

**Summary Report of Technical Expert Panel Meetings:
Development of Outpatient Outcome Measures for the Merit-based
Incentive Payment System**

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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 outpatient outcome measures that can be used to assess the quality of care provided by clinicians who are eligible to participate in the Merit-based Incentive Payment System. The measures will be based on administrative claims data and will use unplanned hospital visit rates (e.g., inpatient admissions, emergency department [ED] visits, and/or observation stay rates) to assess the quality of care of ambulatory care providers (either individual eligible clinicians or groups of eligible clinicians who report under a common Tax Identification Number [TIN]). The measures will be risk-adjusted for patient demographic and clinical characteristics. The quality measure scores will be calculated using patient characteristics and outcomes documented on routinely submitted Medicare claims; therefore, the clinicians whose performance will be assessed by the quality measures will not need to submit any additional data directly to CMS.

As is standard with all measure development processes, CORE has convened a national Technical Expert Panel (TEP) of clinicians, patient advocates, and other stakeholders. The TEP is providing input to help shape the specifications of the measures, including the types of admissions to count in the measure outcomes and the risk-adjustment methodology. In the first phase of the project, the TEP provided input on the first measure under development for the Merit-based Incentive Payment System (MIPS), a measure of unplanned hospital admissions for patients with multiple chronic conditions (hereinafter, MIPS MCC admission measure). In the second phase of the project, the TEP is providing input on two additional measures under development for the MIPS: 1) a measure of unplanned inpatient admissions, ED visits, and/or observation stays for patients with diabetes (hereinafter, MIPS short-term diabetes complications measure) and 2) a measure of unplanned hospital admissions for patients with heart failure (hereinafter, MIPS heart failure measure).

This report summarizes the feedback and recommendations received from the TEP during the first five meetings to discuss the three measures under development. The report will be updated to include feedback and recommendations from future TEP meetings as they occur.

Measure Development Team

The CORE measure development team consists of individuals with expertise in outcome measure development, health services research, clinical medicine, statistics, and measurement methodology. See [Table A1](#), [Table A2](#), and [Table A3](#) in Appendix A for the full list of members of the CORE measure development teams.

Faseeha K. Altaf, MPH, and Kasia J. Lipska, MD, MHS lead the MIPS short-term diabetes complications measure development team. Ms. Altaf has over six years of experience developing and evaluating quality measures for the ambulatory and hospital settings. Dr. Lipska is an endocrinologist at the Yale School of Medicine and a Clinical Investigator at CORE. Her

research seeks to better understand the balance of benefits and harms of glucose-lowering therapy in older adults with type 2 diabetes.

Mayur Desai, PhD, leads the MIPS MCC admission measure development team. Dr. Desai is an epidemiologist and Associate Professor of Epidemiology at the Yale School of Public Health where he teaches courses on epidemiologic research methods and data analysis. For the past 10 years at CORE, Dr. Desai has been a health services researcher involved in the development and reevaluation of numerous inpatient and outpatient claims-based quality measures for CMS.

Erica Spatz, MD, MHS leads the MIPS heart failure admission measure development team. Dr. Spatz is a general cardiologist at the Yale School of Medicine and a Clinical Investigator at CORE. Her research seeks to advance more patient-centered, outcomes-oriented models of care to prevent and manage cardiovascular disease.

Elizabeth Drye, MD, SM, Senior Director of Quality Measurement at CORE and a Research Scientist at the Yale School of Medicine, oversees the work.

Finally, Vinitha Meyyur, PhD, the project's Contracting Officer's Representative, and additional CMS staff overseeing the MIPS program, including Susan Arday, MHS; Daniel Green, MD; Jennifer Harris, MS, BSN, RN; Julie Johnson, MPH; and Sophia Sugumar have provided input.

The Technical Expert Panel

In alignment with CMS's Measures Management System (MMS), CORE released a public call for nominations to convene the TEP. The TEP's role in measure development is to provide feedback on key conceptual, clinical, and methodological decisions made in consultation with CORE's measure development team.

[Table 1](#) lists the project's TEP members. The TEP is comprised of individuals with diverse perspectives and backgrounds, including clinicians practicing in various settings, patients and caregivers, and other stakeholders with experience in measure development and policy. The appointment term for the TEP was originally from July 2017 through September 2018. CORE extended the TEP agreement until the project's completion in July 2019 for completion of measure development. TEP members who participated in the early phase of measure development through September 2018 are denoted by an asterisk (*).

Table 1. TEP member name, affiliation, and location

Name	Organization (title); clinical specialty, if applicable	Location
Mary Barton, MD, MPP	National Committee for Quality Assurance (Vice President, Performance Measurement); internal medicine	Washington, DC
Larry Becker, BS	Xerox (Director, Strategic Partnerships, Alliances and Analytics, Director, Benefits [Retired])	Rochester, NY

Name	Organization (title); clinical specialty, if applicable	Location
Jacob Berman , MD, MPH*	General Internal Medicine Center, University of Washington (Medical Director); internal medicine	Seattle, WA
Jane Brock , MD, MSPH	Quality Innovation Network – Quality Improvement Organization National Coordinating Center, Telligen (Clinical Director); preventive medicine	Greenwood Village, CO
Brenda Cook , MSN, RN, NEA-BC	Southcentral Foundation (Nursing Director)	Anchorage, AK
Namirah Jamshed , MBBS	University of Texas Southwestern Medical Center (Associate Professor, Division of Geriatric Medicine); geriatrics	Dallas, TX
David Kraus , MD	Stern Cardiovascular Center (Advanced Heart Failure and Cardiac Transplant Specialist); cardiology	Memphis, TN
Rozalina McCoy , MD, MS	Mayo Clinic (Assistant Professor of Medicine); endocrinology	Rochester, MN
J. Michael McWilliams , MD, PhD	Harvard Medical School (Associate Professor, Health Care Policy); internal medicine	Cambridge, MA
Amy Mullins , MD, CPE, FAAFP	American Academy of Family Physicians (Medical Director, Quality Improvement); family medicine	Leawood, KS
Diane Padden , PhD, CRNP, FAANP	American Association of Nurse Practitioners (Vice President, Professional Practice & Partnerships); family nurse practitioner	Austin, TX
Robert Roca , MD, MPH, MBA	Sheppard Pratt Health System/American Psychiatric Association (Vice President/Medical Director); psychiatry	Baltimore, MD
Jason Sico , MD, MHS, FAHA, FACP	Yale School of Medicine (Associate Professor of Neurology and Internal Medicine); neurology	New Haven, CT
Mary Smith , DNP, FNP-BC, ONP-C, RNFA	Starkville Orthopedic Clinic (Nurse Practitioner); family nurse practitioner	Starkville, MS
Barbara Spivak , MD	Mount Auburn Cambridge Independent Practice Association (President); internal medicine	Brighton, MA
Jennefer Watson	Patient caregiver	Jacksonville, FL
Daniel Weiner , MD, MS	Tufts University School of Medicine (Associate Professor of Medicine); nephrology	Boston, MA
Roger Wells , PA-C	Howard County Medical Center (Family Practice and Emergency Medicine Physician Assistant)	St. Paul, NE

Name	Organization (title); clinical specialty, if applicable	Location
Stephanie Wolf-Rosenblum , MD, MMM, FACP, FCCP	Rosenblum Group Healthcare Consulting (Chief Executive Officer); Past, through May 2018: Southern New Hampshire Health System (Physician Administrator and Vice President of Development and External Affairs); pulmonology and sleep medicine	Nashua, NH
Patient*	Participation is confidential	--

Technical Expert Panel Meetings

CORE has held five TEP meetings to date. CORE held its first TEP meeting on July 20, 2017 (TEP Meeting 1), its second TEP meeting on September 18, 2017 (TEP Meeting 2), its third TEP Meeting on February 9, 2018 (TEP Meeting 3), its fourth TEP Meeting on September 27, 2018 (TEP Meeting 4), and its fifth TEP meeting on December 19, 2018 (TEP Meeting 5).

CORE anticipates holding additional meetings through July 2019 (see [Appendix B](#) for the TEP meeting schedule). This summary report contains a summary of the first five TEP meetings that CORE hosted.

TEP meetings follow a structured format. CORE presents key issues identified during measure development and a proposed approach to addressing them, and TEP members review, discuss, and advise on the issues.

Key Issues Discussed During Technical Expert Panel Meeting 1

Prior to the first TEP meeting, CORE provided the TEP members with materials for review. Materials prepared for the TEP included:

- An overview of TEP member responsibilities.
- The project's overview.
- An overview of Department of Health & Human Services (HHS) and CMS MIPS program policy relevant to the project.
- Background on development of the first measure under development (the MIPS MCC admission measure) and prior CMS/CORE work on measuring hospital admissions.
- The types of admissions CORE proposed to count in the MIPS MCC admission measure outcome and the rationale for the recommended admission types.

In addition to providing input on the measure outcome, TEP members also asked questions about or commented on several other aspects of the measure, including the measure's cohort, risk adjustment, reliability, provider attribution, and how the measure will fit in with other CMS programs.

Executive Summary of Technical Expert Panel Meeting 1

Overview of Information Presented by CORE

CORE reviewed:

- Goals of the meeting, project overview, and TEP Charter.
- Background on the MIPS.
- Approach to measure development.
- Recommendations for admission types to count in the measure.

Overview of TEP Feedback

The TEP:

- Reviewed and approved the TEP Charter, without any modifications.
- Asked questions about and made suggestions to modify the MIPS MCC admission measure cohort. Specifically, the TEP:
 - Discussed potential modifications to the cohort's qualifying conditions, including potentially dropping depression and adding diabetes.
 - Asked if patients residing in skilled nursing facilities (SNFs), rehabilitation centers, or hospice would be included in the MIPS MCC admission measure's cohort.
- Provided input on the types of admissions to count in the measure outcome and asked for clarifying information. Specifically, one or more TEP members:
 - Expressed concerns with not counting admissions following discharge from a previous hospitalization and indicated that the post-discharge admission types would be sensitive to the post-discharge time period selected.
 - Did not favor removing admissions for "other specific categories" (for example, small bowel obstruction).
 - Suggested not counting the first admission for certain diagnoses (for example, atrial fibrillation and congestive heart failure).
 - Suggested defining the outcome by starting with the types of admissions to count in the measure rather than starting broad and excluding certain types of admissions.
 - Asked for information on what types of admissions are included in the outcome rather than focusing on the types of admissions not counted in the outcome.
- Asked how the MIPS MCC admission measure relates to measures in other CMS value programs (for example, episode-of-care measures).
- Noted that decisions about the cohort, outcome, and attribution approaches are intertwined and suggested it was challenging to come to a decision on the types of admissions to count in the measure outcome without information about the other measure components.

- Requested further information about elements of the measure not discussed in the meeting, such as the approach to risk adjustment and types of providers to whom patient health outcomes would be attributed.

Detailed Summary of Technical Expert Panel Meeting 1

Welcoming Remarks

- The CORE team and CMS welcomed the TEP members to the meeting to discuss the development of outpatient outcome measures for MIPS. Of the 20 total TEP members, 15 attended the meeting. The CORE team reviewed the confidentiality agreement and the funding source for the project.

TEP Charter

CORE Presentation to the TEP

- CORE reviewed the TEP Charter, which included the TEP's purpose and TEP member responsibilities, and sought the TEP's feedback on and approval of the Charter.

TEP Feedback

- The TEP approved the TEP Charter without modification.

Project Overview

CORE Presentation to the TEP

- CORE presented an overview of the project and its current phase, Phase 1. Phase 1 started in September 2016, will end in December 2017, and focuses on developing a measure of hospital admissions for patients with MCCs for the MIPS program.
- CORE outlined the current and immediate next stages of measure development: reviewing the types of admissions to count in the measure outcome during this TEP meeting and following up with a meeting to discuss to which types of primary care and specialist clinicians the measure should apply (attribution).

TEP Feedback

- The TEP had no questions about or input on the project's overview.

Merit-based Incentive Payment System (MIPS)

CORE Presentation to the TEP

- CORE provided an overview of CMS's Quality Payment Program (QPP) and specifically MIPS to orient the TEP to how the program is currently structured. CORE further explained that they would highlight the aspects of CMS policy that are relevant to the TEP's review as they discuss different measure components and decisions over the course of the project.

- CORE described the type of providers included in MIPS and explained that quality is one of four performance categories under the MIPS that roll up to a summary score that will be used to adjust clinicians' Medicare payments.
- CORE further explained that the team is building a risk-adjusted outcome measure for the quality performance category of MIPS. The quality performance category in the first year of the program (2017 measurement year/2019 payment adjustment) will account for 60% of the total performance score.
- The measure will be based off a measure that CORE previously developed to evaluate Accountable Care Organization (ACO) quality. CORE is adapting the ACO MCC admission measure for use to evaluate provider quality under the MIPS.
 - CORE noted that clinician participation in the ACO program is voluntary. The ACO MCC admission measure evaluates this coordinated care provided by ACOs, so the score is reported at the ACO level. Under the MIPS, ambulatory care clinicians' participation is mandatory, and clinicians are held accountable individually or as part of clinician groups who choose to report under the same TIN.

TEP Feedback

- The TEP had no questions about or input on the MIPS program structure.

Approach to Measure Concept and Types of Admissions to Count in the Measure Outcome

CORE Presentation to the TEP

- CORE explained that the goal of the project is to adapt an existing ACO quality measure for the MIPS setting (ACO measure title: ACO-38: All-cause Unplanned Admissions for Patients with MCCs).
- CORE outlined three components of the MIPS MCC admission measure under development and how they relate to the components of the ACO MCC admission measure.
 1. Cohort: CORE will use the same patient cohort for the MIPS MCC admission measure as the ACO MCC admission measure to harmonize across federal programs: Medicare Fee-for-Service (FFS) patients aged 65+ years with two or more of the following eight conditions:
 - i. Acute myocardial infarction (AMI),
 - ii. Alzheimer's disease and related disorders or senile dementia,
 - iii. Atrial fibrillation,
 - iv. Chronic kidney disease (CKD),
 - v. Chronic obstructive pulmonary disease (COPD) and asthma,
 - vi. Depression,
 - vii. Heart failure, or
 - viii. Stroke and transient attack (TIA).

2. Risk-adjustment model: CORE explained that they will develop and validate a risk model that accounts for case-mix differences across MIPS eligible clinicians/clinician groups. The choice of risk-adjustment variables will be based on the related ACO MCC admission measure, the medical literature, TEP input, and empiric analyses. CORE will describe the approach and model at a later TEP meeting.
 3. Outcome: CORE noted that the outcome for the ACO MCC admission measure is the number of acute, unplanned admissions per 100 person-years. For the MIPS MCC admission measure, CORE will refine the outcome to only include admissions that indicate a quality signal for ambulatory care provided by eligible clinicians or clinician groups.
- CORE further described and sought input on the admission types CORE proposed to count in the measure. CORE explained that they do not assume admission rates for the included types of admissions should be zero, but that better care can lower the risk of the included admissions for patients.
 - CORE recommended including most admissions since many types of admissions can be reduced through optimal care. CORE presented the specific types of admissions they proposed to exclude from the measure outcome because it is less likely that high quality ambulatory care will lower the risk of these admissions:
 1. Planned admissions.
 2. Post-discharge admissions: admissions occurring shortly after discharge from the hospital for another admission.
 3. Admissions related to:
 - a. Complications of procedures or surgeries,
 - b. Accidents or injuries, or
 - c. Other specific categories (for example, small bowel obstruction).
 - CORE shared that 17.7% of all admissions are not counted after applying the proposed exclusions listed above (1, 2, 3a, 3b, 3c).

