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Social Risk Trial Final Report

DRAFT REPORT – VERSION 2

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Executive Summary

The ongoing COVID-19 pandemic has unmasked and exacerbated the long-standing societal, health, and healthcare **inequities** of marginalized populations. Throughout every phase of the pandemic, these marginalized populations have experienced striking inequities in virus exposure, susceptibility, and access to testing, treatments, and vaccinations. The root causes of these inequities are multifactorial and intertwined, both originating from and reinforced by social, cultural, economic, and other diverse individual and community factors and forces that are often steeped in racial or social discrimination. The complexity of the "causation" of inequity further underscores the vital importance of recognizing and appropriately considering all applicable risk factors (i.e., demographic, clinical, and social) when evaluating, reporting, and recommending **performance measures** for high-stakes incentive and accountability purposes. This report summarizes the findings and recommendations of a five-year journey that the National Quality Forum (NQF) has taken to test the inclusion of **social risk factors** in the quality measure development, endorsement, and implementation evaluation processes.

In 2014, NQF convened a panel of experts in healthcare performance measurement and disparities, the Risk Adjustment Technical Expert Panel (hereafter, Risk Adjustment TEP), to advance the measurement science of **risk adjustment** in responding to the increased use of performance measures in value-based purchasing (VBP) programs and public reporting. Based on the Risk Adjustment TEP's recommendations, NQF began the initial two-year Social Risk Trial and requested that developers evaluate social risk and demographic factors in risk adjustment models. Guided by the Centers for Medicare & Medicaid Services (CMS), NQF formed the Disparities Standing Committee to both oversee and evaluate the trial. The core belief of the Disparities Standing Committee is that disparities in health and healthcare should be identified and reduced; furthermore, performance measurement should neither lead to increased disparities nor penalize the providers caring for a large proportion of marginalized patients. The 2017 Disparities Standing Committee report, entitled, *A Roadmap for Promoting Health Equity and Eliminating Disparities: The Four I's for Health Equity* (hereafter, *Health Equity Roadmap*), details how performance measurement and its associated policy levers can be used to reduce health and healthcare inequities.[1]

Similar to the findings of the *First Social Risk Trial Report*, in the present Social Risk Trial Final Report, we acknowledge that the entire healthcare field still faces many theoretical, practical, and analytical challenges regarding adjustment for social risks.[2] As healthcare moves towards value-based care and additional VBP models are introduced, the need to advance measure science and to ensure that performance measurement is fair, accurate, and unbiased is now more important than ever. A concerted effort among all stakeholders is needed to achieve the following tasks:

- Prioritize the elimination of health and healthcare inequities as a top national strategy
- Enact policies that require government agencies, payers, and providers to report patient-level demographic and social risk data (e.g., race and ethnicity, education, and language)
- Permanently formalize the submission and analysis of social risk factors for all NQF initial endorsement and maintenance measure submissions and implementation evaluations
- Permanently formalize the evaluation of the appropriateness and inclusion (when appropriate) of adjustment for social risk factors for each individual initial endorsement and maintenance submission
- Redesign payment models to support health equity and ensure that organizations that disproportionately serve populations with increased social risk can compete in VBP programs

A key insight for all measure stakeholders is the acknowledgement that risk adjustment has a broader context than the individual measure-specific use. A greater understanding of how measures incorporate social risk adjustment and how risk-adjusted measures are or will be implemented (e.g., public reporting, payment incentives, advanced payment models, and quality improvement) may advance, stagnate, or deter improvements in health outcomes and health equity. Genuine progress will require a concerted effort with a private-public sector action plan to define and standardize social risk factors, streamline the collection and sharing of such data, report measure performance for subgroups of well-defined categories, and determine how to fairly use measures to advance health equity. To note, NQF references to adjusting for social risks in *performance measurement* encapsulates the continuum of measure development, endorsement, maintenance, and implementation activities.

Introduction

The ongoing COVID-19 pandemic has unmasked and exacerbated the long-standing societal, health, and healthcare inequities of marginalized populations. The relationships between social, economic, and environmental risk factors to health and health-related outcomes, and the unequal burden of these risks across sociodemographic groups (e.g., race, ethnicity, language preference, disability status, sexuality and gender identity, and rural subgroups), have become even more apparent as the pandemic continues to unfold. Among the marginalized populations most affected by the pandemic, inequities are especially alarming among the urban, poor, racial, and ethnic minorities. Black, Hispanic, and Native Americans have much higher rates of infection, hospitalization, and death than White Americans.[3,4] Other marginalized groups include the Asian population, individuals with disabilities, the elderly, and all who are subjected to suffering and loss from root causes that reflect deep inequities in virus exposure, susceptibility, and access to testing and treatment.[5] Other factors increase the impact of COVID-19 on these marginalized populations. Groups with lower **socioeconomic status (SES)** are unlikely to be able to work from home, have a higher dependence on public transportation and childcare, and are more likely to live in dense, residential multiunit dwellings with larger household sizes—all risk factors for exposure and transmission of the virus. Moreover, marginalized groups are already more likely to have a higher prevalence of underlying chronic conditions (e.g., heart disease, diabetes, chronic kidney disease, obesity, and sickle cell disease) that are associated with severe cases of COVID-19.[6] Severe COVID-19 cases lead to increased hospitalization, intensive care unit (ICU) admissions, intubation or mechanical ventilation, and death.

Experiences with discrimination and racism in both society and healthcare can lead to mistrust of the healthcare system and increase virus susceptibility through an impaired immune system[7]. Mistrust in the healthcare system may also increase vaccine hesitancy for marginalized people. According to a KFF survey, in December 2020, only 62 percent of Black Americans expressed willingness to get vaccinated compared to 73 percent of White Americans.[8] Furthermore, marginalized groups are more likely to be uninsured and underinsured and less likely to have regular access to a primary care doctor. They are also more likely to use an emergency department (ED) for non-life-threatening illnesses and injuries.[9] During the pandemic, an overcrowded ED was the frontline for COVID-19 patients, which increases virus exposure, susceptibility, and transmission. Marginalized groups also face systemic and structural discrimination in care delivery, such as being less likely to be admitted to or treated appropriately in hospitals.[10,11]

The COVID-19 pandemic demonstrated and intensified the stark inequities and impact that social risk factors have on healthcare access and health outcomes. A growing body of evidence reports that genetics (30 percent) and healthcare (10 percent) play a relatively limited role in determining one's health, while behavioral (40 percent), social (15 percent), and environmental (5 percent) risk factors together determine approximately 60 percent of one's health.[12–14] These statistics clearly depict that inequities in health and healthcare outcomes are not necessarily the result of inequities in the quality of care, but also the payment models and reimbursement methods.[15] Therefore, to know where inequities exist, we first need to report and categorize (i.e., stratify) health and health outcomes by subgroups and social risks. The influence of social risk factors underscores the importance of recognizing and appropriately analyzing all applicable sociodemographic risk factors in performance measurement to ensure that providers are fairly compared and that the comparisons reflect the providers' populations. To gain deeper insight, additional analyses will be necessary to understand social risk inequities in measurement by data elements and sources, measure types (e.g., outcome, intermediate outcomes, and process), and measure use. This is the second and final report for the Social Risk Trial, summarizing the findings and recommendations of a five-year journey related to the acceptance, evaluation, and testing of the adjustment of social risk factors for measure endorsement and maintenance.

Social Risk Factors

Social risk factors, according to the National Academies of Sciences, Engineering, and Medicine (NASEM) report, *Accounting for Social Risk Factors in Medicare Payment: Identifying Social Risk Factors*,[16] are the social conditions that may influence health outcomes as much as—or more than—medical care does, including socioeconomic position/status (e.g., income, education, and occupation); race and ethnicity and cultural context; gender[17]; social relationships; residential and community characteristics; and health literacy. Within the context of including in a risk adjustment model for a measure, these factors must possess a conceptual and empirical relationship to healthcare outcomes of interest, precede care delivery, and refrain from being either a consequence of the quality of care or a characteristic that could be swayed by healthcare interventions.

Based on evolving national tensions related to bias and discrimination, which are exacerbated by the COVID-19 pandemic and other societal inequities' unrest, the social concepts of *race, ethnicity,* and *gender*, although widely available and used to differentiate population characteristics and performance in healthcare delivery, research, and measurement. Many disparities experts state that these social factors do not and should not speak to inherent and measurable social risks. Having the characteristics of a certain race, ethnicity, or gender does not present a risk to health outcomes. Rather, the implicit and explicit discrimination or bias of these factors is a social phenomenon that acts as a risk to health outcomes. An unfair and unjust distribution of material resources and opportunity (e.g., health access and housing security) also creates social and structural conditions and may prompt individual behaviors in response to those conditions, which may further heighten outcome inequities for marginalized populations. However, the absence of readily accessible social risk factors may warrant the continued use of self-identified race, ethnicity, and gender until discrimination-related risk factors or social discrimination risk adjustment methods are available to quantify the exposure of inequities or predictors of outcomes in healthcare delivery, measurement, and measure use for marginalized populations.

There is a growing body of research that assesses how the multiple and complex pathways of social risk factors affect healthcare outcomes, independent of medical care, and performance measurement.

Social risk factors must also meet practical considerations, such as increasing access to robust data elements within healthcare delivery, providing structures and incentivizing providers to collect social risk data, and prioritizing the use of self-identified and patient-level data elements in adjustment models. In developing scales or indices of social inequity, the healthcare industry must also explore the ill-defined biological and psychological impacts of social risk on individuals and populations.

In 2016, the First Report of the Department of Health and Human Services (HHS) Assistant Secretary for Planning and Evaluation (ASPE) to Congress found that people with social risk factors had worse outcomes on many quality measures regardless of the provider's performance.[18] As the understanding of the impact of social risk factors evolves, researchers and policy experts are considering whether and how to incorporate social risk factors into the performance measurement process.

Risk adjustment is a statistical approach that allows patient-related factors to be "taken into account" when computing performance measure scores. Clinical risk factors could be comorbidities (e.g., diseases or conditions) or illness severity. Proponents of social risk adjustment have long argued that when certain social factors outside of the control of providers are not adequately accounted for, providers that care for a large proportion of marginalized patients may receive disproportionate and compounded financial penalties. Furthermore, not adequately accounting for social factors may perversely result in taking resources from the organizations that need them the most[19,20] and may eventually discourage providers from caring for marginalized patients.[21] In contrast, some have raised concerns that because observed differences in outcomes reflect both the influence of social risk factors and true differences in the quality of care, the two are hard to quantitatively separate. As a result, accounting for social risk factors may mask the true quality of care disparities.[22] Amid the COVID-19 pandemic, difficulties in admission to hospitals and/or inferior quality care, which may or may not be due to racism and/or discrimination, may have contributed to a higher fatality rates for marginalized populations,[10,11] a trend that requires a public analysis and address. In 2020, ASPE's Second Report to Congress recommended that provider and structural bias (either explicit or implicit) should be distinguished from patient need or complexity when examining risk factors that may drive differences in performance.[23]

Stratification is another approach to address social risk factors in the quality measurement process. In addition to reporting overall performance, stratification consists of computing performance separately for different strata or groupings of patients based on some characteristic(s) (i.e., each healthcare unit has multiple performance scores (one for each stratum) rather than one overall performance score).[24] To reduce inequities, it is critical to first report and document where they exist. Public reporting of performance measures stratified by patient characteristics, including social risk factors, within reporting units is critical to identifying and eventually closing the healthcare and healthcare inequities gaps.

