

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

October 2017

**Prepared by:**

Yale New Haven Health Services Corporation – Center for Outcomes Research and Evaluation  
(YNHHSC/CORE)

This material was prepared by YNHHSC/CORE under contract to the Centers for Medicare & Medicaid Services (CMS), an agency of the U.S. Department of Health and Human Services. The contents presented do not necessarily reflect CMS policy.

## Table of Contents

Background .....	3
CORE Project Team .....	3
The Technical Expert Panel .....	4
Technical Expert Panel Meetings.....	6
Key Issues Discussed During Technical Expert Panel Meeting 1 .....	6
Executive Summary of First Technical Expert Panel Meeting .....	6
Detailed Summary of First Technical Expert Panel Meeting .....	7
Input Received after Technical Expert Panel Meeting 1.....	12
Detailed Summary of Input Received after Technical Expert Panel Meeting 1 .....	12
Appendix A. CORE Project Team.....	19
Appendix B. Technical Expert Panel Call Schedule .....	20

*The materials within this document do not represent final specifications for the Development of Inpatient Outcome Measures for the Merit-based Incentive Payment System.*

## 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 adapt one or two claims-based hospital measures to assess the quality of care provided to Medicare beneficiaries by clinicians who are eligible to participate in the Merit-based Incentive Payment System (hereinafter, MIPS eligible clinicians).

Previously, CORE developed a range of measures to assess hospital quality. CORE plans to adapt one or two of these existing measures to assess care provided by MIPS eligible clinicians. The measure(s) already specified for the hospital setting cover a range of acute and/or chronic conditions, and elective procedures. The adapted measure(s) will likely include one outcome measure assessing a range of hospitalized patients and one measure based on an elective procedure. The measure(s) will assess each clinician's outcome rate, such as readmission rate or complication rate, relative to that of other MIPS eligible clinicians with similar patients. 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 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. This TEP is providing input on approaches to measure attribution that could apply to multiple measures and will help shape the approach to one or two specific measures on a full range of measure specifications, including attribution, cohort definition, and risk adjustment.

This report summarizes the feedback and recommendations received from the TEP during the first meeting to discuss key principles that CORE will use to define attribution rules for hospital measures that will be re-specified for the MIPS. The report will be updated to include feedback and recommendations from future TEP meetings as they occur.

## CORE Project Team

The CORE Project Team consists of individuals with expertise in measure development, health services research, clinical medicine, statistics, and measurement methodology.

Jeph Herrin, PhD, leads the CORE Project Team. Dr. Herrin is a statistician and Assistant Adjunct Professor of Cardiology at Yale School of Medicine. He has contributed to CORE's development of a number outcome measures.

Susannah Bernheim, MD, MHS, Director of Quality Measurement at CORE and an Assistant Clinical Professor at the Yale School of Medicine, oversees the work.

See [Appendix A](#) for the full list of members of the CORE Project Team.

*The materials within this document do not represent final specifications for the Development of Inpatient Outcome Measures for the Merit-based Incentive Payment System.*

## The Technical Expert Panel

In alignment with CMS's Measures Management System<sup>1</sup>, CORE released a public call for nominations to convene the TEP. The TEP's role is to provide feedback on key conceptual, clinical, and methodological decisions made in consultation with CORE.

[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, clinical medicine, and policy. The appointment term for the TEP is from August 2017 through September 2018.