TEP Feedback on Types of Admissions to Count in Measure Outcome

Fourteen TEP members commented on the types of admissions to count in the measure outcome.

- Three TEP members agreed conceptually with CORE's proposal to not count the following admissions in the measure:
 1. Planned admissions.
 2. Post-discharge admissions: admissions occurring shortly after discharge from the hospital for another admission.
 3. Admissions related to:
 - a. Complications of procedures or surgeries,
 - b. Accidents or injuries, or

- c. Other specific categories (for example, small bowel obstruction).
- Additionally, two members agreed with not counting planned admissions.
- One TEP member disagreed with excluding admissions related to complications of procedures or surgeries. The TEP member noted that ambulatory care providers can lower the risk of admission following some procedures (for example, orthopedic procedures).
- Three TEP members were uncertain about excluding post-discharge admissions.
 - Two of the TEP members emphasized the importance in selecting a buffer time period (time between discharge from hospital and an admission [readmission] that would potentially not count in the measure as an indicator of ambulatory care quality) and acknowledged this would be challenging.
 - One of the TEP members suggested not counting admissions within 30 days of discharge for consistency with existing CMS readmission measures; a second TEP member supported consistency in defining measure components whenever possible. However, a third TEP member disagreed and cited that approximately half of heart failure admissions occur within 30 days of discharge.
- Two TEP members disagreed with excluding certain admissions related to accidents or injuries.
 - One of these TEP members suggested counting injuries due to poor medication management.
 - One of these TEP members suggested counting suicide (or confirming suicide was not labeled an accident).
- Three TEP members disagreed with not counting admissions related to “other specific categories.”
- Some TEP members suggested additional inclusions or exclusions.
 - One TEP member suggested not including the first admission for a condition, explaining that for certain conditions (such as atrial fibrillation and congestive heart failure) the first admission for the condition is not preventable, but that subsequent admissions can be reduced. However, this TEP member recognized this would require a sophisticated approach that may not be feasible to implement.
 - One TEP member inquired about the role of outpatient management for polypharmacy in admissions and readmissions and suggested including admissions due to poor medication management.
 - One TEP member suggested not counting admissions for aspiration pneumonia.
 - One TEP member suggested counting observation stays in addition to hospital admissions.

- Three TEP members suggested defining the outcome by starting with the types of admissions to count in the measure rather than starting broad and excluding certain types of admissions.

TEP Feedback on Measure Cohort

Four TEP members commented on the MIPS MCC admission measure's cohort.

- One TEP member did not support including depression as a qualifying condition for the MIPS MCC admission measure cohort given the lack of availability of psychiatrists, especially in rural areas, and because costs of mental health care are outside of the control of MIPS-eligible ambulatory care clinicians or clinician groups.
 - Two TEP members differed. One TEP member indicated it will be problematic going forward if mental illness (depression) continues to be treated separately from a medical condition and from whole-person care, especially in the context of shifting towards value-based care, which is holistic. The second TEP member acknowledged that the availability of behavioral health resources is challenging yet noted that depression is a comorbidity and a major reason for hospital admission.
- Two TEP members asked why diabetes is not included as a qualifying cohort condition and suggested including diabetes as a qualifying condition. TEP members noted that patients with diabetes are at higher risk of hospitalization and including diabetes could increase the sample size (leading to increased measure reliability).
 - CORE clarified that our definition of patients with MCCs captures about half of the Medicare FFS beneficiaries with diabetes. CORE further explained that the measure cohort did not include diabetes as a qualifying condition because diabetes is a common condition with highly variable severity, and CORE decided against expanding the cohort to include patients with more limited disease. The cohort, as currently defined, captures the higher-risk diabetes patients with more severe, longer-standing diabetes who have developed comorbidities such as heart or kidney disease that qualify them for inclusion in the cohort.
 - CORE also noted that there is an admission measure in the ACO program that focuses on patients with diabetes, and that it is a priority for CMS to measure the quality of ambulatory care provided to patients with MCCs.
- Two TEP members asked about patient origin (for example, skilled nursing facilities, rehabilitation facilities, and hospice) and if patients originating from these care settings would be included or excluded from the cohort.
 - One TEP member suggested that SNF patients be included in the cohort because the risk of admission could be lowered with higher-quality SNF care.
 - On the topic of patients originating from rehabilitation centers, one TEP member noted that patients leaving hospitals often return to very poor settings for care management. The TEP member also acknowledged that this could be resolved with appropriate risk adjustment.

TEP Feedback on Measure Reliability

Two TEP members commented on measure reliability.

- These TEP members suggested setting a minimum sample size for measure use in order to improve reliability.

TEP Feedback on Attribution Algorithm

Three TEP members asked to whom the measure would apply (for example, primary care or certain specialist clinicians, such as cardiologists or pulmonologists, among others).

- One of the three TEP members noted that attribution and the types of admissions to count in the outcome are intertwined, and both need to be considered together.
 - In response, CORE noted they limit the types of providers to whom the measure would apply, pending forthcoming analysis and TEP input.
 - CORE further clarified that they are working within the MIPS program's attribution algorithm, which assigns patients to providers based on the majority of providers' Evaluation & Management (E&M) charges using a two-step process. With this algorithm, a patient is first assigned to a primary care clinician or, if one is not identified, to a specialist (for example, cardiologist or pulmonologist) with the greatest amount of E&M charges (81 FR 77135).

TEP Feedback on Risk-Adjustment Model

Three TEP members inquired about the risk-adjustment model.

- The three TEP members expressed interest in learning more about the development of the risk-adjustment model, and one TEP member emphasized the need for a robust risk-adjustment model. Another TEP member inquired how the risk model will account for patients with cancer or metastatic disease.
 - CORE responded that they will develop and discuss the risk-adjustment model after they finalize the admission types to include in the measure outcome.

TEP Feedback on Program Fit

- Two TEP members asked how the MIPS MCC admission measure will fit into the scope of other measures in this program. Additionally, these TEP members wondered how the MIPS MCC admission measure will work within other CMS programs that measure the same patients or outcomes.

Summary

- TEP members generally supported the concept of adapting the ACO MCC admission measure to measure MIPS-eligible ambulatory care clinicians and clinician groups.
- TEP members generally supported the proposed admission exclusions, while providing suggested refinements; however, some members felt a better approach to getting a final list would be to affirmatively state the types of admissions to include, rather than start broad and exclude specific admission types. In addition, one noted that the

outcome scope was related to other measure decisions that are pending and would like to further consider the outcome once the measure is more fully defined.

- Some posed questions and made guiding comments regarding the measure cohort, risk-adjustment model, the attribution algorithm, and how this measure and MIPS will fit in with other CMS programs.
- CORE thanked the TEP for its input and explained that after finalizing the outcome, they will focus on attribution and risk adjustment, and that there will be additional opportunities to discuss these topics in the future.

Key Issues Discussed During Technical Expert Panel Meeting 2

Prior to the second TEP meeting, CORE provided the TEP members with materials for review. Materials prepared for the TEP included:

- Updates on the status of the development of the MIPS MCC admission measure and progress since TEP Meeting 1.
- A review of additional types of admissions proposed for exclusion from the measure outcome, including (1) admissions within a short buffer period following discharge from a hospital, skilled nursing facility (SNF), or acute rehabilitation facility; and (2) admissions from hospice.
- A review of the scope of providers to whom the measure would be applicable.

The summary below includes TEP input from TEP Meeting 2 and feedback from one TEP member who was unable to attend the meeting but provided input to CORE by email.

Executive Summary of Technical Expert Panel Meeting 2

Overview of Information Presented by CORE

CORE reviewed:

- The status of the development of the MIPS MCC admission measure.
- Additional types of admissions to consider excluding from the measure outcome: (1) admissions within a potential post-discharge buffer period from a hospital, SNF, or acute rehabilitation facility; and (2) admission after hospice entry.
- Proposed scope of providers the measure would assess.

Overview of TEP Feedback during and after TEP Meeting 2

The TEP provided input on:

- Whether to exclude admissions that occur within a buffer period after discharge from a hospital, SNF, or acute rehabilitation facility, and their preferred length for the buffer period, if any. Specifically:
 - 13 TEP members favored excluding admissions during a buffer period after discharge from a hospital, SNF, or acute rehabilitation center. One member did not favor a buffer period and one was unsure.
- The length of the post-discharge buffer period. Specifically:
 - 10 TEP members agreed that following hospitalization, a buffer period longer than 7 days was more reasonable than the shorter 3- or 7-day period because it would give ambulatory care providers time to have their care plan take effect.
 - TEP members differed on the appropriate buffer period following a SNF or rehabilitation stay; suggestions ranged from 0 to 30 days. TEP members shared many reasons why the buffer period should arguably be shorter or longer than that for hospital discharges or was not necessary at all.

- One TEP member suggested CORE perform analysis to understand the implications of different buffer periods on the measure outcome.
- Whether to exclude admissions from hospice. Specifically:
 - All but one of the seven commenting TEP members favored excluding admissions from hospice.
- Whether the measure should assess primary care clinicians and a subset of specialists who may manage the care for MCC patients.
 - Several TEP members recommended that the measure assess hematologists/oncologists as well.
 - One TEP member recommended that the measure assess primary care providers first and then use data to inform which specialists to include in the future.
 - A few TEP members commented that most specialties (excluding cardiology, pulmonology, nephrology, and hematology/oncology) were not active enough in the post-discharge care phase to have patient outcomes attributed to them.
 - One TEP member emphasized that given the current attribution algorithm, few specialty-only practices would be assessed even if we permitted it.

Detailed Summary of Technical Expert Panel Meeting 2

Welcoming Remarks

- CORE welcomed the TEP members to the second TEP meeting. Of the 20 TEP members, 14 attended the meeting, and one commented via email after the meeting. In addition, the CORE team reviewed the confidentiality agreement.

Meeting Overview

CORE Presentation to the TEP

- CORE provided an overview of the meeting's goals, noting that feedback from TEP Meeting 1 helped to inform topics for TEP Meeting 2.
- CORE recapped input from TEP Meeting 1 that was relevant to TEP Meeting 2, namely:
 - CORE heard relative consensus from the TEP around excluding three types of admissions from the outcome: 1) planned hospital admissions, 2) admissions related to complications of surgeries (including small bowel obstruction), and 3) admissions related to accidents or injuries.
 - Based on TEP feedback, CORE consolidated excluded admissions into three categories, confirmed that the measure includes admissions for intentional injuries/suicide attempts in the measure outcome. CORE is considering whether to exclude admissions for aspiration pneumonia.
 - CORE acknowledged that TEP members in TEP Meeting 1 had said some measure aspects are better considered iteratively, such as the types of admissions to

count and the attribution algorithm. CORE agreed and is open to revisiting the topics later in development.

Admissions within a Potential Post-Discharge Buffer Period

CORE Presentation to the TEP

- CORE explained they are considering excluding two additional types of admissions from the outcome:
 1. Admissions occurring within a short “buffer period” of time (for example, 3 or 7 days) after discharge from three inpatient facilities:
 - a. Hospitals,
 - b. SNFs, or
 - c. Acute rehabilitation facilities.
 2. Admissions from hospice.
- CORE articulated the rationale for excluding admissions within a buffer period after discharge from the three types of inpatient facilities (1a, 1b, 1c). Specifically, CORE described considerations for the buffer period (7 days as an outside bound) were:
 - Based on clinical experience, the more proximal an admission is to hospital discharge, the more likely the risk of admission is primarily driven by hospital events. Likewise, for 1b and 1c, CORE noted that, compared with ambulatory care clinicians, the care provided by SNF and acute rehabilitation providers, respectively, is more likely to influence patients’ post-discharge risk of hospital admission.
 - Informed by a targeted literature review of hospital admissions, which reinforced that the hospital quality signal is strongest within a few days after discharge.
 - CORE referenced an article¹ led by CORE’s Director, Dr. Harlan Krumholz. The study showed the risk of readmission for three conditions (heart failure, AMI, pneumonia) peaked 2-4 days after discharge and demonstrated it took more than a week for the risk to decline by at least 50%. This is evidence of a time of shared responsibility between inpatient and outpatient providers during post-discharge transitional care.
 - Consistent with CMS’s recommended Transitional Care Management (TCM) services, in which providers are encouraged to have a face-to-face visit within 7 days of discharge for Medicare beneficiaries of high medical decision complexity.
- CORE did not think that data analysis would change the rationale for the buffer period but welcomed any TEP recommendations for supportive data analysis.

¹ Krumholz HM, Hsieh A, Dreyer RP, Welsh J, Desai NR, Dharmarajan K. Trajectories of Risk for Specific Readmission Diagnoses after Hospitalization for Heart Failure, Acute Myocardial Infarction, or Pneumonia. *PLoS ONE*. 2016;11(10):e0160492.

- For reference, CORE shared the frequency of admission types excluded from the measure outcome and the outcome rate following the proposed exclusions, assuming a 7-day buffer period; in total, 29.9% of all admissions are not counted in the measure outcome after applying exclusions, and the outcome rate is 55.3 admissions per 100 person-years.

TEP Feedback on Excluding Admissions within a Potential Post-Discharge Buffer Period

15 TEP members commented on excluding admissions with a potential post-discharge buffer period. Of these:

- 13 TEP members agreed with excluding admissions during a buffer period after hospital discharge, from SNF, and/or from rehabilitation; and stated that ambulatory care providers should not be considered accountable for their patients' care during a certain time period after hospital discharge because providers need adequate time to see their patients and manage their care following discharge.
- One TEP member did not agree with excluding these admissions.
- One TEP member was unsure about excluding admissions during a buffer period.

Common themes from the 15 TEP members included:

- Most of the group favored a buffer period longer than the 3- or 7-day one that CORE originally proposed.
- Health systems in which providers practice vary in level of maturity and/or integration, which can limit the information that they provide at discharge.
- Excluding admissions during a buffer period would promote shared accountability for patient health outcomes.
- Varying the length of the buffer period by discharge diagnosis or reason for admission would incentivize follow-up when critical.
 - CORE noted this is a complex approach, which CORE will consider.
- Accountability should be phased in over time. Starting with a longer buffer period and then shortening it would be similar to the way CMS is implementing the provisions of the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA).

All 15 TEP members commented on the length of the post-discharge buffer period following hospitalizations. Of these:

- Two TEP members favored a shorter buffer period of 3 days.
 - One of these two TEP members was unsure about excluding admissions during a buffer period and stated that if there were to be a buffer period, it be variable in length depending on discharge diagnosis to incentivize quick follow-up when critical (for example, 3-4 days for hip fracture because early care is essential but longer for others), even if the patient is discharged from the hospital to a SNF.
- 10 TEP members favored a longer buffer period; suggestions ranged from 7 to 14 days at minimum.

- All 10 TEP members agreed that following hospitalization, a buffer period longer than 7 days was reasonable because it would allow ambulatory care providers the time for their care plan to take effect. Of the 10 TEP members (not mutually exclusive):
 - Seven TEP members preferred a buffer period of or close to 14 days.
 - Four TEP members agreed that health facilities often lack sophistication or integration of communication mechanisms. Ambulatory care providers do not always receive notification when their patients are discharged from the hospital, and, therefore, these providers should not be held responsible for an admission that occurs within a buffer period after hospitalization. TEP members noted that this lack of transfer of information may restrict the provider's ability to see and manage the patient within 3 or 7 days.
 - One TEP member recognized hospitals are incentivized to rapidly discharge payments to save money but did not think it would be fair to penalize ambulatory care providers because of this.
- Three TEP members favored a variable buffer period, a phased-in buffer period, or did not favor any specific length. Of these:
 - One TEP member favored a variable buffer period, contingent upon the patient's principal discharge diagnosis and its severity, which would incentivize sooner patient follow-up when critical.
 - One TEP member indicated that phasing in the buffer period would align with the implementation of MACRA provisions. The TEP member suggested first using a longer buffer period, such as 30 days, and eventually shortening it to 14 days.
 - One TEP member did not favor any specific length of time but suggested CORE perform analysis to understand the implications of different buffer periods on the measure outcome.

