Summary of Technical Expert Panel (TEP) Meetings: Hospital Outcome Measurement for Patients with Social Risk Factors

February 2019

Prepared by:
Yale New Haven Health Services Corporation – Center for Outcomes Research and Evaluation (CORE)

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The materials within this document do not represent final methodologies utilized by the CORE Disparity Methods Team.

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Background

The Centers for Medicare & Medicaid Services (CMS) has contracted with Yale New Haven Health Services Corporation – Center for Outcomes Research and Evaluation (CORE) to develop methodologies for presenting disparities in hospital outcome measures. One methodology will illuminate differences in outcomes for patient groups based on social risk factors within a hospital. The other methodology will allow for comparison of performance in care for patients with social risk factors across hospitals. The contract name is Development, Re-evaluation, and Implementation of Outcome/Efficiency Measures for Hospital and Eligible Clinicians, Option Year 4. The contract number is HHSM-500-2013-13018I, Task Order HHSM-500-T0001.

CORE is obtaining expert and stakeholder input on the proposed methods. The CORE team is comprised of experts in quality outcomes measurement as well as measure development and methodology. As is standard with all measure and methodology development processes, CORE has convened a technical expert panel (TEP) of clinicians, researchers, patient advocates, and other stakeholders. Collectively, the TEP members brought expertise in performance measurement, clinical content, and quality and patient safety.

This report summarizes the feedback and recommendations received from the TEP during the first of two possible meetings discussing the proposed methodologies. The report will be updated to include feedback and recommendations from future meetings as they occur.

Method Development Team

Dr. Anouk Lloren leads the disparity methods team with Dr. Susannah Bernheim as the project director and Dr. Jeph Herrin as a methodologist. Dr. Lloren is an associate research scientist and project lead in the Quality Measurement Division at CORE. Dr. Bernheim is a clinical investigator, family physician and Clinical Assistant Professor at Yale School of Medicine. Dr. Bernheim is also a Director of Quality Measurement Programs at CORE. Dr. Herrin is a statistician and Assistant Adjunct Professor of Cardiology at Yale School of Medicine. The remainder of the CORE internal methods development team provides a range of expertise in outcome measure development, health services research, clinical medicine, statistics, and measurement methodology. Of notable contribution to the analytical methods and results were efforts by Dr. Shuling Liu, Dr. Zhenqiu Lin, and Dr. Guohai Zhou. See Appendix A for the full list of members of the CORE method development team.

The TEP

In alignment with the CMS Measures Management System (MMS), and under the guidance of CMS, CORE held a 30-day public call for nominations and convened a TEP to provide input on the development of methodologies that illuminate disparities in hospital outcome measures using patient social risk factors. CORE solicited potential TEP members via emails to individuals and organizations recommended by the methodology development team and stakeholder groups, as well as email blasts sent to CMS physician and hospital email list servers, and through a posting on CMS's website. The TEP is composed of 12 members, listed in Table 1.

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The role of the TEP is to provide feedback and recommendations on key methodological decisions. The appointment term for the TEP is from May 2018 to March 2019.

Specific Responsibilities of the TEP Members

- Complete and submit all nomination materials, including the TEP Nomination Form, statement of interest, and curriculum vitae
- Review background materials provided by CORE prior to each TEP meeting
- Participate in TEP conference calls
- Provide input on key clinical and methodological decisions
- Provide feedback to CORE on key policy or other non-technical issues
- Review the TEP summary report prior to public release
- Be available to discuss recommendations following submission of the methodologies to CMS

Table 1. TEP Member Name, Affiliation, and Location

Name	Title, Organization	Location
Philip Alberti, PhD	Senior Director, Health Equity, Research, and Policy, Association of American Medical Colleges	Washington, DC
David Baker, MD, MPH, FACP	Executive Vice President, Healthcare Quality Evaluation, The Joint Commission	Illinois
Tamarah Duperval-Brownlee, MD, MPH, MBA, FAAFP	Vice President, Care Excellence, Ascension	Missouri
Lynda Flowers, JD, MSN, RN	Senior Strategic Policy Advisor, American Association of Retired Persons	Washington, DC
Jonathan Gleason, MD	Vice President, Clinical Advancement and Patient Safety, Carilion Clinic	Virginia
Shane McBride, MBA	Patient Advocate, Founder and CEO, Healthcare Strategy and Operations Consultant, Chiron Strategy Group, LLC	Massachusetts
Sarita Mohanty, MD, MPH, MBA	Vice President, Care Coordination for Medicaid and Vulnerable Populations, National Medicaid, Kaiser Permanente	California
Kristina Mycek, MS, CAS	Project Lead and Statistician, Consumer Reports	New York
Ninez Ponce, MPP, PhD	Associate Center Director, Center for Health Policy Research, University of California	California
Aswita Tan-McGrory, MBA, MSPH	Deputy Director, Disparities Solutions Center, Massachusetts General Hospital	Massachusetts

Name	Title, Organization	Location
Jorge Villegas, PhD, MBA	Patient Advocate, Associate Professor of Business Administration, University of Illinois, College of Business and Management	Illinois
Kimberlydawn Wisdom, MD, MS	Senior Vice President, Community Health and Equity, Chief Diversity, Henry Ford Health System	Michigan

TEP Meetings

CORE held TEP meeting on May 22, 2018 and January 17, 2019 (see Appendix B for the TEP meeting schedule). This summary report contains a summary of both TEP meetings.

TEP meetings follow a structured format consisting of the presentation of key issues identified during measure or methodology development, as well as CORE's proposed approaches to addressing the issues, followed by an open discussion of these issues by the TEP members.

First TEP Meeting Overview

Prior to the first TEP meeting, TEP members received detailed meeting materials containing background information on the materials and outlines of the two proposed methodologies.

During the first TEP meeting, CORE solicited feedback from the TEP about both the hospital-specific disparity method and the dual readmission rate method. TEP members provided input surrounding the choice of social risk factors and outcomes, inclusion of risk factors in the models, and comparison of results across hospitals.

Following the meeting, TEP members provided additional feedback on the two methodologies and inclusion of social risk factors as well as on approaches to display results via e-mail, a summary of which is included in Appendix D.

The following bullets represent a **high-level summary** of what was discussed during the first TEP meeting. For further details, please see Appendix C.

Project Background and Overview

- CORE Presentation to the TEP on the Development of Two Disparity Methods
    - CORE reviewed background information related to health outcomes and social risk factors.
    - CORE described the development of quality measures stratified by social risk factors and introduced two methodologies to illuminate disparities at individual hospitals.
    - CORE outlined the goals of the meeting, which include presenting the two methods developed using readmission as the outcome and dual eligibility as the social risk factor.
    - CORE provided an overview of two complementary methods: the hospital-specific disparity method (which assesses within-hospital disparities) and the

dual eligible readmission rate method (which assesses healthcare quality for patients with social risk factors across hospitals).
    - CORE reviewed the intended use of the methods. This includes confidential reporting using the pneumonia readmission measure in September 2018 and consideration for future public reporting in the Hospital Inpatient Quality Reporting Program (IQR).
    - CORE asked for initial questions on background information and the two disparity methods.
- TEP Feedback
    - One TEP member asked for clarification on which subpopulation the methods would be applied to.
    - Some TEP members asked about the use of readmission as the outcome and dual eligibility as the social risk factor for measuring disparities.
- Summary
    - The initial feedback and questions from TEP members surrounded the choice of subpopulation, as well as applicability of the methods to other social risk factors and outcome measures.