Data Elements and Resources

The inclusion of risk adjustment of clinical, demographic, and/or social factors in performance measurement, HHS measure reporting programs, and VBP models require robust data sources that are accessible, standardized, and interoperable (i.e., feasible), able to produce consistent results (i.e., reliable), and indicative of an accurate representation of the evidence and practice (i.e., valid). The First Social Risk Trial focused on the assessment of potential data elements that represent the social risk concept of interest for potential risk adjustment. Although numerous laws and regulations (e.g., Patient Protection and Affordable Care Act (ACA) of 2010[25], Improving Medicare Post-Acute Care

Transformation Act of 2014 (the IMPACT Act)[26], and the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA)[27]) encourage the collection of electronic data, developers reported significant challenges incorporating social risk concepts in measure submissions due to the scarcity of sociodemographic (SDS) data and a lack of incentivization for providers to collect said data.[25,26] From the progress of the First Social Risk Trial and with more measure submissions, social risk data elements, and sources to be evaluated, CMS extended NQF's Social Risk Trial for an additional three years.

Data standardization, interoperability, and access are long-standing barriers to acquiring and sharing healthcare information among and between care delivery settings and providers. Although the processes for identifying and capturing data (e.g., machine learning, semantic searching, and natural language processing (NLP) are improving, this chronic challenge is compounded as the bulk of healthcare information resides in unstructured formats (e.g., messages, voicemail, emails, photos, radiological images, pathology slides, and PDF files). When describing the data and data elements needed for risk adjustment consideration, several essential concepts should be incorporated when identifying available and appropriate data. Primary data (i.e., from the source), which is self-identified (i.e., patient-reported or inputted), is the preferred data choice when assessing and risk-adjusting for clinical, demographic, and/or social risks. Primary self-identified data sources may include patient portals, surveys, and outcomes assessment tools. Examples of secondary (i.e., information about the patient that is not sourced from the patient) patient-level data include, but are not limited to, census data, clinical data registries, and administrative claims. Proxy data (i.e., data that represent or reflect the patient) is not at patient level, yet it may infer information about patient risks. Examples of proxy data may include information about the population (e.g., provider-level data, insurance status, and safety-net hospital), community (e.g., disadvantaged area, safe housing), or geography (e.g., ZIP Code, urban/rural, and disadvantaged area).

In 2011, ASPE released the *HHS Implementation Guidance on Data Collection Standards for Race, Ethnicity, Sex, Primary Language, and Disability Status*, disseminate a set of uniform data collection standards for inclusion in surveys conducted or sponsored by HHS as required by Section 4302 of the ACA. The report overview states, "While data alone will not reduce disparities, it can be foundational to our efforts to understand the causes, design effective responses, and evaluate our progress".[27] For access to self-identified patient-level social risks data elements for consideration in risk adjustment, two different sources are readily available for provider use: (1) International Statistical Classification of Diseases and Related Health Problems, Tenth Revision (ICD-10) Z Codes for Social Determinants of Health (SDOH)[28] and (2) Supplemental Data Elements (SDE) of an electronically specified clinical quality measure (eCQM).[30] The ICD-10 Z Codes include concepts for food, housing, transportation, education, violence, social support, health behaviors, and employment that may have a significant effect on healthcare outcomes, and the eCQM Supplemental data elements include ethnicity, payer, race, and sex.[28–30] In 2017, the Office of Minority Health (OMH) reported that only 1.4 percent of the 33.7 million total Medicare Fee-for-Service beneficiaries reported Z Codes for SDOH, and the top five focused on homelessness, problems with living alone, disappearance and death of a family member, other specified problems related to psychosocial circumstances, and problems in relationship with spouse or partner.[29,30] Of note, each of these social risks reflects minimal to no opportunity for improvement based on healthcare interventions alone. For eCQM SDEs, race, ethnicity, sex, and payer should be submitted with patient-level data to calculate measure performance. In eCQMs, both payer and sex are also reported within the claims data and should be available for consideration to consider for adjustment of social risk. Although the reporting of all patient-level data in eCQMs is growing, most eCQMs report aggregated measure score performance data at the provider or facility level rather than the individual patient level. This reinforces the existing gap in collecting, stratifying, and considering race and ethnicity in risk adjustment models.

The absence of robust patient-level data prompts the substitution of using proxy data, which does not always reflect the individual needs of the individual patient in assessing outcomes inequities. In an aggregate, proxy data may more accurately reflect the social risk of groups, populations, and communities; therefore, caution must be exercised when inferring social risk at the patient level when using proxy data. Examples of publicly available validated sources of proxy data related to social risk include the Agency for Healthcare Research and Quality (AHRQ) SES Index,[31] the Health Resources & Services Administration (HRSA) Area Deprivation Index (ADI),[32] and the HRSA Medically Underserved Areas/Populations (MUA/P).[33]

Context and History

To advance the measurement science of risk adjustment in healthcare performance measures, NQF initiated a series of projects to understand available data sources for characterizing social risk factors and the conceptual and empirical relationships between social risk and various areas of performance measurement. Prior to 2014, NQF's policy prohibited the use of social risk factors in risk adjustment models of measures submitted for endorsement or maintenance. This policy was based on a concern that adjustment could conceal inequities in care and result in lower standards of provider performance. However, the increased use of NQF-endorsed measures in accountability applications, such as setting payment incentives and penalties, informing decisions of individuals seeking care, or purchasers paying for care, brought increased attention to the validity and fairness in comparative conclusions of provider performance. A key function of the 2014 Risk Adjustment TEP was to examine NQF's policy prohibiting the inclusion of social risk factors in the risk adjustment models of measures submitted to NQF for endorsement. After its deliberations, the Risk Adjustment TEP recommended that NQF allow the inclusion of social risk factors in risk adjustment models when conceptual reasons and empirical evidence demonstrated it was appropriate.[24] In conjunction with the Risk Adjustment TEP, the Disparities Standing Committee made 10 recommendations in the *Health Equity Roadmap* that may apply to outcome performance measures, including patient-reported outcome performance measures (PRO-PMs), as well as resource use and process measures. However, the Risk Adjustment TEP stressed the need for *each* performance measure to be assessed individually to determine appropriateness of such adjustment.

Based on those recommendations, NQF began a two-year trial starting in 2015, requesting measure developers to evaluate social risk factors in their risk models for measures submitted for endorsement and to include their use when appropriate. Measure developers were required to provide information on the conceptual relationship between social risk factors and the outcome of interest. If a conceptual relationship existed, developers were required to conduct empirical analyses to evaluate the strength of the relationship between social risk factors and the outcome of interest. In addition, based on the Risk Adjustment TEP's recommendation, NQF formed a Disparities Standing Committee that is charged with providing oversight and evaluation of the trial period as well as a cross-cutting emphasis on disparities.

At the conclusion of the initial two-year trial period, NQF published a Social Risk Trial Report.[2] This report found that adjusting measures for social risk factors is feasible but challenging. NQF reviewed 303 measures during this period, which included all measure types: outcomes, intermediate outcomes, PRO-PM, process, and resource use. Of the reviewed measures, 93 of them used some form of risk adjustment and 65 of the 93 included a conceptual basis for adjusting for social risk factors. Twenty-one of these 65 measures included social risk factors in the final risk adjustment model. Ultimately, 17 out of the 21 measures were determined to have both a conceptual basis and empirical evidence to support adjustment; thus, they were endorsed with adjustment for social risk. Generally, the rationale provided for not including a social risk factor in the final risk model included small effect size, lack of a statistical change in results among entities, lack of available robust data for social risk factors, and that use of the risk factor did not meaningfully improve the risk model performance or fit.

Questions remained about the most appropriate approach to developing a conceptual rationale and the empirical analysis requirements needed to support social risk adjustment. Specifically, this report found that measure developers used various data and methodologies to test the impact of social risk and highlighted the challenge of obtaining patient-, provider-, and community-level data on relevant social risk factors. The Disparities Standing Committee members also reiterated the need for the most granular information possible to ensure an accurate reflection of a person's social risks, as well as the social risks in the community (i.e., where a person lives). This first trial report noted the importance of addressing all factors (i.e., clinical, demographic, and social) that can influence the performance and validity of a performance measure in reflecting the quality of care delivered. The Disparities Standing Committee highlighted several challenges observed during the first trial, including the lack of empirical relationship for outcomes with a clear conceptual basis, the limited availability of patient- and neighborhood-level data, the use of race and ethnicity as a proxy for SES and social risk more broadly, inconsistency in reporting stratified results, and the limited implementation of measures adjusted for social risks.

Implementation of Trial Period 2

Based on the learnings from the initial trial period and to continue the advancement of measurement science for risk adjustment, CMS granted a three-year extension of the trial to NQF in 2017. This additional period allowed all measure types submitted for endorsement and/or maintenance to continue including social risk factors in their risk adjustment models. The intent of this extension was to allow measure developers time to gain more experience in working with available data sources, building conceptual models, and testing empirical approaches to risk adjustment.

In addition to this three-year trial extension, NQF also launched the Scientific Methods Panel (SMP), which consists of performance measurement methodological experts. The role of the SMP is to evaluate the scientific acceptance of complex measures, including any initial endorsement or maintenance measure submitted with risk adjustment. The SMP also serves in an advisory capacity to NQF on methodological issues, including those related to measure testing, risk adjustment, and measurement approaches.[34] The SMP evaluates and rates the validity and reliability (i.e., the scientific acceptability criteria) of complex measures and their reviews and ratings are provided to the respective Standing Committees during the Consensus Development Process (CDP). The Standing Committees include clinical experts in specific topical domains (e.g., surgery and behavioral health), along with other important purchasers and consumer stakeholders (e.g., patients, caregivers, and healthcare advocates). The Standing Committees evaluate each measure against five criteria: (1) importance (evidence and performance gap); (2) validity and reliability (taking the SMP's ratings into consideration); (3) feasibility; (4) use and usability; and (5) comparison to related or competing measures. After each measure evaluation has concluded, the Standing Committees make initial recommendations for endorsement. Following this stage of the process, a public comment period regarding the Standing Committee's recommendations occurs. The Standing Committee then discusses any concerns received for potential, "need to adjust" recommendations received from the post evaluation public comments. The final Standing Committee recommendations proceed to NQF's Consensus Standards Approval Committee (CSAC) for the final endorsement decision.[35,36] Initial endorsement evaluations may include recommendations from the NQF Measure Applications Partnership (MAP), an NQF multistakeholder group that guides CMS on the selection of performance measures for federal health programs, including incentivization for performance measurement, measure reporting programs, and VBP payment models.

