



Date: May 19, 2015

To: Cost and Resource Use Standing Committee &
CMS/Yale Measure Development Team

From: NQF Cost and Resource Use Project Team

Re: Review of SDS Conceptual Analysis for CMS/Yale Cost Measures

The Cost & Resource Use Standing Committee will meet via webinar on Thursday, May 21.

The purpose of the meeting is to:

- Provide an overview of the process and plan for reviewing the (3) CMS/Yale cost measures for cardiovascular and pneumonia conditions under the new guidance for sociodemographic status (SDS) risk adjustment.
- Review and discuss the conceptual analysis of the selected SDS risk adjustment factors for the (3) cost measures
- Determine whether further empirical analysis of the impact of SDS factors in the risk model is warranted for the measures.
- Discuss and provide guidance on next steps for empirical analysis (if warranted) of the impact of the SDS factors in the risk model.

Standing Committee Action:

1. Review the Yale submission of the [conceptual model](#) and [memo discussing the conceptual analysis](#) of SDS risk factors and hospital-level cost measurement.
2. Review this memo; prepare to provide input and discuss the Committee discussion questions on page 4.

Conference Call & Webinar Information: *Thursday, May 21, 2pm-4pm ET*

- Conference call dial in: (888) 802-6696
- Web Link: <http://nqf.commpartners.com/se/Rd/Mt.aspx?262682>

Agenda

2:00pm Welcome & Roll Call

2:05pm Background

- How did we get here?
- Goals and purpose of this call

2:15pm Review of Conceptual Analysis

- Developer overview and summary of submission
- Committee Discussion

3:45pm Public and Member Comment

3:55pm Next Steps

4:00pm Adjourn

Background

The NQF Board of Directors Executive Committee ratified the CSAC's recommendation to endorse the following cost measures:

- #2431: Hospital-level, risk-standardized payment associated with a 30-day episode-of-care for Acute Myocardial Infarction (AMI) (CMS/Yale)
- #2436: Hospital-level, risk-standardized payment associated with a 30-day episode-of-care for Heart Failure (HF) (CMS/Yale)
- #2579: Hospital-level, risk-standardized payment associated with a 30-day episode of care pneumonia (CMS/Yale)

Only with the following conditions:

- One-year look-back assessment of unintended consequences: NQF staff will work with the Cost and Resource Use Standing Committee and CMS to determine a plan for assessing potential unintended consequences of this measure in use. The evaluation of unintended consequences will be initiated in approximately one year and possible changes to the measures based on this data will be discussed at that time.
- Consideration for the SDS trial period: The Cost and Resource Use Standing Committee will consider whether the measure should be included in the NQF trial period for sociodemographic status adjustment.

Overview of the Sociodemographic Status (SDS) Adjustment Trial Period

The trial period approved by the NQF Board of Directors is designated as a 2-year period of time during which SDS factors should be considered as potential factors in the risk-adjustment model if there is a conceptual reason for doing so. If there is a conceptual relationship between potential SDS risk factors and the outcome of interest, the developer should conduct empirical analyses to determine whether such factors improve the risk-adjustment model. Based on that analysis, measure developers may submit measures with SDS factors included in the risk model. The trial period begins April 2015.

Prior to this decision, NQF criteria and policy prevented the inclusion of SDS factors in the risk model and only allowed for the inclusion of a patient's clinical factors present at the start of care. Rather than including SDS factors related to the outcome in the risk-adjustment model, NQF criteria required that measures enable the stratification of these variables.

Reviewing the Cost Measures during the SDS Trial Period

In collaboration with the CMS/Yale measure development team, NQF agreed to divide the assessment of the impact of SDS variables on the risk model and performance scores for the cost measures into two stages (and webinars):

- **Stage 1/Webinar #1 (May 21, 2-4pm ET): Conceptual Analysis**
 - Review of conceptual analysis of selected variables
 - Determine whether further empirical analysis is warranted
 - Identify the variables to be pursued in empirical analysis

- Provide input on the plan or approach to empirical analysis of the selected variables.
- **Stage 2/Webinar #2 (October 27, 3-5pm ET): Empirical Analysis**
 - Review empirical analysis of the impact of SDS risk factors in the risk model
 - Determine endorsement status:
 - Recommend [continued] endorsement of the measure.
 - Recommend to de-endorse the measure.

