MEASURING OUTCOMES IN ORTHOPEDICS ROUTINELY (MOOR) STUDY

Technical Expert Panel Summary Report

Virtual Conference Webex Meeting
October 29 & October 30, 2020

Prepared by:
Brigham and Women's Hospital

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Cooperative Agreement #:
2018A008621, 1V1CMS331637-01-00

The materials within this document do not represent final measure specifications for five measures under development.

Background

MOOR Study Mission

The Centers for Medicare & Medicaid Services (CMS) has provided funding to Brigham and Women's Hospital (BWH) to develop quality measures related to orthopedics. The cooperative agreement name is Measuring Outcomes in Orthopedics Routinely (MOOR). The cooperative agreement number is 1V1CMS331637-01-00. Under this agreement, The BWH Center for Patient Safety, Research, and Practice will collaborate with Partners Orthopedic Surgery specialty physicians, Massachusetts Health Quality Partners, the Patient Reported Outcomes Measurement System (PROMS) team, and a Technical Expert Panel (TEP) to:

- Develop and refine electronic clinical quality measures (eCQMs) in the areas of orthopedic surgery outcomes and medication safety
- Develop a Patient Reported Outcome-Based Performance Measure (PRO-PM) related to orthopedic surgery clinical care

BWH is obtaining expert and stakeholder input on the proposed measures. The BWH measure development team includes experts in quality outcomes measurement. As is standard with all measure development processes, BWH has convened a technical expert panel (TEP) of clinicians, patient advocates, and other stakeholders. Collectively, the TEP members bring expertise in performance measurement, quality and patient safety, and coding and informatics.

This report summarizes the feedback and recommendations received from the TEP during the October 29th and 30th, 2020 virtual TEP meetings focused on eCQMs and the PRO-PM. This is the first TEP meeting held in year 3 of this agreement. The previous TEP meetings were held in years one and two, in April 2019, September 2019, January 2020, and May 2020.

MOOR Study Goals

To ensure alignment with CMS's Quality Payment Program (QPP), specifically the Merit-based Incentive Payment System (MIPS), the goals of the MOOR project are as follows:

1) Convert one existing National Quality Foundation- (NQF-) approved measure forcomplication following total hip arthroplasty and total knee arthroplasty (THA/TKA) to an electronic clinical quality measure (eCQM):

   a) Risk-standardized complication rate (RSCR) following elective primary total hip arthroplasty (THA) and/or total knee arthroplasty (TKA)

2) Develop three new eCQMs to address THA/TKA orthopedic surgery patient safety practice and measurement gaps:

   a) Prolonged opioid prescribing (POP) rate following elective primary totalhip arthroplasty (THA) and/or total knee arthroplasty(TKA)

   b) Inpatient respiratory depression (IRD) rate following elective primary total hip arthroplasty (THA) and/or total knee arthroplasty (TKA)

   c) Risk-standardized major bleeding and venous thromboembolism (VTE) rate following elective primary total hip arthroplasty (THA) and/or total knee arthroplasty(TKA)

3) Develop a new PRO-PM:

a) Care goal achievement following total hip arthroplasty (THA) and/or total knee arthroplasty (TKA)

In addition, we will explore the anticipated efficacy, costs, and benefits of our proposed eCQMs and PRO-PM to our study population. In the process of developing and refining eCQMs and a PRO-PM, we will use existing electronic data to automate workflow and to minimize burden of the measures we develop.

Brigham and Women's Hospital is collaborating with Massachusetts Health Quality Partners (MHQP), a stakeholder engagement organization, and with Brigham and Women's Hospital Department of Orthopedic Surgery specialty physicians and the Partners Healthcare Patient Reported Outcomes Measurement System (PROMS) team to develop eCQMs in the areas of orthopedic surgery outcomes and medication safety, and a PRO-PM related to orthopedic surgery clinical care. The collaboration is enhanced by the mutual interests, shared by the participating organizations, that include focusing on patient engagement to improve safety and outcomes using innovative patient-centered technologies.

Measure Development Team

BWH Team Personnel

- David Bates, MD, MSc: Principal Investigator
- Patricia Dykes, PhD, MA, RN: Co-Investigator
- Ronen Rozenblum, PhD, MPH: Co-Investigator
- Alexandra Businger, MPH: Senior Project Manager
- Stuart Lipsitz, ScD, PhD: Senior Statistician
- Francois Bastardot, MD: Research Fellow
- Ania Syrowatka, PhD: Research Fellow
- Antonia Chen, MD, MBA: Ortho Co-Investigator
- Jeffrey Katz, MD, MS: Ortho Co-Investigator
- Richard Iorio, MD: Ortho Contributor
- Andrew Schoenfeld, MD, MSc: Ortho Contributor
- Todd O'Brien, MD: Ortho Contributor
- Christopher Melnic, MD: Ortho Contributor
- David Boardman, MD: Ortho Contributor
- David Halsey, MD: Ortho Contributor
- Rachel Clark, MD: PROMs Medical Director, PHS
- Stephanie Singleton, BA: PROMs Project Coordinator
- Tien Thai, BS: Software Engineer
- Brianna Ericson, MPH: PROMs Data Analyst
- Michael Sainlaire, MS: eCQM Data Analyst
- Avery Pullman, BS: Research Assistant
- Mica Bowen, BS: Research Assistant
- Tyler Oliver, BS: Research Assistant

Massachusetts Health Quality Partners (MHQP)

- Barbra Rabson, MPH: President and CEO
- Jim Courtemanche, MPH: Vice President of Programs and Analytics
- Nathalie McIntosh, PhD: Director of Programs
- Ola Szczerepa, MA: Project Manager

- Natalya Martins, BSc: Project Specialist

BWH Moor Team Consultants

- Rosemary Kennedy, PhD
- Lisa Kern, MD
- Calvin Franz, PhD

TEP Objectives and Purpose

The objectives of the TEP meetings of the first quarter of year three of the cooperative agreement were to gain TEP member input on:

I. Inpatient respiratory depression (IRD) rate following elective primary THA and/or TKA eCQM
   a. Background
   b. Stakeholder Feedback
   c. Measure overview since last TEP Meeting
   d. Draft specifications
   e. Results
   f. Discussion and Next Steps

II. Prolonged Opioid Prescribing Rate following elective primary THA and/or TKA eCQM
   a. Background
   b. Stakeholder Feedback
   c. Specifications
   d. Status
   e. Cerner Testing
   f. Questions/Concerns
   g. Discussion and Next Steps

III. Risk standardized complication rate (RSCR) following elective primary THA and/or TKA eCQM
   a. Background
   b. Review Final Specifications
   c. Review MGB and CERNER/South Site USA Results
   d. Discussion, questions and concerns
   e. Next Steps

IV. Risk-standardized major bleeding and venous thromboembolism (VTE) rate following elective primary THA and/or TKA eCQM
   a. Background
   b. Review key points from May TEP meeting
   c. Final Specifications
   d. Stakeholder Feedback (Ola)
   e. MGB and CERNER/MH Results
   f. Questions and concerns
   g. Next Steps
   h. Summary, Next Steps and Conclusions

