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Memo

June 29, 2021

To: Consensus Standards Approval Committee (CSAC)

From: Prevention and Population Health Project Team

Re: Prevention and Population Health Fall 2020

CSAC Action Required

The CSAC will review recommendations from the Prevention and Population Health project at its June 29 – 30, 2021 meeting and vote on whether to uphold the recommendations from the Committee.

This memo includes a summary of the project, measure recommendations, themes identified and responses to the public and member comments and the results from the NQF member expression of support. The following documents accompany this memo:

1. **Prevention and Population Health Fall 2020 Draft Report**. The draft report has been updated to reflect the changes made following the Standing Committee's discussion of public and member comments. The complete draft report and supplemental materials are available on the project webpage.
2. **Comment Table**. Staff has identified themes within the comments received. This table lists 18 comments received during the post-meeting comment period and the NQF/Standing Committee responses.

Background

Population health is the collective well-being and functional ability of an identified group of people to experience their full capabilities. It has multiple environmental, behavioral, social, and biological determinants. Population health is generally understood as a systems-level concept that describes health outcomes of a group of individuals that are measured through a broad spectrum of public health, clinical care, socioeconomic, and physical environmental determinants that function interdependently and cumulatively. Population health not only focuses on disease and illness across multiple sectors, but also on health and well-being, prevention, and health promotion, as well as disparities in outcomes and improvement activities within a group and/or between groups. Identifying valid and reliable measures of performance across these multiple sectors can be challenging. Data collection, health assessments at individual and aggregate levels, payment structures, quality of patient care, public health interventions, and other components present challenges in shaping widespread, standardized implementation of population health measures. Overcoming these challenges is critical to any strategy to understand and improve the health of populations.

The Prevention and Population Health Portfolio Standing Committee (PDF) oversees NQF's portfolio of prevention and population health measures that focus on healthy lifestyle behaviors, community interventions, and social and economic conditions in healthcare and community settings that improve health and well-being.

The Standing Committee evaluates newly submitted and previously endorsed measures against NQF's measure **evaluation criteria, identifies portfolio gaps, provides feedback on gaps in measurement, and** conducts ad hoc reviews. On February 17-18, 2021, the 23-person Prevention and Population Health Standing Committee evaluated one new measure against NQF's **standard evaluation criteria, NQF** #3592e Global Malnutrition Composite Score, for which consensus was not reached on the performance gap criteria.

Draft Report

The Prevention and Population Health Fall 2020 draft report presents the results of the evaluation of one measure considered under the Consensus Development Process (CDP). One measure is recommended for endorsement.

The measures were evaluated against the 2019 version of the measure evaluation criteria.

Status	Maintenance	New	Total
Measures under review	0	1	1
Measures recommended for endorsement	0	1	1
Measures not recommended for endorsement	0	0	0
Reasons for not recommending	Importance – 0 Scientific Acceptability – 0 Use – 0 Overall Suitability – 0 Competing Measure – 0	Importance – 0 Scientific Acceptability – 0 Use – 0 Overall Suitability – 0 Competing Measure – 0	

CSAC Action Required

Pursuant to the CDP, the CSAC is asked to consider endorsement of one candidate consensus measure.

Measure Recommended for Endorsement

- **NQF #3592e** Global Malnutrition Composite Score (Academy of Nutrition and Dietetics/Avalere Health LLC)

Overall Suitability for Endorsement: Yes-17; No-2

Comments and Their Disposition

NQF received 18 comments from 17 organizations (including two member organizations) and 15 non-member organizations pertaining to the draft report and to the measures under review.

A table of comments submitted during the comment period, with the responses to each comment and the actions taken by the Standing Committee and measure developers, is posted to the Prevention and Population Health project webpage.

Comment Themes and Committee Responses

Comments about specific measure specifications and rationale were forwarded to the developers, who were invited to respond.

The Standing Committee reviewed all of the submitted comments (general and measure specific) and developer responses. Committee members focused their discussion on measures or topic areas with the most significant and recurring issues.

Themed Comments

Four major themes were identified in the post-evaluation comments, as follows:

1. Requested updates from the 2015-2017 Health & Well-being Project endorsement evaluation of the four individual measures currently resubmitted as a composite.
2. Requested clarification from developers for the 2016 Measure Applications Partnership (MAP) review of the four individual measures now currently resubmitted as a composite.
3. Requested evidence directly linking the documentation of a malnutrition diagnosis to improved patient outcomes and feedback on implementation burdens of the four component measures.
4. Requested to review a feasibility scorecard provided for each electronic health record (EHR) system assessed instead of aggregated score across all three vendors, as well as testing data elements for all elements including the denominator exclusions

NQF# 3592e Global Malnutrition Composite Score (Academy of Nutrition and Dietetics/Avalere Health LLC)

Committee Response

The Standing Committee considered two comments asking for submission clarifications based on the 2015-2017 individual measures' review findings, the electronic clinical quality measures (eCQMs) eFeasibility Scorecard assessment, and data elements testing concerns for the denominator exclusions. The Standing Committee reviewed comments and the responses from the developer from the measure under review.