The Disparities Standing Committee plays an integral role in this process by providing guidance to the SMP and the project Standing Committees on the consideration of social risk adjustment to ensure that social risk adjustment does not inadvertently worsen healthcare inequities and that inequities are addressed throughout the Social Risk Trial. As previously discussed, CMS funded the Disparities Standing Committee, led the development of the 2017 *Health Equity Roadmap*, that focused on ways in which the United States (U.S.) healthcare system (i.e., providers and payers) can use more traditional pathways to eliminate disparities. The report also identified areas that collaboration and community partnerships could expand healthcare's role in addressing inequities. In particular, the roadmap lays out the *Four I's for Health Equity* that healthcare stakeholders can employ to reduce inequities: (1) identify and prioritize reducing health disparities, (2) implement evidence-based interventions to reduce disparities, (3) invest in the development and use of health equity performance measures, and (4) incentivize the reduction of health disparities and achievement of health equity.

Results of Trial Period 2

NQF employed a multipronged analytic approach to evaluating the second trial period, including the following focuses: (1) goals of the extended three-year trial, (2) measure submissions during this trial period, (3) increased availability of social risk data elements, (4) evaluating advancements in social risk data elements not previously submitted or submitted for new purposes, and (5) "lessons learned" from the first trial period. The importance of the evaluation was reinforced by the public outcry against the pandemic-related testing, treatment, and vaccination inequities of marginalized populations, as well as other contemporary discrimination events. To evaluate the second trial period, NQF staff tracked the following points from the measure submissions and other sources:

- Which measures had a conceptual rationale for the inclusion of social risk factors?
- What approaches were used to establish a conceptual rationale (e.g., literature versus data driven)?
- Which social risk variables were available and analyzed?
- What was the final inclusion of social risks for measures submitted with a conceptual rationale?
- If social risk factors were included in the risk model, were specifications for stratification also included?
- Summaries and reports of both technical and methodological evaluations and discussions relating to social risk adjustment by the Disparities Standing Committee, Risk Adjustment TEP, SMP, Standing Committees, and the CSAC

The second trial period included all measures submitted for initial endorsement or maintenance from six measure review cycles from fall 2017 through spring 2020. This analysis included a total of 317 measures: 111 (35 percent) new measures submitted for initial endorsement and 206 (65 percent) measures submitted for continued endorsement.

Of the 317 measures submitted, 135 (43 percent) were outcome or intermediate outcome measures (including intermediate outcome measures and patient reported outcomes performance measures (PRO-PMs), 142 (45 percent) were process measures, six (2 percent) were structure measures, 17 (5 percent) were resource use measures, 13 (4 percent) were composite measures, and four were efficiency measures (1 percent). Table 1 provides a detailed breakdown of measures by measure type and percent of measures that were risk-adjusted. A total of 125 measures were adjusted for clinical, demographic, and/or social risks, the majority of which were outcome (94; 75 percent) and resource use measures (14; 11 percent).

Table 1. Second Social Risk Trial Measure Submission Totals and Percent by Type and Risk Adjustment

Submissions by Measure Type	Number of Measures	Percent of Total Measures (N=317)	Number of Submissions Considered for Risk Adjustment by Clinical, Demographic, and/or Social Risk Factors	Percent of Submissions Considered for Risk Adjustment by Clinical, Demographic, and/or Social Risk Factors (N=125)
Outcome (includes Intermediate Outcome and PRO-PM)	135	43%	94	75%
Process	142	45%	8	6%
Structure	6	2%	2	2%
Resource Use	17	5%	14	11%
Composite	13	4%	7	6%
Efficiency	4	1%	0	0%
Total	**317**	**100%**	**125**	**100%**

Note: Definition of measure types can be found in the glossary list found in Appendix A.

Of the 125 measures that were considered for clinical, demographic, and/or social risk adjustment, 120 measures (95 percent) provided a conceptual rationale for the potential impact of social risk factors. The conceptual rationale supported the inclusion of social risk factors in the risk adjustment model for 74 measures (59 percent) (Table 2). Appendix B lists the 38 measures (30 percent) that included individual social risk factors in the final risk model, including race and ethnicity, insurance, relationship status, socioeconomic status (SES), income, disadvantaged areas, and other factors.

In the measures that did not include adjust for social risk factors in the final specification, several developer themes emerged when submissions included a conceptual rationale to adjust for social risk:

- Small effect size (i.e., quantifiable differences), insignificant coefficients (i.e., weak outcome predictors) of social risk factors, or marginal changes in performance scores represent one theme. Some developers noted that existing clinical factors captured most of the risks. This applied to the risk model testing approach. Clinical and social risk factors were often entered in the risk models in two sequential steps. As a result, social risk factors often showed small or no effect when included in a risk adjustment model.

- The pathways explaining the relationship between social risk factors and measure outcomes are often complex, which makes it harder to include them within the final risk adjustment model (e.g., the inability to determine whether differences are attributable to patient or community social risk factors versus the facility or practice risk factors).
- Concerns about masking quality of care disparities when adjusting for social risks
- Lack of available patient-, provider-, and/or community-level social risks data to analyze also represents a major theme.

Table 2. Summary of Social Risk Adjustment Rationale and Inclusion

Type of Rationale for Social Risk Adjustment	**Number (Percent) of Measures***
Total Risk-Adjusted Measures	**125**
Measures with a conceptual rationale for the social risk adjustment	120 (96%)
Measures that used "Published Literature" to develop rationale for social risk factors	92 (73%)
Measures that used "Expert Group Consensus" to develop rationale for social risk factors	14 (11%)
Measures that used "Internal Data Analysis" to develop rationale for social risk factors	68 (54%)
Measures with conceptual rationale that supported inclusion of social risk factors	74 (59%)
Measures that included social risk factor(s) in final risk adjustment approach	38 (30%)

**Column numbers and percentages are more than 125 measures and 100% as more than one social risk factor was considered for many measures.*

NQF's process for identifying the social risk factors that measure developers considered for risk adjustment included an analysis of measure submission content relating to social risk factors. NQF provides several data submission fields in the Measure Information Form (MIF) and the Testing Attachment to demonstrate the importance and scientific acceptability of conceptualizing and including social risk factors in final risk-adjusted measure specifications. Appendix C provides a comprehensive list of all measure submission details related to social risk and performance differences among and between populations. For example, requested submission documentation asks for available patient-level data (e.g., income, education, and language) or patient proxy data in community-level characteristics instead (e.g., percentage of vacant housing and crime rate).

- To be clear on the process of requesting social risk or performance disparities information, NQF's measure submission form does not prescribe categories for identifying social risk factors to developers. Rather, the form uses an open-ended text box that allowed each developer to enter whichever social risk factors were tested and to define these factors as they chose. This presented a taxonomy challenge for analysis in the second trial considering the variability of responses, the lack of clear definitions for each risk factor, and the open question of whether some social risk factors served as proxies for others. It also highlights the need to establish clear and standardized guidance for the social risk variables used within measurement development.

For the purpose of data analysis in this trial, NQF utilized a coding schema for risks factors commonly included in the measure submission documents. The coding schema grouped similar variables together as seen below (see Table 3).

Table 3. Social Risk Concepts and Submitted Variables

Submitted Social Risk Concepts	Examples of Submitted Social Risk Variables
Race and Ethnicity	• Race • Ethnicity • White vs. non-White • African Americans • Each race separately • Hospital proportion of non-White patients
Insurance	• Insurance product • Payment source • Insurance status • Dual eligibility • Payer • Medicare/Medicaid
Relationship Status	• Percentage of single female with child • Relationship of Veteran's next-of-kin (e.g., spouse) • Marital status • Lives alone
Socioeconomic Status (SES)	• AHRQ SES Index
Income	• Percentage on public assistance
Disadvantaged Area	• Residents below federal poverty line in home ZIP code • Area Deprivation Index (ADI)
Other	• Hospital safety-net status • Home ownership • Regional healthcare provider shortage • Disability/disability status • Undocumented immigrant • History of social risks (e.g., substance abuse) • Gender • Health literacy
Social risk concept not required	• Education • Language • Rural/Urban • Employment status

As mentioned earlier, these concepts and variables were commonly included within the measure submission documents; however, many of the social risk factors that the literature identified as critical to health and outcomes (e.g., access to transportation, loneliness, and food insecurity/access to healthy food) are not readily available and were not tested or included in any of the measures or models.[37,38] The data collection method plays a role in data accuracy. If the social risk data are not collected, reported, or self-identified from the patient, a proxy (e.g., data reflecting the characteristics of the measured population) may be used, which could have an impact on testing results and comparisons across measures if proxies are not consistently applied or if they do not closely reflect the measured population. The NQF examination of the social risk concepts also shows that several variables may overlap into other social risk concepts. For example, within the *SES* concept, the AHRQ SES Index variable could also be considered as a *disadvantaged area* variable in a separate submission. The AHRQ SES Index is a proxy variable based on the five-digit ZIP code and is composed of population percentages with SNAP benefits, in poverty, on unemployment, on public assistance, and single females with child. Oftentimes, an *insurance* variable is frequently substituted for a patient-level SES variable, and each of the variables could be defined differently based on the measure submission. One instance is the social risk variable of *payer* in the concept of *insurance*, which may be defined by health plan names, payer categories, or insurance status.

As discussed earlier, consideration of social risk factors strongly depends on accessible, routine, and robust data. The most common social risk factors considered consist of insurance, race and ethnicity, education, and "other" (e.g., hospital safety-net status, disability status, gender, and health literacy). Insurance and race and ethnicity were the two most common factors included in adjustment models, with greater than 50 percent of both factors being considered for risk adjustment inclusion. A summary of the social risk factors considered and included in measure submissions is presented in Table 4.

Table 4. Summary of Social Risk Factors Considered and Included for Risk Adjustment

Social Risk Factor	Percent of risk-adjusted measures that considered the social risk factor*	Percent of risk-adjusted measures that included the social risk factor⁺
Insurance	59%	14%
Race and Ethnicity	51%	8%
Socioeconomic Status (SES)	32%	2%
Education	19%	6%
Employment	17%	1%
Other	12%	7%
Income	11%	0%
Relationship Status	9%	2%
Rural/Urban	9%	0%
Language	7%	3%
Disadvantaged areas	5%	0%

**Some measures considered more than one social risk factor for risk adjustment. Hence, percentages are more than 100.*

⁺Most measures did not include social risk factors in the final specification. Hence, percentages are less than 100.

Discussion

Including social risk concepts and variables in risk adjustment models in performance measurement will require additional clarity, guidance, and guardrails to truly understand inequities in healthcare and health outcomes. The volume of measure submissions that considered adjusting for any risk (i.e., clinical, demographic, and/or social) was 39 percent (125 out of 317), which increased significantly from the first trial period, as well as total number of different concepts and variables considered for risk adjustment. In this report, NQF provides more details for the analyses of race and ethnicity within measure submissions and the changes to variables within measures between the first and second trial periods. The analysis also reveals the added complexity to endorsement and maintenance evaluation as measure developers replace variables with open-ended submission requirements.