Conceptual Analyses Review

A conceptual relationship refers to a logical theory or rationale that explains the association between an SDS factor(s) and the outcome of interest. The conceptual basis may be informed by prior research and/or healthcare experience related to the outcome of interest, but does not require a direct causal relationship (i.e., it could be a direct cause, an indirect cause, or serve as a surrogate for a cause for which data are lacking).

An assessment of a conceptual relationship between an SDS factor and an outcome of interest includes a consideration of whether the effect of the SDS is primarily mediated by the quality of care delivered (i.e., does the SDS factor lead to the delivery of inferior care processes, which in turn affect the outcome?).

Some potential questions that can be considered to describe the conceptual relationship between an outcome measure and possible SDS risk factors include:

- Does prior research indicate a relationship between SDS and the outcome?
- Is there a logical relationship or theory about the relationship between SDS and the outcome?
- Is there a significant passage of time between the healthcare unit intervention and measured outcome during which other factors may have an effect?
- Do patient actions or decisions influence the outcome or process and are the decisions affected by SDS (e.g., ability to purchase medications)?
- Does the patient community have an influence (e.g., distance to pharmacies, groceries, healthcare services)?
- Risk factors should not be confounded with the effect of the healthcare unit
 - Risk factors should be present at the start of care
 - Risk factors should not be an indicator or characteristic of the care provided (e.g., treatments, interventions, expertise of staff)
- Data for risk factors should be captured reliably and feasibly

Variables under Consideration (based on Yale Submission)

- Patient zip code (proxy for educational attainment or income)
- Medicaid status (proxy for low income and insurance coverage)
- Black or white race

Committee Discussion:

- Has the developer adequately demonstrated that there is (or is not) a conceptual relationship between the risk factors and the payment/resource utilization/cost for each measure or condition (e.g., pneumonia, AMI, HF)? (i.e., Does the Committee believe there is a conceptual relationship?)
- How well do these variables proxy for the intended SDS factors and align with the conceptual model?
- If there is a conceptual relationship, are the data available, feasible and accessible (for this population) in order for these factors to be used in empirical testing of risk-adjustment?
- Based on the conceptual analysis provided by the developers, does the Committee believe that further empirical analysis is warranted?
 - If so, which factors does the Committee recommend the developers pursue in the empirical analysis?

Preparing for Empirical Analysis

If the Committee believes a conceptual relationship exists between the sociodemographic factor(s) and the outcome (i.e, resource utilization or cost), it should be tested empirically to confirm that relationship. NQF does not recommend any particular analytic approach with which to assess empirical associations between sociodemographic factors and outcomes, nor any specific cutoff or threshold value to use for declaring the presence of an association.

Current NQF guidance for the submission of empirical analysis of SDS factors in the risk model requires the submission of:

- Analyses and interpretation resulting in decision to include or not include SDS factors in section.
- Compare performance scores and risk model performance with and without SDS factors in the risk adjustment model (including method and results).
- An interpretation of their results in terms of the differences in performance scores for the same entities.
- If the developer has decided to SDS adjust they will need to submit, updated reliability and validity testing and specifications for a stratified version of the measure using these factors.

Committee Discussion:

- If the developer has a plan for the empirical analysis for the Committee to consider, what recommendations or input does the Committee have on the proposed approach?
- If a plan has not been submitted, what considerations or recommendations would the Committee like to provide to the developers as they develop their approach?

Appendix A: Sociodemographic Factors – PROs and CONs

Table 6 (page 44), excerpted from the [NQF Technical Report: Risk Adjustment for Socioeconomic Status or Other Sociodemographic Factors](#).