Presentation of Two Disparity Methods

- CORE Presentation to the TEP on the Hospital-Specific Disparity Method
    - CORE described the goal of the hospital-specific disparity method: to report within-hospital disparities between dual and non-dual eligible patients. The method shows whether two patients who differ only with respect to their dual eligibility status have different outcomes at a given hospital.
    - CORE reviewed the key principle of this method: patients with similar comorbidities should expect the same outcome regardless of their dual eligibility status. The method is intended to reveal differences in outcomes specific to a hospital, rather than differences due to patient case mix.
    - CORE provided an overview of the modelling strategy, which builds on currently implemented risk-adjusted readmission measures by including an indicator for dual eligibility status at the patient level with a random coefficient. The coefficient allows for direct estimation of the within-hospital disparity and assumes that dual eligibility may have no effect, a large effect, or a negative effect on hospitals. The method aims to show whether some hospitals are better at mitigating the impact of dual eligibility on patient outcomes. The model also includes the percentage of dual eligible patients at the hospital, which is intended to reduce bias in estimating the patient-level dual eligibility effect and assumes that the effect of being dual eligible is separate from (independent of) the percentage of dual eligible patients at the hospital.
    - Due to time limitations, CORE was unable to review results for the hospital-specific disparity method.
- TEP Feedback

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    - Some TEP members expressed concern that the method does not account for the heterogeneity of dual eligible patients, differences in hospital characteristics, and community-level factors.
    - Many TEP members voiced that dual eligibility was not the best choice of social risk factors and suggested exploring other social determinants of health.
    - Many TEP members supported the hospital-specific disparity method because it could incentivize hospitals to identify barriers that explain these results by collecting more data, as well as suggest areas for improvement.
    - TEP members also had some individual questions about the specific modelling strategy and were referred to the materials for additional information.
- Summary
    - TEP members expressed concern that the model did not capture a broad range of social risk factors nor the complex relationships that occur among them. Despite these concerns, TEP members supported the goal of the hospital-specific disparity method and agreed that the method could help reveal areas for quality improvement.
- CORE Presentation to the TEP on the Dual Eligible Readmission Rate Method
    - CORE described the goal of the dual eligible readmission rate method: to assess hospitals' performance specifically for dual eligible patients. Specifically, the goal is to compare how Hospital A performs for their dual eligible patients compared to Hospital B.
    - CORE also reviewed the modelling strategy behind the dual eligible readmission rate method. The method applies current measures' methodology to dual eligible patients; using this method, hospitals receive risk-standardized readmission rates (RSRRs) specifically for dual eligible patients. Here, the outcome and risk adjustment are similar to 30-day readmission measures, but the cohort is a subset of the overall measure cohort; as a result, we cannot directly compare hospitals' performance for dual eligible patients with their overall performance.
    - Due to time limitations, CORE was unable to review results for the dual eligible readmission rate method.
- TEP Feedback
    - TEP members expressed concern about comparing hospitals using the dual eligible readmission rate method; they suggested comparing hospitals on this method to similar hospitals (that is, "peer-grouping").
    - Some TEP members agreed that this method provides valuable feedback to hospitals and serves as a complement to the hospital-specific disparity method.
- Summary
    - Some TEP members expressed concern about comparing hospital performance for dual eligible patients unless hospitals were compared to their peers.
    - Many TEP members felt that the dual eligible readmission rate method provides valuable information to hospitals.
- CORE Presentation to the TEP on Relationship Between Overall Quality and Disparity

- CORE reviewed results for the two disparity methods using the pneumonia readmission measure.
- Hospitals that ranked high in terms of their dual-specific RSRRs tended to have high within-hospital disparities and high overall readmission rates. Similarly, hospitals that ranked low in terms of their dual-specific RSRRs tended to have low disparities and low overall readmission rates. However, this was not the case for all hospitals.
- The results provided information on overall hospital quality and showed that the two disparity methods are complementary.

Next Steps from TEP 1

Ongoing Method Development

CORE will continue to seek feedback from the TEP and Person and Family Engagement Network to finalize the methodology.

Public Comment

The methods will undergo a public comment period at a date to be determined.

Conclusion

TEP feedback on CORE's approach to developing two complementary disparity methods will inform the development of materials for the confidential reporting period. CORE will continue to engage with and seek input from the TEP.

Second TEP Meeting Overview

Prior to the second TEP meeting, detailed meeting materials were sent to TEP members. These materials included a summary of the two disparity methods presented at the previous meeting, slides and background materials for the upcoming meeting, and a supplemental appendix. The appendix included a methodological overview of the readmission measures, a summary of stakeholder engagement, and an overview of race as a social risk factor. The appendix also included detailed results for both disparity methods, such as within-hospital disparities using Black race and differences in outcomes based on hospital-level characteristics.

During the second TEP meeting, CORE presented TEP members with several new results. First, CORE reviewed results on the seven readmission measures for the Within-Hospital Disparity Method and the Dual Outcome Rate Method using dual eligibility as the social risk factor. Next, CORE presented results of an analysis examining the validity of dual eligibility as an indicator of social risk for older adults. Finally, CORE reviewed results of analyses examining the effects of community and hospital-level characteristics on hospital performance. CORE solicited feedback from TEP members on reporting hospital disparity results, categorizing hospital performance, and future directions of this work.

Following the meeting, two TEP members provided additional feedback via e-mail, a summary of which is included in Appendix F.

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The following bullets represent a **high-level summary** of what was discussed during the second TEP meeting. For further details, please see Appendix E.

Introduction: Project Background and Project Status Review

- CORE reviewed the project background and provided an overview of the two disparity methods: (1) the Within-Hospital Disparity Method, and (2) the Dual Outcome Rate Method.
- CORE summarized the processes used to obtain stakeholder input on the two methods.
    - Input was solicited from working groups with patients, families, caregivers, and patient advocates; a Public Comment period; and, a hospital confidential reporting period.
- CORE reviewed the goals of the second TEP meeting:
    - Present results on the seven readmission measures for both disparity methods using dual eligibility as the social risk factor;
    - Review dual eligibility as a social risk factor;
    - Present hospital disparity results when including community-level factors; and,
    - Present results on whether hospital characteristics effect overall performance on the two disparity methods.

Presentation of Within-Hospital Disparity Method Results

- CORE Presentation to the TEP of the Within-Hospital Disparity Method
    - CORE reviewed results on the seven readmission measures using dual eligibility: heart failure (HF), acute myocardial infarction (AMI), pneumonia, chronic obstructive pulmonary disease (COPD), stroke, coronary artery bypass grafting (CABG), and total hip arthroplasty and/or total knee arthroplasty (Hip/Knee).
- TEP Feedback
    - One TEP member asked whether the results across all seven readmission measures risk are adjusted in the table presented in the slide deck.
- CORE clarified all results presented after the first column are risk adjusted.
    - One TEP member asked to clarify where data for risk adjustment originates from.
- CORE responded the readmission measures are calculated using three-year data from inpatient and outpatient claims, and the risk adjustment model used has been clinically validated in the past.
    - One TEP member asked whether a nonsignificant variance of the hospital-specific disparity shows there is no difference between hospitals.
        - CORE responded there are many factors that can lead to a non-significant variance. CORE noted that some measures do not have a statistically significant variation, but this does not mean that there is not a meaningful difference.
- CORE presented two potential approaches for categorizing hospital performance for the Within-Hospital Disparity method. In the "current approach" hospitals are ranked into deciles by the absolute value of their absolute rate difference (ARD), with the first decile

having the smallest disparities and the tenth decile having the largest disparities. This method treats all disparities equally, regardless of whether the disparity favors dual eligible patients or non-dual eligible patients. In the "alternative approach" hospitals are ranked into deciles using the original value of the ARD. The alternative approach allows hospitals' ARDs to assume negative values, which represent better performance on the outcome for dual eligible patients.