All 15 TEP members commented on the length of the post-discharge buffer following a SNF or rehabilitation stay. Of these:

- One TEP member favored the proposed buffer period following a SNF or acute rehabilitation stay (3 or 7 days) and stated that the risk of hospital admission after discharge from SNF is high and a reflection of SNF care (not ambulatory care).
- Seven TEP members favored a longer buffer period (between 7 and 14 days) following a SNF or rehabilitation stay. Of these:
 - Two TEP members stated that ambulatory care providers have limited or no control over their patients' care plans while in a SNF or rehabilitation facility.
 - Two TEP members noted that untimely discharge information prevents ambulatory care providers from knowing when their patients have been discharged from a SNF or rehabilitation facility.

- One TEP member stated that ambulatory care providers need the opportunity to refine their patients' treatment plans so that any subsequent admissions more likely reflect the quality of care provided by them.
- Five TEP members favored a variable buffer period, a phased-in buffer period, or did not favor any specific length following a SNF or rehabilitation stay. Of these:
 - Two TEP members favored a variable buffer period contingent upon the patient's principal discharge diagnosis and its severity, which would incentivize sooner patient follow-up when critical.
 - One TEP member recommended phasing in the buffer period to align with the implementation of MACRA provisions. The TEP member suggested first using a longer buffer period, such as 30 days, and eventually shortening it to 14 days.
 - Two TEP members were ambivalent regarding the length of a buffer period for SNF and rehabilitation in the measure outcome.
- Two TEP members felt there should not be a buffer period following discharges from SNF or acute rehabilitation.

Three TEP members asked follow-up questions and provided additional feedback on the potential post-discharge buffer period.

- One TEP member asked if the MIPS MCC admission measure would be voluntary or mandatory for providers to report. The TEP member's understanding was that providers could choose which measures to report for MIPS and if a provider performed poorly on the measure, a provider may not choose it for reporting.
 - CORE responded that they will follow up with CMS regarding whether the measure would be mandatory or voluntary under the MIPS.
- A second TEP member noted that it would be helpful to understand how quickly discharged patients should be seen by an ambulatory care provider who can adequately manage their care.
- A third TEP member suggested that if effective transitional care is a goal, CMS should require that all facilities provide discharged patients with clear follow-up information, including instructions to make an appointment with their ambulatory care provider if these providers are to be held accountable for patients' care and risk of subsequent hospitalization.

Admissions from Hospice

CORE Presentation to the TEP

- CORE introduced our consideration to exclude admissions that occur when patients are enrolled in Medicare's hospice benefit because the goal of hospice care is to prevent the need for hospital care.
- CORE noted that some admission and readmission reduction efforts have included hospice care as a component and that ambulatory care providers have relatively little

influence on end-of-life care once a patient is enrolled in hospice and managed by a hospice team.

- CORE clarified that the materials presented to the TEP included rationale for both including admissions from hospice (better hospice care may lower admission rates) and excluding admissions from hospice (primary care providers may not have a real role in end-of-life care).

TEP Feedback on Excluding Admissions from Hospice

Seven TEP members commented on excluding admissions from hospice. Of the seven:

- One TEP member was unsure about excluding admissions from hospice but noted that if the measure were to include them, it would need to be clarified how they are identified. The TEP member inquired how CORE identified admissions to inpatient hospice from an outpatient setting, such as when caretakers want to take or keep their family member home but then bring them back to the hospital. Additionally, the TEP member noted that some individuals end up in the hospital before being transitioned to inpatient hospice for reasons such as (lack of) hospice availability; a second TEP member agreed that this could be especially true in rural settings. Lastly, the TEP member stated that hospice is not always the same as no care, noting, for example, patients undergoing dialysis that are enrolled in hospice sometimes get admitted for preventable reasons.
 - CORE clarified that admissions to inpatient hospice are excluded from the outcome for the MIPS MCC admission measure; only admissions to acute care hospitals are counted.
- Six TEP members favored excluding admissions from hospice. Of these:
 - One TEP member stated that patients are often in and out of the hospital during end-of-life care due to external factors that the ambulatory care provider cannot influence, including changing thoughts about the aggressiveness of care.
 - Two TEP members noted that they take care of patients in hospice until the end but agreed with excluding admissions from hospice.
 - Two TEP members added that no matter how well a family is prepared for end-of-life care with counseling and advance preparation, family members can get distressed in the last hours or days and insist a relative go to the hospital.
 - One TEP member stated that the hospice benefit governs the appropriateness of admissions.

Proposed Scope of Providers

CORE Presentation to the TEP

- CORE explained that CMS seeks to apply the MIPS MCC admission measure to those ambulatory care clinicians for whom the outcome (unplanned admissions) reflects care quality. The clinicians would include those providing overall coordination of care for MCC patients and those managing the chronic diseases that put MCC patients at risk of admission.

- CORE recommended including in the measure primary care clinicians and a subset of specialists (cardiologists, pulmonologists, nephrologists, neurologists, and endocrinologists); all other specialists would not be assessed by this measure as they are not expected to manage MCC patients' overall care.
- CORE reviewed the attribution algorithm, which assigns patients to providers based on the preponderance of providers' Evaluation & Management (E&M) charges using a two-step process: 1) a patient is assigned to a primary care provider, or 2) if no primary care provider submits E&M claims for the patient, then patient is assigned to the specialist with the greatest amount of E&M charges. CORE noted that most patients are assigned to a primary care provider or to a group of providers that includes at least one primary care provider.
- CORE explained under the MIPS, clinicians and clinician groups will receive payment adjustments (positive, negative, or neutral) based on performance in four categories, one of which is quality.

TEP Feedback on Proposed Scope of Providers the Measure Would Assess

Three TEP members asked questions about the attribution algorithm and measure reporting.

- One TEP member asked whether clinicians are required to report one outcome measure by a certain date under the MIPS.
 - Another TEP member clarified that MIPS eligible providers must report on six measures, and one must be an outcome measure for the first year of the MIPS (and proposed for the second year of the MIPS).
 - CMS clarified that CORE is developing at least one outcome measure. Before the measure is implemented for use under the MIPS, it will go through the federal rulemaking process during which stakeholders can comment on the measure. If the measure is finalized for the MIPS, it will be one of the outcome measures available for reporting.
- One TEP member asked how dialysis G-codes would be used in the attribution algorithm. In their experience, their medical practice bills once a month based on however many times they see a patient that month (could be two or three times).
 - CORE replied that they are unsure if some of the E&M codes used for attribution were G-codes and that CORE will email the TEP the full code set.
- One TEP member asked if reporting occurs at the individual or group level.
 - Another TEP member noted their expertise in MIPS and replied that it depends on how clinicians report under the MIPS. Under the MIPS, a group is defined as a single Taxpayer Identification Number (TIN), and clinicians who participate as part of the group are assessed at the group (TIN) level. Each clinician in a group would receive the same MIPS performance score and payment adjustment. Individual clinicians will get their own scores and payment adjustments.

- CORE clarified that under the MIPS, clinicians and clinician groups will receive payment adjustments based on performance in four categories, of which one is quality.

Eight TEP members provided input on the proposed scope of providers the measure would assess: primary care clinicians and a subset of specialists (cardiologists, pulmonologists, nephrologists, neurologists, and endocrinologists).

- Five TEP members recommended adding hematologists/oncologists to the subset of specialists the measure would assess because these specialists, in addition to those proposed by CORE, often play a substantial role in managing patients' care, for example, iron infusion therapy for MCC patients who are anemic.
 - One of these five TEP members noted that other specialties are not active enough in the post-discharge phase or during the calendar year to have the patients attributed to them, and that the included specialties take care of their patients in a way that endocrinologists, surgeons, and neurologists do not.
- One TEP member favored broadening the specialists assessed by the measure as there is a need for measures that are reliable and applicable to broader types of providers in CMS's QPP. The TEP member noted there are currently a lack of available measures for specialists, such as nephrologists, as compared to primary care providers.
- One TEP member was concerned about a possible scenario in which a patient gets hospitalized and then is referred to a specialist for post-discharge follow-up. It would not be fair to hold the specialist accountable because the specialist may not have previously seen the patient.
- One TEP member suggested that CORE should consider risk adjusting for a clinician's length of time in practice with the rationale that more experienced clinicians often see sicker patients, and therefore their patients may be at higher risk for admission. The TEP member also asked whether CMS would provide an identifier for patients in the MIPS MCC admission measure so that clinicians know that the patient will be counted towards their score for the MIPS MCC admission measure.
 - CORE clarified that CMS would use retrospective beneficiary assignment and calculate the TIN-level measure score after the year is over, and will check whether CMS plans to signal to providers how attribution may look so that providers get a sense of who their assigned MCC patients could be.
- One TEP member recommended starting with primary care providers and then expanding to specialists implicated by the hospital readmissions penalty conditions – cardiologists, pulmonologists, and vascular and orthopedic surgeons.
- One TEP member noted that given the attribution algorithm, few specialty-only practices would be assigned responsibility. The TEP member also noted that if the question is whether beneficiaries attributed in the second step should be counted in a multi-specialty group's denominator, revisions to the assignment would be required to exclude the beneficiaries assigned to the specific specialties and that the beneficiaries assigned in step two are few and have lower overall spending.

- One TEP member asked if CORE could consider using new versus established “visit type” based on the billing code.

Summary

- TEP members generally agreed with excluding admissions within a post-discharge buffer period, although the majority of the TEP’s recommended buffer period length was longer than CORE’s original proposal.
- Most commenting TEP members favored excluding admissions from hospice, citing there are many external factors affecting a provider’s ability to manage their patients’ end-of-life care.
- TEP members generally supported including primary care providers and specialists in the scope of providers the measure will assess but had differing views on which specialists the measure should assess. Many TEP members agreed that the MIPS MCC admission measure assess the care provided by hematologists/oncologists.
- CORE thanked the TEP for its input and recapped next steps, including finalizing the measure outcome and the included provider specialties based on TEP feedback, developing the risk-adjustment model, performing measure testing, and hosting a call for public comment.

Key Issues Discussed During Technical Expert Panel Meeting 3

Prior to the third TEP meeting, CORE provided the TEP members with materials for review. Materials prepared for the TEP included:

- An overview of progress made since TEP Meeting 2.
- A description of the criteria put forth by CORE for selecting among attribution approaches. This included three principles:
 1. Attribution models should be fair and accurate.
 2. Attribution models should align with the stated goals and purpose of the measure.
 3. Attribution models should be transparent.
- A description and evaluation of three attribution options developed by CORE for the individual clinician level. These included an adaptation of CMS's two-step attribution algorithm for MIPS measures (charge-based) and two visit-based algorithms, which differed in the minimum number of visits (3+ versus 2+) needed to drive patient attribution.
- An introduction to two approaches for attributing patients at the TIN-level.

The summary below includes TEP input from TEP Meeting 3.

Executive Summary of Technical Expert Panel Meeting 3

Overview of Information Presented by CORE

- CORE reviewed:
 - The status of the development of the multiple chronic conditions admission measure for the Merit-based Incentive Payment System (hereinafter, MIPS MCC admission measure).
 - Criteria for selecting among attribution approaches.
 - Three approaches for attributing patients to individual clinicians, comparing:
 - The attribution algorithm.
 - The resulting patient assignments.
 - How the three attribution options align with the selection criteria.

Overview of TEP Feedback

- The TEP:
 - Provided input on the three approaches ([Option A](#), [Option B](#), and [Option C](#)) for attributing patients to individual clinicians, all of which preferentially assign patients to a primary care provider (PCP).
 - Four TEP members supported attributing patients based a 1+ visit minimum. Of these four, three TEP members supported using the two-

step charge-based attribution approach that the Centers for Medicare & Medicaid Services (CMS) currently uses for claims-based outcome measures under the MIPS (Option A), which first assigns the patient to the PCP with the plurality of Evaluation and Management (E&M) charges. One TEP member supported a 1+ visit minimum but noted that counting visits makes more sense than counting charges.

- Three TEP members supported attributing patients based on number of visits using a 3+ visit minimum to assign the patient, first to the PCP and alternatively to a “dominant” specialist (Option B).
- Three TEP members supported using a variation on Option B, first assigning patients to the PCP with the plurality of visits and 2+ visits, and then looking alternatively for a “dominant” specialist (Option C).
- One TEP member supported either a 2+ or a 3+ visit minimum depending on the location of the visits (for example, 2+ visit minimum if office-based visits or 3+ visit minimum if house calls).
- Two TEP members did not have a preference on a minimum number of visits to assign responsibility for coordinating patient care.
- Two TEP members noted that minimum-visit thresholds can lead to unintended consequences.
- Several TEP members urged CORE to further investigate how codes for Annual Wellness Visits (AWVs), Chronic Care Management (CCM), and Transitional Care Management (TCM) could be used to refine and/or validate the algorithms. TEP members felt that Annual Wellness Visits likely indicate the clinician responsible for coordinating patient care.
- One TEP member suggested using Medicare Part D data to look at prescription claims to identify the responsible clinician (that is, the one prescribing medication).
- Six TEP members said it was important to minimize the number of unassigned patients; of these, one TEP member stated that 16% unassigned patients is unacceptable. Another TEP member emphasized, however, that optimizing the algorithm’s accuracy was more important than minimizing the percentage unassigned.

Detailed Summary of Technical Expert Panel Meeting 3

Welcoming Remarks

- CORE welcomed participants to TEP Meeting 3 for the development of outpatient outcomes measures for the MIPS.
 - CORE reminded participants of the confidentiality agreement. TEP members can currently disclose that they are participating on the TEP but cannot discuss details of TEP Meeting 3 until they are made public.

- CORE conducted roll-call of meeting participants; 14 of 20 TEP members were in attendance. CORE also asked TEP members to state any disclosures not stated in prior meetings.
 - One TEP member serve as a consultant for the evaluation of CMS’s Accountable Care Organization Investment Model.
 - Another TEP member is a CMS Clinical Champion.
- CORE reviewed the agenda, including providing an overview of the measure status, reviewing criteria for selecting between attribution approaches, reviewing and acquiring feedback on 3 attribution options for individual clinician-level attribution, describing attribution options for TIN-level attribution, and outlining next steps.

Meeting Overview

CORE Presentation to the TEP

- CORE provided an overview of the meeting’s goals. CORE then acknowledged that CORE received valuable feedback during TEP Meeting 2, in September 2017, which helped CORE refine the outcome and the types of specialist clinicians to whom the measure would apply.
- CORE reviewed the target patient population, or cohort, for the MIPS MCC admission measure.
 - The cohort includes Medicare Fee-for-Service (FFS) patients aged 65+ years with two or more of the following eight conditions: 1) acute myocardial infarction, 2) Alzheimer’s disease and related disorders or senile dementia, 3) atrial fibrillation, 4) chronic kidney disease, 5) chronic obstructive pulmonary disease and asthma, 6) depression, 7) heart failure, or 8) stroke and transient ischemic attack.
- CORE provided a recap of input of TEP Meeting 2 that was relevant to TEP Meeting 3.
 - CORE heard relative consensus from the TEP around refining the outcome to exclude admissions originating during or occurring within a short timeframe after discharge from a hospital, skilled nursing facility (SNF), or acute rehabilitation facility. Based on TEP input, CORE excluded:
 1. Admissions that occur directly from a SNF or acute rehabilitation facility.
 2. Admissions within 10 days of hospital, SNF, or acute rehabilitation discharge.
 3. Admissions that occur while patients are enrolled in Medicare’s hospice benefit.
 - CORE noted that based on TEP feedback, CORE narrowed the specialists covered by the MIPS MCC admission measure to clinicians who plausibly provide overall coordination of care and manage the chronic diseases that put patients at risk of admission. These “relevant” specialists are: cardiologists, pulmonologists, nephrologists, neurologists, endocrinologists, hematologists/oncologists.