A table of comments submitted during the comment period, with the responses to each comment and the actions taken by the Standing Committee and measure developers, is posted to the Prevention and Population Health project webpage.

Developer Response

The Academy of Nutrition and Dietetics and Avalere Health, the respective measure steward and developer of NQF #3592 – Global Malnutrition Composite Score, appreciate the comments and feedback received from a diverse representation of healthcare stakeholders. This composite measure reflects years of multi-stakeholder input and collaboration from across the healthcare sector. In the spirit of stakeholder input and collaboration, we address the questions raised by several commenters below.

In Response to Comments on Evidence:

1. Both the previous Health and Well-being endorsement committee from the 2015-2017 cycle and the 2016-2017 Measures Application Partnership Hospital workgroup made specific recommendations to consider joining the formerly individual measures into a composite. To that end, Avalere and the Academy pursued the development of a composite measure which incorporates all the main components of the clinical malnutrition workflow beginning with screening at admission and ending with the development of a nutrition care plan for those with a diagnosis of malnutrition. Each component was evaluated, and the measure calculation was tested by assessing the influence of each component on a multi-linear model. The existing components, while similar to the individual eCQMs submitted in 2016, are significantly modified to reflect a combination of the largest quality gaps among participating hospitals and the scientific rigor of the measure. We refer commenters to the 2021 measure testing information provided that demonstrates the important contribution of each component to outcomes and the results of a hierarchical linear model with 30-day hospital readmissions and hospital length of stay as the explanatory outcomes for the analysis. The analysis was also published in the Journal of the Academy of Nutrition and Dietetics. [1]
2. Two commenters raised concerns regarding the evidence criteria for the appropriate diagnosis component of the composite score based on findings from the endorsement review of a related set of individual eCQMs submitted in 2016. The measure developer and steward would like to refer the commenting organizations to the new Global Composite Score submission which includes updated evidence and new studies that have been published since 2016. Further, testing and validation was conducted in 2016 with only 2 hospital datasets and the testing had only been conducted at the data element level. The updated testing included 56 hospitals with over 175,000 hospital encounters and was conducted at the component and measure score levels to be able to demonstrate the contributions of each component to the overall score and the relationship with outcomes.
3. We provided several published studies on the use of the measures and the importance of each component of the workflow leading to the appropriate diagnosis of malnutrition and development of the plan of care. We refer the commenters to the evidence attachment as well as the developer/steward comments to the committee which highlight yet another set of case studies of measure implementation.

In Response to Comments on Data Element Testing:

1. One commenter suggested there was no evidence of “robust data element testing”, referencing the report included for comment. We refer the commenter to the final testing attachment that was provided to the committee and reviewed as part of the committee’s deliberations. In that final testing attachment, we provide both score-level AND data

element-level testing results that demonstrate the role of each major component of the composite measure.

2. Another commenter suggested that testing of the exclusions was not conducted. We refer the commenter to our responses under section 2b2. Exclusions Analysis in the NQF Composite Measure Testing attachment that was submitted to the committee. There we describe our testing approach, assumptions and results indicating the rationale for retaining the exclusion criteria.

In Response to Comments on Burden of Several Requirements:

1. We appreciate the groundswell of interest on our measure having receiving at least 15 comments from stakeholder groups sharing their experiences with malnutrition care in the hospital or actual use of the measures in practice. Out of a total of approximately 20 comments, two commenters suggested that the previous committee had not endorsed the originally submitted measures from 2016 due to "burden of several of the requirements". The requirements suggested were "documenting within 24 hours of admission" and "all the components required in the plan of care". Our understanding is that what the commenters are referencing as "documenting within 24 hours of admission" is likely the original individual measure for screening being a malnutrition screening for all inpatient adults within 24 hours of admission. We refer the commenters to the specifications of the Global Composite Score which does not incorporate all adults (population was limited to adults 65 and older for evidentiary reasons) nor does it involve timing of screening upon admission as was included in the original measures submitted. Furthermore, we refer the commenters to the Joint Commission Standards that were in place for at least 15 years requiring nutrition screening for all admitted inpatients within 24 hours of admission. While this standard is no longer in effect due to high performance (indicating low burden and high feasibility), the component of nutrition screening has been rolled up into a comprehensive standard for nutritional status and care planning. Hospitals have long-been implementing these processes as part of their regulatory and certification requirements but have never been systematically measured on their compliance. [2] This measure provides an opportunity to truly understand the extent to which hospitals are complying with evidence-based nutrition care practices for those at-risk of malnutrition or already malnourished upon admission.
2. As far as the burden suggested by the two comments regarding "all the components of required in the plan of care", we respectfully disagree with this characterization of the rationale for previous malnutrition measures not being endorsed in the past. We note that the 2016 nutrition care plan measure (which is arguably different than the measure included in the composite score) was not endorsed because the measure did not pass validity at the time. The measures submitted in 2016 were individual measures and the comparable measure was a hybrid eCQM and having only been tested in 2 hospitals at the time. We took the feedback from previous review bodies, our expert collaborators and partners, and the participating hospitals themselves to redesign the measure suite into a fully electronic and feasible composite measure of optimal malnutrition care. NQF #3592 is designed as a full eCQM and all components including the nutrition care plan component were tested in 56 hospitals which follow consensus recommendations on integration of the workflow in the EHR at the time of submission. [3] This measure does not introduce new burden to practicing clinicians given that the capture of a nutrition care plan is a standard of care and the components are recommended by expert consensus as well as embedded within hospital regulatory requirements. For instance, according to the accrediting body for

Registered Dietitian Nutritionists (RDNs) and other clinically qualified nutrition professionals, RDNs should develop a nutrition care plan to change a nutrition-related behavior, risk factor, environmental condition, or aspect of health status to resolve or improve the identified nutrition diagnosis(es) or nutrition problem(s). [4] Care plans are tailored to the patient needs by planning and implementing appropriate interventions. In addition, the Medicare Conditions of Participation for hospitals to qualify for CMS payment includes guidelines that request hospitals ensure individual patient nutritional needs be met in accordance with recognized dietary practices including assessing patients for their risk of nutrition deficiencies and need for therapeutic diets. [5]

In Response to Comments on Feasibility:

1. Two commenters requested additional detail on the feasibility of the composite measure given that the scorecard submitted at the time of review was aggregated across 56 hospitals reflecting 3 EHR vendors (Epic, Cerner, and Allscripts which together comprise about 60% of the hospital market). Given the request to provide additional detail, not only did we break the summary down into vendor-specific score cards, but we also added feedback from another 53 hospitals reflective of different EHR implementations. We have received feedback (and measure data) from more than 100 hospitals across the United States who have worked to implement the measures and use them in real-world to guide clinical practice improvement. In addition to overall feasibility of critical data elements, two commenters suggested that there is potential uncertainty around documenting discharge disposition (otherwise known as discharge status) of which two are included as exclusion criteria (discharge to hospice and left against medical advice). Feasibility testing according to NQF consensus development guidelines recommend qualitative feedback on critical data elements for eCQMs, particularly those that may not already be used in other measures. However, we do not share this concern regarding discharge disposition given that there are already standard term sets for discharge disposition that are requirements for EHR certification and promoting interoperability programs. To address this particular concern, we refer the commenter to Office of the National Coordinator's US Core Data for Interoperability (USCDI) which lists encounter disposition as having been used nationally at scale for many of CMS's programs. [6]
2. In addition to qualitative feasibility testing, Bonnie testing was conducted to test the appropriate design of the electronic scoring algorithm. The results of this testing demonstrated 100% coverage for all reported data elements including the exclusion criteria (see attachment). Bonnie testing works specifically with validated code sets and value sets and demonstrates the coverage of included data elements for certified EHR technology.

References:

1. https://doi.org/10.1016/j.jand.2021.02.002
2. https://www.jointcommission.org/standards/standard-faqs/hospital-and-hospital-clinics/provision-of-care-treatment-and-services-pc/000001652/
3. https://aspenjournals.onlinelibrary.wiley.com/doi/10.1002/ncp.10433
4. https://doi.org/10.1016/j.jand.2017.10.003

5. https://www.cms.gov/Regulations-and-

Guidance/Guidance/Manuals/Downloads/som107ap_a_hospitals.pdf#page=361

6. https://www.healthit.gov/isa/uscdi-data/encounter-dispositionMember Expression of Support

Throughout the 16-week continuous public commenting period, NQF members had the opportunity to express their support ('support' or 'do not support') for each measure submitted for endorsement consideration to inform the Committee's recommendations. No NQF members provided their expression of support. Appendix C details the expression of support.