- CORE solicited feedback from the TEP members on two questions:
    - Are there features of measure results that would make some measures more useful to report than others? For example, the magnitude of the disparity, the degree of variation across hospitals, or the number of reporting hospitals?
    - What are your thoughts or questions on how we categorize hospital performance?
- TEP Feedback
    - One TEP member favored the current approach for categorizing hospitals.
    - Three TEP members favored the alternative approach. These members thought hospital performance that favored a socially disadvantaged group was not a disparity. They also felt this approach allows patients to see which hospitals have better outcomes for their disadvantaged patients.
    - Two TEP members questioned the use of deciles as the reporting unit, which feel arbitrary.
    - One TEP member argued that readmission measures are impacted too much by community-level characteristics to allow for the measures to adequately assess quality.
- CORE thanked TEP members for their comments and reminded them, to date, CMS has only completed one round of confidential reporting using the pneumonia readmission measure and currently has no plans to publicly report the disparity method results.

Presentation of Dual Outcome Rate Method Results

- CORE reviewed results on the pneumonia readmission measure using dual eligibility as the social risk factor.
- CORE then presented a high-level overview of the Dual Outcome Rate method results across the same seven readmission measures again using dual eligibility as the social risk factor. Overall, results show statistically significant between-hospital variation for all measures, suggesting that some hospitals are performing substantially better than others.
- CORE asked the TEP members if they had any questions on the results of the Dual Outcome Rate Method.
- TEP Feedback
    - Two TEP members were concerned with the small number of reporting hospitals included in the Dual Outcome Rate Method for CABG and hip/knee readmission. They felt that categorizing hospitals' performance into deciles may not work for these measures, as there are so few reporting hospitals.

Presentation of Dual Eligibility as a Social Risk Factor

- CORE reviewed the discussion from the first TEP meeting about dual eligibility and described additional analyses performed based on the TEP's feedback:
    - The analyses focused on (a) variation in dual eligibility across states, (b) relationship between dual eligibility and other social risk factors, and (c) relationship between hospital characteristics and performance.
- CORE reviewed the population included in the dual eligible population, which is older adults (65 years and older) receiving Medicare and full Medicaid benefits.
- CORE stated Medicaid expansion, adopted by some but not all states as part of the Affordable Care Act had little direct impact on dual eligibility for the older adult dual eligible population.
- CORE presented results of an analysis conducted to examine variation across states in Medicaid eligibility for older adult full-benefit dual eligible beneficiaries.
    - Using Medicaid enrollment data, CORE estimated that 80% of older adult full-benefit dual eligible patients received coverage under one of three eligibility pathways, which are relatively consistently defined by economic hardship.
- TEP Feedback
    - One TEP member asked how a patient's dual eligibility status was determined.
        - CORE responded the data variable originates from State Medicaid Agency enrollment files supplied to CMS.
- CORE presented an analysis examining the relationship between neighborhood-level factors and dual eligibility. The analysis compared hospital-specific disparity odds ratio using the standard model versus the hospital-specific disparity odds ratio using the standard model plus the Agency for Healthcare Research and Quality (AHRQ) socioeconomic status (SES) indicator. The findings suggest hospital disparities are the same regardless of the neighborhood that dual eligible patients reside in.
- TEP Feedback
    - One TEP member expressed concerns about potential multi-collinearity (i.e., the dual eligibility indicator and the AHRQ SES indicator could be highly correlated).
        - CORE responded that other analyses conducted (included in the appendix of the slide deck) show a low correlation between dual eligibility and AHRQ SES, therefore reducing likelihood of multi-collinearity.
- CORE presented an analysis examining the effect of the proportion of dual eligible patients served by a hospital on the hospital disparity results. The analyses showed a small increase in disparities, in both methods, for hospitals serving the highest proportion of dual eligible patients compared to hospitals serving the lowest proportion. CORE directed the TEP members to the appendix, which includes more detailed analyses on hospital disparities on basis of underlying characteristics using data from the American Hospital Association's (AHA) Annual Survey of Hospitals.

- CORE summarized the three analyses presented and their consistent finding that dual eligibility provides meaningful information about hospital disparities.
- CORE thanked the TEP members for their time and encouraged them to communicate any questions or additional thoughts to the team via email.

Appendix A. CORE Methodology Development Team

Table 2. Center for Outcomes Research and Evaluation (CORE) Team Members

Team Member	Role
Anouk Lloren, PhD	Project Lead
Susannah Bernheim, MD, MHS	Director of Quality Measurement Programs
Thalia Farietta, PhD	Project Coordinator II
Jeffrey Dussetschleger, DDS, MPH	Project Coordinator
Sana Charania, BS	Research Associate
Julianne Ani, MPH	Research Associate
Silverberg Aryee, BS	Research Associate
Shani Legore, BA	Research Associate
Magdalyne Kucharski, BA	Research Assistant II
Melissa Miller, MPH	Senior Project Manager
Liana Fixell, MPH	Project Manager
Zhenqiu Lin, PhD	Director of Data Management and Analytics
Guohai (Bruce) Zhou, PhD	Lead Analyst
Meng Kuang, MA	Lead Analyst
Shuling Liu, PhD	Lead Analyst
Yongfei Wang, MS	Supporting Analyst
Jeph Herrin, PhD	Team Member
Alon Peltz, MD, MBA, MHS	Team Member
David Silvestri, MD, MBA	Team Member
Kerry McCole, MS, MPhil	Team Member
Harlan Krumholz, MD, SM	Director of CORE

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Appendix B. TEP Call Schedule

TEP Meeting #1

Thursday, May 22, 2018 – 1:00-3:30 PM EST (Location: Teleconference/Webinar)

TEP Meeting #2

Thursday, January 17, 2019 – 1:30-3:30 PM EST (Location: Teleconference/Webinar)

Appendix C. Detailed Summary of First TEP Meeting

Introductions and Welcoming Remarks

- Dr. Thalia Farietta, PhD, welcomed all participants to the first Hospital Outcome Measurement for Patients with Social Risk Factors technical expert panel (TEP) meeting, reminded participants of the confidentiality agreement, and reviewed the agenda for today's TEP meeting. She introduced Dr. Anouk Lloren, PhD, project lead, to present the Center for Outcomes Research and Evaluation's (CORE) mission and goals.
    - Dr. Lloren explained CORE is a research center that works with the Centers for Medicare & Medicaid Services (CMS) to develop publicly reported outcome measures. CORE developed two different methods to illuminate healthcare disparities, which will address a gap in quality measurement. The goal of this meeting is to obtain feedback from the TEP on the conceptual goals of the two methods and identify characteristics of measures that make them more valuable to report disparities on.
- Dr. Farietta introduced members of the CORE team. Each TEP member in attendance introduced themselves and shared their relevant experiences and potential conflicts of interest with the group.
- Dr. Farietta reviewed the role of the TEP and the TEP Charter, including TEP member responsibilities and TEP objectives. She asked TEP members for approval of the TEP Charter.
    - The TEP members approved the TEP Charter.

Background Materials Review

- CORE Presentation to the TEP
    - Dr. Susannah Bernheim, MD, MHS, presented background information on the Hospital Outcome Measurement for Patients with Social Risk Factors project. She defined "social risk factors" as a broad term that encompasses socioeconomic status, race, and other contextual factors that are aligned with the National Academy of Medicine's report. Since patients with social risk factors often experience worse health outcomes, performance measurement is an opportunity to promote transparency around healthcare disparities and create incentives to reduce disparities.
    - Dr. Bernheim introduced the two methods CORE developed to present disparities in health outcomes by patient social risk factors: (1) the hospital-specific disparity method, and (2) the dual eligible readmission rate method. These methods are complementary and can be applied to any outcome or social risk factor, though this meeting will focus on 30-day readmission measures and dual eligibility.
        - The hospital-specific disparity method assesses within-hospital disparities. It shows whether individual hospitals are achieving equitable outcomes between their dual and non-dual eligible patients after accounting for patient case mix.