- CORE then reviewed the status of measure development.

Criteria for Selecting Among Attribution Options

CORE Presentation to the TEP

- CORE described the criteria that they developed and is using to select among attribution approaches. The criteria are built on three key principles for attribution models set forth by the National Quality Forum.
 1. Principle: The attribution models should be fair and accurate.
 - Corresponding criteria are that the model attributes patients to providers with reasonable accuracy (given there is no gold standard), assigns the vast majority of patients, and does not systematically disadvantage patient subgroups.
 2. Principle: The attribution models should align with the stated goals and purposes of the measure and the program.
 - Corresponding criteria are that the model attributes patients to providers able to influence the measure outcome, incentivizes high quality, coordinated ambulatory care for MCC patients, and minimizes unintended consequences.
 3. Principle: The attribution models should be transparent.
 - Corresponding criteria are that the model is straightforward and understandable by patients and providers, and reflects input from stakeholders.
- CORE clarified that they would revisit and apply the criteria to evaluate the attribution approaches later in the meeting.
- CORE asked the TEP members if they had any questions.
 - One TEP member commented that it is important to align with other attribution methods for payment purposes, especially for measures that are tied to clinician payments. The TEP member acknowledged that each attribution method will have pitfalls, but emphasized that it is important to align attribution for all measures tied to clinician payment adjustments.
 - CORE thanked the TEP member for the comment and noted CORE will consider this while reviewing the different attribution models.
 - Another TEP member asked if Accountable Care Organizations (ACOs) are types of providers to whom this measure would apply.
 - CORE clarified that they are developing this measure to evaluate clinicians participating in the MIPS, not advanced Alternative Payment Models such as ACOs.

Attribution Options at the Individual-Clinician Level

CORE Presentation to the TEP

- CORE provided an overview that our goal is to specify the measure at both the individual-clinician level and the TIN level. This is consistent with CMS’s interests.
- CORE introduced the three individual-clinician attribution models that CORE developed and evaluated (Option A, Option B, and Option C).
 - CORE described that each attribution model:
 - Prioritizes assignment to a PCP over a specialist, given that PCPs play a central role in coordinating patient services including specialty care.
 - Only assigns to a specialist if there is a “dominant” specialist.
 - Varies in terms of using plurality of charges or plurality of visits to assign patients to clinicians.
 - Varies the minimum number of visits needed to identify a “dominant” clinician for attribution.
 - CORE explained that the three approaches vary in terms of whether they rely on plurality of charges (Option A) or the plurality of visits to assign patients to clinicians, and two of the approaches (Option B and Option C) vary the minimum number of visits need to identify a “dominant” specialist for patient attribution.
 - CORE noted upon application of each attribution model, each patient would be attributed to a PCP, a “relevant” specialist, or would remain unassigned.
 - A TEP member asked if attribution is retrospective or prospective.
 - CORE clarified attribution was retrospective using 2015 claims data.
 - CORE described the three attribution approaches (Options A, B and C):
 1. Option A adapts CMS’s two-step algorithm used for MIPS. It preferentially assigns a patient to the PCP with the plurality of E&M charges. If no PCP charges, then patient is assigned to the specialist with the plurality of charges. Option A reflects the primary role of a PCP in managing/coordinating care for MCC patients and aligns responsibility for cost and quality.
 2. Option B uses visits to identify the responsible provider and has a minimum of 3+ visits to assign a patient to a PCP. If there is no PCP with 3+ visits, the algorithm looks for a “dominant” specialist who met the 3+ visit minimum and had 2+ more visits than any other clinician. The focus on visits over charges emphasizes the interactions with patients when assigning responsibility to a particular eligible clinician.
 3. Option C uses visits to identify the responsible provider and has a minimum of 2+ visits to assign a patient to a PCP. If there is no PCP with 2+ visits, the algorithm looks for a “dominant” specialist who met the 2+ visit minimum and had 2+ more visits than any other clinician. Similar to Option B, the focus on visits over charges emphasizes the interactions

with patients when assigning responsibility to a particular eligible clinician.

TEP Feedback on Attribution Options at the Individual-Clinician Level

- Two TEP members asked clarifying questions.
 - One member asked how CORE identifies a PCP and if Medicare claims data are used to do so. As an example, the TEP member noted that geriatricians often see patients who are also seen by clinicians who make house calls.
 - CORE responded that they are using the list of PCPs CMS has defined for the MIPS program. PCPs include internal medicine, family practice, general practice, and geriatric medicine physicians; nurse practitioners; certified clinical nurse specialists; and physician assistants.
 - CORE added that CMS is working on defining patient relationship categories for use under MIPS, which CORE could in the future use for validation.
 - Another TEP member noted that it is common for nurse practitioners and physician assistants, who are considered under the PCP category, to work in specialist offices. The TEP member suggested that CORE should not assume all physician assistants and nurse practitioners are PCPs.
 - CORE thanked the TEP member and acknowledged that one of CORE's team members who is a practicing cardiologist also flagged this and that CORE will further explore the point.
 - CORE will investigate whether non-physician practitioners (for example, physician assistants and nurse practitioners) assigned patients are likely providing specialist or primary care.
- CORE asked the TEP if they had any clarifying questions.
 - One TEP member asked a scenario-specific question: if a patient sees a PCP once for any reason (regardless of visit length) and no other clinician during the measurement period, is the patient assigned to that PCP?
 - CORE confirmed that the patient would be assigned to that PCP who saw the patient once as long as the visit was for a designated E&M code. This is true not only for the charge-based two-step approach (Option A), but also for Options B and C, where assignment would default to that PCP since no other clinicians were seen.
 - The same TEP member asked if CORE considered level of visit for patients who had only one or two visits with a PCP.
 - CORE clarified that they had not yet examined visit types.
 - CORE will consider types (level) of visits in attribution.
 - Another TEP member suggested CORE consider building an attribution model that takes into account good care management and population health. The TEP

member flagged that clinicians in the same group may see or care for each other's patients, but not be the ones providing primary care. Additionally, the TEP member noted that one could postulate that clinicians working within or outside of a group arrangement should be managing patients similarly.

- A second TEP member agreed. The TEP member suggested that CORE could build into the attribution billing for AWVs to identify the clinician responsible for coordinating care, and the first TEP member agreed.
- CORE thanked both TEP members, and noted that AWV codes are part of the E&M service codes used for attribution. At this stage, CORE has not yet studied type or level of visit.
- Another TEP member asked if CORE played out scenarios in the application of the attribution models. For example, the TEP member asked: if a patient who had one visit with a PCP and no visits with a specialist, how would the patient be assigned in each model? If a patient had one visit with a PCP and one with a specialist, to whom would the patient be assigned? If a patient had one visit with a specialist and no visits with a PCP, to whom would the patient be assigned?
 - CORE confirmed and added that they would walk through some results in the meeting. CORE also noted that the TEP Packet contains more details on the assignment algorithms (starting on page 12 of TEP Packet).
 - CORE clarified:
 - A patient with one visit with a PCP and none with a specialist would be assigned to the PCP in all three approaches.
 - A patient with one visit with a PCP and one with a specialist would be assigned differently depending on the attribution model.
 - A patient with one visit with a specialist and none with a PCP would be assigned differently depending on the attribution model.
- A TEP member asked if it is possible to add the AWV codes and/or examine the level of care provided at visits to identify the responsible clinician.
 - CORE thanked the TEP member, and added the team is keeping a list of suggestions from the TEP on attribution. CORE further added that this is exactly the type of feedback the team wants to receive. CORE with the TEP has flexibility to refine the attribution algorithm, with the caveat that there's a tradeoff between complexity and transparency.
 - CORE will explore how and whether to incorporate AWV, CCM, and TCM codes into the attribution models.

Evaluation of the Attribution Options

CORE Presentation to the TEP

- CORE summarized their evaluation of the attribution models:
 - Proportion of patients assigned to PCPs, specialists, and those unassigned.
 - Distribution of patients and admissions by provider type.
 - Admissions were not disproportionately concentrated in any provider type. Across groups, the distribution of admissions generally tracked with the distribution of patients.
 - Admission rates by provide type.
- Further, CORE provided an overview of their evaluation of the attribution models against the selection criteria.
 - Option A results in the fewest patients unassigned (3.3%). It precludes the possibility of looking for a specialist who may be more dominant in providing patient care because patients automatically get assigned to a PCP if they have one visit with a PCP.
 - Option B results in the most unassigned patients (16.7%). Because it sets a 3-visit minimum threshold, however, it increases the likelihood of correctly identifying the clinician most responsible for patients' care.
 - Option C results in an intermediate proportion of unassigned patients (8.7%).

TEP Feedback on Evaluation of the Attribution Models

- Some TEP members asked clarifying questions about the evaluation of attribution options against the selection criteria.
 - One TEP member asked CORE to define the phrase "reasonable degree of accuracy," and asked if the results are based on claims data.
 - CORE responded that there is no gold standard. CORE referred to the National Quality Forum's work to define principles for attribution, and that committee members have diverse views on the most authoritative source (e.g., patients or providers) and the strengths and weaknesses of alternative data sources. CORE will look at overlap among the approaches, which in a preliminary look was relatively high, and will continue to look at other ways to validate the results.
 - CORE will examine the overlap among the 3 individual clinician-level attribution methods (Option A, Option B, and Option C).
 - The same TEP member asked if a disease-specific or chronic condition approach would show different results. As an example, if a clinician caring for a patient with MCCs is admitted for heart failure, the TEP member noted it would make sense to attribute the patient to the cardiologist overseeing the patient's cardiac care.

- CORE acknowledged the TEP member’s point, and CORE will consider whether and how to account for the reason for admission in attribution.
 - CORE will explore the use of admission or chronic disease diagnosis codes to cross-check specialist assignment.
 - Another TEP member asked if there was ever consideration about joint accountability and if there was a way to factor that into attribution.
 - CORE noted two reasons for not considering a joint-accountability model: 1) identifying a single clinician as accountable should incentivize better care coordination among patients with MCCs and 2) it is technically challenging to construct a joint-accountability measure.
 - Another TEP member asked if the number of visits is per calendar year or post-discharge time.
 - CORE noted the number of visits is per calendar year.
- CORE introduced the second set of questions for the TEP.
 1. For PCPs, is there a minimum number of visits a patient should have during the measurement year before we consider assigning the patient to a PCP?
 2. Is there a minimum number/pattern of visits to a specialist that would identify a “dominant” specialist who could override assignment to a PCP or other specialists?
 3. How important is it to minimize the number of unassigned patients? What is an acceptable % of unassigned patients?
 4. Is there anything else we should consider when trying to identify the clinician most responsible for MCC patients’ care and the measure outcome of unplanned hospital admissions?

TEP Feedback

CORE called on TEP members to provide input using a round-robin approach. Of the 12 TEP members who remained on the call (detailed comments below):

- Twelve TEP members responded to Question 1.
 - Four TEP members supported attributing patients based a 1+ visit minimum. Of these:
 - Three TEP members liked Option A, which first assigns the patient to the PCP with the plurality of E&M charges. Two of the three TEP members noted that simplicity is important and that Option A is the simplest though it may sacrifice precision.
 - One TEP member supported a 1+ visit minimum but noted that counting visits makes much more sense than counting charges.
 - Three TEP members supported a 2+ visit.
 - Two of these TEP members did not support a charge-based approach. One TEP member supported a 2+ visit minimum because patients with

- chronic diseases should have more than 1 visit. A second TEP member supported a 2+ visit minimum if one of the codes was for a physical exam, AWW, or TCM; otherwise, the TEP member preferred a 3+ visit minimum.
- Two TEP members favored a 3+ visit minimum.
 - One of these TEP members favored a 3+ visit minimum and incorporating the AWW code.
 - One of these TEP members noted that PCPs are overly measured and favored Option B. They also noted it is important for the assigned clinician to have performed an AWW, CCM, or TCM service. They further emphasized that is important to measure clinicians on areas they can influence.
 - One TEP member supported either a 2+ or a 3+ visit minimum depending on the location of the visits.
 - They favored a 3+ visit minimum for clinicians performing house calls versus 2+ for office-based clinicians.
 - Two TEP members did not have a preference on a minimum number of visits to assign responsibility for coordinating patient care.
 - Nine TEP members responded to Question 2.
 - Two TEP members supported assigning patients to a specialist if the specialist is the one who would provide care for one of the patient's qualifying chronic conditions.
 - One TEP member suggested considering admission diagnoses when assigning to a specialist.
 - Two TEP members noted that minimum-visit thresholds can lead to unintended consequences.
 - One of the TEP members noted that a minimum threshold would decrease the incentive for a PCP to maintain accountability and discourage team-based care. In addition, the TEP member noted that it would not be useful to try to identify "dominant" specialists because the attribution percentages are so low.
 - One of these TEP members acknowledged it is hard to pin down a minimum threshold for PCP assignment.
 - One TEP member noted that accountability is better suited at the practice or system level.
 - One TEP member noted that it is important to also include the best performers.
 - Seven TEP members urged CORE to further investigate types of visits (AWW, CCM, or TCM). Some suggested using them in the attribution model or for validation.
 - For example, some TEP members felt that a clinician providing an AWW is the clinician responsible for coordinating patient care.

- Three TEP members suggested exploring the use of AWW, CCM, or TCM codes. Of these, one noted looking for specialists' use of these codes could help with cross-checking specialist assignment.
- Seven TEP members responded to Question 3.
 - One of these six TEP members noted the need to prioritize establishing credibility by getting accurate assignment rather than prioritizing hitting a target proportion of assigned patients.
 - Six of these seven TEP members thought the number of unassigned patients needs to be low. Of these:
 - Only one TEP member identified a target threshold (10%) of unassigned patients.
 - One TEP member noted that it is important to minimize the number of unassigned patients, and the closer to zero, the better.
 - One TEP member stated that 16% unassigned patients is unacceptable.
 - One TEP member suggested using prescription drug data for patients enrolled in Medicare Part D to try to determine who is responsible for the patient.
 - One TEP member thought Option A – the option with the fewest unassigned patients – was clearest though acknowledged it may sacrifice precision.
- Eight TEP members responded to Question 4.
 - One TEP member asked for clarification about the exclusion criteria for patients included for attribution.
 - CORE clarified that included patients are MCC patients with at least one visit to a PCP or specialist for an E&M service.
 - One TEP member noted when in the year the visits for assignment are counted matters.
 - Two TEP members emphasized the goal of preserving simplicity.
 - One TEP member asked whether a gold standard would be to incorporate patient input in attribution. They noted that many health systems have worked hard to designate a PCP.
 - One TEP member recommended considering complex disease management attribution rather than focus on patients with MCCs.
 - One TEP member suggested considering an attribution model that combined both type and number of visits would be ideal in optimizing accuracy.
 - Two TEP members emphasized that is important to measure clinicians on areas they can influence.
 - One of these two TEP members expressed concern that PCPs are being referred sicker patients due to pressures on specialists trying to lower their readmission rates. However, the TEP member thought that 50% of

admissions for heart failure are unnecessary. The TEP member did not prefer one attribution model over the other but hoped that the chosen attribution approach would be fair to all clinicians, and take into consideration the complexity of the patients that clinicians see and good management as well as those patients who decompensate and are admitted for preventable reasons.