**Table 1. TEP member name, affiliation, and location**

Name, credentials, and professional role	Organizational affiliation	Location
<b>Kathleen Blake</b> , MD, MPH; Vice President, Healthcare Quality (cardiology)	American Medical Association	Washington, DC
<b>John Birkmeyer</b> , MD; Chief Clinical Officer (general surgery)	Sound Physicians	Tacoma, WA
<b>Dale Bratzler</b> , DO, MPH; Chief Quality Officer (internal medicine)	University of Oklahoma Physicians	Oklahoma City, OK
<b>Daniel Brotman</b> , MD, SFM, FACP; Professor of Medicine, Johns Hopkins University Director of Hospitalist Program, (internal medicine)	Johns Hopkins University School of Medicine; Johns Hopkins Hospital	Baltimore, MD
<b>Tracy Cardin</b> , ACNP-BC, SFHM; Director of Nurse Practitioner/Physician Assistant Services (nursing - inpatient)	University of Chicago Hospital Medicine	Chicago, IL
<b>Cathy Castillo</b> , BA	Patient or caregiver representative	Redwood City, CA
<b>Bruce Chernof</b> , MD; President and Chief Executive Officer (internal medicine)	The SCAN Foundation	Long Beach, CA
<b>Donna Cryer</b> , JD; President and Chief Executive Officer	Global Liver Institute	Washington, DC

<sup>1</sup> Center for Medicare & Medicaid Services. Blueprint for the Center for Medicare & Medicaid Services Measures Management System Version 13.0. 2017; <https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/MMS/Downloads/Blueprint-130.pdf>. Accessed October 12, 2017.

*The materials within this document do not represent final specifications for the Development of Inpatient Outcome Measures for the Merit-based Incentive Payment System.*

<b>Name, credentials, and professional role</b>	<b>Organizational affiliation</b>	<b>Location</b>
<b>Sherrie H. Kaplan</b> , PhD, MPH; Assistant Vice Chancellor, Healthcare Measurement and Evaluation School of Medicine, Professor of Medicine and Anesthesiology & Perioperative Care	University of California, Irvine	Irvine, CA
<b>Timothy Kresowik</b> , MD, MS; Professor of Surgery - Vascular Surgery (vascular surgery)	University of Iowa Hospitals & Clinics	Iowa City, IA
<b>Joshua Lapps</b> , MA; Government Relations Manager	Society of Hospital Medicine	Philadelphia, PA
<b>Frederick Masoudi</b> , MD, MSPH; Professor of Medicine and Staff Cardiologist (cardiology)	University of Colorado Denver, University of Colorado Anschutz Medical Campus	Aurora, CO
<b>Brian McCardel</b> , MD; Orthopedic Surgeon/Board Member (orthopedics)	Sparrow Health System	Lansing, MI
<b>James Moore</b> , MD; Clinical Professor of Anesthesiology and Perioperative Medicine (anesthesiology)	University of California Los Angeles Health	Los Angeles, CA
<b>Michelle Mourad</b> , MD; Vice Chair for Clinical Affairs and Value, Medicine (internal medicine - hospital medicine)	University of California, San Francisco Health	San Francisco, CA
<b>Juan Quintana</b> , DNP, MHS, CRNA; Certified Registered Nurse Anesthetist (nursing - anesthesia)	American Association of Nurse Anesthetists	Winnsboro, TX
<b>Carol Raphael</b> , MA, MPH; Senior Advisor	Manatt Health Solutions	New York, NY
<b>Charlene Setlow</b>	Patient representative	Salinas, CA
<b>Heidi L. Wald</b> , MD, MSPH; Associate Professor of Medicine; Co-Director, Acute Care for Elders Service; Physician Advisor (internal medicine - geriatrics)	University of Colorado; University of Colorado Hospital; Colorado Hospital Association	Aurora, CO

*The materials within this document do not represent final specifications for the Development of Inpatient Outcome Measures for the Merit-based Incentive Payment System.*

## Technical Expert Panel Meetings

CORE held its first TEP meeting on September 14, 2017 and anticipates holding at least one in-person meeting no earlier than fall 2017. As measure development may continue after fall 2017, CORE will hold additional teleconference or in-person meetings as needed through September 2018 (see [Appendix B](#) for the TEP meeting schedule). 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.

This summary report contains a [summary of the first TEP meeting that CORE hosted on September 14, 2017](#) and [input received after the first TEP meeting](#).