Appendix A: CSAC Checklist

The table below lists the key considerations to inform the CSAC's review of the measures submitted for endorsement consideration.

Key Consideration	Yes/No	Notes
Were there any process concerns raised during the CDP project? If so, briefly explain.	No	*
Did the Standing Committee receive requests for reconsideration? If so, briefly explain.	No	*
Did the Standing Committee overturn any of the Scientific Methods Panel's ratings of Scientific Acceptability? If so, state the measure and why the measure was overturned.	No	*
If a recommended measure is a related and/or competing measure, was a rationale provided for the Standing Committee's recommendation? If not, briefly explain.	No	*
Were any measurement gap areas addressed? If so, identify the areas.	Yes	The Standing Committee stated the measure fills a needed gap in Prevention and Population Health portfolio, and that implementing the measure will reduce measurement gaps in care delivery.
Are there additional concerns that require CSAC discussion? If so, briefly explain.	No	*

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Appendix C: NQF Member Expression of Support Results

One NQF member provided their expression of support. NQF members provided their expression of support for the measure under review. Results for each measure are provided below.

NQF# 3592e Global Malnutrition Composite Score (Academy of Nutrition and Dietetics/Avalere Health LLC)

Member Council	Support	Do Not Support	Total
Consumer	0	0	0
Health Plan	0	0	0
Health Professional	0	0	0
Provider Organization	1	0	1
Public/Community Health Agency	0	0	0
Purchaser	0	0	0
Quality Measurement, Research and Improvement (QMRI)	0	0	0
Supplier/Industry	0	0	0

Appendix D: Details of Measure Evaluation

#3592e Global Malnutrition Composite Score

Submission

Description: This electronically specified clinical quality measure (eCQM) composite of optimal malnutrition care focuses on adults 65 years and older admitted to inpatient service who received care appropriate to their level of malnutrition risk and/or malnutrition diagnosis if properly identified. Best practices for malnutrition care recommend adult inpatients to be screened for malnutrition risk, assessed to confirm findings of malnutrition if found at-risk, and have the proper severity of malnutrition indicated along with a corresponding nutrition care plan that addresses the respective severity of malnutrition.

The malnutrition composite measure includes four component measures, which are first scored separately. The overall composite score is derived from averaging the individual performance scores.

1. Screening for malnutrition risk at admission.
2. Completing a nutrition assessment for patients who screened for risk of malnutrition.
3. Appropriate documentation of malnutrition diagnosis in the patient's medical record if indicated by the assessment findings.
4. Development of a nutrition care plan for malnourished patients including the recommended treatment plan.

These four measures represent the key processes of care and generated markers of malnutrition associated with the risk identification, diagnosis, and treatment of malnutrition in older hospitalized adults as supported by clinical guidelines and submitted evidence.

Numerator Statement: The Global Malnutrition Composite Score is comprised of four component measures, which are scored separately and who's population is sourced from the overall composite measure denominator.

1. Screening for malnutrition risk at admission
2. Completion of a nutrition assessment for patients who screened for risk of malnutrition
3. Appropriate documentation of malnutrition diagnosis for patients identified with malnutrition
4. Development of a nutrition care plan for malnourished

Denominator Statement: The measure population from which the composite's component measures are sourced from are patients aged 65 years and older who are admitted to an acute inpatient hospital.

1. Screening for Malnutrition Risk at Admission: All patients in the measure population with a documented malnutrition screening no more than 48 hours prior to admission to the hospital.
2. Completion of a Nutrition Assessment for Patients who Screened for Risk of Malnutrition: Patients from the measure population who are documented as at-risk for malnutrition via the completed malnutrition screening.
3. Appropriate Documentation of Malnutrition Diagnosis for Patients Identified with Malnutrition: Patients from the measure population who have a completed nutrition assessment documented with findings of moderate or severe malnutrition.
4. Development of a Nutrition Care Plan for Malnourished Patients: Patients from the measure population who have a documented medical diagnosis of malnutrition in their medical record.