Table 6. Sociodemographic Factors – PROs and CONs

Factors/Concepts (specific variables)	PROs	CONs	Caveats
Factors that should be considered, depending on: data availability and the specific outcome or process			
Income	• Allows for use of various ranges	• Hard to collect privately (e.g., in clinician office) • Not easily collected with a single question • May not be an acceptable question to all patients • Meaning is not geographically consistent due to difference	• For national performance measures, need to consider standardization to account for area wage and cost of living differences
Income in relation to federal poverty level	• Definition is standard • Being used under ACA • Researchers	• Doesn't include receipt of other benefits (e.g., food stamps) • Doesn't account for cost of living or community	.
Household income	• May be more meaningful	• Requires assessment of household size	.
Medicaid status as proxy	• Relatively easy to collect in claims data	• Eligibility not consistent across states	• Potentially becomes more useful as more States expand Medicaid to 138% federal poverty level

Factors/Concepts (specific variables)	PROs	CONS	Caveats
Social Security Supplemental Income (SSI)		Correlated with Medicaid status, but not consistently across states	In many states, receipt of SSI automatically makes one eligible for Medicaid
Education	- Perceived to be valid (i.e., less misreporting than for income) - Definitions fairly consistent across various subgroups (e.g., answers from immigrants comparable to those from others) - Fairly stable across time,	- Not widely collected by healthcare units - If collected (e.g., in EHR text fields) may not be easily retrievable	
Homelessness	- Strongly associated with health outcomes - Measures something "beyond" income	- Multiple other definitions - Data often not collected - Status can change	Prevalence tends to cluster among safety net healthcare units
Housing instability	May be better indicator than homelessness which can change	More difficult to define than homelessness	
English Proficiency	- Standard definition exists - Tied to need for translation services/other resource needs and therefore should be collected - Increasingly being collected (required by		
Insurance Status	- Readily available - Some indication of access and resources - Benefit coverage strongly related to	- Wide variability in insurance coverage - Data for underinsurance	
Medicaid status	- Readily available - Some indication of limited income and	Not consistent across states	

No insurance	• Readily available • Standard meaning		• Difficult to capture information about these patients (particularly if
Community/ Neighborhood-level data used as proxy for individual data or as contextual variable	• Many variables available from Census data • Income • Education • Immigration status • Language • Unemployment • Home ownership • Single parents • Others	• Census data do not include all potentially important variables • Residential heterogeneity will affect whether it is a good proxy for data about individuals. • Heterogeneity may differ based on levels of socioeconomic segregation and potentially population density. • Requires geocoding for Census Tract and smaller areas.	
Contextual - Proportion vacant housing	• Seen as indicator for other related issues such as poverty, crime, lack of resources		
Contextual- Crime rate	• May be an indicator for other related issues such as poverty, lack of resources		
Other factors that could be considered			
Factors/Concepts (specific variables)	PROs	CONs	Caveats
Social Support	• Some brief items have been used in previous research • Captures something that other variables do not	• Multidimensional construct that typically requires multiple questions • Lack of agreement about how to	

Living alone	• Available in OASIS data for home health	• Directionality may not be consistent. In some situations such as frailty or impairment, it could be a risk factor. In other situations, it might be an indicator of ability to live alone due to good health and function.	
Marital status	• Often collected		
Occupation	• May capture other concepts (e.g., environmental exposures)	• Multiple definitions • Potentially large data collection burden due to the complexity of the concept • Marginal value (i.e., over and above that contributed through use of other variables) may be limited • Unclear how to handle certain population subgroups (e.g., retirees, students, homemakers)	
Employment Status	• Often collected	• Employment status does not reflect income or availability of insurance • Simple yes/no does not reflect desire/happiness with situation (e.g., retirees may be happy to be unemployed) • Subject to change requiring continuous updating	

Literacy	• This concept may also be able to partially capture health literacy	• No standardized definitions • May be easy to game	If the correlation with education is high, then education could be used.
Health Literacy	• Potentially more relevant to healthcare • Three-item and single-item validated questions	• Not consistently collected/available	
Local/state funding for safety net providers (e.g., tax base)	• Affect resources available to safety net providers beyond insurance	• Data not easily collected/available	• Not a patient characteristic • Risk for unintended consequences (setting a lower standard for poorly supported institutions might send the wrong messages to tax payers)
Race/ Ethnicity	• Correlated with SES and may be more available than other variables	• May be more correlated with bias	• Should not generally be used as proxy for SES