        - The dual eligible readmission rate method assesses the quality of care for patients with a social risk factor across hospitals. It allows hospital comparison of outcomes for dual eligible patients after adjusting for patient comorbidities.
    - Dr. Bernheim explained confidential reporting of one or both disparity methods using the pneumonia readmission measure is anticipated this year. The methods are being considered for future public reporting in the Hospital Inpatient Quality Reporting (IQR) Program. She clarified that results from the two disparity methods will supplement currently reported results on overall measure performance, which will remain unchanged.
    - Dr. Bernheim asked the TEP members if they had any questions on the background materials.
- <u>TEP Feedback</u>
    - One TEP member asked whether the methods only include dual eligible patients over 65 years.
        - Dr. Bernheim replied we are reporting results for the method using the same cohort as the 30-day readmission measures currently reported on Hospital Compare, which is fee-for-service Medicare patients over 65 years. However, the methods can be applied to any patient population.
    - Another TEP member asked whether it would be valuable to compare the readmission rate for non-dual eligible patients across hospitals using the second method.
        - Dr. Bernheim responded the dual eligible readmission rate method can be applied to any patient subgroup, including non-dual eligible patients. This differs from the overall performance measure cohort, which includes all patients in the hospital.
    - An additional TEP member asked whether these methods assume that the dual eligible patient population is homogenous (i.e., all dual eligible patients experience the same social determinants and stressors across hospitals).
        - Dr. Bernheim replied the methods treat dual eligibility similarly across hospitals; however, they account for patient case mix by adjusting for illness severity.
    - One TEP member asked whether dual eligibility status is being used as a substitute for social determinants of health.
        - Dr. Bernheim responded that the U.S. Department of Health and Human Services (HHS) Assistant Secretary for Planning and Evaluation (ASPE) found that dual eligibility is an important marker, though not the only marker, for social risk among Medicare patients over 65 years. She reiterated that the methods can also be applied to other social risk factors, such as race.

        - The TEP member added that using dual eligibility as a proxy for social risk may result in pushback from hospitals on this method.
    - Another TEP member asked why readmission was chosen as the outcome for measuring disparities. The reasons for unplanned readmissions are complex and depend on many unmeasured determinants of health outcomes, such as self-efficacy.
        - Dr. Bernheim replied although readmission is a challenging outcome, many hospitals have been successful in achieving better readmission rates for patients with social risk factors and reducing disparities. She added that the two disparity methods can be generalized across other outcome measures, such as mortality and complications.

Presentation of Hospital-Specific Disparity Method and Discussion

- CORE Presentation to the TEP
    - Dr. Jeph Herrin, PhD, provided an overview of the hospital-specific disparity method. The goal of this method is to report within-hospital disparities in health outcomes between dual and non-dual eligible patients, after accounting for patient case mix. The method assumes that patients with the same comorbidities should expect the same outcome, regardless of their dual eligibility status.
    - Dr. Herrin explained that the modeling strategy builds on the methodology used in currently implemented 30-day readmission measures. The model includes an indicator for dual eligibility status at the patient level and a random coefficient, which directly estimates the within-hospital disparity. It also accounts for the percentage of dual eligible patients at the hospital to reduce bias.
    - Dr. Farietta presented three questions and called on the TEP members for input.
        - 1) What are your initial thoughts or questions on the hospital-specific disparity method?
        - 2) Do you agree that the hospital-specific disparity method meets the goal of measuring healthcare disparities between dual and non-dual eligible patients within a hospital?
        - 3) Would providing hospital-specific disparities help reveal areas for targeted improvement in healthcare disparities?
- TEP Feedback
    - One TEP member agreed with the overall approach of measuring hospital-specific disparities but expressed concern that the model overlooks the heterogeneity of dual eligible patients. The TEP member suggested exploring outcomes other than readmission and including dual eligible patients under 65 years in the cohort. The TEP member also asked for a summary of CORE's engagement with patients and caregivers on the two disparity methods.
    - Another TEP member also agreed with the measure approach conceptually. The TEP member asked for additional details on the modelling approach.

- An additional TEP member supported using dual eligibility as the social risk factor and readmission as the outcome. The TEP member cautioned that these results may be difficult to convey to vulnerable populations, especially patients and caregivers with low health literacy, no internet access, and/or limited choice in where to seek care. The TEP member agreed with the previous suggestion to include dual eligible patients under 65 years, since these patients also have significant health problems.
- One TEP member supported reporting within-hospital disparities, but expressed concern that differences in quality outcomes cannot be attributed to a single social risk factor (in this case, dual eligibility) due to confounding variables at the patient and community levels. The TEP member suggested adding interaction terms to the model to capture the intersection of multiple social risk factors, which may help hospitals select more targeted interventions to address their inequities in outcomes between patient subgroups. Although social risk factor data defined at the community level is difficult to obtain consistently, this data is integral to making the disparity results more meaningful to hospitals.
    - Dr. Bernheim asked the TEP member for clarification on whether information on disparities should be reported, and how to calculate within-hospital disparities.
    - The TEP member supported transparency around disparities in health care and reporting within-hospital disparities. The TEP member added that using richer data and including a broader set of social risk factors in the model will help make the results more meaningful to hospitals.
- Another TEP member agreed that providing hospital-specific disparities by dual eligibility would guide hospitals towards exploring and identifying the unique barriers that may be driving their results. The TEP member expressed concern that this method does not distinguish between hospitals who provide great as opposed to mediocre care to their patient subgroups. Also, this TEP member thought that the dual eligible population is restricted to patients 65 years and older, while the comparison non-dual eligible group includes Medicare patients younger than 65 years. Lastly, the TEP member wondered if including the percent of dual eligible patients at each hospital in the model may bias the results and act as a surrogate variable for the availability of a broad array of services to help vulnerable patient populations.
    - Dr. Bernheim clarified that results from the hospital-specific disparity method would supplement results from the overall quality outcome measure. So, it would be apparent whether hospitals are reaching zero disparities through excellent or poor overall care.
    - The TEP member responded that it may be difficult for patients to reason through two different dimensions when deciding where to seek care.

        - Dr. Herrin added that all patients included in the models are 65 years and older, which is consistent with publicly reported 30-day readmission measures, so the comparison groups are the same population. He also clarified that inclusion of the percentage of dual eligible patients at the hospital is intended to reduce bias in estimating the patient-level dual eligibility effect.
    - An additional TEP member suggested using a three-level hierarchical model, with the third level being community-level factors. Other suggestions included adding both a shrinkage estimator to account for the size of the hospital and hospital characteristics to account for hospital-level variations in the model. The TEP member added if the dual eligibility marker is highly correlated with other patient-level social determinants of health, it will be easier to justify only including one social risk factor in the model.
    - One TEP member responded although providing hospital-specific disparities would help hospitals in a limited way, it may also have the benefit of incentivizing hospitals to start collecting more data on social determinants of health so they can better understand the reasons behind their disparities. The TEP member added that hospitals might pushback against their results and argue that the model doesn't accurately account for their unique patient population. For example, certain vulnerable patient populations, such as undocumented immigrants, are not included in this analysis. The TEP member asked if a hospital could replicate these methods.
    - Another TEP member agreed with previous concerns about using dual eligibility as a proxy for social determinants of health and not accounting for the heterogeneity of the dual eligible population. This TEP member nevertheless agreed that information on hospital-specific disparities may push hospitals towards understanding areas for targeted improvement in healthcare disparities. The TEP member added that hospitals that treat a larger proportion of dual eligible patients often have more equitable outcomes because they've learned how to coordinate care. The TEP member wondered whether these results would only be used by hospitals that are already working on improving care coordination and reducing disparities in care.
    - An additional TEP member suggested testing a broader set of social risk factors and identifying barriers to help hospitals target areas for improvement. The TEP member asked whether the methodology assumes that the readmission outcome is solely driven by the patients' dual eligibility status.
        - Dr. Herrin responded the method doesn't make any assumptions about what drives the effect of the social risk factor, which could be intrinsic to the patient and their community, or due to differential treatment by the hospital.