Race and Ethnicity

The Risk Adjustment TEP highlighted the multifactorial and mediating effects of race and ethnicity on health outcomes, specifically that structural and situational discrimination exists in healthcare delivery from all stakeholders. In discussions of race and ethnicity, it is important to recognize the unquantifiable effects, independent of SES, are cumulative in nature, including the differences in genetics and biology, the long-term exposure to social, economic, and environmental-induced stress, the direct, negative physical effects of decreased immunity for marginalized individuals and communities exposed to racism and discrimination, and the body’s neurohormonal response to stress pathways that induce chronic psychological and behavioral responses. Therefore, race and ethnicity are not the cause of institutional bias and healthcare inequities and should not be used as a proxy for SES. In practice, many data sets lack robust SES variables, and because no measure of healthcare bias exists, race and ethnicity have been used as variables in risk adjustment models. In situations in which only race and ethnicity are available, but SES variables are not, the Risk Adjustment TEP encourages inclusion of variables such as race and ethnicity as the best available—though imperfect—proxies for appropriate social risk factors, such as racism and SES.

Although more than half of the risk-adjusted measures considered race and ethnicity as risk factors, only 10 of those measures eventually included person-level race and ethnicity in the final risk adjustment models. All 10 measures collected race and ethnicity information through registry data sources. NQF #0369 *Standardized Mortality Ratio for Dialysis Facilities* is the only measure that used both claims and registry patient-level data to adjust for social risk. The risk model in NQF #0369 is adjusted for age, gender, race (e.g., White, Black, Asian/Pacific Islander, Native American, or other), and ethnicity (e.g., Hispanic, non-Hispanic, or unknown). Race and ethnicity were collected through an extensive national End-Stage Renal Disease (ESRD) patient database. None of the other claims-based measures included race or ethnicity in the final risk adjustment models. Of note, this observation is based on measures submitted to NQF during the second trial period and is not based on the entire NQF measure portfolio.

The rationale of inclusion or exclusion of race and ethnicity in the final risk adjustment model underscores the ongoing debate and challenge in considering race and ethnicity in measure development, as well as payment model implementation. As articulated by the 2017 NASEM *Accounting for Social Risk Factors in Medicare Payment* report, “[R]ace and ethnicity are related but conceptually distinct constructs that are dimensions of a society’s stratification system by which resources, risks, and rewards are distributed.”[39] Race and ethnicity are strongly associated with health and healthcare outcomes through many, often entangled, mechanisms. In the absence of available and consistent data on SES, positions, or experiences of racism and discrimination, race and ethnicity are often used as a proxy for such underlying social risks. However, many studies have shown that race and ethnicity possess an independent empirical association with the outcome of interest, even when SES variables are also accounted for in risk adjustment;[40,41] therefore, race and ethnicity are not solely proxies for SES.

In the case of NQF #0369, the developer cited literature that suggested a potential protective factor of the Black race and Hispanic ethnicity that could mask a disparity in quality of care.[42,43] The other nine measures that included race and ethnicity in the risk adjustment models represent risk-adjusted measures of surgery results, which all stated that race and ethnicity were not included as an SES factor nor as a surrogate for such factors. As the developer of NQF #3534 *30 Day All-Cause Risk-Standardized Mortality Odds Ratio Following Transcatheter Aortic Valve Replacement (TAVR)* explicitly stated in the rationale, "Race has an empirical association with outcomes and has the potential to confound the interpretation of a hospital's outcomes, although the underlying mechanism is unknown (e.g., genetic factors, differential effectiveness of certain medications, rates of certain associated diseases not accounted for in the risk models, and racial differences in vessel anatomy and suitability for bypass). This is similar to the well-known fact that female gender is associated with worse outcomes and is included in our CABG [Coronary Artery Bypass Grafting] models (e.g., their coronary arteries tend to be smaller and more challenging for anastomoses [surgical connection])."[44]

Changes Over Time

An additional layer of analysis conducted by NQF was a review of specific measures from the first trial period (2015–2017) compared with the second trial period (2017–2021). The objective of this analysis (Table 5) is to reflect on the evolution of social risk factors being considered, tested, and included in quality measurement. The three measures chosen for analysis were selected because they represent different measure types, settings, and developers. Each measure included adjustment for social risk factors in the final measures. NQF's internal review highlighted some differences between submissions and specific observations regarding the evolution of collecting and analyzing data from the first to the second trial. The table below shows a side-by-side comparison of the measures.

These measures demonstrated a number of changes between the two submission periods. For example, in NQF #0076 *Optimal Vascular Care*, the consideration of social risk factors was expanded in the second trial period. The factor of insurance product was included as an SES proxy in 2016, which was changed to the HRSA ADI in 2019 as an SES proxy for ***r***ace, Hispanic ***e***thnicity, preferred ***l***anguage, and country of ***o***rigin (RELO) data[32]. The developer's rationale stated that empirical analysis of the RELO data showed differences in vascular outcomes based on race and ethnicity and age; however, when used in the risk adjustment model, the developer asserted that it was impossible to separate the patient's environment from the clinic's contribution to the disparity in the outcome (i.e., the impact of provider-implicit bias, which can influence interactions with patients). Provider-implicit bias refers to the unknowing influence of unconscious prejudice and the contribution to outcomes and disparities through one's own cultural stereotypes about individuals. It can affect one's understanding and actions in an unconscious manner and lead to unintended biases in decision making.

For NQF #0369 *Standardized Mortality Ratio for Dialysis Facilities* and NQF #2651 *Consumer Assessment of Healthcare Providers and Systems (CAHPS® Hospice Survey)*, the social risk factors analyzed changed between the two submissions. For NQF #0369, the standardized mortality ratio adjusted for race, ethnicity, sex, dual eligibility, employment status, and ADI in the 2017 submission. However, the 2020 submission Medicare coverage replaced dual-eligibility status. Patient-level SES data were obtained from both Medicare claims and administrative data and evaluated based on the empirical association with the outcome, the support in published literature, and whether it related to disparities in care. The developer also noted that for the 2020 measure, the ADI elements were derived from census data, which are calculated using the variables of unemployment rate (%), median family income (rescaled as (income-60,000)/10,000), income disparity, families below the poverty level (%), single-parent households with children (<18 (%)), and home ownership rate (%). Similar results were observed for NQF #2651 using the specific variables of decedent education and caregiver respondent's education, which were chosen for analysis based on testing as they were strongly associated with outcomes. In the rationale for this change, the developer simply stated the methodological change in defining the social risk variables from the 2017 to 2020 submissions. The submission does not discuss whether these changes substantiate a material construct shift in the specification, the implications of redefining the variables to shifts in performance, nor the implementation implications to VBP program stakeholders for all aspects of performance measurement.

Table 5. Comparative Analysis for Select Measures

NQF Measure # and Title	Social Risk Factors (Trial 1)	Social Risk Factors (Trial 2)
NQF #0076 Optimal Vascular Care	**Review Period: 2016** • Insurance product	**Review Period: 2019** • Insurance product • Area Deprivation Index (ADI)
NQF #0369 Standardized Mortality Ratio for Dialysis Facilities	**Review Period: 2017** • Race • Ethnicity • Sex • Dual eligibility • Employment status • ZIP code-level ADI	**Review Period: 2020** • Race • Ethnicity • Sex • Employment status six months prior to End-Stage Renal Disease (ESRD) • ZIP code-level ADI • Medicare coverage
NQF #2651 Consumer Assessment of Healthcare Providers and Systems (CAHPS® Hospice Survey)	**Review Period: 2016** • Primary payer • Respondent education • Variable indicating language of survey administration and respondent's home language	**Review Period: 2019** • Decedent [Deceased] education • Primary payer • Caregiver respondent education • Caregiver respondent language

Recommendations

The second trial period provided the Disparities Standing Committee with the opportunity to review and analyze additional findings and provide final recommendations concerning social risk adjustment. In this report, NQF outlines measurable and actionable recommendations that will necessitate collaborative and individual actions across the landscape of performance measurement stakeholders to improve health, healthcare, and outcomes inequities. These key recommendations chart a path forward and forge a future state that addresses past and present policy, process, and care delivery gaps because advancing is the only just and equitable option. All performance measurement stakeholders must collaborate (e.g., NQF, policymakers, payers, measure developers, providers, researchers, and others) share the responsibility to remediate the entrenched status quo and take action without delay. We are charged to prioritize and address the root causes of health and healthcare inequities in performance measurement, including social and structural barriers, which are disproportionately suffered by marginalized populations. To accomplish this vital mission, we need access to robust, primary self-identified patient-level data to make performance measurement, policy, and resource determinations. Action should also include implementing the tenets of the *Health Equity Roadmap*: to identify, prioritize, and implement evidence-based interventions that eliminate health and healthcare inequities.

Key Recommendations for All Stakeholders

Building upon the *Health Equity Roadmap*, all stakeholders must harness the passion, partnerships, and productivity demonstrated in healthcare's heroic efforts in managing the never before experienced COVID-19 pandemic. The first step is to develop an intensive and rigorous private-public sector action plan to define, standardize, collect, and analyze social risk factors. In convening health disparities, policy, payer, measures, and health information technology (HIT) experts, a culminating action plan should accomplish the following tasks:

- Commit to identifying, prioritizing, and implementing evidence-based interventions that eliminate health and healthcare inequities
- Outline a framework and levers to streamline the collection, stratification, and sharing of such clinical, demographic, and social data from self-identified, primary, and proxy sources for use across the performance measurement landscape
- Develop actionable and measurable milestones, responsible parties, and deliverables for each stakeholder group, including challenges and mitigation strategies
- Outline policy recommendations to incentivize social risk data collection and reporting and the analysis of social risk, including unintended consequences, throughout performance measurement
- Standardize social risk concepts and variables for use throughout performance measurement to drive meaningful and consistent progress in eliminating health and healthcare inequities
- Report performance for populations and subgroups of well-defined categories in endorsement, maintenance, and measure application evaluations using measures to advance health equity
- Invest and incentivize reporting social risk data throughout performance measurement

Make elimination of health and healthcare inequities a top priority. This includes aligning resources with equity promotion and creating an explicit description of how quality measurement, through incentive programs, can be used to promote health and healthcare equity.[1,45] This might involve partnering with measure developers to develop and pilot measures of social risks that can be used to align capitated payments with healthcare needs, as well as quality measures that are specifically designed to incentivize equity in health and healthcare. Meaningful progress will require an action plan and accountability among partners (e.g., NQF, measure developers, measure users, payers, healthcare organizations, and providers).