## Key Issues Discussed During Technical Expert Panel Meeting 1

Prior to the first TEP meeting (TEP Meeting 1) held on September 14, 2017, 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 CMS policy relevant to the project.
- Background and key principles for adapting inpatient measures to clinicians.
- An example application of the key principles to consider the feasibility and validity of adapting an inpatient measure for clinicians, which used CMS's 30-day hospital acute myocardial infarction (AMI) readmission measure as a case study.

### Executive Summary of First Technical Expert Panel Meeting

#### Overview of Information Presented by CORE

CORE reviewed:

- Goals of the meeting, project overview, and TEP Charter.
- Background on the MIPS.
- Key principles for adapting inpatient measures to clinicians.
- Candidate attribution rules to re-specify an example inpatient measure for measuring clinicians.

#### Overview of TEP Feedback

The TEP:

- Reviewed and approved the TEP Charter, without any modifications.

*The materials within this document do not represent final specifications for the Development of Inpatient Outcome Measures for the Merit-based Incentive Payment System.*

- Provided input on the overall goal of attributing inpatient measures to clinicians. Specifically:
- TEP members expressed concern about ensuring that measurement accounts for factors outside of clinician control.
- TEP members noted the importance of ensuring the measurement leads to increased quality and collaboration within hospitals, while avoiding perverse incentives.
- TEP members emphasized the importance of testing reliability and accuracy of attribution rules, with particular concern of small volume.
- TEP members noted the complexity of cases that would limit adequate attribution to a sole provider and voiced support for attribution of an outcome to multiple clinicians to increase alignment of incentives and ensure comprehensive care of a patient.
- Provided input on the five key principles for adapting inpatient measures to clinicians outlined by CORE. Specifically:
- TEP members expressed concern about how a hospital's underlying conditions may affect outcomes attributed to clinicians. Several offered solutions to disentangle hospital contributions from a measure of clinician quality.
- TEP members supported adding a sixth principle that attribution should not create perverse incentives.

## **Detailed Summary of First Technical Expert Panel Meeting**

### Welcoming Remarks and Introductions

- CORE welcomed the TEP members to the meeting to discuss the development of inpatient outcome measures for MIPS. Of the 19 total TEP members, 15 attended the meeting. The CORE team reviewed the confidentiality agreement and the funding source for the project.
- CORE explained that it has developed a strategy for re-specifying hospital-level quality measures for clinicians and will use the strategy to build quality measures for clinicians that are closely aligned with those used to assess hospital quality.

### Technical Expert Panel 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.

*The materials within this document do not represent final specifications for the Development of Inpatient Outcome Measures for the Merit-based Incentive Payment System.*

## Project Background and Policy Framework

### *CORE Presentation to the TEP*

- CORE provided an overview of CMS's Quality Payment Program (QPP), which was established by statute and is a new program for measuring the quality of clinicians' care, and specifically of the MIPS to orient the TEP to how the program is set up.
- CORE noted that clinicians can participate in the QPP in one of two tracks: (1) the MIPS and (2) advanced Alternative Payment Models (APMs). Based on incentives that CMS has laid out, a majority of clinicians will participate in the MIPS initially; however, over time, due to financial incentives, more clinicians are expected to begin participating in APMs.
- CORE described the types of providers included in the MIPS (physicians and non-physician and non-physician practitioners) and explained that quality is one of four performance categories that will contribute to a clinician or clinician group's composite performance score used to adjust Medicare payments to clinicians or clinician groups.
- CORE noted that under the MIPS, there are currently few quality measures that evaluate inpatient clinicians, which is where this project's role has been defined.
- CORE described that the project's goal is to re-specify hospital measures to evaluate the quality of clinicians or clinician groups that primarily practice in an inpatient setting.
- The primary challenge will be to identify an *attribution rule* (rule for deciding which clinician or clinician group is assigned the outcome when re-specifying a hospital measure), which will be important to consider in the overall context of *re-specification* (adapting an existing hospital measure to clinicians).