Exclusions: All Four Component Measures: patients with a length of stay less than 24 hours

Component Measure #1 only: admission to screening time interval greater than 48 hours

Component Measure #3 and #4 only: Discharge status of hospice or left against medical advice

Adjustment/Stratification: No risk adjustment or risk stratification

Level of Analysis: Facility

Setting of Care: Inpatient/Hospital

Type of Measure: Composite

Data Source: Electronic Health Records (EHRs)

Measure Steward: Academy of Nutrition and Dietetics

STANDING COMMITTEE MEETING February 17 and 18, 2021

1. **Importance to Measure and Report: The measure meets the Importance 1a. Evidence criteria. This measure has not reached consensus on 1b. Performance Gap criteria.**

(1a. Evidence, 1b. Performance Gap)

1a. Evidence: **Total Votes-19**; **H-1; M-15; L-1; I-2**; 1b. Performance Gap: **Total Votes-18; H-0; M-9; L-2; I-7;** 1c. Composite Quality Construct: **Total Votes-17; H-2; M-14; L-1; I-0**

Rationale:

- The Standing Committee members discussed the significance of malnutrition as a contributor to infections, pressure ulcers, and increases in overall treatment needs seen in patients transferred to other care facilities, such as inpatient rehabs.
- Supporting the composite components, the developer provided the 2011 *American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.) Board of Directors* and the *A.S.P.E.N. Clinical Guidelines: Nutrition Screening, Assessment, and Intervention in Adults*, stating that best practices for malnutrition care recommend adult inpatients to be screened for malnutrition risk, assessed to confirm findings of malnutrition if found at-risk, and to have the proper severity of malnutrition indicated along with a corresponding nutrition care plan that addresses the respective severity of malnutrition.
- The developer provided an overview of the Malnutrition Care Workflow, a six-step multidisciplinary approach to identifying older, malnourished hospitalized patients and developing individualized nutrition care plans for use in hospital- and care transition-based interventions.
- Robust systematic literature reviews were also provided for each component with Grade E (Components 1 and 2) and Grade C (Components 3 and 4) supporting evidence that links the four components to decreased hospital length of stay (LOS) and 30-day readmissions.
- Some Standing Committee members debated the need for validated and standardized malnutrition screening and assessment tools, while the developer and other Standing Committee members stated that validated and objective protocols are readily captured in electronic health record (EHR) data fields, such as body mass index (BMI), dietary history, recent weight loss, illness severity, laboratory values, and age.
- The evidence finds that individuals ages 65 years and older have a two to three greater risk of malnutrition than younger individuals and that language barriers negatively contribute to component and composite performance. The evidence and provided performance data demonstrate gaps for patients ages 18 years and older of relative to reference differences in malnutrition risks across age ranges in years (18-34), (35-64), and (≥65), and by race, ethnicity, and sex.
- A total of 179,336 patients, ages 65 years and older, were sampled for testing in 56 short term, community, academic, medical, and critical access acute care hospitals in 10 states collected for the 2019 calendar year. The average age in years was 76.5 and the mean was 75. The cohort was 77.8% White, 9.68% Black, 1.59% Asian or Pacific Islander, and 9.56% Other, with 4.91% identified as Hispanic.
- Performance scores ranged from 1.18 to 3.77 with a median of 3.32 and mean of 3.07. The ranges of the components' performance consisted of the following: (1) 64%-99%, (2) 12%-100%, (3) 0%-100%, and (4) 0%-100%.
- The Standing Committee expressed concern related to potential disparities in the provided performance data that was not stratified by available social risk data elements, specifically race, ethnicity, geography (urban/rural), and language barriers, stating patients less than 65 years of age may show similar disparities.
- The extensive Standing Committee discussions on evidence and performance gaps included review of the Malnutrition Care Workflow framework and the quality construct and rationale of the composite.
- Standing Committee members noted the team's approach to accountability and poor performance in the proceeding components did not equate to poor performance in the remaining components as the multidisciplinary composite framework creates "fillers" for each step in the process to identify patients when other framework steps are lagging.
- The Standing Committee passed the measure on evidence and composite quality construct.
- Consensus was not reached by the Standing Committee on performance gap.

- During June 3, 2021 the post-comment measure evaluation, the Standing Committee discussed the additional disparities data submitted by the developer, including performance for the overall composite, and the individual components by all adult populations, 65 years and older, and 18 years and older stratified by patient race, ethnicity, sex, and urban/rural designations.
- Overall performance for younger patients was lower than older patients, and White and American Indian/Alaska Natives patients performed generally lower than all other races and ethnicity. Urban hospitals performed lower than rural hospitals overall and, on all components, except component 3 (i.e., diagnosis documentation).
- NQF received zero comments for not supporting the measure.
- Having reviewed and discussed the requested performance gap disparities data and the public comments, the Standing Committee revoted and passed on the measure for the performance gap criterion. They also recommended the measure for overall suitability for endorsement.

