Prior to proposing this change, CMS conducted testing to assess the potential effects of SDS risk adjustment on star ratings for MA-PD and PDP contracts.

CMS found that for both MA-PD and PDP contracts, approximately 60-70 percent of contracts retained the same star level across the Medication Adherence for Hypertension (RAS Antagonists) and Medication Adherence for Cholesterol (Statins) measures. When a star level shift was observed, most of the MA-PD and PDP contracts shifted by one-star level and usually shifted upwards when the SDS risk adjustment was applied to the adherence measures. Additional results from CMS' analyses are described in the final rule (CMS-4201-F).

What are PQA's recommendations for SDS risk adjustment of the three PQA adherence measures?

As noted in the PQA Measure Manual, PQA recommends the following pertaining to the use of the three health plan adherence measures, PDC-Diabetes All Class, PDC-Renin Angiotensin System Antagonists, and PDC-Statins, in Medicare Part D.

- The measures should be risk adjusted for SDS characteristics to adequately reflect differences in patient populations.
- The measures should be adjusted for the following beneficiary-level SDS characteristics: age, gender, dual eligibility/Low-Income Subsidy (LIS) status, and disability status.
- The measures should be stratified by the beneficiary-level SDS characteristics listed above to allow health plans to identify disparities and understand how their patient population mix is affecting their measure rates.

Does this risk adjustment affect other healthcare providers?

This study did not investigate the impact of risk adjustment beyond the plan level. PQA encourages plans to work with providers to identify and improve medication adherence in groups with lower adherence rates.

Is SDS risk adjustment recommended for PQA’s PDC Composite (PDC-CMP) health plan measure?

The PQA composite adherence measure has not been evaluated for risk adjustment, and PQA would need to explore whether it is methodologically feasible. This is a question PQA will need input on from a technical expert panel and if a risk adjustment model were going to be explored, it would require development, testing and evaluation.

What else is PQA doing to advance health equity through quality?

PQA is convening a Health Equity Technical Expert Panel in 2023 to develop recommendations for stratifying PQA measures and other approaches to ensure our measures accurately capture quality while advancing health equity.

For more information about PQA measures, visit pqaalliance.org/pqa-measures.

References

1. National Quality Forum. *Developing and Testing Risk Adjustment Models for Social and Functional Status-Related Risk Within Healthcare Performance Measurement: Final Technical Guidance – Version 4*. 2021. Accessed February 28, 2023. https://www.qualityforum.org/Publications/2021/08/Developing_and_Testing_Risk_Adjustment_Models_for_Social_and_Functional_Status-Related_Risk_Within_Healthcare_Performance_Measurement_-_Final_Technical_Guidance.aspx
2. U.S. Department of Health and Human Services. *Executive Summary - Report to Congress: Social Risk Factors and Performance in Medicare's Value-Based Purchasing Program*. 2020. Accessed January 23, 2023. <https://aspe.hhs.gov/reports/second-report-congress-social-risk-medicares-value-based-purchasing-programs>
3. National Quality Forum. *Risk Adjustment for Socioeconomic Status or Other Sociodemographic Factors: Technical Report*. 2014. Accessed February 28, 2023. https://www.qualityforum.org/Publications/2014/08/Risk_Adjustment_for_Socioeconomic_Status_or_Other_Sociodemographic_Factors.aspx
4. Centers for Medicare & Medicaid Services. *Medicare Program; Contract Year 2024 Policy and Technical Changes to the Medicare Advantage Program, Medicare Prescription Drug Benefit Program, Medicare Cost Plan Program, and Programs of All-Inclusive Care for the Elderly*. 2023. p. 22120-22345. <https://www.govinfo.gov/content/pkg/FR-2023-04-12/pdf/2023-07115.pdf>

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