### *TEP Feedback*

- Three TEP members sought clarification regarding the measures for which the attribution rule was being developed. Of these, one TEP member asked if the goal of the project was to re-specify all or select hospital measures for clinicians.
- CORE clarified that we are considering adapting one or more of CMS's hospital outcome measures. The measure(s) CORE will re-specify will be from among those that CORE previously developed for hospital quality measurement (for example, measures of readmission, mortality, complications, excess days in acute care) and are sensible to use for clinician quality measurement.
- CORE stated that CMS has not indicated the specific hospital measure(s) that will be re-specified for clinicians. The focus of TEP Meeting 1 was to provide an idea of the universe of measures CORE may work on re-specifying, but not to dive into any particular one except as a case study to build key principles.

*The materials within this document do not represent final specifications for the Development of Inpatient Outcome Measures for the Merit-based Incentive Payment System.*



- Seven TEP members voiced the importance of considering the specific measure (cohort, outcome) when identifying clinicians who had a significant role in influencing outcome.
- Three of the TEP members stated the need to keep in mind administrative considerations such as staffing ratios, nursing support, or pharmacy services as a provider's role can vary in different settings such as academic medical centers or physician groups. In this context, one TEP member highlighted that discharge instructions are often uninformative to patients, and sometimes patients leave hospitals without knowing their required actions.
- Two TEP members asked whether CORE would distinguish between hospital and clinician effects on quality of care.
- Six TEP members commented on attribution methods.
- Two of these six TEP members suggested considering prospective attribution because it is important for clinicians to be aware that the care of a particular individual will be attributed to him or her. One of these TEP members noted CMS's work to define patient relationship categories and encouraged CORE keep an eye on these.
- Three of the six TEP members supported multiple attribution to account for patients receiving care from more than one provider versus single attribution that assigns a patient to one provider. TEP members noted that single attribution would not likely to lead to collaboration whereas multiple attribution would promote accountability and engagement among clinicians treating the same patient to achieve a positive outcome.
- Two of the six TEP members identified the importance of transparency to providers about why and how a patient was assigned to them. Of these, one supported an attribution method in which a physician has an opportunity to see how and to what extent he/she and others may have contributed to the outcome; the TEP member also suggested integrating patient attestation into attribution.
- Three TEP members commented on potential perverse behaviors or unintended consequences. Of these:
  - One TEP member was concerned with whether evaluating the quality of clinicians with readmissions, for example, would result in unintended consequences and whether it may change clinicians' practice and behaviors. The TEP member asked whether clinicians would advise patients to return to the hospital if clinicians recognized they would be penalized for the readmission.
  - One TEP member suggested that CORE ensure attribution engenders partnership between a clinician and a facility instead of fracturing the clinician-facility relationships.

*The materials within this document do not represent final specifications for the Development of Inpatient Outcome Measures for the Merit-based Incentive Payment System.*

- One TEP member urged CORE to avoid a simplistic approach and noted that attribution will be imperfect, but should encourage clinicians to provide quality care and avoid perverse incentives.
- Five TEP members commented on the data source or measure testing. Of these:
- All five TEP members commented on the importance of testing measure reliability during re-specification.
- One TEP member noted it would be important to consider whether and how to risk adjust. The TEP member noted that the length of a patient's stay is variable; a provider seeing a patient more often or a sicker patient for a longer period of time may help clearly link a clinician to a patient, the latter calling upon the need for appropriate risk adjustment.
- Two TEP members suggested CORE consider the accuracy of attribution rules.
- One TEP member was concerned with the use administrative claims data for measure re-specification and in particular, for risk adjustment and data reliability. The TEP member stated that it would be important to consider the differences in data reported for an individual clinician versus a hospital as there are implications for providers at small group practices who lack capacity to access and report their data.
- One TEP member asked if the re-specified measure(s) would assess individual clinicians or clinician groups. A second TEP member asked for the definition of a clinician group.
- Two TEP members did not comment as they felt satisfied by the topics covered and other TEP input.