2. Scientific Acceptability of Measure Properties: The measure meets the Scientific Acceptability criteria.

(2a. Reliability precise specifications, testing; 2b. Validity testing, threats to validity)

2a. Reliability: **Total Votes-18; H-0; M-13; L-2; I-3**; 2b. Validity: **Total Votes-17; H-0; M-14; L-3; I-0;** Composite Construction: **Total Votes-18; H-0; M-14; L-3; I-1**

Does the Standing Committee accept the NQF Scientific Methods Panel's Moderate rating of Reliability?

Total Votes-17; Yes –15; No - 2

Does the Standing Committee accept the NQF Scientific Methods Panel's Moderate rating of Validity?

Total Votes-17; Yes - 15; No - 2

Does the Standing Committee accept the NQF Scientific Methods Panel's Moderate rating of Composite Construction?

Total Votes-18; Yes - 15; No - 3

This measure was deemed as complex and was evaluated by the NQF Scientific Methods Panel (SMP).

- The NQF Scientific Methods Panel's ratings for Reliability: **H-2; M-4; L-0; I-2**
- The NQF Scientific Methods Panel's ratings for Validity: **H-0; M-6; L-0; I-2**
- The NQF Scientific Methods Panel's ratings for Composite Construction: **H-2; M-3; L-2; I-1**

Rationale:

Reliability Testing

- As a composite, the scientific acceptability of the measure properties were evaluated by the SMP, who gave the measure a moderate reliability rating. The Standing Committee voted not to accept the SMP's recommendation; therefore, the Standing Committee discussed reliability testing.
- Standing Committee members questioned the effects on reliability without using validated screening and assessment tools in the first two components. The developer stated the eCQM only uses data found in an EHR, which they report are standardized, such as BMI, dietary history, recent weight loss, illness severity, laboratory values, and age. They also stated that they tested the measure in hospitals that already implemented the composite and embedded standardized tools in the EHRs.
- Some Standing Committee members discussed the effect on the composite from non-acute care factors that increase the risk of hospitalization, LOS, and readmissions, including food insecurity, language and financial barriers, insurance denials, homelessness, or other barriers identified in malnutrition care planning. The developers stated that the measure targets high-risk patients, elderly and identified as malnourished, who need nutrition care planning support after hospitalization in community-based interventions.
- To test composite reliability, developers used the variance components extracted from a linear mixed effects (LME) model to calculate the intraclass correlation coefficient (ICC) ICC = $\sigma^2_{between}/(\sigma^2_{between} + \sigma^2_{within})$. This method accommodates inclusion of both fixed and random

effects to account for the correlated or non-independent nature of measures that are hierarchically nested within health systems (N = 10) and practice sites (N = 56). Using the ICC to detect signal to noise, a reliability score of 0.70 or greater is considered acceptable for drawing conclusions about groups.

- The measure's reliability was tested with and without case minimums typically recommended by CMS in its quality reporting programs. With case minimums, the ICC calculated was 0.839 and without case minimums, it resulted in an ICC of 0.647, indicating the composite performance measure score is able to detect meaningful differences among provider groups.
- The Standing Committee voted and rated reliability as moderate.