Wrap-up

- CORE briefly summarized the TEP members' input:
 - Question 1:
 - The TEP members did not voice consensus on which attribution option was best.
 - Some TEP members suggested that CORE can explore visit types to improve or to validate the attribution models.
 - Question 2:
 - A few TEP members voiced concerns about potential unintended consequences.
 - Some TEP members suggested that CORE explore using admission reason or diagnosis codes to validate the attribution models.
 - Question 3:
 - Several TEP members favored reducing the number of unassigned patients as much possible. Only one TEP member shared a target number (10%), and another TEP member emphasized the need for accuracy and credibility over hitting a target proportion of assigned versus unassigned.
- CORE acknowledged that in the meeting, the group did not have the opportunity to discuss when individual clinician-level assignment would be appropriate or TIN-level assignment results. CORE encouraged the TEP to provide further input over email.
- One TEP member asked how and why CORE defined MCC patients.
 - CORE will share paper on how the MCC cohort was defined.
- CORE thanked the TEP members for their valuable feedback, reviewed next steps, and invited TEP members to email her with any additional input.

Key Issues Discussed During Technical Expert Panel Meeting 4

Prior to the fourth TEP meeting, CORE provided the TEP members with materials for review. Materials prepared for the TEP included:

- An overview of progress made since TEP Meeting 3:
 - CORE continued development of the MIPS MCC admission measure discussed in TEP Meetings 1-3.
 - CORE launched development of two additional measures for MIPS:
 - A measure focused on care provided for patients with diabetes (introduced during TEP Meeting 4).
 - A measure focused on care provided for patients with heart failure (to be discussed in upcoming TEP meeting[s]).
- MIPS short-term diabetes complications measure: Information about potential technical challenges for development, and approach to stakeholder input.
- MIPS MCC admission measure: Updates on the development of the MIPS MCC admission measure's cohort, outcome, and attribution; conceptual framework for risk adjustment and consideration of social risk factors.

The summary below includes TEP input from TEP Meeting 4.

Executive Summary of Technical Expert Panel Meeting 4

Overview of Information Presented by CORE

- CORE:
 - Noted that they are developing three outpatient outcome measures for MIPS: one that focuses on patients with multiple chronic conditions, a second that focuses on patients with diabetes, and a third that focuses on patients with heart failure.
 - Reviewed the status of the two measures on the agenda for the TEP meeting:
 1. Multiple chronic conditions admission measure (hereinafter, MIPS MCC admission measure).
 2. Short-term diabetes complications measure (hereinafter, MIPS short-term diabetes complications measure)
 - Noted that CORE would present the heart failure measure for feedback in a future TEP meeting.
 - For the MIPS short-term diabetes complications measure: Presented the measure background and obtained TEP input on conceptual issues in measure design.
 - For the MIPS MCC admission measure: reviewed updates made to the measure since TEP Meeting 3 and obtained TEP input on the approach to risk adjustment.

Overview of TEP Feedback during and after TEP Meeting 4

- For the MIPS short-term diabetes complications measure:
 - The TEP provided input on the overall measure concept for the MIPS short-term diabetes complications measure.
 - The TEP provided recommendations for the MIPS short-term diabetes complications measure cohort (specifically, whether to have a broad cohort or a cohort restricted to patients on high-risk medications [insulin and sulfonylureas] for the outcome of hypoglycemia).
 - Two TEP members supported a broad cohort, citing concern that a restricted cohort would not capture complications from new and emerging diabetes medications.
 - Two TEP members supported a restricted cohort. One TEP member supported the inclusion of a broader group of diabetes medications, rather than just insulin and sulfonylureas. One TEP member expressed concern that this measure might create perverse incentives for clinicians to alter their prescribing patterns for insulin.
 - Two TEP members supported further data analysis before deciding on the broad or restricted cohort.
- For the MIPS MCC admission measure:
 - The TEP supported the need for risk adjustment of the MIPS MCC admission measure, the conceptual framework presented by CORE (which included baseline demographic and clinical characteristics as well as social risk factors), and the overall approach to risk adjustment that CORE is considering.
 - There was, however, concern about lack of available data for some potential risk-adjustment variables. In addition, some TEP members raised concerns about potential data collection burden for some risk factors that could be of interest.

Detailed Summary of Technical Expert Panel Meeting 4

Welcoming Remarks

- CORE welcomed participants to TEP Meeting 4 for the development of two outpatient outcome measures for MIPS.
 - CORE reminded participants of the confidentiality agreement. TEP members can currently disclose that they are participating on the TEP but cannot discuss details of TEP Meeting 4 until they are made public.
- CORE conducted roll-call of meeting participants; 10 of 20 TEP members were in attendance.

Meeting Overview

- CORE reviewed the agenda for the meeting. The agenda included providing an overview of the status of the MIPS short-term diabetes complications and MCC admission measures under development.
 - For the MIPS short-term diabetes complications measure, discussion topics included reviewing the measure background, obtaining TEP input on conceptual issues in measure design, providing an overview of stakeholder engagement, and outlining next steps for measure development.
 - For the MIPS MCC admission measure, agenda topics included presenting updates CORE made to the measure specifications since TEP Meeting 3, obtaining input on the approach to risk adjustment, and reviewing next steps for measure development.
- CORE provided an overview of the project.
 - CORE is developing three outcome measures of ambulatory care for use under MIPS, two of which CORE discussed during TEP Meeting 4:
 1. MIPS MCC admission measure: CORE acknowledged that they received valuable feedback during TEP Meeting 3 in February 2018, which helped CORE refine the measure's outcome and attribution approach.
 2. MIPS short-term diabetes complications measure: Introduced in TEP Meeting 4.
 - CORE stated it would introduce and present the third measure (MIPS heart failure measure) during a future TEP meeting.
- CORE presented the steps for developing the MIPS short-term diabetes complications measure and the status of measure development.
- CORE reviewed the status of development for the MIPS MCC admission measure.

MIPS Short-term Diabetes Complications Measure

CORE Presentation to TEP

Measure Background

- CORE summarized the goals of the MIPS short-term diabetes complications measure, shared statistics illustrating the measure's importance, and presented preliminary analytic results.
 - The goal of the MIPS short-term diabetes complications measure is to improve the safety of diabetes management for millions of Americans. The prevalence of diabetes and the cost of treating diabetes in the United States continue to increase dramatically.
 - This measure focuses on outcomes that capture preventable healthcare utilization, including ED visits, observation stays, or hospital admissions for hyperglycemia and hypoglycemia. The rates of these complications can be

- lowered by improving patient access and adherence to therapy, individualizing care plans, and providing education/training in the self-management of diabetes.
 - Although the outcome rate is relatively low, the number of hyperglycemic and hypoglycemic events is high due to the widespread prevalence of diabetes. Moreover, preliminary analyses suggest that there is significant variation in rates of the short-term complications across accountable care organizations (i.e., large groups of providers), and therefore, opportunities for improvement.
 - This measure fills an important quality measurement gap; existing quality measures for diabetes are primarily based on process or intermediate outcomes, such as hemoglobin A1c level testing or blood sugar control.
- A TEP member asked if CORE had a list of existing diabetes measures.
 - CORE confirmed they completed an environmental scan of existing diabetes measures. CORE responded they will recirculate the MIPS short-term diabetes complications measure environmental scan to the TEP, pointing out the list of existing diabetes measures.

Measure Specifications

- CORE provided the TEP with details on the preliminary MIPS short-term diabetes complications measure specifications to date. They noted that these are preliminary specifications and requested input from the TEP, especially on the cohort for the measure.
 - The cohort is currently defined as:
 - Medicare Fee-for-Service (FFS) beneficiaries aged 65+ with a diabetes diagnosis (based on Healthcare Effectiveness Data and Information Set [HEDIS] criteria using claims data from two years prior to the measurement period) who are enrolled in Part A and B during, and one year prior to, the measurement period.
 - The outcome is defined as:
 - A *hyperglycemic* or *hypoglycemic* event that leads to healthcare utilization (hospital admission, ED visit, or observation stay) and that is identified as a primary/principal discharge diagnosis from the ED or hospital, based on claims.
- CORE provided preliminary thoughts about the risk-adjustment model and the attribution method, the goal of which is to illuminate variation in performance and to account for differences in case-mix across MIPS eligible clinicians. The two outcomes of interest are rare; therefore, it may be necessary to restrict the cohort to larger clinician groups to be able to reliably measure the outcome rates.
- CORE asked TEP members if they had any clarifying questions about the measure concept.

- A TEP member asked for clarification about whether there will be a case minimum requirement for clinicians to be included in the measure. The TEP member suggested specifying a case minimum, as is done in the all-cause hospital-wide readmission measure used under MIPS.
 - CORE agreed with including a case minimum and noted that they would test the measure to determine what the case-size requirements would need to be for CORE to reliably assess clinician performance.
- A TEP member suggested adding a cohort maximum age limit to exclude older patients (85+ years old) who may be more likely to have hyperglycemic events secondary to other comorbid conditions, such as urinary tract infections (UTI).
 - CORE clarified that other diabetes measures include age limits, for example measures based on meeting certain targets of hemoglobin A1C level or blood pressure. The age limits are imposed because these targets may not be an appropriate metric for older patients. Since this is a measure of the overall safety of glycemic management, it is particularly important to include older patients, who may be more likely to experience these events. However, they recognized that hyperglycemia may be precipitated by other illness, such as an infection, and this may be harder to act upon.
- A TEP member agreed with a previous TEP member's comment and asked for clarification on how CORE will be capturing the hyper- and hypoglycemic events in measurement.
 - CORE responded that they will define these events as ED visits, observation stays, and/or unplanned hospital visits for hyperglycemic and hypoglycemic emergencies (diabetic ketoacidosis [DKA], hyperglycemic hyperosmolar state [HHS], or uncontrolled diabetes) based on International Classification of Disease (ICD) diagnosis codes. Hypoglycemic events will be based upon validated criteria from prior studies.
 - A TEP member commented that including uncontrolled diabetes in the measure's definition of hyperglycemia may be problematic for geriatric populations. The TEP member expressed concern about providers over-diagnosing hyperglycemia in geriatric populations without a concrete definition, noting that it can be difficult to determine whether hyperglycemia is a result of an acute illness or due to mismanaged diabetes.
 - CORE recognized that a balance of glycemic control is needed. They explained that good management of an older patient who is vulnerable to these crises would be to relax glycemic control so the patient is not hypoglycemic, and to reduce the risk of acute complications that could cause the patient to go to the ED when they are symptomatic or dehydrated from very high blood sugar.

- A TEP member reinforced the need for an age limit in the cohort, due to the differing provider responses to severely elderly patients who present with hyperglycemia. A provider may enter the code for high blood sugar as a primary code, but further evaluation may uncover an underlying comorbidity that is causing the hyperglycemia.
- A TEP member expressed concern about the relationship between glycemic events and comorbidities. The TEP member suggested there are select comorbid conditions, such as chronic heart failure, that complicate glycemic control and should therefore be listed as cohort exclusions.

Overview of TEP Feedback

- CORE described the two options for defining the cohort for the hypoglycemia outcome: 1) a broad construct including all patients with a diabetes diagnosis or 2) a restricted cohort that only includes patients prescribed high-risk medications such as insulin and sulfonylureas. CORE explained that the restricted cohort would result in an increased outcome rate because only patients at risk for hypoglycemia would be included; however, CORE noted that part of the quality of care provided to patients with diabetes is the selection of glucose-lowering medications. Restricting the cohort to patients on insulin or sulfonylureas would no longer measure this aspect of quality of care
- CORE led the TEP members in a round robin to solicit thoughts about ways to address the measure's technical challenges.
 - A TEP member expressed concern about only looking at ED visits and hospital admissions for severe hypoglycemic events. The TEP member suggested looking at emergency medical service (EMS) codes to capture the additional hypoglycemic events that are treated outside of the ED or hospital. The TEP member also asked if it is possible to estimate the number of events that would be missed by using a more restrictive cohort definition (e.g., how many sulfonylurea prescriptions would be filled outside of a health insurance benefit program and therefore, not captured in claims).
 - A TEP member noted that for cases in which hyperglycemia is secondary to another comorbid condition such as a UTI, hyperglycemia would not be the primary diagnosis, so these events would not be included in the outcome through coding specifications. The TEP member did not support restricting the cohort to insulin and sulfonylureas because it would not capture complications of new drug products that are released and prescribed.
 - A TEP member suggested looking at complication rates stratified by drug classes, which will help to produce the best yield in the measure denominator. A provider with less than 100 patients with diabetes in their area might not support a measure like this. The TEP member also agreed with another TEP member's notion that there may be relevant literature to help estimate the

additional severe hypoglycemic events that occur outside of the ED or hospital setting.

- CORE responded that literature shows approximately 95% of severe hypoglycemic events are self-reported and only 5% end up in the ED or hospital.
- A TEP member agreed conceptually with excluding older patients (85+ years) and hypoglycemic events that are caused by a comorbid condition. The TEP member asked if patients who have been given inpatient insulin but do not have a diabetes diagnosis would be included in this measure.
 - CORE clarified that this is an outpatient measure and they will not be considering inpatient care.
- A TEP member supported a restricted cohort. The TEP member's only concern is that patients will come in with a diagnosis of hyperglycemia and there might be an aggressive counter-approach to bring blood sugar levels down. The TEP member did not want to create perverse incentives for clinicians to prescribe insulin.
- A TEP member did not support restricting the cohort to two classes of medications (insulin and sulfonylureas) because it may influence practice trends; the TEP member recommended medications not be included because the measure may not be relevant as new medications are released and viably used. In addition, the TEP member suggested broad risk adjustment to address the heterogeneity of diabetes patients. Furthermore, the TEP member expressed concern that the use of the primary diagnosis to define the cohort makes the measure vulnerable to gaming.
- A TEP member reiterated the previous speaker's concern about gaming. In addition, the TEP member expressed concern that risk adjustment will be unable to solve the problems mentioned by previous TEP members. The TEP member suggested CORE consider risk-adjustment concerns. Moreover, the TEP member stated that it may not be desirable for rates of hyper- and hypoglycemia ED visits or hospitalizations to decrease because they are valuable conditions to treat in the hospital setting. Instead, the TEP member suggested that improvements in the coordination of care could cause an increase in rates of hyper- and hypoglycemia in the ED and hospital settings, which would be a signal of higher quality care because the patients are being encouraged to seek treatment when needed.
- A TEP member added that an advantage of restricting the cohort is that all patients would have diabetes. The TEP member cited a prior CMS study in which many patients diagnosed with diabetes did not actually have diabetes. They suggested limiting the cohort to the broad use of diabetes drugs rather than just insulin and sulfonylureas.