V. PRO-PM development: care goal achievement following THA and/or TKA
   a. Project Updates

- Qualitative
- Quantitative Cross-Sectional

c. Measure Specifications
   - Numerator
   - Denominator
   - Inclusion/Exclusion Criteria

d. Public Comment
e. Summary, Next Steps and Conclusions

TEP Members

Table 1. TEP Member Names and Organizations

Member Name	Organization	Potential Conflicts of Interest	Attendance at 10/29/20 Meeting (2:00 and 5:00)	Attendance at 10/30/20 Meeting (2:00)
Bonnie B. Blanchfield, CPA, Sm Sc.D *Senior Scientist* *Assistant Professor in Medicine*	Brigham and Women's Hospital Harvard Medical School	None	Present	Present
Kevin Bozic, MD, MBA *Department Chair – Surgery and Perioperative Care*	Dell Medical School	None	Present	Present
Charles Bragdon, PhD *Associate Director Clinical Studies Group* *Director of Partners Healthcare Orthopaedic Registries*	Massachusetts General Hospital Harris Orthopaedic Laboratory	None	Absent	Absent
Martha Carnie *Senior Patient Engagement Advisor* *Co-Chair of BWH Patient and Family Advisory Council Steering Committee*	Brigham and Women's Hospital	None	Present	Present
Aileen Davis, PhD *Senior Scientist*	Division of Healthcare and Outcomes Research, Toronto Krembil Research Institute	None	Present	Present

Member Name	Organization	Potential Conflicts of Interest	Attendance at 10/29/20 Meeting (2:00 and 5:00)	Attendance at 10/30/20 Meeting (2:00)
Lisa Hines, PharmD *Senior Director – Measure Operations and Analytics*	Pharmacy Quality Alliance (PQA)	None	Present	Present
William Jiranek, MD *Professor and Vice Chair*	Department of Orthopaedic Surgery, Duke University	None	Present	Present
Jay Lieberman, MD *Chair and Professor* ***MOOR Study TEP Chair***	Department of Orthopaedic Surgery – Keck School of Medicine, University of Southern California	None	Present	Present

Pre-work

eCQMs Team:

TEP members were sent PDFs of PowerPoint presentations prepared by the BWH MOOR team one week prior to the meeting. The PowerPoint presentations included the agenda for the meeting and details on the measures under development.

- TEP Agenda and Overview
- Prolonged opioid prescribing (POP) rate following elective primary THA and/or TKA eCQM
- Inpatient respiratory depression (IRD) rate following elective primary THA and/or TKAeCQM
- Risk-standardized complication rate (RSCR) followingelective primary THA and/or TKA eCQM
- Risk-standardized major bleeding and venous thromboembolism (VTE) rate following elective primary THA and/or TKA
- PRO-PM development: care goal achievement following THA and/or TKA
- TEP Summaries from 5/28/20 meeting

Detailed Summary of TEP Meeting (October 29th & 30th 2020)

The TEP Meetings focused on eCQMs were held via Webex on October 29th, 2020 2:00-3:30pm and 5:00-6:30pm and the meeting focused on PRO-PM was held on October 30th 2:00-3:30pm. The Agenda was as follows:

I. Meeting #1: 10/29 2:00-3:30 pm
   a. Welcome, Formal Roll Call and Introductions
   b. Inpatient Respiratory Depression Following Elective Primary THA and/or TKA eCQM
      i. Background
      ii. Measure overview since last TEP Meeting
      iii. Draft specifications
      iv. Results
      v. Next Steps/Questions

c. Prolonged Opioid Prescribing Following Elective Primary THA and/or TKA eCQM
    i. Background
    ii. Specifications
    iii. Status
    iv. Cerner Testing
    v. Questions/Concerns
    vi. Next Steps
d. Risk Standardized Complication Rate Following Elective Primary THA and/or TKA eCQM
    i. Background
    ii. Review Specifications
    iii. Review MGB and CERNER/MH Results
    iv. Questions and concerns
    v. Next Steps

II. Meeting #2: 10/29 5:00-6:30 pm
a. Risk-standardized Major Bleeding and Venous Thromboembolism (VTE) Rate Following Elective Primary THA and/or TKA eCQM
    i. Background
    ii. Measure overview since last TEP Meeting
    iii. Draft specifications
    iv. Results
    v. Next Steps/Questions

III. Meeting #3: 10/30 2:00-3:30 pm
a. Care goal achievement following total hip arthroplasty (THA) and/or total knee arthroplasty (TKA)
    i. Project Updates
    ii. Alpha Testing
        1. Qualitative
        2. Quantitative Cross-Sectional
    iii. Measure Specifications
        1. Numerator
        2. Denominator
        3. Inclusion/Exclusion Criteria
    iv. Public Comment
b. Summary, Next Steps and Conclusions

Summary of Key Points:

Overview

- The BWH MOOR team reviewed the agenda and the objectives for the day.

TEP meeting and feedback related to the eCQMs: Inpatient Respiratory Depression (IRD), Prolonged Opioid Prescribing (POP), Risk Standardized Complication Rate (RSCR) and Risk Standardized Major Bleeding and Venous Thromboembolism (VTE) Rates following elective primary THA and/or TKA

Date: October 29, 2020

The TEP meeting/feedback summary listed below was presented to the attendees listed below.

Attendees:

TEP: Jay Lieberman, Bonnie Blanchfield, Kevin Bozic, Martie Carnie, Aileen Davis, Lisa Hines, William Jiranek

BWH MOOR eCQMs: David Bates, Patricia Dykes, Stuart Lipsitz, Alex Businger, Avery Pullman, Ania Syrowatka, Michael Sinlaire, Tien Thai, Mica Bowen, Troy Li, Ola Szczerepa (MHQP)