Validity Testing

- The SMP gave the measure a moderate rating for validity. The Standing Committee voted not to accept the SMP's recommendation; therefore, they discussed validity testing.
- The Standing Committee questioned whether the primary driver for improved outcomes, LOS and 30-day readmission, correlates to care plan development, and whether validity testing in hospitals where the components are implemented may bias the findings. They questioned whether outcomes data showing discharge to home versus discharge to skilled nursing facilities were available, and whether implemented care plans at discharge were a greater reflection on health system rather than hospital-based interventions. The developers provided testing on the effects of the individual components to overall outcomes, stating the focal insight of measure implementation was improved identification of patient needs in care transitions.
- Empirical testing for construct validity of the overall composite measure at the score level was performed using a hierarchical linear regression to assess whether the model predictability significantly improved when the components in aggregate were included in the model versus standard outcome predictors, such as patient characteristics, primary diagnoses, and comorbidities. The 30-day readmission and length of stay (LOS) variables were assessed using independent variables: "demographic and clinical" initially, and then with "malnutrition" in a stepped approach to measure the power of malnutrition variables. A goodness-of-fit test was included for malnutrition variables to estimate the incremental improvement.
- Both LOS and readmissions are significantly related to malnutrition, after controlling for other model variables (e.g., patient demographics and primary diagnosis), which are known outcome predictors. The R^2 statistic for the LOS model was 0.063 prior to the inclusion of the aggregate measure components and 0.288 after ($p<0.001$), and the c-statistic for the 30-day readmissions model was 0.614 before their inclusion and 0.625 after ($p<0.01$).
- Developers compared the predictability of LOS and 30-day readmissions to the CMS HCC risk-adjustment model that predicts total annual costs for individuals of prospective diagnosis-based models with R^2 values ranging from 0.0186 to 0.1246. Based on this range and the findings of the empirical testing of the composite measure score above, the developers stated that the strength of model predictability and the overall measure is adequate and comparable to measures implemented by CMS for similar purposes.
- A secondary analysis assessed associations between the main composite clinical endpoint (i.e., nutrition care plans for patients with a malnutrition diagnosis) and the outcomes most associated with malnutrition (i.e., 30-day readmissions and LOS) to understand the association of having a nutrition care plan with a malnutrition diagnosis versus not having a nutrition care plan. Results showed a statistically significant relative risk reduction of 24% (21.4% vs. 26.5%, respectively) in the likelihood of 30-day readmissions (OR=0.74, 99%, CI=0.558-0.941). For LOS, hospitalized patients with a malnutrition diagnosis and a nutrition care plan had on average, a three day longer LOS than malnourished patients without a nutrition care plan (LOS of 9.46 vs. 6.46 days, respectively; p=0.0001).
- For the composite performance measure score validity testing, developers stated that the composite measure results are strongly correlated to important clinical outcomes associated with malnutrition, 30-day readmissions, and LOS. A secondary analysis showed that nutrition care plans may be associated with a reduced risk of 30-day readmission for those with malnutrition versus those who are diagnosed with malnutrition but do not have a nutrition care plan.
- Developers assessed validity testing for component measures by conducting construct validity of critical data elements in a generalized linear (logistic) regression model with multiple response

variables for each component: (1) Medical diagnosis in two components, (2) Screening in three components, (3) Time to assessment in three components, and (4) Assessment result in three components. They hypothesized that all predictor variables would correlate to a malnutrition diagnosis outcome (component #3) and together they would be a strong predictor of the malnutrition outcome of the composite and support validity of all composite components. Consistent with the developer's hypothesis, all main effects and two 2-way interactions were highly significant (all p-values <.0001). The c-statistic of 0.828 indicates an excellent fit of the model to the malnutrition diagnosis and nutrition care plan as c-statistics above 0.8 normally indicate a very strong predictive model.

- Developers also tested the correlation or the predictive relationship between the components and outcome of the composite measure with clinical outcomes of patient LOS and 30-day readmissions in a generalized linear mixed model approach. Results showed all, including the outcome of the malnutrition composite measure (i.e., malnutrition diagnosis and nutrition care plan), were significantly predictive of the outcome of LOS ($p<0.0001$) and 30-day readmissions ($p<0.0001$).
- The developer stated the exclusions were identified by the TEP and not explicitly sourced from the literature. The two main exclusions are LOS less than 24 hours equating to insufficient time to complete all component measure interventions and patients discharged to hospice who may have different nutrition support requirements that are based on patient preferences. Testing showed no significant effects on performance scores for all four component measures with or without exclusions.
- Bootstrap resampling methodology was used to generate a 95% confidence interval around the composite score mean and grouped providers into performance categories (Low/Below Mean (19, 40.4%), Medium/Not Different than Mean (7, 14.9%), High/Above Mean (22, 44.7%)) to the 95%. Results are shown among hospitals that meet the case minimum of 20 patients and at least three reportable measures.
- The developers reported the average consistency measure across the sample of hospitals in the testing data set as greater than 95% and missing data were consistently low across all reporting sites due to very high feasibility of the data elements. They stated that all data elements are collected during the care processes and are not burdensome to clinicians; therefore, systematic missing data are not biasing performance.
- The developer also assessed the association between the main composite clinical endpoint (i.e., nutrition care plans for patients with a malnutrition diagnosis) and the outcomes most associated with malnutrition (i.e., 30-day readmissions and LOS). Tests of internal consistency (e.g., Cronbach's alpha and item-to-total correlations) were completed to confirm the equal weighting of each component's contribution to the total composite score. Given the acceptable item-to-total correlations and strong internal consistency indicating how closely related the components are to the total score, the developers concluded that weighting differences for each component are not necessary.
- The Standing Committee voted and rated validity as moderate.