To reduce inequities and disparities, it is critical to first report and document where they exist. As the COVID-19 pandemic crisis revealed striking inequities, African American healthcare leaders spoke up to "broadly record and report demographic data on virus spread and mortality. This data is critical to mobilize resources to the hardest-hit, most underserved areas."[46] However, the Social Risk Trial has highlighted the continuing challenges of the lack of person-level data on social risks. **The Disparities**

Standing Committee recommends that demographic and stable social risk factors, such as race and ethnicity, education, and language, be consistently collected by government agencies, including, but not limited to, HHS, payers, and providers. Currently, CMS collects self-reported race and ethnicity data for some Medicare beneficiaries in certain settings through instruments such as the Minimum Data Set (MDS) and the Outcome and Assessment Information Set (OASIS). For the remaining Medicare beneficiaries, an imputed (i.e., proxy) variable has been developed but is often found to be inaccurate for Hispanics and Asians when compared to self-reported data sources.[47] For this reason, the NASEM report recommended that CMS collect race, ethnicity, and language data directly from Medicare beneficiaries at the time of enrollment. Although payers have expressed strong interest in collecting information on race, ethnicity, and language, studies have shown that such data are largely incomplete.[48,49] An analysis of the Healthcare Effectiveness Data and Information Set (HEDIS) data found that the largest gaps in race data occurred in commercial and Medicaid plans, while all plan types reported incomplete data on ethnicity and language.[50] Support from private and public stakeholders is needed to develop an action plan to define racial and ethnic categories and streamline the collection and data sharing of such data of stratified measures and overall. Robust data collection will require commitment from policymakers, payers, providers, and other performance measurement stakeholders. To keep patient-level social risk data current, NQF recommends that this data be collected at enrollment and updated at least annually for all payers.

Furthermore, **the Disparities Standing Committee recommends that *each* performance measure be assessed individually to determine appropriateness of adjustment for social risk factors.** Although the Committee acknowledges the convenience of having clear cut-off guidance on adjustment decision by measure type, it also appreciates the complexity of measurement in the real world. For example, some process measures, such as populations receiving COVID-19 vaccinations and the percentage of patients refilling a drug prescription, could well be affected by social risks, such as structural discrimination from access, marginalized trust in the healthcare system, low income, or education. Based on known methods to capture social risks data, each measure could also be explored for potential variables and data sources to increase data completeness. Once again, the collective performance measurement community is essential, as the developers need data from providers to test, convening bodies to endorse, and payers to include the measures in reporting programs and payment models.

Recommendations for NQF

Measures with NQF endorsement are a gold-standard requirement for inclusion in an HHS measure-reporting programs and/or advanced payment models (APM). This places weighted responsibility on NQF in the measure submission and evaluation processes to endorse and recommend measures for use in HHS reporting and payment programs, as implemented measures can reduce the impacts of inequities and discrimination in health and healthcare outcomes.

Measure Submission and Evaluation:

- **NQF should make the consideration and analysis of social risk factors a permanent component of the requirement for endorsement and maintenance measure evaluation.** Recognizing the various challenges highlighted during the Social Risk Trial, the Disparities Standing Committee encourages NQF to leverage the new 2021 CMS-funded NQF Risk Adjustment TEP to develop concrete guidance for measure developers. This should include instructions on conceptualizing and operationalizing social and functional risk factors; identifying appropriate data sources, variables, and specification;

conducting exploratory analyses to select potential social risk factors for the outcome of interest; testing for reliability and validity; and finalizing the risk adjustment model for endorsement review.

  - The measure submission and evaluation process should continue to require measure developers to provide information on the conceptual relationship between social risk factors and the outcome of interest, along with a description of the source(s) of data on social risk factors. If a conceptual relationship exists, developers should be required to conduct empirical analyses to the extent feasible and to evaluate the strength of the relationship between social risk factors and the outcome of interest. NQF should provide more granular-level guidance on the development of conceptual models.
  - Clear guidance in endorsement requirements is needed on whether clinical, demographic, and social risk factors should be considered differently for risk adjustment, such as the order of factors being entered into the risk adjustment model and inclusion criteria (e.g., significance of coefficients and improvement of model fit). This could vary depending on the measure type, settings, and the intended use.
  - Measure developers should discuss the potential consequences of inclusion of social risk factors (e.g., attenuated disparities, improved survival rates within the population, improved access to care, etc.) to allow for follow-up of potential unintended consequences as appropriate. For example, inclusion of social risk factors in a risk adjustment model may reduce or eliminate unfair financial penalties or unfair public reporting (e.g., star ratings) for safety-net providers. Reducing the unfair penalties or public reporting will, in turn, preserve financial resources and/or patient volume for those providers, allowing providers to maintain or expand staffing or service provision, including outreach services in the communities served. As a result, it will enhance access to care and potentially reduce or eliminate healthcare and health disparities. Furthermore, when adjustment enables comparison of providers with the same patient mix, it will help to identify high-performing providers who take care of socially complex patients.

- **NQF should continue to track social risk factors used in measure submissions and should review, analyze, and promote new data sources as they become available.** With the wealth of data collected through measure submission, NQF should keep the aforementioned developer guidance as a living document with annual updates on new data sources for social risk factors and new analytical approaches.
- **NQF should work with the SMP, Standing Committee members, and the Risk Adjustment TEP to update the evaluation guidance and set clear expectations for the inclusion of social risk factors in risk adjustment, the use of stratification, and the reporting of disparities in care across population groups.**
  - The evaluation guidance should include a requirement obligating the developer to include a core set of parameters (e.g., availability) for a descriptive assessment of key social risk factors that are part of the development of the measure.
  - Clear evaluation and testing guidelines should be established for modifying social risk data elements in risk adjustment models in consecutive submission and maintenance evaluations, including the assessment of potential substantive or material content shifts with the modification.
  - Stratification by social risk factors under validity testing should continue to be a requirement for all measures. NQF should provide clear guidance on how stratification specifications

    - (e.g., categories and combinations of social risk factors) should be included in the measure submission form and require that they be aligned with the intended use of the measure.
    - Currently under the performance gap criterion (1b.), NQF expects developers to report disparities in care and performance across population groups. NQF could clarify and specify this requirement further by defining subgroup categories, particularly by racial/ethnic categories, gender, and SES. In this way, NQF can track changes in disparities over time.
    - Specific changes to measure submission and testing requirements may be phased in over a two-year period to allow measure developers time to plan and gather data as needed.
- **The Risk Adjustment TEP should continue to explore measurement science related to adjusting for social risk through established performance measurement pathways and relationships.** The following steps offer further guidance as it pertains to this exploration:
    - Conduct a detailed analysis of the submitted measures for the First and Second Social Risk Trials for considered and included factors by project, domain and cross-cutting topic areas, measure type, critical data element, primary and proxy data uses, geographic designations, multiple uses and definitions for social risk factors, intended use, and other analyses
    - Conduct a pilot with measure developers within development activities to explore and identify data sources, collection methods, and analyses of social risk data and risk adjustment methods
- **NQF should increase the technical assistance capacity and available resources to developers and the performance measurement community to support the development and submission of measures that consider and include measures that adjust for social risk, particularly for emerging measure developers.**
    - NQF should develop a resource guide to assist performance measurement stakeholders in identifying data resources to consider, test, and include adjustment for clinical, demographic, and social risk factors in measures and measure programs, with an emphasis on supporting the needs of providers and measure developers.
    - NQF should routinely request and trend feedback from measure developers regarding their ability to both collect new data and use available data for social risk factors.
    - NQF should also create an open platform that allows for exchange of information, best practices, and use/usability among developers (e.g., data platform/database, discussion forums for developers, or informational web meetings).

Impact of Measure Application

- When performance measures are adjusted for social risk factors and used for accountability applications (e.g., public reporting and pay-for-performance) **NQF should work with purchasers, policymakers, and other users of performance measures to assess and track the potential impact on marginalized populations and the providers/health plans serving them to identify unintended consequences and ensure alignment with program and policy goals**. The Disparities Standing Committee stated that even a statistically marginal change can result in real-world financial impact, and developers should consider how misclassification analyses of provider rankings before and after adjustment can be analyzed. More important than a retrospective review for unintended negative consequences is the proactive design of performance measurement systems and their use to advance health equity. Such a proactive approach is the message from our key recommendation to all stakeholders: “Make elimination of health and healthcare inequities a top priority.”

- The rationale to include or exclude race and ethnicity in a final risk adjustment model underscores the ongoing debate and challenge in considering race and ethnicity in measure development and performance measurement. As it has been established, multiple expert bodies state that these alternative proxies do not quantify discrimination based on race and ethnicity. Until more suitable social risk indices are available, these temporary social characteristics are used to identify social risk. This highlights the duty to **assess measure programs and VBP models for the impacts of magnitude, access, outcomes, incentivization, and unintended consequences on patients, populations, practice, and providers when using race and ethnicity as proxies for social risk.**

Health Equity Roadmap

- **NQF should implement the Disparities Standing Committee's recommendations from the *Health Equity Roadmap* in concert with payers, funders, measure developers, measure users, and healthcare organizations.** These stakeholders aim to use measurement as the foundation for developing, piloting, and implementing various payment strategies and comparative data analyses that are explicitly designed to promote health and healthcare equity.
    - NQF should also consider facilitating a summit in partnership with CMS centered on promoting health and healthcare equity through new payment models and public reporting platforms. The purpose of the summit should be to reach consensus on goals, strategies, roles, and accountability among the various stakeholders.

Recommendations for Policymakers and Payers

HHS, CMS, and other policy and payer stakeholders are in a unique position to increase the access, reporting, stratification, consideration, inclusion, and incentivization of social risk data and adjusting for social risk when appropriate. **Through their actions, dramatic and expedient use of judicious policy, regulations, and programmatic requirements (e.g., public reporting, payment incentives, advanced payment models, and quality improvement) support the mission of the elimination of health and healthcare inequities.** Policymakers and payers should employ the following recommendations to accomplish this mission:

- Evaluate and redesign (when necessary) measure program and VBP model requirements to support health equity and ensure that organizations that disproportionately serve populations with increased social risk can compete in VBP programs
- Evaluate the impact and unintended consequences to patients and providers when adjusting (or not adjusting) for clinical, demographic, and social risks:
    - In existing and planned endorsment, measure application, reporting and incentization programs, and VBP models
    - When developers modify risk adjustment variables or models from previous submissions
    - When measures or risk adjustment models are modified from the endorsement and maintenance evaluation based on program or VBP model implementation requirements
- Evaluate the development, testing, and implementation of data elements, risk tools, risk adjustment methods, and implementation evaluation processes that aid in defining and quantifying health, healthcare, and societal inequities and discrimination that decrease outcomes
- Establish and institute payment codes for the collection of social risks data by healthcare providers (e.g., physicians, advance practice nurses, pharmacists, physician assistants, case managers, social

workers, community health workers, or other providers), and incentivize providers for reporting data in measure reporting, health programming, and VBP models

Recommendations for Measure Developers

Developers should consider the impact of social risks on healthcare outcomes to ensure accurate reporting of care quality that reduces harm and unintended consequences to marginalized patients and their providers.