Absent: Charles Bragdon

Agenda and Presentation: Measure: Inpatient Respiratory Depression (IRD) eCQM

- **Background and Purpose:**
    - Measure goal: measure the rate of inpatient postoperative respiratory depression following elective primary THA or TKA (no longer includes an opioid influenced component).
    - Postoperative respiratory depression is a serious event that places patients at risk for hypoxia, anoxia, severe brain damage, cardiac arrest, and death [1].
    - Postoperative inpatient respiratory depression following THA or TKA in patients who were administered opioids varies wildly from 3% to 25% depending on the population under study and measurement approach [2,3].
    - Key challenges to accurate and comparable measurement are: lack of a universal definition, and variability in measurement approaches.
- **Measure Overview:**
    - Numerator Statement: the outcome measure for this eCQM is IRD occurring during the index hospital admission for TKA or THA. The outcome is dichotomous (i.e., yes or no). IRD is defined here as:
        - Patient has a documented diagnosis of respiratory depression-related outcomes (e.g., hypoxemia) or respiratory failure
        - Patient has a documented mechanical ventilation procedure code
        - Patient has a documented intubation procedure code
        - Patient has 3 or more S_PO_2 values ≤ 88 and > 30 during their index admission
        - Patient has 2 S_PO_2 values ≤ 88 and > 30 that occur within 24 hours of each other during the index admission
            - BWH: 88% oxygen saturation was chosen based off the literature in addition to incorporating the margin of error to arrive at a conservative value.
    - Denominator Statement: This eCQM includes adults 18 years of age or older, covered by any payer, undergoing inpatient elective primary THA or TKA.
        - Denominator Exclusions:
            - Patients who were discharged against medical advice (AMA)
            - Patients who had more than two THA/TKA procedure codes documented during the index hospitalization
            - Patients who received an outpatient procedure
    - Qualitative Interview Results from Providers, Payers, and Patients from Massachusetts Health Quality Partners (MHQP):
        - Benefits and value of the measure:
            - Measure is valuable despite low rate of occurrence (provider consensus)
            - Measure can inform clinical protocol, such as individualized dosing for patients (payers)

        - Event being addressed is more important than if it occurred (no consensus on value – patients)
    - Risks of the measure:
        - Low rate of occurrence and limited ability to compare across ACOs (payers)
        - Unable to determine causality of respiratory depression (providers and patients)
    - Patient exclusion criteria/patient at most risk:
        - Patients with a history of respiratory diseases, current smokers, and patients with sleep apnea (payers)
        - Pre-existing respiratory conditions, adverse reactions to pain medication, allergies, or a history of panic attacks (patients)
- Review of beta testing results:
    - Overall Mass General Brigham IRD Rate 2016-2019: 3.25% (545/16,747).
    - Range across clinician groups from 2.47% (96/3,891) - 5.13% (35/682) (non-risk adjusted).
        - Validity testing was performed on a random sample of 200 patients, manual and eCQM review found agreement 96% of the time.
    - Overall IRD Rate from a site in Southern USA 2017-2019: 3.05% (345/11,308).
    - Range across second site clinician groups from 0.87% (23/2,632) – 11.46% (18/157) (non-risk adjusted).

- Discussion and questions:
    - Are Rates of RD in this Data High or Normal?
        - TEP member asked: how do we exclude patients with general anesthesia with a code of ventilation? Would assume that a code is generated for intubation when general anesthesia is used. Rates (in this data) are too high for post-operative respiratory distress alone; anesthesia must be involved.
        - BWH asked: should that be included as an exclusion criterion?
        - Conflicting views about if the rates of respiratory depression events are high or normal, TEP was reminded that rates presented in this meeting are currently statistically unadjusted.
        - TEP member noted: Address the issue of general anesthesia. What else is creeping in here? The rates seem high.
        - TEP member asked: Is the (IRD) measure (recorded) once a patient leaves the surgery?
            - BWH response: Yes, in the recovery room and floor.
        - TEP member noted: higher rates of Sp02 seen may validate the measure.
        - About 1% of patients got reintubated/intubated after surgery – some TEP members commented that this rate is still high, others say that this rate is normal.
        - Ranges of RD rates in relevant literature are wide (3-25%), but this is with varying measurement standards, a challenge of this measure is that there is not a universal definition of respiratory depression.
    - **Frequency of the Use of Oximeters**
        - TEP member commented: Oximetry is not used that much now; I would love to know what the actual usage of it is now. Use (of oximeters) is declining, which leaves you with other codes. It is being used less routinely after joint surgeries.
        - BWH asked: Are you suggesting restricting the measure to only other codes? (Non-sp02 codes).
        - TEP member commented: oximeters are still being used, but not continuously, they're checked when vital signs are taken. Rates could possibly be abnormally high because of this.

        - Members of the TEP mentioned that it was a good idea to require multiple sp02 drops to maintain validity/account for human error.
        - What's recommended from the guidelines – if patients are showing respiratory decline, check vitals and monitor oximetry more frequently.
    - **How is this Measure Going to be Used?**
        - TEP member asked: how is this measure going to be used to improve care? Possibly for the use of less narcotics, but aside from narcotics how will this measure be used?
        - BWH response: another benefit of implementing this measure nationally is that we can see who is doing well, who isn't, and variability across the country.
        - TEP member commented: This could be a proxy to how serious OSA (obstructive sleep apnea) is.
        - BWH noted: These rates aren't adjusted yet, cannot use this data to make any conclusions at this point.
        - The group noted that outpatient respiratory depression rates will be difficult to monitor.
    - **Proportion of THA/TKA Procedures Coded as Inpatient Procedures**
        - A TEP member asked what percentage of THA/TKA surgeries were coded as inpatient procedures.
        - BWH responded: percent's in the high 90s, this is changing in some places.
        - In the BWH population, ~80% are inpatient at Faulkner (BWF), 50-60% are inpatient at the Brigham (BWH) (as of 2018-2019 data).
        - The people that are going home (coded as outpatient) aren't going to have these problems (with respiratory depression), this measure is looking at people subject to IRD complications possibly due to interactions with risk factors or narcotics.
    - **TEP member comment:** This measure captures all of the methodologies to catch anything important, I'm pleasantly surprised at the level of validity shown.
    - **TEP member question:** I'm confused about how you got to 3.25% for the rate
        - BWH resolved by reviewing the data in the MGB PowerPoint Slide.

Next Steps:

1. Perform statistical risk adjustment
2. File for Public Comment
3. Obtain additional stakeholder feedback on results and refine measure as needed

Agenda and Presentation: Measure: Prolonged Opioid Prescribing (POP) Rate Following THA/TKA

- **Background and Purpose:**
    - Measure goal: Assess the rate of opioid prescribed for an extended duration in opioid-naïve patients following their elective primary THA/TKA in order to drive high quality, evidence-based care.
    - Since 1999, opioid prescribing has quadrupled, and opioid overdoses have increased six-fold [4]. On average, 130 Americans die every day due to an opioid overdose and an estimated 40% of those deaths involve a prescription opioid [5].
    - Previous studies have shown orthopedic surgeons tend to overprescribe opioids after surgery [6,7,8,9,10,11].
    - The amount of opioids prescribed after orthopedic surgeries varies widely and few established guidelines exist that standardize acceptable duration of opioid use [12,13].
- **Measure Overview:**