Composite Construction

- The SMP and Standing Committee gave the composite construction a moderate rating.
- SMP members generally favored the composite construction approach, specifically the inclusion of appropriate, process-related components to the provided framework.
- Some SMP members wanted additional details on the equal component weighting and whether nominal (qualitative) rather than interval (quantitative) level data are more appropriate for reliability and validity averaging.
- The Standing Committee did not accept the SMP's moderate vote for composite constructions. No further comments were offered by Standing Committee members, who gave a moderate rating for the composite construction and passed the measure on this sub-criterion.
- The Standing Committee passed the measure on reliability, validity, and composite construction.

3. Feasibility: Total Votes-17; H-3; M-12; L-2; I-0

(3a. Clinical data generated during care delivery; 3b. Electronic sources; 3c. Susceptibility to inaccuracies/ unintended consequences identified 3d. Data collection strategy can be implemented)

Rationale:

- ALL data elements are in defined fields in EHRs and are routinely collected during clinical care; therefore, the Standing Committee's discussion was limited.
- The eFeasibility score card is provided for all critical data elements that were tested in three EHRs: Epic, Cerner, and AllScripts.
- The following critical data elements were rated for current and future feasibility out of 12 possible points: (1) malnutrition risk screening (12, 12), (2) malnutrition at-risk (11.83, 12), (3) nutrition assessment (11.83, 12), (4) nutrition assessment result (moderately and severely malnourished) (11.5, 12), (5) malnutrition diagnosis (12, 12), and (6) nutrition care plan (11.41, 11.84).
- All critical data elements of the eCQM are listed in the NLM VSAC.
- The Standing Committee passed the measure on feasibility.

4. Use and Usability

4a. Use; 4a1. Accountability and transparency; 4a2. Feedback on the measure by those being measured and others; 4b. Usability; 4b1. Improvement; 4b2. The benefits to patients outweigh evidence of unintended negative consequences to patients)

4a. Use: **Total Votes-16; Pass-15; No Pass-1** *4b. Usability:* **Total Votes-16; H-4; M-8; L-3; I-1**

Rationale:

- This new eCQM composite measure is planned for use in public reporting, public health/disease surveillance, payment program, regulatory and accreditation programs, professional certification or recognition program, and quality improvement (internal to the specific organization). It is currently used in quality improvement (external benchmarking to organizations), and the Malnutrition Quality Improvement Initiative (MQii)
- The MQii is designed to help participating hospitals improve malnutrition care and subsequently achieve better outcomes. The primary goal is to advance evidence-based, high quality, patient-driven care for hospitalized older adults who are malnourished or at-risk for malnutrition and supporting hospitals with tools and resources to improve quality.
- The 105 MQii-participating hospitals receive biannual performance feedback and benchmarking of individual hospitals, overall composite scores, hospital readmissions, and LOS in relation to other facilities by hospital type and size during the same period, and longitudinally.
- Participants in the MQii participate in recurring group technical calls and feedback sessions sharing their best practices, lessons learned, and quality improvement efforts. Participants are periodically surveyed to assess the focus and experience with measure implementation. Some participants submit their experiences to peer-reviewed journals for publication.
- The eCQM composite is currently listed in the Centers for Medicare & Medicaid Services (CMS) CMIT and is under conditional support for rulemaking by NQF's Measure Applications Partnership (MAP) for use in the Hospital Inpatient Quality Reporting (Hospital IQR) Program, pending endorsement of this measure.
- The Standing Committee passed the measure on use and usability.

5. Related and Competing Measures

- No related or competing measures were noted.

6. Standing Committee Recommendation for Endorsement: **Total Votes-17; Y-15; N-2**

Rationale

- The Standing Committee did not reach consensus for the Importance 1b. Performance Gap criteria based on the evaluation criteria. They requested disparities data based on age (including less than 65 years, race, ethnicity, and geography) as the presented evidence and the empirical data demonstrated identified health disparities, specifically for the African American and Hispanic communities. There was wide acceptance for the literature-based evidence demonstrating the disparities of risk of malnutrition and performance gaps for select populations. NQF staff will guide developers to provide the requested health disparities data for the Standing Committee's post-comment web meeting on June 3, 2021.

- After review of the performance gap criterion and documentation, the Standing Committee had no further discussion on the suitability for endorsement. They subsequently recommended the measure suitable for endorsement in a 15/2 (i.e., yes/no) vote.

7. **Public and Member Comment**
   - The Standing Committee considered the 17 measure-specific comments received by the public and NQF members, as well as the one comment received from the developer. Fifteen commenters supported the measure, and two commenters asked for clarifications based on the 2015-2017 individual measure reviews, the eCQM eFeasibility Scorecard assessment, and data elements testing concerns for the denominator exclusions.

8. **Consensus Standards Approval Committee (CSAC) Vote: Y-X; N-X**
9. **Appeals**