        - The TEP member added since the method only includes dual eligibility status and does not incorporate other factors that contribute to the readmission outcome, it will be difficult for hospitals to target their interventions towards reducing their readmission rate.
    - One TEP member supported promoting transparency around healthcare disparities. The TEP member agreed with including community-level data in the model and suggested providing results for multiple measures, which would help make the results more actionable for hospitals. The TEP member proposed working with hospitals to assess and reduce disparities first, and then think about disseminating this information to the general public.
    - Another TEP member agreed that the hospital-specific disparity method provides value to hospitals and expressed interest in comparing uninsured patients to dual eligible patients. The TEP member expressed concern that since dual eligible patients are a heterogeneous population, their reasons for readmission at one hospital may differ from that of another hospital. Thus, hospitals can provide excellent interventions to their vulnerable patients and still get poor outcomes due to other challenges their patients face, such as access to care and self-efficacy.
    - Dr. Bernheim thanked the TEP members for their insightful comments and summarized their feedback on the hospital-specific disparity method. Overall, TEP members agreed that providing results on hospital-specific disparities would be valuable to hospitals and agreed that confidential reporting should precede public reporting. Some TEP members expressed concerns about the use of a single marker of risk in the model and suggested examining how different social risk factors interact.
- Summary
    - TEP members suggested exploring a diverse set of outcomes and social risk factors.
    - TEP members generally supported the hospital-specific disparity method, which could incentivize hospitals to identify the unique barriers that contribute to their results and target areas for improvement. TEP members suggested considering the incorporation of patient, hospital, and community-level factors in the model and exploring the interaction between different social risk factors.

Presentation of Dual Eligible Readmission Rate Method and Discussion

- CORE Presentation to the TEP
    - Dr. Herrin provided an overview of the dual eligible readmission rate method. The goal of this method is to compare how outcomes for dual eligible patients differ across hospitals. The modeling approach applies the methodology for currently implemented risk-adjusted performance measures to a subgroup of patients, such as dual eligible patients. So, each hospital would receive risk-

standardized readmission rates (RSRRs) specifically for their dual eligible patients.

- Dr. Farietta presented three questions and called on the TEP members for input.
  - 1) What are your initial thoughts or questions on the dual eligible readmission rate method?
  - 2) Do you agree that the dual eligible readmission rate method meets the goal of comparing hospitals' performance for dual eligible patients across hospitals?
  - 3) Would providing dual-specific risk-standardized readmission rates (RSRRs) help reveal areas for targeted improvement in healthcare disparities?

- <u>TEP Feedback</u>
  - One TEP member responded since the dual eligible population is different from one hospital to the other, better patient outcomes do not necessarily equate to better care being provided by the hospital. Thus, this TEP member had concerns about the validity of comparing one hospital's performance to another. Publicly reporting results from this method may confuse consumers and potentially mischaracterize hospitals that are making great progress in taking caring for their vulnerable patients.
  - Another TEP member agreed with the previous speaker, adding that the dual eligible readmission rate method may not be as valuable as the hospital-specific disparity method due to confounding variables that undermine any across-hospital comparisons.
  - An additional TEP member stated hospitals might push back on being compared to hospitals that have dissimilar characteristics and serve different patient populations. The TEP member suggested comparing hospital performance within peer groups, such as safety net hospitals, to account for variation between hospitals and more fairly compare hospitals.
  - One TEP member also expressed concern that the proposed methodology does not isolate quality differences between hospitals due to unmeasured confounding variables. The TEP member agreed with the suggestion to compare hospitals within strata of similar hospitals and proposed also comparing hospital performance for non-dual eligible patients.
  - Another TEP member agreed that this method provides valuable information to hospitals. The TEP member supported previous recommendations to explore a multilevel hierarchical model to delineate additional differences between hospitals and account for community-level factors.
  - An additional TEP member questioned whether incorporating community-level factors into the model may hide healthcare disparities. In addition, since many hospitals already know the community they serve, they can use that information in conjunction with their dual-specific readmission rate to select targeted

interventions to reduce their healthcare disparities. The TEP member asked why there are concerns about comparing readmission rates only for dual eligible patients if the overall measure includes both dual and non-dual eligible patients.
    - Dr. Bernheim clarified that the purpose of the dual eligible readmission rate method is to supplement overall readmission rates by providing information on how hospitals perform relative to other hospitals with their dual eligible patients.
  - One TEP member suggested using the same approach as the Hospital Readmissions Reduction Program (HRRP) under the 21st Century Cures Act, where hospitals are stratified into peer groups based on their proportion of dual eligible patients and compared to similar hospitals. The TEP member agreed with the previous suggestion to compare hospital performance for non-dual eligible patients, which would provide a fair assessment for all hospitals.
  - Another TEP member responded measuring within-hospital disparities seems more appropriate than comparing hospitals' performance for dual eligible patients across hospitals due to differences in hospital characteristics. The TEP member supported only comparing hospitals with similar characteristics. The more similar two hospitals are, the more likely it is that differences in their outcomes are driven by quality of care rather than other confounding factors. The TEP member suggested exploring whether slight differences in percentage points for readmission rate is meaningful to hospitals and consumers.
  - An additional TEP member highlighted that this method highlights organizations that are successfully caring for their vulnerable patient population. Despite concerns about the heterogeneity of the dual eligible population, dual eligible patients are more similar to each other than the subgroup of patients they are being compared to within a hospital (i.e., non-dual eligible patients). This method is complementary to the other disparity method and can help show hospitals what is possible.
  - Dr. Bernheim thanked the TEP members for their input and summarized their reflections on the dual eligible readmission rate method. Overall, TEP members supported this method moving forward, but expressed concerns about whether we can validly compare hospital performance for dual eligible patients. TEP members suggested modeling strategies to mitigate bias, along with peer grouping. Dr. Bernheim clarified that this method could similarly be used to compare hospital performance for non-dual eligible patients, but this may result in confusion between the two disparity methods.
- <u>Summary</u>
  - TEP members supported the dual eligible readmission rate method conceptually but expressed concerns about comparing readmission rates across hospitals due to differences in the dual eligible population at each hospital. TEP members recommended comparing hospital performance within peer groups.

Complementarity of the Two Methods

- CORE Presentation to the TEP
    - Dr. Lloren presented results for the publicly reported overall quality measure and the two disparity methods using the pneumonia readmission measure. Many hospitals have predictable patterns; for example, some hospitals provide low quality to their patients overall (i.e., the hospitals have high overall RSRRs, high within-hospital disparities, and high dual-specific RSRRs). However, a considerable number of hospitals don't fit into straightforward patterns or categories. For example, some hospitals have low overall RSRRs and low dual-specific RSRRs, but they have medium or large within-hospital disparities. Thus, the two disparity methods provide complementary information that can supplement results for the overall quality measure to better characterize hospital performance. This will provide hospitals with a more complete representation of their patient outcomes and disparities.
        - Dr. Bernheim added that CORE is still working on how to sort hospitals into performance categories.

Next Steps

- Dr. Farietta thanked the TEP members for their engagement and encouraged them to communicate any questions or additional thoughts via email to CMSDisparityMethods@yale.edu.
- Dr. Farietta briefly outlined next steps, including soliciting feedback via email on the following prompt: "we heard a lot of feedback about the relationship of our findings

Appendix D. Detailed Summary: Feedback from Post-First TEP E-mail

6 out of 12 TEP members provided feedback or responded that they did not have any additional contributions, on questions included in the TEP materials and the following prompt via e-mail: *"we heard a lot of feedback about the relationship of our findings with other patient-level factors beyond dual eligibility, hospital factors, and community factors. We would welcome any additional input on feasible specific data sources that support these analyses."* Provided below is a **summary of all responses** to this e-mail.