- Numerator Statement: The subset of patients from the denominator who were prescribed post-operative opioids for >42 days after surgical discharge within the measurement year.
- Denominator Statement: The target population is all patients aged 18 years or older who received an elective primary THA or TKA procedure within the measurement year.
- Denominator Exclusions:
  - The patient was prescribed opioids within the 90 days prior to the index admission
  - The patient received a diagnosis of Opioid Use Disorder (OUD) within the 365 days prior to the index admission
  - The patient had a Cancer diagnosis within the 365 days prior to the index admission or 90 days following discharge
  - The patient had a diagnosis of Sickle Cell Disease within the 365 days prior to the index admission or 90 days following discharge
  - The patient was discharged against medical advice (AMA)
  - More than two THA or TKA procedure codes were documented during the index hospitalization
  - The patient received an additional general or major surgery within 90 days following discharge
- Qualitative Interview Results from Providers and Payers from Massachusetts Health Quality Partners (MHQP):
  - Benefits of the measure:
    - Helpful in creating prescribing guidelines, increased likelihood of providers adjusting prescribing behavior towards the norm (provider).
    - Correlation of opioid use duration and health plan costs, encourages behavior change among individual clinicians, supports new clinical practice guidelines (payer).
  - Risks of the measure:
    - Variation in patient physiology, issues with operationalizing opioid use, ethics of restricting access to narcotics (provider).
    - Hospital EHRs are not accurate sources of prescription information (payer).
  - Consensus among providers to separate THA/TKA measures.
- Review of beta testing results:
  - MGB data (2016-2018) shows that 8.77% (risk adjusted) of patients are prescribed opioid for a prolonged period (>42 days) after primary elective THA or TKA surgeries.
    - 12.5% of patients for TKA surgeries
    - 3.8% of patients for THA surgeries
    - Hip and Knee prescribing practices seem visibly different.
    - High degree of variability across clinician groups highlights the need for measures like these for recommendations in prescribing practices.
  - BWH has not yet received 3rd party data for the POP eCQM (3rd party data has been received for all other eCQMs in development).
    - When this data arrives, BWH will reach out to the TEP team to obtain feedback on measures including:
      - Stratifying THA/TKA surgeries into two different eCQMs
      - Measure meaningfulness
      - Measure generalizability

- Discussion and questions:
  - **Combine or Stratify TKA and THA Procedures?**

- BWH asked the TEP team to give feedback on stratifying THA/TKA data (creating two separate measures where one examines the rate of prolonged opioid prescription in total knee arthroplasties, and a separate measure which examines the rate of prolonged opioid prescription in total hip arthroplasties) or leaving the measure combined (including both THA/TKA in the same eCQM).
    - A TEP member noted that the population undergoing TKA is definitely different from the population undergoing THA procedures, and that clinicians have weighed in on that. The TEP member discussed how prolonged opioid prescription is more relevant in the knee population (TKA), although it is still significant in the hip population (THA).
    - Another TEP member asked what the variability in data looks like in other sites, and how that's useful to monitor when considering stratifying or combining the eCQMs.
        - BWH responded to this, saying that the data for this measure hasn't arrived from the external site yet.
    - A TEP member asked when this data from the MGB site was from.
        - BWH responded: MGB data is from 2016-2018, the team has data from 2019 that has not been compiled yet, rates don't appear to have changed much.
        - A TEP member noted that it would be interesting to look at the data from 2019 to present compared to the data from prior to 2018.
        - The TEP team discussed how it would be beneficial to look at annual trends in opioid prescription, rather than dichotomizing to pre-2018, post 2019, and how ideally rates should be going down due to evolving state legislation and hospital policies.
            - BWH noted that current shifts are mild, but that it is a good idea to track.
            - TEP brought up how prescription maximums for discharge were implemented two years ago (in 2018), and that some change should be visible.

- **General Feedback on the Measure**
    - One TEP member responded to the question of general feedback, stating that BWH has responded to what the TEP wanted, and that the measure looks good now.
    - Another TEP member asked for further detail on the types of opioids in the inclusion criteria, saying that most people still consider tramadol an opioid.
        - BWH responded saying that tramadol is included as an opioid in this data, the team will look into this.

Next Steps:

1. Obtain data from 3rd party site
2. Stratify hip and knee data and risk adjust. Review with TEP.
3. File for Public Comment

Agenda and Presentation: Measure: Risk-standardized Complication Rate Following Elective Primary THA and/or TKA eCQM

- **Background and Purpose:**

- Measure Goal: to improve patient outcomes by providing patients, physicians, hospitals, and policy makers with information about the risk-standardized complication rates following elective primary THA and/or TKA for patient 18 years of older.
- Total hip arthroplasty (THA) and total knee arthroplasty (TKA) are common procedures, 650,674 primary TKA and 374,873 primary THAs were performed in the United States in 2018 [14].
- The variation in THA/TKA complication rates across U.S. hospitals suggests a need for routine measurement and quality improvement.
- Medicare claims data exists only for Medicare beneficiaries. Given the rising number of adults less than age 65 receiving total joint replacement surgery, outcome measurement should be expanded to include all adults who undergo these surgeries.

- **Measure Overview:**
  - Numerator Statement: The subset of patients from the denominator with any of the following complications occurring during a period of 90 days following the procedure:
    - Acute Myocardial Infarction (AMI), pneumonia, sepsis/septicemia/shock, surgical site bleeding, pulmonary embolism, mechanical complications, periprosthetic joint infection/wound infection, and death [15].
  - Denominator Statement: the target population is all patients aged 18 years or older who received an elective primary THA or TKA procedure within the measurement year from all payers.
  - Denominator Exclusions:
    - Patients who were discharged against medical advice (AMA)
    - Patients who had more than two THA/TKA procedure codes during the index hospitalization
  - Unique benefits and differences between the RSCR eCQM vs. Yale Core RSCR Measures:
    - eCQM uses EHR data rather than claims data, allowing for real time reporting.
    - Includes individuals 18+ from all payers rather than Medicare beneficiaries 65+ (useful as more 45-65-year-old individuals are getting these surgeries).
    - Includes inpatient and outpatient procedures rather than solely complications associated with hospitalization.
    - eCQM risk adjusts for the following variables:
      - Age
      - One or two procedures
      - Comorbid conditions
      - Sex
      - Race*
      - Household income (based on Zip Code) *
      - Primary language*
      - Smoking status*
      - Body mass index (BMI)*
        - * denotes exclusion from the Yale Core NQF1550 Measure risk adjustment
      - TEP Comment: be aware two TEP members are developing an outpatient measure for these complications related to location and complication as a claims based measure focused on the Medicare population (65+).
  - Review of beta testing results:
    - Unadjusted RSCR rate for MGB (2016-2019) ranged from 1.36%-4.51% across clinician groups, overall rate: 2.88%.