- Developers also have an obligation to advance measurement science. While other stakeholders share the responsibility of reducing the burden of measure development and implementation activities, developers should strive to meet the essence of submission requirements to adequately assess population needs and provider performance in a fair and just manner.
- The Disparities Standing Committee encourages measure developers to carefully conceptualize pathways or methods for considering how social risk factors affect the measure being developed. Too often a data-driven approach is used, and important potential risk factors may be omitted without due consideration. Developers are encouraged to seek NQF technical assistance for adjustment for social risk use in measure submissions.
- Developers should always stratify the performance data and the numerator outcome of interest by social risk factors, in addition to considering risk adjustment.

Recommendations for Providers

Providers bare a heavy burden in measure reporting and quality improvement with duplicative and often nonproductive administrative activities associated with performance measurement. Providers may be financially penalized when treating marginalized populations with heavy social risk burdens that require additional care for which they may not be reimbursed. This may be compounded by other financial disincentives in reporting programs and VBP models when measures and program requirements are not evaluated for financial impacts on providers with heavy risk populations. **Providers share the responsibility of collecting, reporting, analyzing, and improving care delivery based on their populations' needs.**

- In providing care that is patient-centered, improving outcomes warrants the collection and analysis of self-identified primary, clinical, demographic, and social risk data to tailor care to patient needs.
- Providers should partner with payers and performance measurement stakeholders to provide feedback on the utility, stratification, and burden of data collection and reporting to identify resources needed to collect, report, stratify, and analyze data by clinical, demographic, and social risk variables.
- Incorporate community-level, proxy social risk data in the absence of self-identified primary data to tailor healthcare delivery that targets population-based needs.
- Examine and identify policy, procedural, practice, and personal explicit and implicit biases that may contribute to health and healthcare inequities and remediating modifiable findings as able.

Recommendations for Other Stakeholders (Researchers and Research Funders)

- **A concerted effort among funders and researchers is needed to develop a standardized set of social risk variables that builds upon established datasets, allows the field to move beyond adjustment by proxy identifiers, and recognizes which variables or measures are best suited for identifying social risk factors.** The standardized set should consider the following aspects:

  - Specific data standards and governance that could be aligned with other initiatives, such as existing electronic data initiatives (e.g., ensuring demographic data are self-reported and at person level), and be leveraged in ongoing efforts with existing tools that screen for basic social determinants and incentivize adoption in various settings
  - Social risk factors at a sufficiently granular level to capture impact on outcomes (e.g., data at nine-digit ZIP or census block for the provider and the patient, as well as person- and encounter-level data, including functional status)
  - Data at the community level that should capture demographics and an array of social risk factors (e.g., homelessness, food insecurity, unemployment, lack of public transportation, neighborhood unemployment, and availability of affordable housing)
- **Researchers and funders should work together to build a better understanding of the consequences of failing to adjust or stratify for social risk factors.** As several studies have shown that some measures are quite sensitive to social risk stratification or adjustment,[51–53] it is critical to support a stronger infrastructure for measuring and publicly reporting how social risk adjustments are conducted for quality measures and in payment and public reporting programs. Critical building blocks may include the following elements:
  - Connecting important social risk factors to evidence-based interventions that address those factors so their influence can be mitigated in the real world to reduce disparities in care delivery and outcomes
  - Building transparency in public reporting and encouraging results to be stratified to highlight inequities
  - Supporting more education and learning opportunities on socio-ecological models of health
  - Studying the most effective ways to incorporate social factor risk adjustment and stratification in public reporting and payment systems to proactively advance health equity
  - Ensuring sustained funding to support integration of social risk factor considerations into practice and subsequently measuring their impact on access to care and health outcomes

Conclusion

The conclusion of the NQF Social Risk Trial project highlights many theoretical, practical, and analytical challenges that the entire healthcare field still faces in approaching social risk adjustment. As the U.S. moves towards value-based care, the need to advance the field and ensure that performance measurement is fair, accurate, and unbiased is greater than ever.

The Disparities Standing Committee provided clear recommendations for all stakeholders, including NQF, as a pathway to bridge the earlier work from the First Trial to the more recent Second Trial. Ultimately, the recommendations centered on several key concepts. These included making the elimination of health and healthcare inequities a top priority, ensuring the analysis of social risk factors as a permanent element of the NQF endorsement process, and encouraging NQF to update the evaluation guidance with clear expectations for the consideration and inclusion of social risk factors. In addition, the need for stratification, as well as risk adjustment, decreases the risk of masking inequities and increases the accuracy of reporting by considering the impact of social risk on healthcare outcomes. Lastly, the Disparities Standing Committee advocated for systematic tracking, analysis, and support regarding the impact adjustment for clinical, demographic, and social risks in performance measures when used in reporting and VBP programs, as well as the use of these measures to proactively advance health equity in public reporting and payment systems specifically designed to reduce health inequities.

Using the recommendations and results from both Social Risk Trials, the Risk Adjustment TEP has begun to further examine the adequacy of social risk factor data and modeling approaches, which suggests the exploration of electronic data sources to support social risk adjustment as a critical next step. Furthermore, quality of care for the most vulnerable may be further mediated by functional status. Therefore, functional status-related risk adjustment should be explored within quality measurement, in addition to social risk factors.

NQF will continue to seek to advance measurement science in this important area by convening a panel of experts in risk adjustment methodologies, conducting an environmental scan of the current approaches of risk adjustment at the individual measure level and payment- or public-reporting program level, and developing step-by-step technical guidance for measure developers that includes best practices for functional and social risk factor adjustment in measure development.

References

1 NQF: A Roadmap for Promoting Health Equity and Eliminating Disparities: The Four I's for Health Equity. https://www.qualityforum.org/Publications/2017/09/A_Roadmap_for_Promoting_Health_Equity_and_Eliminating_Disparities__The_Four_I_s_for_Health_Equity.aspx. Last accessed January 2021.

2 NQF. *Evaluation of the NQF Trial Period for Risk Adjustment for Social Risk Factors.*; 2017:39. https://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=85635.

3 Centers for Disease Control and Prevention (CDC). Hospitalization and Death by Race/Ethnicity. https://www.cdc.gov/coronavirus/2019-ncov/covid-data/investigations-discovery/hospitalization-death-by-race-ethnicity.html. Published February 11, 2020. Last accessed February 2021.

4 Yancy CW. COVID-19 and African Americans. *JAMA*. 2020;323(19):1891.

5 Wilkins CH, Friedman EC, Churchwell AL, et al. A Systems Approach to Addressing Covid-19 Health Inequities | NEJM Catalyst. NEJM Catalyst: Innovations in Care Delivery. https://catalyst.nejm.org/doi/full/10.1056/CAT.20.0374. Published January 2021. Last accessed March 2021.

6 CDC. People with Certain Medical Conditions: COVID-19 and Your Health. Centers for Disease Control and Prevention. https://www.cdc.gov/coronavirus/2019-ncov/need-extra-precautions/people-with-medical-conditions.html. Published February 11, 2020. Last accessed February 2021.

7 Glaser R, Kiecolt-Glaser JK. Stress-induced immune dysfunction: implications for health. *Nat Rev Immunol*. 2005;5(3):243-251.

8 Muñana C. KFF COVID-19 Vaccine Monitor: December 2020. KFF. https://www.kff.org/coronavirus-covid-19/report/kff-covid-19-vaccine-monitor-december-2020/. Published December 15, 2020. Last accessed February 2021.

9 Parekh N, Jarlenski M, Kelley D. Disparities in Access to Primary Care and Emergency Department Utilization in a Large Medicaid Program. *J Health Disparities Res Pract*. 2019;11(4). https://digitalscholarship.unlv.edu/jhdrp/vol11/iss4/1.

10 Ogedegbe G, Ravenell J, Adhikari S, et al. Assessment of Racial/Ethnic Disparities in Hospitalization and Mortality in Patients With COVID-19 in New York City. *JAMA Netw Open*. 2020;3(12):e2026881.

11 Eligon J. Black Doctor Dies of Covid-19 After Complaining of Racist Treatment. *The New York Times*. https://www.nytimes.com/2020/12/23/us/susan-moore-black-doctor-indiana.html. Published December 24, 2020. Accessed February 26, 2021.

12 Schroeder SA. We Can Do Better — Improving the Health of the American People. *N Engl J Med*. 2007:8.

13 Braveman P, Gottlieb L. The Social Determinants of Health: It's Time to Consider the Causes of the Causes. *Public Health Rep*. 2014;129(Suppl 2):19-31.

14 McGinnis JM, Williams-Russo P, Knickman JR. The Case For More Active Policy Attention To Health Promotion. *Health Aff (Millwood)*. 2002;21(2):78-93.

15 Alberti P, Teigland C, Nerenz DR. To Design Equitable Value-Based Payment Systems, We Must Adjust For Social Risk | Health Affairs Blog. https://www.healthaffairs.org/do/10.1377/hblog20200911.279192/full/. Last accessed February 2021.

16 National Academies of Sciences, Engineering, and Medicine (NASEM). *Accounting for Social Risk Factors in Medicare Payment: Identifying Social Risk Factors.*; 2016. https://www.nap.edu/catalog/21858/accounting-for-social-risk-factors-in-medicare-payment-identifying-social. Last accessed January 2021.

17 Sex at Birth, Sexual Orientation and Gender Identity | Interoperability Standards Advisory (ISA). HealthIT.gov. https://www.healthit.gov/isa/sex-birth-sexual-orientation-and-gender-identity. Last accessed March 2021.

18 HHS, Office of the Assistant Secretary for Planning and Evaluation (ASPE). Report to Congress: Social Risk Factors and Performance Under Medicare's Value-Based Purchasing Programs. ASPE. https://aspe.hhs.gov/pdf-report/report-congress-social-risk-factors-and-performance-under-medicares-value-based-purchasing-programs. Published December 20, 2016. Last accessed February 2021.

19 Chien AT, Chin MH, Davis AM, et al. Pay for performance, public reporting, and racial disparities in health care: how are programs being designed? *Med Care Res Rev MCRR*. 2007;64(5 Suppl):283S-304S.

20 Ryan AM. Will value-based purchasing increase disparities in care? *N Engl J Med*. 2013;369(26):2472-2474.

21 Joynt KE, Orav EJ, Jha AK. Thirty-day readmission rates for Medicare beneficiaries by race and site of care. *JAMA*. 2011;305(7):675-681.

22 Krumholz HM, Bernheim SM. Considering the Role of Socioeconomic Status in Hospital Outcomes Measures. *Ann Intern Med*. 2014;161(11):833-834.

23 HHS, ASPE. *Second Report to Congress on Social Risk and Medicare's Value-Based Purchasing Programs.*; 2020. https://aspe.hhs.gov/pdf-report/second-impact-report-to-congress. Last accessed January 2021.

24 NQF. *Risk Adjustment for Socioeconomic Status or Other Sociodemographic Factors*. Washington, D.C.; 2014:97. https://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=77474.

25 *Patient Protection and Affordable Care Act.*; 2010:974. http://housedocs.house.gov/energycommerce/ppacacon.pdf. Last accessed March 2021.

26 *Medicare Access and CHIP Reauthorization Act of 2015.*; 2015. https://www.congress.gov/114/plaws/publ10/PLAW-114publ10.pdf.