- A TEP member expressed concern with the definition of hypoglycemia and the potential for gaming. If clinicians are concerned with patients becoming hypoglycemic, a situation may arise where clinicians are not aggressively treating their patients. The outcomes resulting from this situation would be long term and may not be visible in the Medicare population.
- CORE summarized the TEP's feedback about the cohort, outcome, and risk adjustment. They reiterated that the intent of this outcome measure is to incentivize better care for patients with diabetes and to reduce the occurrence of these complications.
 - Cohort:
 - The TEP did not reach consensus regarding the use of a broad or a restricted cohort definition; both options have benefits and concerns.
 - Five TEP members supported the addition of exclusions to the cohort, including an age limit.
 - Outcome:
 - Three TEP members expressed that hyperglycemic events may be triggered by a comorbidity or an infection and therefore should not be included in the outcome.
 - Two TEP members noted that the measure will miss hypoglycemic events that occur outside of the ED or hospital setting.
 - Three TEP members stated both outcomes may be subject to gaming because they are narrow and based on utilization.
 - Risk adjustment:
 - The TEP agreed risk adjustment for the MIPS short-term diabetes complications measure is crucial, particularly because the population of patients with diabetes is heterogeneous in their need for medication and in their risk for subsequent utilization.

Overview of Stakeholder Engagement

- CORE provided an overview of stakeholder engagement for the MIPS short-term diabetes complications measure.
 - CORE's intent is to convene a Clinician Committee to broaden clinician input on the measure concept and the measure specifications. This process is similar to the process taken for other measures under development for MIPS.
 - The public call for nominations for the Clinician Committee opened on September 25, 2018 and closed on October 19, 2018.
 - CORE anticipated reconvening the TEP to discuss the MIPS short-term diabetes complications measure after convening the Clinician Committee.
- CORE reconvened the group after a short break. They stated that they are currently working on convening a Clinician Committee to receive more granular feedback on the MIPS short-term diabetes complications measure. The committee will likely be

comprised of 10-15 members from diverse clinical specialties. CORE asked if there were any questions before the group moved on to the MIPS MCC admission measure discussion.

- A TEP member asked if, as part of the TEP, they will see the results of the MIPS short-term diabetes complications measure as well as the MIPS MCC admission measure. CORE assured the TEP member that they will.
- CORE thanked the TEP members for their valuable feedback, reviewed next steps, and invited TEP members to email them with any additional input on the diabetes measure.

MIPS MCC Admission Measure

CORE Presentation to TEP

Updates to Measure Since TEP Meeting 3

- CORE summarized the four updates CORE made to the measure's specifications since TEP Meeting 3 based on TEP input and CMS direction:
 1. Cohort: Added diabetes as a cohort-qualifying condition, which increased the total number of cohort-qualifying conditions to nine.
 2. Outcome: Refined the outcome to exclude admissions occurring prior to the first visit with the assigned clinician.
 3. Attribution to individual clinicians: Refined and implemented an attribution approach that identifies a primary care provider (PCP) or specialist with the plurality of visits. The refinement more accurately attributes patients to specialists who are likely managing the patient even when a PCP is involved.
 4. Attribution at the Taxpayer Identification Number (TIN)-level: Patient assignment is run at the clinician-level, and then the clinician brings assigned patients to his or her TIN; the measure score is then calculated at the TIN-level with all TIN participants' patients.
- CORE then reviewed the MIPS MCC admission measure updates in greater detail. The first update is the addition of diabetes as a cohort-qualifying condition. The question was raised early in development by TEP members who were interested in expanding the MCC cohort to include all patients with diabetes. After receiving further guidance from CMS, CORE has added diabetes as a cohort-qualifying condition, to acknowledge the complexity that diabetes introduces to caring for patients with multiple chronic conditions.
- CORE then reviewed the complete MIPS MCC admission measure cohort, which includes Medicare FFS patients, age 65 and greater, with two or more of the following nine conditions:
 1. Acute myocardial infarction,
 2. Alzheimer's disease and related disorders or senile dementia,
 3. Atrial fibrillation,

4. Chronic kidney disease,
 5. Chronic obstructive pulmonary disease and asthma,
 6. Depression,
 7. Diabetes,
 8. Heart failure, and
 9. Stroke and transient ischemic attack.
- CORE described the effects of the first update, adding diabetes as a cohort-qualifying condition, on the measure. CORE highlighted that the cohort size increased by 37.0%, the number of admissions increased by 17.4%, and the unadjusted admission rate decreased by 16.5%. The distributions of patients and admissions across provider types were not affected by the addition of diabetes.
 - CORE described the second update. Based on prior input from the TEP, CORE now excludes admissions that occur prior to the first visit with the assigned clinician, unless the clinician was seen in the previous year. CORE explained that such admissions occurred infrequently, and their removal had a negligible effect on outcome rates. However, this refinement is important for the fair assessment of the outcome.
 - At the third TEP meeting, CORE presented three options for the attribution of MCC patients to individual clinicians. CORE explained that based on feedback from the TEP and other stakeholders, CORE recommended to CMS the “2+ Visit Minimum Plurality of Visits” option. In this attribution model, patients are assigned to the PCP with the greatest number of visits over the 2-visit minimum. If there is no PCP with two or more visits, the algorithm looks for a “dominant” specialist who met this 2-visit minimum and had two or more visits than any other clinician.
 - The third update is a refinement of this attribution model. Based on input from CMS, the final 2+ attribution algorithm considers assignment to a “dominant” specialist among patients who would have been automatically assigned to a PCP based on meeting the 2-visit minimum threshold. After this refinement, a higher proportion of patients and admissions were attributed to specialists.
 - One TEP member asked for clarification on the attribution model. For example, if a patient has seen their PCP four times and a specialist 12 times, how are they attributed?
 - CORE explained that in the past the patient would be attributed to the PCP, but under the new attribution model they would be attributed to the specialist.
 - The TEP member then asked how a visit is defined. In their role, the TEP member uses G-codes for monthly visits to manage dialysis services, even though they may be seen weekly.

- CORE clarified that Evaluation & Management (E&M) visits are used for attribution and responded they would recirculate the list of E&M codes used for attribution (previously reviewed in TEP Meeting 3).
 - Another TEP member asked if a patient’s specific MCCs are considered in the attribution algorithm.
 - CORE noted the attribution algorithm does not consider the specific diagnoses, only the number of E&M visits.
 - The TEP member voiced a concern about providers being attributed patients who do not have a condition related to their specialty.
 - CORE elaborated that the measure is only looking at “relevant specialists,” which are specialists that are involved in the care of patients with the multiple chronic conditions included in the measure (cardiologists, endocrinologists, nephrologists, neurologists, pulmonologists, hematologists, and oncologists).
- CORE described the fourth update, the recommendation for the TIN-level attribution. The approach is to run patient assignment at the clinician level, and then have patients “follow” their provider to his or her TIN. CORE described that they found this TIN-level attribution approach to be the most transparent, easy to understand, and easiest to implement.

Discussion: Approach to Risk Adjustment

- CORE described the goals of risk adjustment. The aim of risk adjustment is to define the range of factors that may contribute to risk and consider the implications of adjusting for them. CORE believes that higher quality of care can decrease the risk of admission; the measure will control for factors that do not reflect this quality of care.
- CORE then described the conceptual framework for risk adjustment for the MIPS MCC admission measure (see [Appendix C](#)). Potential risk factors include baseline demographic and clinical characteristics present at the start of the measurement period. In addition, CORE is considering a range of social risk factors, grouped into four categories based on a 2017 report by the National Academies of Sciences, Engineering, and Medicine (NASEM).² They are (1) socioeconomic position, (2) race, ethnicity, and cultural factors, (3) social relationships, and (4) residential and community context. CORE explained that the blue arrows in the figure represent the risk of admission conferred by the social risk factors, and the red arrows represent the MIPS provider’s ability to mitigate the admission risk associated with the social risk factors. CORE noted they have seen one of the TEP member’s recent paper that includes adjustment for social characteristics. CORE noted they had not yet reviewed the methods and findings yet but would consider the paper as they proceeded with risk adjustment.

² National Academies of Sciences E, and Medicine. Accounting for social risk factors in Medicare payment. 2017; <https://www.nap.edu/read/23635/chapter/1>. Accessed October 11, 2018.

- The TEP member noted the challenges associated with thinking in terms of whether providers can mitigate risk given that such efforts come at a cost. It is costlier for providers to care for high-risk patients in a pay-for-performance system. The TEP member added that providers caring for patients with social risk are apt to be penalized, either in the form of a penalty if they do not mitigate the risk, or in the form of higher cost of care for patients. The TEP member summarized that this type of conceptual framework is important for determining what ends up in the risk-adjustment model, and CORE should keep in mind the principle of risk adjustment, which is separating what is quality and what is patient risk.
 - The CORE team agreed with the TEP member. CORE clarified they were not deciding whether to adjust or not adjust for specific variables at the time. Rather, they suggested the focus was to discuss and solicit TEP input on sets of variables providers may reasonably be expected to mitigate admission risk. For example, CORE noted that in the development of the Accountable Care Organization (ACO) MCC admission measure, there was consensus among TEP members and other stakeholders that ACOs were expected to work to mitigate community risk factors, and thus such variables were not considered in the risk-adjustment model. However, this needs to be reevaluated in the MIPS setting.
- Another TEP member added that if CORE is asking which factors physicians can affect, and which they cannot, providers cannot affect neighborhood deprivation, housing, and related factors.
- CORE agreed with the need to review social risk factors and to be cognizant of the increased difficulty of care they can impart. CORE described how their conceptual model shows that they do not believe that providers can mitigate all risks, such as the elevated risk associated with factors in the residential and community category. Providers may, however, have more ability to influence the risks associated with socioeconomic status, cultural factors, and social relationships – for example, by providing more racially, linguistically, and culturally sensitive care – and this influence is the focus of the TEP discussion. CORE then opened the floor to questions; the TEP did not have any questions.
- The first step of CORE’s approach to risk adjustment is to adjust for baseline characteristics that are present at the start of the measurement year and confer risk of admission, but are independent of quality of care, such as demographics, clinical comorbidities, and functional status or frailty. This recognizes that some providers care for older, sicker patients, and avoids penalizing providers who do.
- CORE’s approach to adjusting for social risk factors is to consider how these factors influence the outcome, and whether providers can mitigate the influence that social risk

factors confer on outcomes. CORE would also like to consider the unintended consequences of adjusting, such as setting different quality standards of care for different patients, or not adjusting, such as discouraging providers from caring for patients with greater social risk. Finally, CORE would like to quantitatively evaluate targeted social risk factors to guide decision making.

- CORE explained that an alternative strategy to addressing the burden providers face in caring for patients with social risk factors is to adjust the payment formulas for such factors. This is an ongoing conversation at CMS.
- CORE presented a brief introduction to the categories of social risk factors used in the 2017 NASEM report. There are five domains, the first four of which were considered in our framework. They are socioeconomic position, race, ethnicity, and cultural factors, social relationships, and residential and community context. The fifth domain, gender and sexual orientation, was not included in CORE's framework due to challenges with data collection and availability, and a need for more research on these factors.
- CORE walked through the thought process behind each of the four social risk factor categories. First, CORE will consider adjusting for one or more measures of residential and community context because they are associated with risk of admission, but individual clinicians and groups of clinicians are unlikely to be able to mitigate them. CORE does not expect to risk adjust for variables in the social relationships category because providers may be able to provide care and treatment plans that consider factors such as marital status and living situation. CORE noted some of this data is not readily available, and some of the risk is captured by other factors. For socioeconomic position and racial, ethnic, and cultural factors, there is an associated risk of admission, but providers may be able to mitigate some of this risk by providing higher-quality care that addresses the barriers these patients face, such as language, health literacy, and cultural assumptions about, or unfamiliarity with, self-management strategies. The larger concern about adjusting for these two domains is setting a different quality standard of care for different patients.
- Finally, CORE presented our approach to quantitatively assess social risk factors. CORE:
 - Will evaluate variables such as Medicare/Medicaid dual-eligibility, race, and Agency for Healthcare Research & Quality (AHRQ) Socioeconomic Status (SES) Index.
 - Will examine marginal contribution after adjusting for demographics, clinical comorbidities, and frailty.
 - Will consider a decomposition analysis to better understand the patient versus provider effect.

TEP Feedback

- CORE posed two questions to the TEP. First, CORE asked if the TEP members agreed with the conceptual model presented, and to the approach to risk adjustment for the MIPS MCC admission measure updates. Second, CORE asked what questions, suggestions, or concerns the TEP members had after hearing our recommendations.
 - One TEP member referenced working in a rural area and having a TIN. The TEP member appreciated the need to adjust for residential context. The TEP member supported adjusting for socioeconomic position, social relationships, and cultural factors. The TEP member also asked if CORE will effectively measure the ability of providers to “game the system” by entering specific diagnoses to avoid certain measures.
 - CORE replied that they will use individual-level variables in the claims data when available, but many variables, such as marital status, social support, and living alone, are not available. CORE will work to find the most appropriate data sets for residential and community variables.
 - Another CORE member added that social risk factor variables are not coded by clinicians because they are Medicare enrollment information. For other variables, CORE will have to look at other sources. To mitigate gaming, diagnoses are gathered from multiple care settings; if one provider games diagnoses to avoid the measure, their patient with MCCs is likely to be in the measure nonetheless.
 - Another TEP member expressed a concern that comorbid conditions may not be picked up in our risk-adjustment process. CORE noted they will use all diagnoses in the previous year. The TEP member emphasized that often patients are given comorbid codes while in the hospital, but many outpatient providers who act as a PCP will only code for few comorbidities causing these patients to be missed. This may inadvertently penalize providers who are treating complex patients.
 - CORE thanked the TEP member for his point and stated CORE would consider the issue.
 - Two TEP members expressed concern with the ability to accurately collect data. They stated that PCPs already have high documentation demands, and many of these variables would need to be collected in a time-consuming manner. This may add to physician burnout.

Conclusion

- CORE thanked the TEP members for their time and recapped the next steps in measure development including to:
 - Build and test the risk-adjustment model.
 - Obtain public comment on the measure specifications and testing results.
- One TEP member asked if they would have another chance to provide input for the models that are to be tested and posted for public comment.

- The CORE team will consider building in an intermediate step to update and solicit feedback from the TEP before posting for public comment.
- CORE thanked the TEP member and will share results with the TEP prior to posting for public comment, if possible.
- CORE invited the TEP to send any additional questions or comments regarding the updates to the MIPS MCC admission measure or approach to risk adjustment via email.

Key Issues Discussed During Technical Expert Panel Meeting 5

Prior to the fifth TEP meeting, CORE provided the TEP members with materials for review. Materials prepared for the TEP included:

- An overview of progress made since TEP Meeting 4
- An introduction of the MIPS heart failure measure under development by CORE:
 - Overview of stakeholder engagement with TEP and Clinician Committee
 - Background on the measure concept, proposed cohort definition, outcome definition, attribution approach, and risk-adjustment approach.
 - Discussion questions about the proposed cohort and outcome definitions.

The summary below includes TEP member input from TEP Meeting 5 and feedback from two TEP members who were unable to attend the meeting but provided input to CORE by email following the meeting.

Executive Summary of Technical Expert Panel Meeting 5

Overview of Information Presented by CORE

- CORE:
 - Introduced the development steps for the Merit-based Incentive Payment System (MIPS) heart failure admission measure.
 - Presented the measure concept.
 - Reviewed the proposed parameters for the measure cohort inclusion and exclusion criteria. CORE recommended including patients with heart failure (defined using ICD-10 diagnosis codes) including those with cardiomyopathy and excluding heart transplant patients.
 - Reviewed the proposed outcome definition: admissions excluding: planned admissions and admissions occurring within 10 days of discharge from a hospital, SNF, or acute rehabilitation facility; admissions for patients enrolled in hospice; admissions related to complications of surgeries; and, admissions related to accidents or injuries (in alignment with the MIPS MCC admission measure).