        - Unadjusted RSCR rate for Southern USA site (2017-2019) ranged from 0.00%-26.79% across clinician groups. Overall rate: 4.28%.
        - Risk adjustment demonstrates an overall rate of 3.4%, determined to be **no different than the national rate.**
            - NQF 1550 overall adjusted national rate (inpatient only): 2.4%.
- Discussion and questions:
    - **Risk Adjusting Sociodemographic Variables**
        - A TEP member brought up the Second Report to Congress on Social Risk Factors and Performance in Medicare's Value-Based Purchasing Program (2020) [16] which recommends that researchers do not risk adjust based on sociodemographic variables, this was a controversial idea among the TEP members. The rationale behind this report is that risk adjusting for sociodemographic variables like SES, race, ethnicity could be seen as adjusting data to accept that poorer or minority individuals get worse care and that the research is not interested in addressing those issues.
        - A TEP member brought up a counterpoint, saying that some factors of social determinants of health aren't immediately fixable by clinicians (ex. location) and not risk-adjusting leads to higher RSCR rates when there's nothing that the clinician can do in those situations.
        - This report needs to be looked into more to understand rationale.
            - TEP members continued on to discuss the relationships between different sociodemographic variables, like the strong relationship between smoking status and zip code, and the intersectional relationship between a lot of the risk-adjustment factors within this measure.
            - BWH offered to organize a separate meeting to discuss solely sociodemographic variables for this measure.
    - **Risk-adjusting and Stratifying Sociodemographic Variables**
        - A TEP member commented that if BWH is going to make changes, they recommended looking at stratified groups based on those demographic factors. There will be lots of pushback against doing that, but that's where the real interpretation is in the data and in seeing groups with real problems.
        - BWH responded, saying that one of the issues in public comment was that patients didn't want providers to be penalized for social determinant of health issues (ex: smoking status) which is why risk-adjustment is useful
            - A TEP member added that when looking at the adjusted rates, it's difficult to look for what to fix when everyone is adjusted to be homogeneous (as individual factors are adjusted making participants appear more similar). The TEP member asked: thinking about the usefulness of the data after risk adjustments, from a clinician point of view, do you have ideas about what you're going to do with this?
            - A TEP member also added in that with regards to the BWH risk-adjustment model, a lot of the variables/factors are going to be linked/correlated with each other.
            - BWH responded saying that the secondary site data may not be that useful, as the second site is also a large academic medical center. Based on NQF 1550 data, there should be no differences between the two sites. Looking at a different hospital type with more variation may provide more valuable insight. A site with more variability could be a safety net or county hospital.

- NQF measure is able to see more variability because they can see data on more sites, whereas this measure currently only has data from two different sites.
- BWH and TEP agreed that an issue with measure development is that getting information from many different sites is expensive and time consuming. We need to look at what's out there to determine if we can validate the measure and if information is accurate.

- **Meaningfulness of the RSCR Measure**
  - A TEP member asked how BWH looks at clinical sites with low patient volume.
    - Harmonized with NQF 1550, clinician sites must have >25 procedures to be included in this measure.
    - TEP brought up data reliability issues regarding the second site, asking: do you have a breakdown of the complications in this measure? Some complications have a greater impact on recovery than others, it would be useful to see a distribution of the complications, this could be a useful way to improve care.
  - BWH responded, noting that the second site tells us who falls into the denominator category and who from there goes into the numerator. BWH then asked the team if there was more information than that.
    - BWH team responded saying that there is a program in EPIC which provides more info for this for our site. BWH has the complication codes from the 3rd party health system.

Next Steps:

1. The BWH MOOR team will need to review: "Second Report to Congress on Social Risk Factors and Performance in Medicare's Value-Based Purchasing Program (2020)" to understand rationale.
2. The BWH MOOR team will organize a meeting to discuss solely sociodemographic variables for this measure, and we will then have a discussion about whether we want to refine our RA model.
3. File for Public Comment
4. Obtain additional stakeholder feedback on results and refine measure as needed

Agenda and Presentation: Measure: Risk-standardized Major Bleeding and Venous Thromboembolism (VTE) Rate Following Elective Primary THA and/or TKA eCQM

- **Background and Purpose:**
  - Measure Goal: To improve patient outcomes by informing surgeons about the rates of major bleeding and venous thromboembolism following TJA as optimal post-surgical management of THA/TKA patients includes careful balance between VTE prevention while minimizing risk for bleeding.
  - More than 900,000 incidents of recurrent, fatal, and nonfatal venous thromboembolism (VTE) events occur in the U.S. every year [17].
  - The risk of VTE following joint arthroplasty is high – studies have shown that symptomatic VTE occurs in about 3% of patients following THA [18].
  - Current guidelines recommend the use of anticoagulants to prevent VTE following TJA, but they have been identified as a common cause of adverse events, including major bleeding.
- **Measure Overview:**
  - Numerator Statement: Measure numerator includes any patients 18 years and older who had a major bleeding event and/or VTE event treated within 35 days from the date of the elective primary THA/TKA procedure.

- Presence of ICD 10 CM diagnosis codes for major bleeding during the index admission or inpatient hospital encounters and/or outpatient hospital encounters within 35 days from the date of THA/TKA procedure (value sets: General Major Bleeding Events and Active Bleeding).
- If the patient received blood transfusion ≥2 units of whole blood or packed cells during the index admission.
- Presence of ICD 10 PCS procedure codes for treatment of hemorrhage or hematoma during the index admission or inpatient and/or outpatient hospital encounters within 35 days from the date of THA/TKA procedure (ICD 10 PCS codes harmonized from AHRQ PSI 09 Perioperative hemorrhage or hematoma rate).

▪ VTE was defined as the following:
- Presence of ICD 10 diagnosis code for deep vein thrombosis (DVT) and/or pulmonary embolism (PE) during the index admission, ED visit, and/or 2 or more diagnosis codes for DVT from an outpatient encounter within 35 days from surgery (value set: Pulmonary Embolism or DVT).

o Denominator Statement: to be included in the measure cohort, patients must meet the following inclusion criteria:

▪ Aged 18 or older no the date of THA/TKA procedure
▪ Have qualifying elective primary THA/TKA procedure (inpatient or outpatient); elective primary THA/TKA procedures are defined as those without any of the listed exclusion criteria:
- Femur, hip, or pelvic fractures coded in the billing diagnosis field from any hospital encounters within 3 months prior to the date of THA/TKA procedure
- Partial hip arthroplasty procedures with a concurrent THA/TKA
- Revision procedures with a concurrent THA/TKA
- Resurfacing procedures with a concurrent THA/TKA
- Mechanical complications coded in the billing diagnosis field from any hospital encounters within 3 months prior to the day of THA/TKA procedure
- Malignant neoplasm of the pelvis, sacrum, coccyx, lower limbs, or bone/bone marrow or a disseminated malignant neoplasm coded in the billing diagnosis field from any hospital encounters within 3 months prior to the date of THA/TKA procedure
- Removal of implanted devices/prostheses
- Transfer status from another acute care facility for the THA/TKA

▪ Denominator Exclusions:
- Who were discharged against medical advice (AMA); or,
- Who had more than two THA/TKA procedure codes during the index hospitalization
- With diagnosis codes for renal insufficiency within the 365 days prior to the THA/TKA procedure
- With diagnosis codes for chronic atrial fibrillation within the 365 days prior to the THA/TKA procedure
- With diagnosis codes for cancer within the 365 days prior to the THA/TKA procedure
- Who received prescription orders for anticoagulant medications 10-90 Days Prior