TEP Member E-mail Feedback

- Feedback about the relationship of our findings with other patient-level factors beyond dual eligibility
    - One TEP member suggested exploring other datasets and resources, such as the Area Resource File and the Dartmouth Atlas of Health Care, with the caveat that these databases are generally not linked to individuals in hospitals. The TEP member added that hospitals can use their results as a starting point to investigate the real problem driving their low performance.
    - Another TEP member noted the tension between making important decisions using feasible data and advocating for collection of more precise data. The TEP member also voiced concerns about making assessments about quality based on two feasible but imprecise variables: dual eligibility status and black race.
    - A third TEP member expressed interest in understanding whether hospital performance would really change if the model incorporated other social risk factors beyond dual eligibility, hospital-level factors, and/or community-level factors.
- Feedback about the two disparity methods in general
    - One TEP member applauded the thoughtful approach and theoretical framework used to develop the disparity methods. However, the TEP member expressed concern regarding practical applications of the methods by both hospitals and consumers.
- Feedback about the hospital-specific disparity method
    - One TEP member voiced concern about the unintended consequences of using readmission as an outcome for this method. The TEP member cited a recent study that supports including observation stays when calculating readmission rates because hospitals may be relying more on observation stays before sending patients home or to inpatient services. The TEP member also expressed concern with the use of dual eligibility as a social risk factor but noted that it was simple in terms of data collection. Despite these initial concerns, the TEP member stated that patients, families, and other advocates would find a metric that assesses hospital performance for dual eligible patients valuable.
    - Another TEP member voiced that dual eligibility was an acceptable, but imperfect, surrogate for social risk factors. This TEP member also expressed

concern about using readmission as the outcome because causes of unplanned readmissions are complex, and readmission is heavily dependent on unmeasured determinants of health outcomes. This TEP member suggested applying this methodology to other outcomes measures such as hospital acquired infections, complications, and process measures.

- Do you agree that the hospital-specific disparity method meets the goal of measuring healthcare disparities between dual and non-dual eligible patients within a hospital?
    - One TEP member voiced that it would be helpful for patients to see which hospitals offer high-quality care to their patients overall but low-quality care to their dual eligible patients. The TEP member agreed that providing hospital-specific disparities would reveal areas for targeted improvement in healthcare disparities.
    - Another TEP member suggested applying this methodology to an outcome other than readmission, which is heavily dependent on unmeasured determinants of health outcomes. As a result, the same interventions applied to disparate populations can result in very different readmission outcomes. The TEP member noted that this concern also applies to the dual eligible readmission rate method.
- Would providing hospital-specific disparities help reveal areas for targeted improvement in healthcare disparities?
    - One TEP member responded since this is a very broad measure, hospitals with high disparities can analyze their electronic medical records to better understand their dual eligible patient population.
    - An additional TEP member expressed that this methodology is likely to highlight that greater resources required to provide effective interventions to reduce unplanned readmissions in patients with social risk factors. This TEP member suggested examining the impact of this measure on hospitals serving vulnerable patient populations. The TEP member also stated that it is would be useful to look not only at hospitals with similar percentages of dual eligible patients but also percentages of commercially insured patients, which influences the overall hospital resources. Consequently, hospitals with similar rates of dual eligible patients, but will dissimilar rates of commercially insured patients, could have different resources to care for patients with social risk factors.
- Given the variation in results across measures, are there characteristics of measures that make them more valuable to report?
    - With respect to the hospital-specific disparity method's variation in results across measures, one TEP member supported comparing the hospital's absolute rate difference to zero rather than the national average. The TEP member proposed considering the following when selecting which measure to report: number of eligible hospitals eligible for reporting, variation/distribution, and

importance to consumers. The TEP member expressed hesitation with using 95% confidence intervals, since they limit variation in the categorization. The TEP member suggested using 90% or 85% confidence intervals as an alternative. The TEP member also expressed interest in learning why patients preferred absolute rate difference over odds ratio.
    - One TEP member responded CMS could play a role in funding research to find more specific descriptors across hospitals. The TEP member added that patients and advocates would be interested in a metric that: (a) measures what to expect as concretely as possible (i.e., odds ratio are less preferable than % of disparity), (b) is simple to understand, (c) has significant variability beyond statistical significance, and (d) doesn't require understanding of statistics and the statistical modelling used by the methods.
    - One TEP member voiced that looking at the examining the absolute and the relative rate differences would be useful, in addition to the variance for each measure computed with and without outliers.
- Feedback about the dual eligible readmission rate method
    - One TEP member responded this method is important for benchmarking, self-study, and patient decision making. The TEP member suggested using peer-to-peer comparisons to avoid comparing hospitals that operate in very different settings. For example, the TEP member suggested utilizing an interactive display where members of a hospital can select which hospitals to display based on a set of options. The TEP member added that adjusted comparisons between hospitals is helpful to both patients and hospitals to identify and learn from the best and worst performers.
    - One TEP member supported using this method in combination with the hospital-specific disparity method. The TEP member cited an example where Hospital A and Hospital B have the same dual-specific readmission rate, but Hospital A's overall readmission rate is lower than Hospital B's overall readmission rate. These results suggest that Hospital A might be discriminating against dual eligible patients, or Hospital A is not reaching its capacity of delivering high quality care to dual eligible patients. Thus, results from both disparity methods can complement each other.
    - Another TEP member responded this methodology would not provide information about the interventions and/or resources being utilized by hospitals to prevent unplanned readmissions in patients with social risk factors because the reasons for unplanned readmissions vary greatly by region and rurality. The TEP member expressed concern that this methodology could "punish" hospitals serving large underinsured and uninsured patient populations.
- Do you agree that the dual eligible readmission rate method meets the stated goal of comparing hospitals' performance for dual eligible patients across hospitals?

    - One TEP member responded that adjusting the dual-specific RSRR by hospital and community-level factors would be a fairer assessment. The TEP member suggested also providing the regional average dual-specific RSRR to account for local area constraints that are unobservable and unmeasured in the regression adjusted models.
    - An additional TEP member stated that the dual eligible readmission rate method does not account for many unmeasured determinants of health outcomes, such as rurality, self-efficacy, and health literacy. The TEP member introduced an example where, despite having committed better/greater resources targeted to reduce readmissions, Hospital A may have a significantly worse outcome than Hospital B because of rurality, self-efficacy, and health literacy deficiencies in the region of Hospital A. The TEP member suggested examining the unintended consequences of this method on hospitals serving vulnerable patient populations. The TEP member also voiced concerns like those expressed with the hospital-specific disparity method; factors other than dual eligibility, such as percentages of commercially insured patients, may affect resources available to patients.
- Would providing dual-specific risk-standardized readmission rates (RSRRs) help reveal areas for targeted improvement in healthcare disparities?
    - One TEP member responded that dual-specific RSRRs rank hospitals above or below the national average; however, specific areas for targeted improvement will not be revealed unless hospital or community-level factors are included in the model.
    - Another TEP member stated that this method will reveal disparities in the health outcomes and illustrate the need for greater investment in patients with social risk factors to prevent unplanned readmissions.
- Given the variation in results across measures, are there characteristics of measures that make them more valuable to report?
    - One TEP member appreciated the ability to compare performance across hospitals, which would be especially valuable if there are several hospitals in a community with different outcomes. The TEP member preferred comparing hospital dual-specific RSRRs to a target RSRR rather than the national dual-specific RSRR. The TEP member voiced concern with how the public will try to use and interpret this data.
    - Another TEP member suggested reporting the difference in proportions computed with and without outliers for each hospital.
    - A third TEP member suggested using a categorization method such as percentiles to display the results.
- Summary

- TEP members provided input on both the hospital-specific disparity method and the dual eligible readmission rate method. Some TEP members voiced concern with the limited set of social risk factors included in the model, as well as using readmission as the outcome of interest. They also expressed interest in comparing hospital performance within peer groups. Nevertheless, TEP members agreed that although the disparity methods are imperfect, they could serve as a catalyst for future disparity research and provide value to patients and hospitals.