#### *CORE Response to TEP Feedback*

- CORE thanked the TEP members for their comments and confirmed that we would utilize the TEP's input to move forward and to discover what is feasible when re-specifying hospital measures for clinicians. CORE noted that many of the comments touched on the principles that the team had developed and stated that particular issues raised by the TEP members were unintended consequences of attribution that CORE would monitor.

#### Principles of Attribution

##### *CORE Presentation to the TEP*

- CORE introduced five key principles for the re-specification of hospital measures to clinicians, which CORE developed based on examination of literature, CORE's prior work on hospital measurement, and the policy goals of the QPP.
  1. Attribution is specific to the measure outcome.

*The materials within this document do not represent final specifications for the Development of Inpatient Outcome Measures for the Merit-based Incentive Payment System.*

2. Adapted measures should align with original hospital measures.
3. Clinician quality may be inseparable from hospital quality.
4. Inpatient outcomes may be most reasonably attributed to inpatient clinicians.
5. Attribution should align with policy goals.

#### *TEP Feedback*

- One TEP member commented on the second principle and noted that using the same risk-adjustment and reporting methods for clinicians may not be appropriate in all cases.
- Six TEP members provided feedback on the third principle. The TEP members suggested CORE consider analytically assessing the rationale behind the principle. Of these:
  - One TEP member was interested in whether there is clustering of the hospital effect on quality included in clinician scores. The TEP member stated utilizing methods to compare similar providers between and within hospitals may provide evidence to either support or refute the third principle.
  - One TEP member agreed it is impossible to completely disentangle physician and hospital contributions to a specific quality measure or outcome, and suggested weighing measures differently in the MIPS based on their physician-sensitivity.
  - Two TEP members said it is important to consider the role of the physician at multiple hospitals – for example, in following patients to various hospitals, advising patients to seek care at one facility over another, or affiliation with multiple hospitals.
  - Two TEP members supported adjusting for hospital-level performance.
- One TEP member sought clarification on the fifth principle.
  - CORE clarified that the most important concept to consider in developing and testing attribution rules is that both clinical and policy sensibility need to be applied over the statistical properties of an attribution rule or measure.
- Three TEP members supported creating a sixth principle that would highlight the goal to improve patient care and carefully consider unintended consequences in selecting an attribution rule.
- Two TEP members expressed concern with the integrity of using administrative claims data for the measure(s); one noted a risk-adjusted measure built with electronic health record data would be more reliable than a claims-based measure.

*The materials within this document do not represent final specifications for the Development of Inpatient Outcome Measures for the Merit-based Incentive Payment System.*

### *CORE Response to TEP Feedback*

- CORE appreciated the TEP's review of and input on the key principles. CORE will consider analytic work to support and to better describe the third principle and will add a sixth principle per TEP input.

### Case Study – 30-Day Acute Myocardial Infarction Readmission Measure

#### *CORE Presentation to the TEP*

- CORE introduced CMS's 30-day hospital acute myocardial infarction (AMI) readmission measure, which CORE used as a case example to test potential attribution rules.
- CORE introduced the [eight candidate attribution rules](#) applied to the example AMI readmission measure and obtained TEP feedback via email after the meeting (see [next section for summary of TEP feedback on the rules](#)).

#### Summary

- CORE thanked the TEP for its input and explained that there will be additional opportunities to discuss these topics in the future. Immediately following the meeting, CORE solicited TEP input on the attribution rules applies to the example measure of AMI readmission.

## **Input Received after Technical Expert Panel Meeting 1**

### **Detailed Summary of Input Received after Technical Expert Panel Meeting 1**

### Case Study – 30-Day Acute Myocardial Infarction Readmission Measure

#### *CORE Presentation to the TEP*

- By email, CORE sought TEP input on eight candidate attribution rules developed and tested using CMS's 30-day AMI readmission measure as a case example for future measure re-specification.
  1. Attending: This clinician is identified through an inpatient claim and assigns the outcome to the clinician responsible for the patient while he/she is in the hospital.
  2. Discharging clinician: This clinician is identified through the outpatient (Carrier) claims and assigns the patient outcome to the clinician who sent the patient home, presumably after checking the patient's conditions and treatment, and providing discharge instructions. The discharging clinician is identified as the one who reported the discharge code (Current Procedural Terminology [CPT®] code 99238 or 99239) during the hospitalization.