        - Patient who received an Anticoagulant Injection/Infusion
        - Patient who received a tablet (Oral) Anticoagulant order, Quantity > 1
    - With VTE diagnosis code present on admission for index admission
    - With major bleeding diagnosis code present on admission for index admission
    - With diagnosis code for coagulation disorder within 365 prior to the THA/TKA procedure
    - Who had additional surgery within 35 days from the elective primary THA/TKA
  - Feedback from May 2020 TEP Meeting:
    - Last meeting: issue of accuracy in VTE events – regarding inpatient and ED compared to outpatient data. Mixed feedback about removing outpatient population.
    - Used a hybrid approach – revised numerator statement to include any code during inpatient admission or ED but would have to have two or more codes to qualify in an outpatient setting.
      - Inpatient or ED: single code
      - Outpatient: two or more codes
    - Changes to the denominator exclusion criteria: no longer excluding individuals with a single dose of anticoagulants prior to surgery, only excluding chronic anticoagulant users
  - Review of beta testing results:
    - Kappa testing after all measure specifications were finalized demonstrated a 96% agreement with a kappa value of 0.9294.
    - Unadjusted MGB data (2016-2019) showed a large range between clinician groups for bleeding rate (2.16%-10.44%) and a range of 0.17%-0.74% for VTE rates.
    - The second site data (also unadjusted) showed an even larger range in bleeding rates, ranging from 7.18%-58.75% across blinded clinician groups. While these bleeding rates were much higher, VTE rates were much lower at this site compared to MGB, ranging from 0.00%-2.67% with an average of 0.20%.
  - Discussion and questions:
    - BWH brought up several discussion questions for the TEP team:
      - Feedback regarding specification changes
        - Outpatient Dx Change and Anticoagulant Exclusion change
          - TEP did not have any objections to the changes made if it improved accuracy
      - Second site bleeding rate
      - Meaningfulness measure
      - Harmonizing of AHRQ's harm weights for composite measure scoring
- Discussion and Questions:
  - **Bleeding Events by Transfusion of 2 or More Units of Blood Versus by Code**
    - TEP member asked for a breakdown of the number of major bleeding events that are due to the actual transfusion of 2+ units of blood, versus those that are by code (referencing CERNER site data, not MGB site data).
      - BWH response: Don't have the exact number of actual cases of two or more transfusions
    - Comments from TEP: At many hospitals, you get that code when a patient's hematocrit drops below 30. This is referred to as postoperative blood-loss anemia. Especially in the first day (post-surgery) it could be dilutional or based on how many fluids they receive. I wouldn't rely on this data.
    - BWH asked if this data was abnormal, and if it could be policy based.

- One TEP member responded, saying: In our hospital, I wouldn't use the hemoglobin as a factor for bleeding, what is their hematic rate when they were infused? That's variable based on the person. This data is not reliable.
- TEP asked: if we go back to the numerator, it looks like if you eliminated that one major bleeding code (D62) and kept the other ones, would that make this more reasonable if we just eliminated that one code?
- BWH responded, saying yes, limiting the D62 code would bring CERNER data down to 4% which matches MGB, and the bleeding rate at MGB would drop down to 2%.
    - TEP agreed that dropping the D62 would give the data more base validity.

- BWH asked if TEP had any ideas to account for the variance between the bleeding rate of clinician group E and clinician group L from the second site (58.75% compared to 7.18%).
    - TEP members hypothesized that this must be a coding issue, saying that no one has a bleeding rate of 60%. TEP members added that there might be a financial incentive for hospitals to code this. One TEP member also added that from their perspective, values for when a transfusion is called are arbitrary and based on the hospital. The TEP team mentioned a wide variation in standards across different hospitals and throughout their training.
    - BWH and TEP agreed to drop the D62 bleeding code from the numerator criteria.

- **TEP member asked what is major bleeding was defined as for this measure.**
    - Resolved by BWH, referred to the VTE eCQM specifications slide
- **Meaningfulness of the measure as a single eCQM or stratifying into two separate measures**
    - TEP member referred to qualitative data from MHQP, asking if this measure would be more valuable as two separate measures (major bleeding event measure, venous thromboembolism measure) rather than as a single measure.
    - BWH responded noting the limited cases of VTE in the data, and that VTE rates in a stand-alone measure are going to be so low there will not be room to risk-adjust. BWH also noted how this may change now that the D62 code is being removed.
    - TEP members agreed that taking a look at the data as stratified measures and as a single measure to compare to each other would be helpful.
    - A TEP member asked BWH what the goal of the VTE eCQM was, and noted that identifying a specific goal would inform how the team should move forward with choosing to stratify the measures or keep them combined.
    - Another TEP member brought up risk variables for the measure, acknowledging that major bleeding events and venous thromboembolisms following TKA/THA do not have the same risk variables, and that risk adjusting makes more sense for two separated measures rather than one single measure.
        - BWH and TEP discussed how the measure adheres to the trade-offs between preventing VTEs and preventing major bleeding events, and how this relies of balancing the use of prophylactic anticoagulants. One TEP member mentioned that more weight should be focused on VTEs than major bleeding events.
        - A TEP member asked how BWH would risk-adjust for a composite measure when the risks between VTE events and major bleeding events are not the same.
            - BWH explained that a multinomial model would be needed in statistical analysis of the data.

- BWH posed the question of keeping the measure as a single composite measure or stratifying the measures again.
    - TEP was skeptical, again recommended that BWH separate the measure into two measures in order to compare it to the composite measure and then determine which would be more meaningful.
- A TEP member said that if the stratification was successful, BWH could have all three measures, and that these would be helpful for a single type of prophylaxis measure to determine what the ideal method of anticoagulant prescribing is. The member also noted that these measures should be risk-stratified.
- BWH and TEP discussed if it would be useful to look into the type of anticoagulant prescribed post-operatively, specifically because there isn't a concrete answer in published literature about what type of anticoagulant is the most beneficial to use after THA/TKA procedures. The TEP agreed that this would be of interest.
    - A TEP member asked if aspirin was included as an anticoagulant in this measure. BWH responded yes, aspirin was included.

- **Coding Practices and Variability Across Sites**
    - A TEP member asked BWH how they understood variability between sites, noting that the ranges seen in major bleeding events must be a coding abnormality. The TEP member asked BWH what strategies would be used to combat this.
    - BWH explained that said variability won't be as apparent after the D62 code is dropped from the numerator criteria, and that BWH will share the results after this is processed. BWH was unable to get additional data from CERNER.
    - BWH will try to schedule a meeting with CERNER to determine how they're coding methods for major bleeding events to refine the measure in the future.
- **BWH asked TEP is there were any concerns about changes made to the inclusion/exclusion criteria for the measure.**
    - A TEP asked about chronic anticoagulant use, saying that they would be curious to see how much the anticoagulant exclusion minimized the numerator population and that they would like to know the number of patients excluded.
        - BWH responded saying that 700 patients were excluded from the numerator for chronic anticoagulant use in total.
        - The TEP member said that this seems like a low percentage of people on chronic anticoagulants, and asked other TEP members about the proportion of people that they operate on who are on chronic anticoagulants.
        - BWH will refer back to the data to determine that number out and follow up with the TEP.