Appendix E. Detailed Summary of Second TEP Meeting

Introductions and Welcoming Remarks

- Dr. Thalia Farietta, PhD, welcomed all participants to the second Hospital Outcome Measurement for Patients with Social Risk Factors TEP meeting, reminded participants of the confidentiality agreement, reviewed the agenda, and introduced the speakers for today's TEP meeting. Each TEP member in attendance introduced themselves and shared any updates on potential conflicts of interest with the group.

Background Materials and Project Status Review

- Dr. Susannah Bernheim, MD, MHS, Senior Director, presented background information on the Hospital Outcome Measurement for Patients with Social Risk Factors project. She stated known disparities in health outcomes for patients with social risk factors exist, particularly for dual eligible patients and racial/ethnic minorities. Performance measurement is an opportunity to promote transparency around disparities and create incentives to reduce disparities.
- Dr. Bernheim introduced the two methods CORE developed to stratify quality measures by social risk factors: (1) the Within-Hospital Disparity Method, and (2) the Dual Outcome Rate Method. These methods are complementary and can be applied to any outcome and social risk factor, though this meeting will focus on 30-day readmission measures and dual eligibility. She added the current names of the disparity methods are subject to change in the near future.
    - The Within-Hospital Disparity method compares health outcomes between patients with and without a particular social risk factor after accounting for patient case mix. Results are presented using the absolute rate difference (ARD), which estimates the risk-adjusted difference in outcome rates for patients with and without a social risk factor within a hospital.
    - The Dual Outcome Rate method assesses quality of care for patients with a social risk factor across hospitals after adjusting for patient comorbidities. Results are presented through the risk-standardized outcome rate for patients with the social risk factor.
- Dr. Bernheim explained that CORE has tested the disparity methods on 14 outcome measures, and will be testing additional measures and examining the effect of other social risk factors this year. Additionally, CORE has sought input on various aspects of the methodology from continued stakeholder engagement, including a 'Person and Family Engagement' working group, a 47-day Public Comment period, and a 30-day confidential reporting period (August to September 2018) where hospitals received detailed disparity results for the pneumonia measure using dual eligibility as the social risk factor. CMS has not made any statements regarding public reporting of the disparity method results. Plans for future reporting will be presented in the Inpatient Prospective Payment System (IPPS) rule.
- Dr. Bernheim reminded TEP members that the main focus of our first meeting was to review the two disparity methods and solicit feedback on the conceptual goal of the work as well as the methodology. In response to feedback from the past meeting, CORE

has taken initial steps towards addressing concerns around using dual eligibility as a social risk factor as well as the impact of hospital characteristics and community-level factors on hospitals' results.

- Dr. Bernheim stated the goal for today's meeting includes presenting disparity results on 7 readmission measures using dual eligibility as the social risk factor. We will also discuss the consistency of dual eligibility across states, accounting for community-level factors, and how hospital characteristics affect hospitals' disparity results.

Presentation of Within-Hospital Disparity Method Results

- Dr. Bernheim presented results for the Within-Hospital Disparity method using the pneumonia readmission measure and dual eligibility. Eighty-one percent of hospitals met the sample size cutoff, meaning they had at least 25 patients overall and 12 dual and 12 non-dual eligible patients. Overall, results show that within-hospital disparities exist and the disparity effect varies significantly across hospitals for pneumonia readmission.
- Dr. Bernheim presented a high-level overview of the Within-Hospital Disparity method results for the following seven readmission measures using dual eligibility: heart failure (HF), acute myocardial infarction (AMI), pneumonia, chronic obstructive pulmonary disease (COPD), stroke, coronary artery bypass grafting (CABG), and total hip arthroplasty and/or total knee arthroplasty (Hip/Knee). Overall, results show significant within-hospital disparities on all seven readmission measures, as well as substantial variation in the magnitude of disparities across hospitals.
- Dr. Bernheim asked the TEP members if they had any questions on results for the Within-Hospital Disparity Method.
    - One TEP member asked whether the results in the table presented in the TEP slide deck are risk adjusted after the first column.
        - Dr. Bernheim clarified that all results presented after the first column are risk adjusted, and reviewed the unadjusted rate differences for AMI (5.7%) versus risk-adjusted rate differences for AMI (1%).
    - One TEP member asked for clarification on data used for risk adjustment.
        - Dr. Bernheim responded the readmission measures are calculated using three-year data from inpatient and outpatient claims. Comorbidities at the time of the index admission, or in the twelve months' prior, are included in risk adjustment. The risk adjustment models have been clinically validated in the past.
    - One TEP member asked whether a nonsignificant variance of the hospital-specific disparity shows there is no difference between hospitals.
        - Dr. Bernheim responded many factors can lead to a nonsignificant variance, such as the number of patients or the amount of variation across hospitals, but that differences in performance can be meaningful without statistical significance.
- Dr. Bernheim presented the current approach of categorizing hospitals' performance for the Within-Hospital Disparity method into deciles using the absolute value of the absolute rate difference. Hospitals in the first decile are the best performers and have

the smallest disparities, whereas hospitals in the 10th decile are the worst performance and have the largest disparities. In the current approach, we do not differentiate between whether a gap favors dual eligible or non-dual eligible patients.

- Dr. Bernheim presented an alternative approach to ranking hospitals' performance using the original value of the absolute rate difference. Using this approach, we would not consider a hospital with a negative absolute rate difference (in favor of dual eligible patients) as a gap.
- Dr. Farietta presented two questions and called on the TEP members for input.
    - Results are measure-specific. Are there features of measure results that would make some measures more useful to report than others (for example, the magnitude of the disparity, the degree of variation across hospitals, or the number of reporting hospitals)?
    - We are particularly interested in feedback about making the results from the disparity method usable. What are your thoughts or questions on how we categorize hospital performance?
- TEP members' specific comments are summarized as follows:
    - One TEP member preferred the alternative approach to categorizing hospitals' performance, adding hospital performance in favor of patients with social risk factors should not be considered a gap, and hospitals who perform better for their dual eligible patients should be viewed positively. This TEP member also considered all measures as useful to report.
    - One TEP member preferred showing the full spectrum of results, consistent with the current approach, adding that reporting every gap, even those that favor dual eligible patients, would be informative. The TEP member stated all measures would be valuable to report.
    - One TEP member preferred the alternative approach to categorizing hospitals' performance, adding that it is important to remain conceptually and theoretically grounded in improving quality of care and healthcare outcomes for vulnerable populations. The TEP member stated deciles seem arbitrary and suggested translating disparity results into meaningful differences that patients and communities can understand. The TEP member also suggested focusing on measures that are minimally impacted by community characteristics and avoiding the term "negative disparities".
    - One TEP member preferred the alternative approach to categorizing hospitals' performance, stating that hospitals with outcomes favoring patients with social risk factors should be considered better performers. The TEP member suggested tracking year-to-year changes in performance. He agreed with not using deciles which seem arbitrary and possibly using quintiles.
    - On TEP member stated readmission is a complex health outcome with many determinants of health that are unmeasured, which may cause serious unintended consequences. The TEP member gave an example of an urban hospital in a food desert as likely to do poorly in readmission using this methodology. They expressed concern that penalizing hospitals may decrease their resources to care for at-risk populations.

- Dr. Bernheim thanked TEP members for their comments and clarified that CMS has only completed one round of confidential reporting using the pneumonia readmission measure and to date there are no formal plans about whether or not to publicly report these results or tie them to payment. She added the methodology is still under development and in testing.