- Presented an overview of anticipated attribution and risk-adjustment approaches (in alignment with the MIPS MCC admission measure).

Overview of TEP Feedback During Heart Failure Technical Expert Panel Meeting 5

- For the MIPS heart failure admission measure, the TEP provided feedback on:
 - The [measure cohort](#). Specifically, the group provided feedback on the cohort definition, including the inclusion of cardiomyopathy diagnoses as well as the CORE's recommended exclusion of heart transplant patients. Of the 10 TEP members who attended the meeting or provided input via email post-meeting:
 - Six TEP members supported the proposed cohort definition. One TEP member asked about the inclusion of cardiomyopathy codes in the cohort, citing the possible dilution of high-risk heart failure patients in the measure.
 - Four TEP members favored excluding heart transplant patients. Three TEP members proposed excluding transplant patients for a specified period of time post-transplant (e.g. one year) but including them after the specified time had elapsed.
 - One TEP member asked why the measure's cohort does not exclude patients awaiting transplants.
 - One TEP member questioned the inclusion of patients with chronic decompensated acute heart failure in the cohort (which may not be accurately reflected in the billing codes), since they are at the highest risk for hospitalization.
 - The [measure outcome](#). Specifically, the group provided feedback on whether a 10-day buffer period post-discharge from a hospital, skilled nursing facility, or acute rehabilitation facility is appropriate, and whether a broad outcome inclusive of all-cause unplanned admissions makes sense (vs. a narrow outcome of heart failure-specific admissions). Of the 10 TEP members who attended the meeting or provided input via email post-meeting:
 - One TEP member agreed with the proposed 10-day buffer period during which an admission would not be counted in the outcome. Three felt that 10-days is too long, while one person thought it was too short.
 - TEP members expressed concerns with the possible overlap with the MIPS Hospital-Wide Readmission (HWR) measure, which captures all-cause readmissions within 30 days.
 - All TEP members favored the broad outcome. However, some members did have concerns that too broad of an outcome could adversely affect clinicians or clinician groups.
 - One TEP member asked how the MIPS heart failure admission measure overlaps with the MIPS HWR and MIPS MCC measures.

- One TEP members asked if observation stays will be included in the outcome.
- Potential [technical challenges](#). Specifically, the group provided feedback about the proposed approach to attribution and risk adjustment. Of the 10 TEP members who attended the meeting or provided input via email post-meeting:
 - Three TEP members suggested adjusting for social variability in rural versus urban settings, if possible.

Detailed Summary of Technical Expert Panel Meeting 5

Welcoming Remarks

- CORE welcomed participants to TEP Meeting 5. CORE thanked TEP members for their continued commitment to the development of outpatient outcome measure for MIPS through July 2019. In addition, the CORE team reviewed the confidentiality agreement.
- CORE conducted roll call of meeting participants; 8 of 18 TEP members were in attendance. CORE reached out to TEP members not in attendance for their input via email and included their feedback in this report.

Project Overview

- CORE introduced they are developing a measure of outpatient care provided to patients with heart failure for use under MIPS (anticipated completion: July 2019).
- The goals of the meeting were to present the measure concept, proposed measure cohort, and proposed measure outcome, and frameworks for attribution and risk adjustment to the TEP.
- CORE prefaced the measure introduction by acknowledging the morbidity of heart failure, noting that it is extremely prevalent in the elderly population, and the most common reason for hospitalization in this population. CORE recognized that less attention is paid to ambulatory care settings than hospital settings or transitions from hospital to home, and that quality improvement in the ambulatory care setting is critical for improving outcomes.

Measure Concept and Overview of ACO Heart Failure Measure

CORE Presentation to TEP

- CORE provided background information on the Accountable Care Organization (ACO) heart failure measure, which was used in CMS's Medicare Shared Savings Program (ACO measure title: ACO-37: "Risk-Standardized Acute Admission Rates for Patients with Heart Failure"). As with the MIPS MCC measure, CORE is adapting a measure previously implemented in the ACO quality measure set.
- CORE noted that the ACO heart failure measure evaluated risk-standardized acute unplanned admission rates (RSAARs). CORE walked through the distribution of RSAARs

for patients with heart failure in the ACO setting. Even though the ACO heart failure measure is risk adjusted for case mix, significant variance in RSAARs still exists; the median admission rate was 81, the minimum rate was 53 and the maximum was 120 per 100 person-years.

- In addition, CORE presented its analyses of the most common admission types among ACO patients with heart failure. CORE conducted the analyses to determine how ACO admission types vary based on ACO performance (broken down by quartile).
 - CORE noted that non-cardiovascular admissions constitute the vast majority of admissions for ACO patients with heart failure, which is consistent with the clinical observation that patients with heart failure are vulnerable and are at risk for hospitalizations other than heart failure. These data support the use of a broad outcome of all-cause unplanned admissions, in order to reflect the experience of heart failure patients and to drive meaningful quality improvement.
- CORE's is re-specifying the ACO heart failure measure for the MIPS.
 - CORE will conduct measure testing to determine the appropriate cohort, outcome, risk-adjustment, and attribution approaches, given the MIPS heart failure admission measure is for use at the MIPS eligible clinician and/or clinician group levels.
- CORE stated that the main objectives of the MIPS heart failure admission measure are:
 - To assess variation in the outcome of unplanned hospitalization across clinicians in the MIPS program.
 - To hold outpatient clinicians participating in the MIPS program responsible for preventing hospitalizations, an important quality indicator of patients with heart failure.
 - To develop a measure that is fair to outpatient clinicians, while setting benchmarks that are meaningful to patients.

Description and Discussion: MIPS Heart Failure Cohort and Outcome

CORE Presentation to TEP

- CORE introduced the proposed measure cohort, noting the MIPS heart failure cohort will be similar to the ACO heart failure cohort. The cohort will include Medicare FFS patients who are 65 years or older, and who have full-time enrollment in Medicare Part A and B during the year prior to measurement. Furthermore, these patients must have one primary discharge diagnosis of heart failure, or two or more heart failure encounters (in any position) in the inpatient and/or outpatient setting during the 24-month lookback period.
 - By using a 24-month lookback period, the cohort captures a healthier population with lower risk heart failure, along with patients who see clinicians who may not regularly bill for heart failure as a chronic condition.

- CORE provided an overview of the [proposed list of ICD-10 cohort inclusion codes](#), which focus on systolic and diastolic heart failure, hypertensive heart failure, rheumatic heart failure, right ventricular heart failure, and cardiomyopathy.
- CORE also provided an overview of the [proposed list of ICD-10 cohort exclusions codes](#): heart transplant patients and patients with internalized left ventricular assist devices (LVADs). CORE justified these exclusions, citing that although hospitalizations are important to capture in these two groups, CORE's prior ACO measure work illustrated these patients cluster in certain providers (ACOs), making risk adjustment difficult.
- CORE introduced the proposed broad outcome of all-cause unplanned admissions. CORE noted additional proposed exclusions in alignment with the TEP's feedback on the MIPS MCC admission measure reviewed by the TEP. These exclusions include: planned admissions and admissions occurring within 10 days of discharge from a hospital, SNF, or acute rehabilitation facility; admissions for patients enrolled in hospice; admissions related to complications of surgeries; and, admissions related to accidents or injuries.
 - In CORE's preliminary analyses, early data showed patients with heart failure have multiple comorbidities and are vulnerable to a range of hospitalizations. Thus, an all-cause admission outcome with some exclusions is more patient-centered than disease-centered and resonates more with what the patient is experiencing. However, CORE acknowledged the reality that clinicians and/or clinician groups may not have the capacity or resources to prevent a broad range of admissions.

TEP Feedback

- CORE asked the TEP the following questions:
 - Do you agree with the cohort definition?
 - Do you agree with excluding heart transplant patients?
 - Do you agree with a 10-day buffer period for the outcome?
 - Do you agree with keeping a broad outcome?
- One TEP member commented that they agree with the cohort definition; however, the TEP member wondered if it makes sense to exclude patients who have had a recent transplant and only include them after a certain time period when they are clearly stabilized, and their risk profile is similar to that of a patient with heart failure.
 - The TEP member did not agree with the 10-day buffer period, stating that 10 days is too long. The TEP member suggested a 5-day buffer period as reasonable.
 - The TEP member agreed conceptually with the broad outcome.
- One TEP member expressed concern that the measure will treat patients with advanced heart failure similar to those with less advanced heart failure. The TEP member stated that patients with advanced heart failure have a significantly increased risk of being

admitted, compared to those with less advanced heart failure, because they are often representative of an end of life cohort.

- The TEP member did not agree with the 10-day buffer period; the TEP member noted it is too short and physicians would be penalized for outcomes beyond their control.
 - The TEP member favored a broad outcome but referenced concerns about physicians' inability to have control over this extremely sick group of patients.
 - The TEP member asked how the measure would capture patients with heart failure that die post-discharge.
- One TEP member asked why cardiomyopathy codes were included in the cohort definition.
 - The TEP member agreed that patients who have had a heart transplant should be excluded since they are very likely to be hospitalized for various complications (higher risk than other patients with heart failure).
 - The TEP member favored the broad outcome but cautioned the team since it could negatively affect MIPS eligible clinicians. They also expressed confliction with the 10-day buffer period but remained neutral on the issue.
 - The TEP member asked why the measure's cohort does not exclude hospice patients or those awaiting transplants.
- One TEP member was concerned with the 10-day buffer period and asked how the buffer period overlaps with the MIPS HWR measure. The TEP member expressed concern about MIPS measures having varying timeframes for outcome measurement.
- One TEP member agreed with the cohort definition. Regarding transplant patients, the TEP member proposed creating a timeframe in which these patients are initially excluded after the transplant but are then included after a certain time period when they are clearly stabilized.
 - The TEP member also agreed with the broad outcome. However, the TEP member noted many clinicians and clinician groups have little to no control over some patient outcomes and urged the team to be cautious when placing responsibility on clinicians.
- One TEP member agreed with the cohort definition and suggested excluding all patients with any organ transplants (not limiting to heart transplants only) during a limited period of time, since the threshold for admission for these patients is extremely low. For instance, transplant patients could be excluded from the time prior to their transplant through one-year post-transplant, since these patients are often readmitted shortly after their procedure.
 - The TEP member felt as though a 10-day buffer period is too short of a timeframe to hold ambulatory physicians accountable for patient admissions.
 - The TEP member agreed with the broad outcome.

- One TEP member noted the meaningful distinction between rural care versus urban care. The TEP member emphasized that clinicians who treat patients in a rural setting could be more negatively affected than clinicians in urban settings.
 - The TEP member believed transplant patients would be captured in the MIPS MCC admission measure and therefore was not concerned about possible overlap with the MIPS heart failure admission measure cohort.
 - The TEP member was concerned that MIPS eligible clinicians may not be able to identify the multiple measures to which they are being evaluated.
 - The TEP member agreed with the broad outcome approach.
 - The TEP member asked if the measure would include a minimum case size for eligible clinicians. They also stated concern about how clinician care will be evaluated.
- One TEP member favored excluding patients who have had a heart transplant.
 - The TEP member presented their concerns with the specific case of patients that come to the hospital with volume overload but may not have heart failure. The TEP member noted these patients often come to the hospital with sepsis but are coded with a secondary diagnosis of heart failure. As a result, the TEP member wondered if it is possible to exclude patients from the cohort who do not really have heart failure but are coded for it.
- One TEP member agreed with the with proposed exclusion of heart transplant patients.
 - The TEP member disagreed with the 10-day buffer period, stating that it is an arbitrary timeframe and could potentially create tension with the 30-day MIPS HWR measure in terms of the Local Multipurpose Senior Service Program (MSSP) and the Hospital Readmission Reduction Plan (HRRP). The TEP member noted that this proposed 10-day buffer period could weaken incentives to prevent or delay a readmission.
- One TEP member agreed with the current cohort definition. The TEP member also agreed with the exclusion of heart transplant patients, stating that this group is more likely to exhibit readmissions since they are using immunosuppressants.
 - The TEP member agreed with the 10-day buffer period and noted 10 days is ample amount of time for a heart transplant patient to be stable.
 - The TEP member agreed with the broad outcome approach, acknowledging that heart failure patients are admitted for various reasons.
 - The TEP member questions if a frailty index will be used for risk adjustment. Additionally, they suggested including cardiothoracic surgeons in attribution.
- CORE thanked the TEP members for their thoughts and questions. CORE provided a high-level summary of the TEP's thoughts:
 - In response to one TEP member, CORE agreed that it could be challenging to exclude patients who are coded for heart failure but do not truly have heart failure, especially because diagnoses, regardless of whether they are accurate,

tend to follow patients. However, CORE emphasized that the cohort is defined such that patients must have a primary discharge diagnosis of heart failure or multiple encounters of heart failure to be included in the measure, which should mitigate misidentification of patients with heart failure.

- CORE reviewed the TEP feedback on the cohort definition, including specific comments on the proposed exclusion of transplant patients, the proposed inclusion of cardiomyopathy diagnoses, and the inclusion of patients with advanced heart failure in the measure.
 - Exclusion of heart transplant patients: Several TEP members felt that patients with heart transplants should be initially excluded and then included in the measure once those patients are back to baseline and have a more similar risk panel to the average patient with heart failure.
 - CORE to further consider exclusion of heart transplant patients either post-transplant for a specified period of time and or entirely.
 - Inclusion of patients with cardiomyopathy: There is concern about including cardiomyopathy codes in the cohort definition. CORE justified the inclusion of cardiomyopathy codes by stating that patients with cardiomyopathy but not heart failure may reflect good medical care (as opposed to intrinsic phenotypic differences), and if so, then clinicians should be rewarded.
 - CORE to investigate the impact of including cardiomyopathy codes in the measure cohort, though conceptually feels that patients with cardiomyopathy should be included in the measure.
 - Inclusion of patients with advanced heart failure: Multiple TEP members expressed the need for patients with advanced heart failure and advanced heart failure clinicians to be treated differently within the measure. CORE expressed interest in working with the TEP to better define this higher risk group, so that the measure produces robust risk-standardized outcomes that can be fairly compared across providers. CORE noted that they will do more work in this area during risk-adjustment variable selection, work on the attribution approach, and the final model specifications.
 - CORE to explore ways to better define and potentially risk adjust for patients with advanced heart failure, as their risk profile is different than patients with more stable heart failure.
- The TEP provided feedback on the outcome, including specific thoughts on the exclusion of hospice patients, the proposed 10-day buffer period, and the broad outcome definition.

- Exclusion of patients in hospice: CORE clarified that patients in hospice are excluded from the measure, as well as patients with LVADs.
- 10-day buffer period: Several TEP members commented on the proposed 10-day buffer period. There were mixed opinions about whether the time frame is too long or too short. CORE acknowledged the possibility of overlap between the MIPS HWR, MIPS MCC, and MIPS heart failure admission measures³. CORE noted that CMS would decide through the rulemaking process if the MIPS MCC and MIPS heart failure measures would be mandatory or voluntary (MIPS HWR measure is mandatory). If all of these MIPS measures are mandatory, there is possibility for overlap.
 - CORE to evaluate data to inform proposed 10-day buffer period time frame.
- Broad outcome: The TEP generally supported the broad outcome with the caveat that it is important to only measure clinicians on the outcomes they can influence.