Next Steps:

1. Evaluate and incorporate specification changes recommended by the TEP
2. Determine bleeding coding method from CERNER
3. Perform risk adjustment and/or stratification and present to TEP
4. Finish developing the eCQM package in the Measure Authoring Tool (MAT)
5. Submit measure for Public Comment, and evaluate meaningfulness of the measure
6. Obtain additional stakeholder feedback on results and refine measure as needed

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Agenda and Presentation: TEP meeting and feedback related to the PRO-PM: Develop a new PRO-PM Care goal achievement following total hip arthroplasty (THA) and/or total knee arthroplasty (TKA)

Date: October 30, 2020
The TEP meeting/feedback summary listed below was presented to the attendees listed below.
Attendees:

TEP: Jay Lieberman, Bonnie Blanchfield, Kevin Bozic, Martie Carnie, Aileen Davis, Lisa Hines, William Jiranek

BWH MOOR PROMs: David Bates, Ronen Rozenblum, Francois Bastardot, Stephanie Singleton, Tyler Oliver, Stuart Lipsitz, Alex Businger, Ola Szczerepa (MHQP) Peter Meyers (Partners PROMs)

Absent: Charles Bragdon

The PROMs team grouped the feedback of the TEP into four areas that are in line with the main topics covered in the agenda:

1. Project Overview & Updates
2. Alpha Testing
3. Measure Specification
4. Public Comment

- **Project Overview & Updates:**
    - **Overview:** The PROMs team reviewed the project goals and proposed measure to the TEP:
        - Develop a new patient-reported outcome performance measure (PRO-PM) related to care goal achievement (CGA) following orthopedic surgery (i.e., THA and/or TKA).
        - The new surveys will assess the patient's main goals/expectations before surgery (i.e., pain, physical function and quality of life), their perception about the importance of each one of these expectations, and the degree to which the expectations were addressed after surgery.
        - The proposed measure (pre-and post-surgery surveys)
    - **Updates**: The PROMs team provided the latest project updates to the TEP:
        - Measure development stage: phase I quantitative testing (cross-sectional)
        - Original plan consisted of cross-sectional data collection at the Brigham and Women's Faulkner Hospital
        - Plan was updated to conduct the prospective data collection in Partners HealthCare System (Enterprise-wide) via Epic, the system's EHR; Welcome (in clinic on iPads) and MyChart (the patient portal), and test-retest data collection in REDCap.
        - COVID-19-related repercussions necessitated a new data collection plan due all elective procedures (including THA and TKA) ceasing from mid-March to June, iPad reassignment for COVID-19 specific tasks, workflow changes in clinic, and other items that impacted data collection at Partners HealthCare System.
        - The new plan expanded cross-sectional data collection processes to include using REDCap

        - Via an email link to REDCap, data is entered directly by patient into REDCap
        - Via phone, RA administers survey and enters data into REDCap
        - Additional questions added to REDCap surveys to assess potential COVID-19 impact & biases on responses
    - Currently, Partners HealthCare System EHR, Epic, is being utilized to disseminate the care goal achievement surveys enterprise-wide via Welcome (in clinic on iPads) and MyChart (the patient portal).
        - Both preoperative and postoperative surveys are being collected via Epic.
        - Both preoperative and postoperative surveys are appended to the current electronic Partners PROMs Musculoskeletal Questionnaire Set assigned only to THA and TKA surgical patients.
    - The PROMs team provided a high-level overview regarding their risk mitigation efforts to accommodate the impact of COVID-19 pandemic on their data collection.
        - Developing and adding alternative strategies to test the measure using various methods and processes (e.g., REDCap, an electronic research collection platform), which is used in addition to Patient Gateway and Welcome.
        - Regularly consulting with key stakeholders, monitoring procedure volume and survey data collections, and changes to workflow that impact surgical volume, survey collections and patient population
        - Virtually supporting clinicians and administrative staff
    - The updated project timeline was reviewed to reflect data collection changes due to COVID-19 pandemic
        - Alpha (cross-sectional) testing: 5/15/2020-10/30/2020
        - Beta (longitudinal, paired data) testing: 11/2/2020-3/1/2021
        - Public Comment period: 10/19/2020 – 2/26/2021
        - Submission to MUC list: 4/30/2021
        - NQF Letter of Intent: 8/3/2021
- **Discussion and questions:**
    - A TEP member posed a question about using validated surveys that have already been developed and validated versus developing an entirely new PROM/PRO-PM
        - BWH responded to this, noting that they were charged with developing a new performance measure as well as an entirely new PROM. It was also stated that the decision of developing new measure was discussed and approved by the TEP members in the previous meetings
    - A TEP member posed a question about the need to collect via REDCap vs. MyChart.
        - BWH responded to this, noting that due to COVID-19 and the tight timeline, an additional method of data collection was necessary to support data collection thresholds needed for measure development
- **General Feedback on the Overview & Updates:**
    - TEP members endorsed the proposed measure (pre-and post-surgery surveys).
    - TEP members appreciated the measure timeline milestones met to date.
    - The risk mitigation strategy due to COVID-19 was acknowledged and endorsed by the TEP members.
    - TEP members understood and approved the methodology of utilizing REDCap as an additional method of data collection in order to collect the needed data volume.
- **Next Steps:**

- **Alpha Testing**
  - **Qualitative Methods -** The PROMs team reviewed the latest qualitative findings with the TEP:
    - Overall patient and provider opinions about the surveys were very positive and patients reported that the surveys covered their main goals and expectations.
    - Patients understood the survey concepts the way they were intended and there was value seen in providing patient results to doctors and other healthcare providers, like physical therapists
    - Patients felt the time to complete the survey was minimal, approximately 1-2 minutes
    - Payers noted the usefulness of aggregated results on the provider group level and that the measure results could facilitate change in leading surgeons to be attentive to patients' goals and expectations
  - **Quantitative Methods -** The PROMs team presented the latest quantitative findings to the TEP:
    - Prospective cross-sectional quantitative survey data used to determine the measurement properties and evaluate the acceptability, feasibility and performance of the CGA PROM.
      - Characteristics of cross-sectional test population
      - Distribution of response rate and completion rate
      - Distribution of response by survey items
      - Potential floor and ceiling effects
      - Screen versus Phone data collection modes
      - Test-retest reliability
  - **Discussion and questions**
    - PROMs team asked the TEP about the distribution of responses by survey/s items
      - All TEP members appreciated the good distributions of responses
    - PROMs team asked the TEP about the 'ceiling effect' in the eight 'importance' questions and about the decision to include or exclude these items in the final measure.
      - All TEP members responded to this, stating that they agree that based on the findings there is strong ceiling effect on the 'importance' questions
      - All TEP members suggested dropping the importance questions from the final measure for the following reasons:
        - The ceiling effect in these questions
        - Increased complexity of scoring without gaining any relevant information and difficult to weight for PRO-PM calculation.
    - PROMs team asked the TEP if the survey data collected over the phone which accounts for about 10% of the data collection should be included in the analysis.
      - The majority of TEP members were reluctant to drop phone collection data, but stated that decision should be made based on analysis of the differences between the 'Screen' and 'Phone' collection modes
    - PROMs team asked the TEP about the characteristics of test population
      - The TEP members responded to this, stating that they felt that the surgical type, age, and gender distribution of the patient cohorts were evenly distributed.
        A couple of the TEP members raised concern regarding the fact that most of the tested population is white; suggesting considering testing also outside the Partners HealthCare System to increase diversity of patient population.
      - BWH PROMs team responded to this, noting that in reviewing other THA and TKA measures, inclusion of racial and ethnic demographic information was either omitted or the numbers were very low compared to the number of white