Presentation of Dual Outcome Rate Method Results

- Dr. Bernheim presented results for the Dual Outcome Rate method using the pneumonia readmission measure and dual eligibility as the social risk factor. She noted that 69% of hospitals in the measure cohort met the sample size cutoff. Overall, results show that the between-hospital variation is statistically significant for pneumonia readmission.
- Dr. Bernheim presented an overview of the Dual Outcome Rate method results across the same seven readmission measures using dual eligibility. She noted there is a range across measures in the proportion of hospitals that meet the sample size cut off. She highlighted that only 6% of hospitals in the CABG readmission measure meet the sample size cut off. Overall, results show that variation across hospitals is statistically significant for all measures, suggesting that some hospitals are performing substantially better than others.
- Dr. Bernheim explained, like the Within-Hospital Disparity method, we categorize hospital performance for the Dual Outcome Rate method into deciles.
- Dr. Bernheim asked the TEP members for questions on the Dual Outcome Rate Method results.
    - One TEP member asked for clarification on whether there are only 65 reporting hospitals for the CABG readmission measure.
        - Dr. Bernheim confirmed there are only 65 hospitals that meet the sample size cutoff of having at least 25 dual eligible patients for the CABG readmission measure.
        - The TEP member added categorizing hospitals' performance into deciles may not work for this measure, as there are so few reporting hospitals.
    - One TEP member agreed categorizing hospitals' performance into deciles is arbitrary, considering the number of reporting hospitals for some measures is small. The TEP member suggested implementing a cutoff for the percentage of reporting hospitals, since disparities may be less meaningful with such few hospitals reporting.

Presentation of Dual Eligibility as a Social Risk Factor

- Dr. Alon Peltz, MD, MBA, MHS, summarized feedback from the first meeting whereby TEP members generally agreed that the dual eligibility indicator was valuable, but expressed concerns about potential limitations of the indicator as a reliable or valid and singular marker of social risk. Based on feedback from first meeting, CORE conducted additional analyses focused on (a) variation in dual eligibility across states, (b) relationship between dual eligibility and other social risk factors, and (c) relationship between hospital characteristics and hospital performance.

- Dr. Peltz presented background information and answered preliminary questions regarding the limitations of the dual eligibility indicator from the first TEP meeting.
- Dr. Peltz defined the study population adults 65 and over who are Medicare fee-for-service (FFS) beneficiaries and receive the full scope of benefits from their state Medicaid agency.
- Dr. Peltz then provided an overview of Medicaid eligibility classification pathways into mandatory/categorical (which are required) and optional (which allow for state flexibility).
- Dr. Peltz reviewed potential impacts of the Affordable Care Act of 2010 on the measure population. He noted that the Affordable Care Act Medicaid expansion, adopted by some but not all states, does not directly impact eligibility for older adults (65 and older). He noted some potential spillover/indirect effects due to national provisions for individuals with long-term service and support needs; however, there is no evidence suggesting differential impacts on states.
- Dr. Peltz presented an analysis that examined levels of variation in state Medicaid eligibility practices for dual eligible patients across states. Results showed that of the 60 Medicaid eligibility pathways, only three pathways accounted for 80% of the full-benefit older adult dual eligible patients. Dr. Peltz reviewed each pathway and summarized that they are collectively defined by economic hardship with incomes below poverty and limited assets.
- Dr. Peltz asked the TEP members if they had any questions on the dual eligibility indicator analysis.
    - One TEP member asked for clarification on where the dual eligibility indicator originated from and how health systems can use this data. The TEP member also added even small differences across states can be meaningful and should be transparent.
        - Dr. Peltz responded the data variable originates from State Medicaid Agency enrollment files supplied to CMS under the Medicare Modernization Act, and not from information collected by hospitals.
- Dr. Peltz presented an analysis that examined the relationship between neighborhood-level factors and dual eligibility. In this analysis, we calculated the hospital-specific disparity odds ratio using the standard model and compared it to the hospital-specific disparity odds ratio using the standard model plus the Agency for Healthcare Research and Quality (AHRQ) socioeconomic status (SES) indicator, linked to data from the 2009-2013 American Community Survey. Covered domains included housing, poverty, and education. An overview how CORE linked Medicare files to census data via 9-digit ZIP codes was provided. Overall, this analysis shows a very strong correlation between hospital performance using the standard model versus the standard model plus the AHRQ SES indicator. These findings suggest hospital disparities are the same regardless of what neighborhoods their dual eligible patients live in.
- Dr. Peltz asked the TEP members if they had any questions on the relationship between neighborhood-level factors, inequity, and dual eligibility.

    - One TEP member expressed concern that the dual eligibility indicator and the AHRQ SES indicator were highly correlated, resulting in multicollinearity. The TEP member suggested comparing the dual eligibility indicator to housing instability and food insecurity, which may not perfectly correlate with economic status. The TEP member also suggested conducting further analyses using other community-level social risk factors.
        - Dr. Bernheim responded our analysis showed that dual eligibility and the AHRQ SES indicator were not highly correlated, therefore reducing likelihood of multi-collinearity. She added the AHRQ SES indicator is one of several ways to classify community-level factors and an initial first step.
- Dr. Peltz reviewed an analysis that examined the effect of hospital characteristics on hospital performance. Information on hospital characteristics originated from the American Hospital Association's Annual Survey of Hospitals database. Dr. Peltz presented results comparing hospitals on the proportion of dual eligible patients they serve. Overall, results show a small increase in the median absolute rate difference and median dual-specific risk-standardized readmission rate between hospitals with the highest proportion of dual eligible patients compared to hospitals with the lowest. Dr. Peltz directed TEP members to review additional results in the appendix, which included analyses comparing hospital performance on basis of size, ownership, teaching status, safety net status, and geography; increases in disparities were most notable on basis of size and teaching status.
- Dr. Peltz stated the three analyses suggest that a majority of older adult dual eligible patients are consistently defined by economic hardship, and community and hospital-level factors appear to have little impact on the overall disparity results. He added there is room to explore other community-level variables in order to make the data most meaningful to hospitals. Consistent with ASPE's recommendations, the analyses suggests that dual eligibility, though it has its limitations, can provide meaningful information about hospital disparities.
- Dr. Farietta asked the TEP members if they had any final questions.
    - One TEP member asked for clarification regarding a figure in the TEP slide deck showing a strong correlation between the odds ratio of the standard model and the AHRQ SES indicator, and Figure 6 showing a weak correlation between states and the AHRQ SES indicator.
        - Dr. Peltz stated Figure 6 presents an analysis intended to examine whether there are notable differences across states in neighborhood-level SES indicators. No differences were found. Further, the weak correlation overall between dual eligibility and AHRQ SES indicator suggests that the two variables are measuring different elements.
        - Dr. Bernheim reiterated that the figure primarily serves to indicate whether the AHRQ SES indicator is telling us something different other than the fact that someone is dual eligible. Therefore, it is reassuring that the indicators are not overly correlated, as we are trying to differentiate the two factors.

Next Steps

- Dr. Farietta thanked the TEP members for their engagement and encouraged them to communicate any questions or additional thoughts on the two disparity methods and using dual eligibility as a social risk factor via email to CMSDisparityMethods@yale.edu. The CORE team will circulate minutes of today's meeting with the TEP.

Appendix F. Detailed Summary: Feedback from Post-Second TEP E-mail

Two out of 11 TEP members provided feedback to an email requesting any other input they may have with regards to the results or discussion on accounting for social risk factors. The two TEP members did not participate in the meeting but reviewed the materials and viewed the recorded presentation. Provided below is a summary of all responses.

TEP Member E-mail Feedback

- One TEP member was concerned about how CMS will compare similar hospitals for the Dual Outcome Rate Method and what characteristics would be used.
- One TEP member commented on dual eligibility as a proxy for social risk, ranking by deciles, negative disparities and hospitals serving a socially disadvantaged population.
    - The TEP member felt that dual eligibility is a basic proxy not a complete proxy for social risk as it ignores community factors.
    - The TEP member agreed with other TEP members that the use of deciles seems arbitrary and that other approach should be investigated.
    - The TEP was not comfortable with term “negative disparity” for those hospitals that had better outcomes for socially disadvantaged patients.
    - The TEP member that using readmissions as the measure may negatively impact hospitals with a hospital that treats more disadvantage patients. The member suggested looking at avoidable admissions related to a medical condition but acknowledged the difficulty of such a measure.