27 HHS Implementation Guidance on Data Collection Standards for Race, Ethnicity, Sex, Primary Language, and Disability Status. ASPE. https://aspe.hhs.gov/basic-report/hhs-implementation-guidance-data-collection-standards-race-ethnicity-sex-primary-language-and-disability-status. Published November 23, 2015. Last accessed April 2021.

28 Using Z Codes: The Social Determinants of Health (SDOH) Data Journey to Better Outcomes. https://www.cms.gov/About-CMS/Agency-Information/OMH/resource-center/hcps-and-researchers/quality-improvements-and-interventions.

29 Centers for Medicare & Medicaid Services. Guide to Reading Electronic Clinical Quality Measures (eCQMs) Version 6.0 May 2020. May 2020. https://ecqi.healthit.gov/sites/default/files/Guide-for-Reading-eCQMs-v6.pdf. Last accessed March 2021.

30 Hodge C, Khau M. Z Codes Utilization among Medicare Fee-for-Service (FFS) Beneficiaries in 2017. January 2020. https://www.cms.gov/files/document/cms-omh-january2020-zcode-data-highlightpdf.pdf. Last accessed March 2021.

31 Creation of New Race-Ethnicity Codes and Socioeconomic Status (SES) Indicators for Medicare Beneficiaries. | AHRQ Archive. Agency for Healthcare Research and Quality R, MD. https://archive.ahrq.gov/research/findings/final-reports/medicareindicators/medicareindicators1.html. Last accessed March 2021.

32 Singh GK, Lin C-CC. Area Deprivation and Inequalities in Health and Health Care Outcomes. *Ann Intern Med*. 2019;171(2):131-132.

33 Health Resources & Services Administration. Medically Underserved Areas (MUA) Find. MUA Find. https://data.hrsa.gov/tools/shortage-area/mua-find. Last accessed March 2021.

34 Glance LG, Joynt Maddox K, Johnson K, et al. National Quality Forum Guidelines for Evaluating the Scientific Acceptability of Risk-adjusted Clinical Outcome Measures: A Report From the National Quality Forum Scientific Methods Panel. *Ann Surg.* 2020;271(6):1048-1055.

35 Nerenz DR, Cella D, Fabian L, et al. The NQF Scientific Methods Panel: Enhancing the Review and Endorsement Process for Performance Measures. *Am J Med Qual Off J Am Coll Med Qual*. 2020;35(6):458-464.

36 NQF. *Measure Evaluation Criteria and Guidance for Evaluating Measures for Endorsement*. Washington, D.C.; 2019. http://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=92804. Last accessed January 2012.

37 Artiga S, Hinton E. *Beyond Health Care: The Role of Social Determinants in Promoting Health and Health Equity*.; 2018. https://www.kff.org/racial-equity-and-health-policy/issue-brief/beyond-health-care-the-role-of-social-determinants-in-promoting-health-and-health-equity/. Last accessed March 2021.

38 Commonwealth Fund. *Review of Evidence on the Health Care Impacts of Interventions to Address the Social Determinants of Health*. https://www.commonwealthfund.org/publications/2019/jun/roi-calculator-evidence-guide. Last accessed March 2021.

39 NASEM. *Accounting for Social Risk Factors in Medicare Payment*.; 2017. https://www.nap.edu/catalog/23635/accounting-for-social-risk-factors-in-medicare-payment. Last accessed February 2021.

40 LaVeist TA. Disentangling race and socioeconomic status: a key to understanding health inequalities. *J Urban Health Bull N Y Acad Med*. 2005;82(2 Suppl 3):iii26-34.

41 Williams DR, Mohammed SA, Leavell J, et al. Race, socioeconomic status, and health: complexities, ongoing challenges, and research opportunities. *Ann N Y Acad Sci*. 2010;1186:69-101.

42 Norris K, Mehrotra R, Nissenson AR. Racial Differences in Mortality and End-Stage Renal Disease. *Am J Kidney Dis Off J Natl Kidney Found*. 2008;52(2):205-208.

43 Powe NR. Reverse race and ethnic disparities in survival increase with severity of chronic kidney disease: what does this mean? *Clin J Am Soc Nephrol CJASN*. 2006;1(5):905-906.

44 NQF. Cardiovascular - Measures. http://www.qualityforum.org/ProjectMeasures.aspx?projectID=86074&cycleNo=2&cycleYear=2019. Last accessed March 2021.

45 Chin MH. Advancing health equity in patient safety: a reckoning, challenge and opportunity. *BMJ Qual Saf*. December 2020. https://qualitysafety.bmj.com/content/early/2020/12/29/bmjqs-2020-012599. Last accessed March 2021.

46 Vickers SM. Black medical leaders: Coronavirus magnifies racial inequities, with deadly consequences. USA TODAY. https://www.usatoday.com/story/opinion/2020/04/10/coronavirus-health-inequities-deadly-african-americans-column/5124088002/. Last accessed March 2021.

47 Jarrín OF, Nyandege AN, Grafova IB, et al. Validity of Race and Ethnicity Codes in Medicare Administrative Data Compared With Gold-standard Self-reported Race Collected During Routine Home Health Care Visits. *Med Care*. 2020;58(1):e1-e8.

48 Nerenz DR, Carreón R, Veselovskiy G. Race, ethnicity, and language data collection by health plans: findings from 2010 AHIPF-RWJF survey. *J Health Care Poor Underserved*. 2013;24(4):1769-1783.

49 Gazmararian J, Carreón R, Olson N, et al. Exploring health plan perspectives in collecting and using data on race, ethnicity, and language. *Am J Manag Care*. 2012;18(7):e254-261.

50 Ng JH, Ye F, Ward LM, et al. Data On Race, Ethnicity, And Language Largely Incomplete For Managed Care Plan Members. *Health Aff (Millwood)*. 2017;36(3):548-552.

51 McCarthy CP, Vaduganathan M, Patel KV, et al. Association of the New Peer Group–Stratified Method With the Reclassification of Penalty Status in the Hospital Readmission Reduction Program. *JAMA Netw Open*. 2019;2(4). https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6487568/. Last accessed February 2021.

52 Joynt Maddox KE, Reidhead M, Qi AC, et al. Association of Stratification by Dual Enrollment Status With Financial Penalties in the Hospital Readmissions Reduction Program. *JAMA Intern Med*. 2019;179(6):769-776.

53 Sorbero ME, Paddock SM, Damberg CL, et al. Adjusting Medicare Advantage Star Ratings for Socioeconomic Status and Disability. AJMC. https://www.ajmc.com/view/adjusting-medicare-advantage-star-ratings-for-socioeconomic-status-and-disability. Last accessed February 2021.

Appendix A: Glossary

Composite Measure[1] – A composite performance measure is a combination of two or more component measures, each of which individually reflects quality of care into a single performance measure with a single score.

Conceptual Model[2] – Evidence-based models that describe a potential pathway between social risk factors and health outcomes. At the individual level, a social risk factor may influence a person's health through one or more of the pathways described in the models.

Efficiency Measure[1,3] – These measures combine the concepts of resource use and quality. NQF has defined efficiency broadly as the resource use (or cost) associated with a specific level of performance with respect to the other six Institute of Medicine (IOM) aims of quality for a healthcare system: (1) safe, (2) effective, (3) patient-centered, (4) timely, (5) efficient, and (6) equitable.

Inequity[4,5] – *Inequity* and *disparity* are two distinct and interdependent concepts. Disparity simply implies a difference or a lack of parity. In contrast, inequity implies "a state of being unfair." Equity in healthcare requires that "patients who are alike in relevant respects be treated in like fashion and that patients who are unlike in relevant respects be treated in appropriately unlike fashion." This report addresses social risk inequities in healthcare measurement and the implications of measures adjusted for social risk in care delivery.

Intermediate Clinical Outcome Measure[3] – An intermediate clinical outcome measure assesses the change in physiologic state that leads to a longer-term health outcome (e.g., assessment of blood pressure control that may lead to decreased heart attacks or strokes).

Outcome Measure[1] – An outcome measure assesses the outcome or health status of a patient (or change in health status) resulting from healthcare—desirable or adverse.

Patient-Reported Outcome (PRO)[1,6] – A PRO is any report of the status of a patient's (or person's) health condition, health behavior, or experience with healthcare that comes directly from the patient without interpretation of the patient's response by a clinician or anyone else. Key PRO domains include health-related quality of life, functional status, symptom/symptom burden, experience with care, and health-related behaviors (e.g., The patient self-reported response to having "little interest or pleasure in doing things" in a 0 to 3 scale in the Patient Healthcare Questionnaire (PHQ-9), which grades the severity of Major Depressive Disorder (MDD) symptoms).

Patient-Reported Outcome Measure (PROM)[1] – A PROM is an instrument, scale, or single-item measure used to assess a PRO concept as perceived by the patient, which is obtained by asking the patient to directly self-report their response (e.g., PHQ-9 MDD symptom questionnaire).

Patient-Reported Outcome based Performance Measure (PRO-PM)[1] – A type of outcome measure that uses aggregated data from a PROM to assess for a clinical action or finding of an accountable healthcare entity (e.g., percentage of patients in an accountable care organization whose depression scores improved as measured by the PHQ-9 in the last 12 months).

Performance Measure[7] – Numeric quantification of healthcare quality for a designated accountable entity, such as a hospital, health plan, nursing home, clinician, etc.

Process Measure[1] – Process of care is a healthcare-related activity performed for, on behalf of, or by a patient. Appropriate Use is a type of process measure that has been used to evaluate procedures and medical technologies. Appropriate use measures are neither cost/resource use measures nor efficiency measures.

Resource Use Measure[1] – A resource use measure counts the frequency of use of defined health system resources; some may further apply a dollar amount (e.g., allowable charges, paid amounts, or standardized prices) to each unit of resource use.

Risk Adjustment (also known as case-mix adjustment)[7] – Statistical methods to control or account for patient-related factors when computing performance measure scores; methods include multivariable modeling, indirect standardization, or direct standardization. These methods can be used to produce a ratio of observed to expected, a risk-adjusted rate, or other estimate of performance.

Social risk factor[8] – These factors are the social conditions that may influence health outcomes as much as—or more than—medical care does, including socioeconomic position/status (e.g., income, education, and occupation); race/ethnicity and cultural context; gender; social relationships; and residential and community context, as well as health literacy. These factors must possess a conceptual and empirical relationship to healthcare outcomes of interest, preceding care delivery, and refrain from being a consequence of the quality of care or something the provider can manipulate. They must also meet practical considerations.

Sociodemographic Status (SDS)[7] – A broad term referring to a variety of socioeconomic (e.g., income, education, and occupation) and demographic factors (e.g., age, race, ethnicity, and primary language).

Socioeconomic Status (SES)[7] – Broadly conceptualized as one's relative position within society. Socioeconomic status has traditionally been defined and measured by education, income, and occupation.

Stratification[7] – This process consists of computing performance scores separately for different strata or groupings of patients based on some characteristic(s) (i.e., each healthcare unit has multiple performance scores [one for each stratum] rather than one overall performance score).