- BWH PROMs team also mentioned that given the disparity nationwide between whites and racial/ethnic minorities regarding THA/TKA, they were not too far from what is seen in other cities with their numbers.
- The TEP members acknowledged the fact that other THA and TKA measures also faced similar situation with respect to racial and ethnic demographic. Thus, other measure developers also presented low minority numbers in the validation of their measures.

▪ PROMs team asked the TEP about validating the measure for THA and TKA separately or together.
- The TEP members acknowledged that the proposed measure is applicable for both THA and TKA patients. Yet, they suggested that the measure should be validated separately for hip and knee cases.
- BWH PROMs team responded to this, stating that they would consider validating the measure separately for hip and knee based on data analysis and measure expert's opinion.

▪ PROMs team asked about the Test-Retest findings.
- One the TEP member (measure developer expert) talked about the Test-Retest findings; stating that we should use the Tetrachoric/Polychoric method for correlations. This TEP member appreciated the Test-Retest findings presented and suggested to consider ceasing the Test-retest data collection.
- The other TEP members also acknowledged and appreciated the Test-Retest findings presented.

o **General Feedback on the Alpha Testing Phases:**
▪ TEP members endorsed the Alpha testing and preliminary findings that support the validation of the measure.
▪ The stakeholders (i.e., patients, providers and payers) perspectives captured via interviews/focus groups were acknowledged and endorsed by the TEP members.
▪ TEP members felt the surgical type, age, and gender distribution of the patient cohorts were evenly distributed.
▪ A couple of the TEP members raised concern regarding the fact that most of the tested population were white but stated that other measure developers also presented low minority numbers in the validation of their measures.
▪ TEP members appreciated the good distributions of responses by survey/s items
▪ TEP members agree that based on the findings there is strong ceiling effect on the 'importance' questions; suggested dropping the 'importance' questions from the final measure.
▪ TEP members acknowledged and appreciated the Test-Retest findings presented.
▪ The method of testing and analysis (e.g., correlation calculations) were endorsed and felt to be appropriate for the proposed measure.

o **Next Steps**
1. The PROMs team will continue the measure testing as planned
2. Based on the cross-sectional quantitative findings that highlight the 'ceiling effect' in the eight 'importance' questions and the suggestion of the TEP members to drop these questions from the final measure due to the 'ceiling effect,' the PROMs team will make a final decision about removing these questions from the PROM pre-surgery survey and construction of the PRO-PM.
3. The PROMs team will follow up with additional questions for the TEP and other measure

experts regarding testing measure at specific time frame/s in order to validate PROM.

4. The PROMs team will look into validation of the measure as 2 separate measures – one for hip and one for knee.
5. The PROMs team will further look at the results from collecting cross-sectional and test-retest data via 'screen mode' versus 'phone mode,' to make a decision if to use these two modes together in the final analysis and risk adjust OR to separate the results by mode OR drop the phone mode from the final analysis.

- **Measure Specification**
  - The PROMs team reviewed their proposed measure specifications with the TEP:
    - **Numerator Statement:** Total number of patients in the denominator who completed both a pre- and post- surgical CGA survey that generated a CGA score of x or higher.*
    - **Denominator Statement:** Adult patients age 18 and older who undergo an elective primary THA and/or TKA during the performance period AND who have a completed CGA survey zero to three months before surgery AND between 3-6 months after surgery.**
      - **The 'care goal achievement score' and criteria will be defined based on the quantitative and qualitative testing data/information and analysis.*
      - ***The exact time frames to administer the survey (pre- and post-surgery) will be defined based on the quantitative and qualitative testing data/information and analysis.*
    - **Inclusion Criteria**: Primary, elective THA/TKA; Age 18 or older
    - **Exclusion Criteria**: Patient who had a THA and/or TKA revision; Trauma/fracture of hip or lower extremity at time of THA/TKA; Severe cognitive impairment or dementia diagnosis that overlaps the data collection period of THA/TKA; Hospice care within the year leading up to or following the THA/TKA
  - **Discussion and questions**
    - PROMs team asked the TEP about the Measure Specification.
      - All TEP members endorsed the proposed numerator and denominator statements which are in line with other THA and TKA measures.
      - All TEP members endorsed the proposed inclusion and exclusion criteria which are in line with other THA and TKA measures.
    - A TEP member posed a question about including tumor to the list of exclusion criteria and if there need to be consistency across other PROMs measures?
      - BWH responded to this, stating that other THA and/or TKA measures use similar inclusion/exclusion criteria
    - A TEP member posed a question about including 'by proxy' to the list of exclusion criteria with regard to severe cognitive impairment
      - BWH responded to this, stating that they had not seen that in other measures but would do more research on the matter.
  - **General Feedback on the Proposed Measure Specifications:**
    - TEP members endorsed the proposed numerator and denominator statements which are in line with other THA and TKA measures.
    - TEP members endorsed the proposed inclusion and exclusion criteria which are in line with other THA and TKA measures.
  - **Next Steps**
    1. The PROMs team will follow up with further defining 'severe' cognitive impairment and

looking into 'by proxy' to the list of exclusion criteria.

2. The PROMs team will do more research on 'tumor' as an item on the list of exclusion criteria for orthopedic measures.

- **Public Comment**
  - **Proposed Agenda:** The PROMs team reviewed their proposed public comment items to the TEP:
    - Measure development strategy and process
    - General description of measure
      - Care Goal Achievement Framework
    - Numerator
    - Denominator
    - Inclusion/Exclusion criteria
  - **Discussion and questions**
    - PROMs team asked the TEP about the proposed public comment items.
      - All TEP members saw value in the proposed public comment items and approved the public comment proposed agenda.
    - There were no further questions regarding the proposed agenda for the public comment submission.
  - **General Feedback on the Proposed Measure Specifications:**
    - TEP members saw value in the proposed public comment items and approved the public comment proposed agenda
    - TEP members endorsed the proposed numerator and denominator statements
    - TEP members endorsed the proposed inclusion and exclusion criteria which are in line with other THA and TKA measures.
  - **Next Steps**

    1. The PROMs team will follow up with TEP members at the appropriate time during the public commenting period.