Brief Description of Risk Adjustment and Attribution

CORE Presentation to TEP

- CORE provided an overview of measure risk adjustment. CORE clarified the goals for the risk-adjustment model:
 - to illuminate variation in performance that reflects differences in quality of care, not case-mix;
 - to develop a model that accounts for case-mix differences across MIPS eligible clinicians; and,
 - to select risk variables based on peer-reviewed literature, expert input, and empiric analyses.
- CORE introduced the TEP to some of the potential risk variables for the measure – namely – age, comorbidities (including frailty), and advanced heart failure (implantable cardiac defibrillator, cardiac resynchronization therapy, or pacemaker). CORE noted that these risk variables align with the ACO heart failure measure.
- CORE spoke about their considerations for incorporating social risk factors into the measure’s risk-adjustment model. The ACO heart failure admission measure does not adjust for sex, race or socioeconomic status (SES), due in part to the conceptual framework specific to ACOs and the lack of biological reasons that these patient populations should be admitted more frequently. Variation in outcomes may be due to disparities and as observed in the ACO heart failure measure, some ACOs with the highest proportion of low SES patients can mitigate risk. However, CORE’s conceptual

³ The MIPS HWR measure outcome is unplanned all-cause readmissions within 30 days of hospital discharge. More information about the MIPS MCC admission measure outcome definition (under development) can be found [here](#).

framework for social risk factor adjustment for the MIPS program does differ from the ACO measures' framework ([see TEP Meeting 4 discussion for more detail](#)).

- CORE stated that the team is developing a common approach for risk adjustment across all three MIPS measures under development. The goal is to conceptually and statistically distinguish patient risk from clinical quality.
- CORE briefly stated they would consider a visit-based attribution approach similar to that of the MIPS MCC admission measure and modify it as needed for the MIPS heart failure admission measure. For example, CORE will consider applying the measure to a narrower group of clinicians (e.g., primary care clinicians and cardiologists).

Discussion: Potential Challenges for Measure

TEP Feedback

- CORE opened up the discussion for TEP members to provide feedback and ask additional questions they may have about the cohort, outcome, risk adjustment, and/or attribution.
 - One TEP member asked if observation stays will be included in the measure outcome. The TEP member thought it might be interesting to see the effect of these events on the measure outcome.
 - CORE noted that observation stays are not currently included because of the variation in the way observation stays are defined, but that the team plans to investigate their impact.
 - Action Item: CORE will analyze the potential inclusion of observation stays, to better understand how hospitals are handling patients with heart failure.
- One TEP member suggested adjusting for social variability in rural versus urban settings. The TEP member asked if CORE had completed analyses on this yet.
 - CORE noted that they are looking to understand rurality first with the MIPS MCC admission measure.
 - CORE is currently reviewing the marginal impact of adding strong SES variables to the MIPS MCC admission measure. CORE agreed that variation exists in differing settings, which is why the team is looking at urban, rural, and dual-eligible factors, as well as the Agency for Healthcare Research and Quality (AHRQ) SES index.
 - The TEP member noted that CMS views clinicians practicing and patients residing in rural areas as disadvantaged.
 - CORE noted that they will follow up with the TEP once rural versus urban analyses have been completed for the three outpatient MIPS measures.

- Two TEP members agreed that patients with heart failure in rural settings are far more difficult to manage because of the frequency at which they are monitored.
 - CORE agreed that there can be variation in care and outcomes based on rurality. CORE noted that clinician density in a given geographic location has been associated with outcomes as well.
 - Action Item: CORE will provide TEP members with data on variation in hospitalizations by rural/urban beneficiary residence and by the density of clinicians in rural/urban areas to help determine if there is a need to risk adjust for rurality.
- One TEP member did not agree with including patients with cardiomyopathy and no diagnosis of heart failure to the cohort. The TEP member stated that including these patients will dilute the measure's reliability. The TEP member also disagreed with the notion that patients with acute cardiomyopathy are necessarily healthier because they do still suffer from varying comorbidities.
 - CORE has not yet reviewed the overlap between cardiomyopathy and heart failure but will conduct analyses during development.
 - Action Item: CORE to analyze overlap of cardiomyopathy and heart failure diagnoses in cohort.
 - A different TEP member stated that there are many patients with cardiomyopathy who never develop heart failure.
 - CORE agreed that many patients who have cardiomyopathy never develop heart failure. In these cases, CORE believes that their lack of heart failure could be attributed to quality of care or may be an attribute of their disease phenotype.
- One TEP member questioned the inclusion of patients with chronic decompensated acute heart failure in the cohort (which may not be accurately reflected in the billing codes), since they are at the highest risk for hospitalization.
 - CORE thanked the TEP member for the comment and replied that it can be difficult to fully capture all patients with chronic decompensated heart failure.
 - Action item: CORE to explore methods for distinguishing chronic decompensated heart failure in ICD-10 coding.

Overview of Future Stakeholder Engagement

- As CORE described in TEP Meeting 4, CORE convened Clinician Committees to inform MIPS diabetes short-term complications and MIPS heart failure admission measure development (one per measure). The Committees are comprised of frontline clinicians and professional society representatives. The purpose of convening the Committees is for CORE to broaden the clinical input on the measures during the development process. CORE will meet with the Clinician Committees multiple times to obtain input on measure development through July 2019.

Appendix A. CORE Measure Development Team

Table A1. Center for Outcomes Research and Evaluation (CORE) team members for MIPS MCC admission measure development

Name	Team Role
Mayur M. Desai, PhD, MPH	Project Lead
Faseeha K. Altaf, MPH	Project Coordinator
Andrea G. Barbo, MS	Analyst
Craig S. Parzynski, MS	Analyst
Zhenqiu Lin, PhD	Analytic Director
Demetri Goutos, MBA	Research Associate
Jeph Herrin, PhD	Statistical Consultant
Megan LoDolce, MA	Project Manager
Harlan M. Krumholz, MD, SM	Principal Investigator
Elizabeth E. Drye, MD, SM	Project Director

Table A2. Center for Outcomes Research and Evaluation (CORE) team members for MIPS short-term diabetes complications measure development

Name	Team Role
Faseeha K. Altaf, MPH	Project Co-Lead
Kasia J. Lipska, MD, MHS	Project Co-Lead
Alexandra Harris, MPH	Project Coordinator
Craig S. Parzynski, MS	Lead Statistical Analyst
Haikun Bao, PhD	Senior Statistical Analyst
Zhenqiu Lin, PhD	Analytic Director
Julia McMahon, BS	Research Assistant
Jeph Herrin, PhD	Statistical Consultant
Megan LoDolce, MA	Project Manager
Harlan M. Krumholz, MD, SM	Principal Investigator
Elizabeth E. Drye, MD, SM	Project Director

Table A3. Centers for Outcome Research and Evaluation (CORE) team members for MIPS heart failure admission measure development

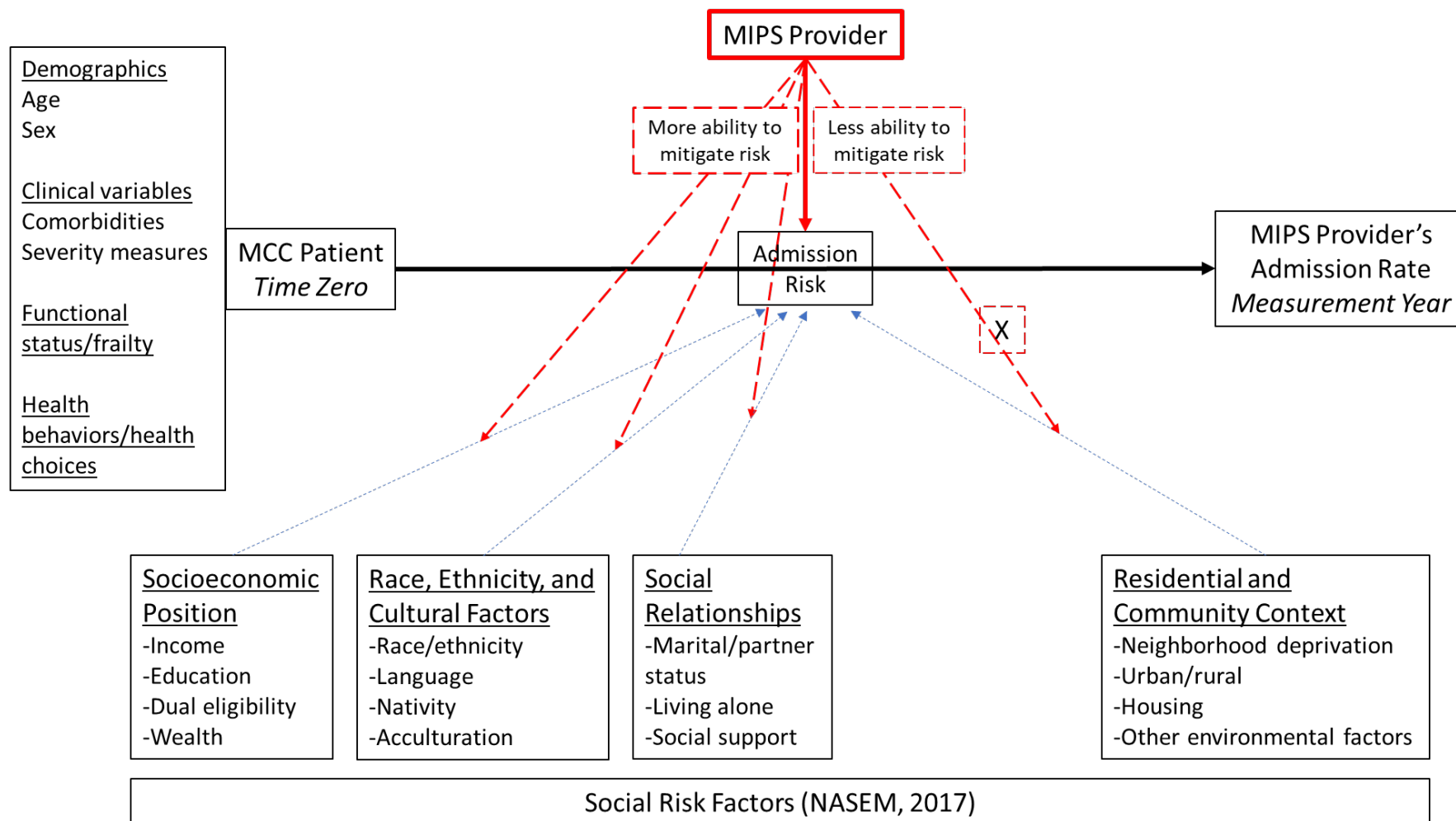
Name	Team Role
Erica Spatz, MD, MHS	Project Lead
Faseeha K. Altaf, MPH	Measure Development Division Technical Coordinator
Alexandra Harris, MPH	Project Coordinator
Craig S. Parzynski, MS	Analytic Lead
Shengfan Zhou, MS	Statistical Analyst
Zhenqiu Lin, PhD	Analytic Director
Mariana Henry, MPH	Research Associate
Alex Ferrante, BS	Research Assistant
Megan LoDolce, MA	Project Manager
Harlan M. Krumholz, MD, SM	Principal Investigator
Elizabeth E. Drye, MD, SM	Project Director

Appendix B. Technical Expert Panel Call Schedule

TEP feedback on CORE's approach to measure development will inform the measure specifications. CORE will engage and seek input from the TEP as they develop outpatient outcome measures through email communication and no fewer than five meetings through July 2019:

1. **TEP Meeting 1:** Thursday, July 20, 2017; 5:30 PM – 7:00 PM EST (Location: Teleconference/Webinar).
2. **TEP Meeting 2:** Monday, September 18, 2017; 1:00 PM – 3:00 PM EST (Location: Teleconference/Webinar).
3. **TEP Meeting 3:** Friday, February 9, 2018; 3:00 PM – 5:00 PM EST (Location: Teleconference/Webinar)
4. **TEP Meeting 4:** Thursday, September 27, 2018; 3:00 PM – 5:00 PM EST (Location: Teleconference/Webinar)
5. **TEP Meeting 5:** Wednesday, December 19, 2018; 5:00 PM – 6:30 PM EST (Location: Teleconference/Webinar)
6. **Additional meetings to be determined.**

Appendix C. MIPS MCC Admission Measure: Conceptual Framework for Risk Adjustment



Appendix D: Proposed Heart Failure Cohort Inclusion and Exclusion Codes

Table D1: Proposed List of MIPS Heart Failure Cohort Inclusion Codes

ICD-10-CM	Label
I09.81	Rheumatic heart failure
I11.0	Hypertensive heart disease with heart failure
I13.0	Hypertensive heart and chronic kidney disease with heart failure and stage 1 through stage 4 chronic kidney disease, or unspecified chronic kidney disease
I13.2	Hypertensive heart and chronic kidney disease with heart failure and with stage 5 chronic kidney disease, or end stage renal disease
I50.1	Left ventricular failure
I50.20	Unspecified systolic (congestive) heart failure
I50.21	Acute systolic (congestive) heart failure
I50.22	Chronic systolic (congestive) heart failure
I50.23	Acute on chronic systolic (congestive) heart failure
I50.30	Unspecified diastolic (congestive) heart failure
I50.31	Acute diastolic (congestive) heart failure
I50.32	Chronic diastolic (congestive) heart failure
I50.33	Acute on chronic diastolic (congestive) heart failure
I50.40	Unspecified combined systolic (congestive) and diastolic (congestive) heart failure
I50.41	Acute combined systolic (congestive) and diastolic (congestive) heart failure
I50.42	Chronic combined systolic (congestive) and diastolic (congestive) heart failure
I50.43	Acute on chronic combined systolic (congestive) and diastolic (congestive) heart failure
I50.810	Right heart failure, unspecified
I50.811	Acute right heart failure
I50.812	Chronic right heart failure
I50.813	Acute on chronic right heart failure
I50.814	Right heart failure due to left heart failure

ICD-10-CM	Label
I50.82	Biventricular heart failure
I50.83	High output heart failure
I50.84	End stage heart failure
I50.89	Other heart failure
I50.9	Heart failure, unspecified
I25.5	Ischemic cardiomyopathy
I420	Dilated cardiomyopathy
I421	Obstructive hypertrophic cardiomyopathy
I422	Other hypertrophic cardiomyopathy
I425	Other restrictive cardiomyopathy
I426	Alcoholic cardiomyopathy
I427	Cardiomyopathy due to drug and external agent
I428	Other cardiomyopathies
I429	Cardiomyopathy, unspecified
I43	Cardiomyopathy in diseases classified elsewhere
O903	Peripartum cardiomyopathy

Table D2: Proposed List of MIPS Heart Failure Cohort Exclusion Codes

ICD-10-PCS	Label
02HA0QZ	Insertion of Implantable Heart Assist System into Heart, Open Approach
02HA3QZ	Insertion of Implantable Heart Assist System into Heart, Percutaneous Approach
02HA4QZ	Insertion of Implantable Heart Assist System into Heart, Percutaneous Endoscopic Approach
02HA0RS	Insertion of Biventricular External Heart Assist System into Heart, Open Approach
02HA3RS	Insertion of Biventricular External Heart Assist System into Heart, Percutaneous Approach
02HA4RS	Insertion of Biventricular External Heart Assist System into Heart, Percutaneous Endoscopic Approach
02HA0RZ	Insertion of External Heart Assist System into Heart, Open Approach
02HA3RZ	Insertion of External Heart Assist System into Heart, Percutaneous Approach
02HA4RZ	Insertion of External Heart Assist System into Heart, Percutaneous Endoscopic Approach
02YA0Z0	Transplantation of Heart, Allogeneic, Open Approach
02YA0Z1	Transplantation of Heart, Syngeneic, Open Approach
02YA0Z2	Transplantation of Heart, Zooplasic, Open Approach