Structure Measure[1] – Structure of care measures assess the capacity or infrastructure of a healthcare organization or clinician to provide high quality healthcare.

Glossary References:

1. National Quality Forum (NQF). *Measure Evaluation Criteria and Guidance for Evaluating Measures for Endorsement*. Washington, D.C.; 2019. http://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=92804. Last accessed January 2021.id&ItemID=92804. Last accessed January 2021.

2. Office of the Assistant Secretary for Planning and Evaluation (ASPE), HHS. *Second Report to Congress on Social Risk factors and Performance in Medicare's Value-Based Purchasing Program*. Washington, D.C.; 2020. https://aspe.hhs.gov/social-risk-factors-and-medicares-value-based-purchasing-programs

3. Institute of Medicine (IOM). Crossing the Quality Chasm: A New Health System for the 21st Century. Washington, D.C: National Academy Press; 2001.

4. Culyer AJ. Equity – some theory and its policy implications. *J Med Ethics* 2001; 27(4):275-83. https://pubmed.ncbi.nlm.nih.gov/11479360/

5. Meghani, SH, Gallagher RM, Disparity vs Inequity: Toward Reconceptualization of Pain Treatment Disparities. *Pain Medicine*, 2008;9(5): 613–623. https://academic.oup.com/painmedicine/article/9/5/613/1852051

6. American Psychological Association (APA). Patient Health Questionnaire (PHQ-9 & PHQ-2) Construct: Depressive symptoms. Washington, D.C.; 2020. https://www.apa.org/pi/about/publications/caregivers/practice-settings/assessment/tools/patient-health

7. NQF. *Risk Adjustment for Socioeconomic Status or Other Sociodemographic Factors*. Washington, D.C.; 2014:97.https://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=77474.

8. National Academies of Sciences, Engineering, and Medicine (NASEM) 2017. *Accounting for Social Risk Factors in Medicare Payment*. Washington, DC: The National Academies Press. https://doi.org/10.17226/23635.

Appendix B: NQF Measures Adjusted for Social Risk

NQF #[a]	Title	Variable(s) Included	Association	Stratification
0005	Consumer Assessment of Healthcare Providers and Systems CAHPS® Clinician & Group Surveys (CG-CAHPS)-Adult, Child	Education[b]	Significant	No
0006	CAHPS Health Plan Survey, Version 5.0 (Medicaid and Commercial)	General health status, mental health status, age, and education	Significant	No
0076	Optimal Vascular Care	Insurance product and area deprivation index	Significant	No
0114	Risk-Adjusted Postoperative Renal Failure	Asian, Black, Hispanic ethnicity	Significant	No
0115	Risk-Adjusted Surgical Re-exploration	Asian, Black, Hispanic ethnicity	Significant	No
0129	Risk-Adjusted Postoperative Prolonged Intubation (Ventilation)	Asian, Black, Hispanic ethnicity	Significant	No
0130	Risk-Adjusted Deep Sternal Wound Infection	Asian, Black, Hispanic ethnicity	Significant	No
0131	Risk-Adjusted Stroke/Cerebrovascular Accident	Asian, Black, Hispanic ethnicity,	Significant	No
0166	HCAHPS® (Hospital Consumer Assessment of Healthcare Providers and Systems) Survey	Education, primary language spoken at home	Significant	No
0167	Improvement in Ambulation/Locomotion	Payment source	Significant	No
0174	Improvement in Bathing	Payment source	Significant	No
0175	Improvement in Bed Transferring	Payment source	Significant	No
0176	Improvement in Management of Oral Medications	Payment source	Significant	No
0177	Improvement in Pain Interfering With Activityctivity	Payment source	Significant	No
0258	Consumer Assessment of Healthcare Providers and Systems (CAHPS) In-Center Hemodialysis Survey (ICH CAHPS)	Education, primary language spoken at home, and help with completing the survey	Significant	No

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[a] *The table includes both NQF-endorsed and non-endorsed measures.*

[b] *Mean scores are risk-adjusted in the CAHPS database and by users who choose to risk-adjust their results. Optional for users; top box scores presented in CAHPS public online reporting are not case-mix adjusted.*

NQF #[a]	Title	Variable(s) Included	Association	Stratification
0369	Standardized Mortality Ratio for Dialysis Facilities	Employment status 6 months prior to ESRD, Sex, Race, Ethnicity, Medicare coverage	Significant	No
0425	Functional Status Change for Patients With Low Back Impairments Low Back Impairments Low Back Impairments	Payment source	Significant	No
0517	CAHPS Home Health Care Survey	Education, language in which the survey was completed, whether the patient lives alone, survey answered by a proxy	Significant	No
0541	Proportion of Days Covered (PDC): 3 Rates by Therapeutic Category	Dual eligibility, disability	Significant	No
0696	STS CABG Composite Score	Race/ethnicity	Significant	Yes
0729	Optimal Diabetes Care	Insurance product, area deprivation index	Significant	No
1463	Standardized Hospitalization Ratio for Dialysis Facilities (SHR)	Sex	Significant	No
1623	Bereaved Family Survey (Deferred)	Survey respondent's relationship to the decedent	Significant	No
2496	Standardized Readmission Ratio (SRR) for Dialysis Facilities (Not Endorsed)	Sex, Age	Significant	No
2548	Child Hospital Consumer Assessment of Healthcare Providers and Systems (Child HCAHPS) Survey	Parent education, language preference	Significant	No
2561	STS Aortic Valve Replacement (AVR) Composite Score	Race	Significant	No
2563	STS Aortic Valve Replacement (AVR) + Coronary Artery Bypass Graft (CABG) Composite Score	Black, Hispanic ethnicity	Significant	No
2651	CAHPS Hospice Survey (Experience With Care)are)	Caregiver education	Significant	No
3452	Access to Independence Promoting Services for Dual-Eligible Beneficiaries (Withdrawn)	Education	Significant	Yes
3461	Functional Status Change for Patients With Neck Impairments	Payment source	Significant	Yes

NQF #[a]	Title	Variable(s) Included	Association	Stratification
	Neck Impairments Neck Impairments			
3474	Hospital-Level, Risk-Standardized Payment Associated With a 90-Day Episode of Care for Elective Primary Total Hip and/or Total Knee Arthroplasty	Dual eligibility	Significant	No
3514	Intracranial Hemorrhage or Cerebral Infarction (Withdrawn)	Dual eligibility	Significant	Yes
3534	30 Day All-Cause, Risk-Standardized Mortality Odds Ratio Following Transcatheter Aortic Valve Replacement (TAVR)	Race/ethnicity	Significant	No
3538	All-Cause Emergency Department Utilization Rate for Medicaid Beneficiaries Who May Benefit From Integrated Physical and Behavioral Healthcare (Not Endorsed) are (Not Endorsed)	Disability status	Significant	No
3559	Hospital-Level, Risk-Standardized Patient-Reported Outcomes Following Elective Primary Total Hip and/or Total Knee Arthroplasty (THA/TKA)	Health literary	Significant	No
3565	Standardized Emergency Department Encounter Ratio (SEDR) for Dialysis Facilities	Sex	Significant	No
3566	Standardized Ratio of Emergency Department Encounters Occurring Within 30 Days of Hospital Discharge (ED30) for Dialysis Facilities	Sex	Significant	No
3575	Total Per Capita Cost (TPCC)	Sex and Dual eligibility	Significant	Yes

Appendix C: NQF Social Risk Factor Measure Submission Details

From the NQF Measure Information Form (MIF), references to social risk factor data collection include:

- 1b. Performance Gap: Demonstration of quality problems and opportunity for improvement, i.e., data demonstrating: Disparities in care across population groups.
    - 1b.2. Provide performance scores on the measure as specified (current and over time) at the specified level of analysis… Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities include.
    - 1b.3. If no or limited performance data on the measure as specified is reported in 1b2, then provide a summary of data from the literature that indicates opportunity for improvement or overall less than optimal performance on the specific focus of measurement. less than optimal performance on the specific focus of measurement.
    - 1b.4. Provide disparities data from the measure as specified (current and over time) by population group, e.g., by race/ethnicity, gender, age, insurance status, socioeconomic status, and/or disability. (This is required for maintenance of endorsement.)
- De.6. Non-Condition Specific: If no or limited data on disparities from the measure as specified is reported in 1b.4, then provide a summary of data from the literature that addresses disparities in care on the specific focus of measurement.

From the NQF Testing Attachment, references to social risk factor data collection include:

- 1.6. How many and which patients were included in the testing and analysis (by level of analysis and data source)? (identify the number and descriptive characteristics of patients included in the analysis (e.g., age, sex, race, diagnosis); if a sample was used, describe how patients were selected for inclusion in the sample).
- 1.8 What were the social risk factors that were available and analyzed? For example, patient-reported data (e.g., income, education, language), proxy variables when social risk data are not collected from each patient (e.g., census tract), or patient community characteristics (e.g., percent vacant housing, crime rate) which do not have to be a proxy for patient-level data. e.g., census tract), or patient community characteristics (e.g., percent vacant housing, crime rate) which do not have to be a proxy for patient-level data.
- 2b3. RISK ADJUSTMENT/STRATIFICATION FOR OUTCOME OR RESOURCE USE MEASURES
- 2b3.1. What method of controlling for differences in case mix is used?
    - ☐ No risk adjustment or stratification
    - ☐ Statistical risk model with Click here to enter number of factors risk factors
    - ☐ Stratification by Click here to enter number of categories risk categories
    - ☐ Other, Click here to enter description Click here to enter description Click here to enter description Click here to enter description
    - 2b3.1.1 If using a statistical risk model, provide detailed risk model specifications, including the risk model method, risk factors, coefficients, equations, codes with descriptors, and definitions.
    - 2b3.3a. Describe the conceptual/clinical and statistical methods and criteria used to select patient factors (clinical factors or social risk factors) used in the statistical risk model or for stratification by risk (e.g., potential factors identified in the literature and/or expert panel; regression analysis; statistical significance of $p<0.10$; correlation of x or higher; patient factors

should be present at the start of care) Also discuss any “ordering” of risk factor inclusion; for example, are social risk factors added after all clinical factors?

- 2b3.3b. How was the conceptual model of how social risk impacts this outcome developed? Please check all that apply: developed? Please check all that apply: developed? Please check all that apply:
  ☐ Published literature ☐ Internal data analysis ☐ Other (please describe)
- 2b3.4a. What were the statistical results of the analyses used to select risk factors?
- 2b3.4b. Describe the analyses and interpretation resulting in the decision to select social risk factors (e.g., prevalence of the factor across measured entities, empirical association with the outcome, contribution of unique variation in the outcome, assessment of between-unit effects and within-unit effects.) Also describe the impact of adjusting for social risk (or not) on providers at high or low extremes of risk.
- 2b3.5. Describe the method of testing/analysis used to develop and validate the adequacy of the statistical model or stratification approach (describe the steps—do not just name a method; what statistical analysis was used)

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