*The materials within this document do not represent final specifications for the Development of Inpatient Outcome Measures for the Merit-based Incentive Payment System.*

3. Most charges: This clinician is identified through the outpatient claims and assigns the patient outcome to the eligible clinician who billed the most charges for the patient during the hospital stay. The rationale for this method is that a clinician who bills the most for a patient's care should be held responsible for the patient's outcome.
4. Most claims: Similar to the prior rule, this assigns the outcome to the eligible clinician who bills the most claims for the patient during the hospital stay.
5. Value Modifier, adapted: This assigns the patient outcome to the primary care clinician who bills the most charges for the patient during the 12 months prior to admission.
6. Value Modifier, specialist: This assigns the patient outcome using the Value Modifier attribution method, but removes the precedence given to primary care physicians.
7. Multiple: This assigns the patient to any clinician with a "patient-facing" claim during the inpatient stay, as well as to the attending and discharge clinicians.
8. Hospital measure: This assigns hospital score to any eligible clinician with a "patient-facing" claim during the inpatient stay as well as to the attending and discharging clinicians.

#### *TEP Feedback*

16 of 19 TEP members emailed input on the attribution rules tested for the example measure of AMI readmission for CORE's review.

- Eight TEP members commented on the "attending" attribution rule:
  - Six TEP members were concerned that the definition of an attending may not be consistent across institutions. For example, one TEP member noted that the attending is the discharging provider or surgeon if a post-operative case whereas another TEP member noted the "attending" is the admitting provider at another institution. Two of the six TEP members noted potential inconsistency with CMS's patient relationship codes may be challenging.
  - Two TEP members supported this rule. Of these:
    - One TEP member ranked it as second choice (of eight).
    - One TEP member supported it as one of four top choices (the other three: most charges, most claims, discharging clinician).
  - Two TEP members thought this rule was problematic, in that the attending often has no additional contact with patient after admission.
- Twelve TEP members commented on the "discharging clinician" attribution rule:

*The materials within this document do not represent final specifications for the Development of Inpatient Outcome Measures for the Merit-based Incentive Payment System.*

- Seven TEP members supported this attribution rule. Of these:
  - Five TEP members voiced support for this attribution rule, as the discharge clinician is likely to have provided a significant amount of care; one TEP member noted a combination rule of “discharging clinician” and “most charges” would be most ideal. One TEP member suggested that discharging clinician be weighted more than others.
  - One TEP member ranked it as second choice (of eight).
  - One TEP member supported it as one of four top choices (the other three: attending, most charges, most claims).
- Four TEP members commented on unintended consequences or concerns with discharge coding practices.
  - Three of the four TEP members noted the discharging clinician may not reflect who provided substantial care or the myriad of providers who cared for a patient during hospitalization.
  - Two of the four TEP members noted that not all providers bill discharge day CPT® codes 99238 or 99239 that CORE used to identify the discharging clinicians. Some providers could bill CPT® codes (99231, 99232, 99233) as reimbursement is virtually identical for these. However, one TEP member noted that the discharging clinician should be responsible for readmission.
  - Two of the four TEP members were concerned attribution to the discharging clinician may result in unintended consequences such as delaying discharge or assign responsibility more heavily to providers covering on weekends.
- One TEP member asked whether the quality of the discharge summary could be considered with this attribution rule.
- Seven TEP members commented on the “most charges” attribution rule. Of these:
  - Five TEP members were concerned with the attribution rule because, for example:
    - It does not identify the responsible provider; the discharging clinician is more appropriate to identify as the responsible provider.
    - Providers can bill for different encounters or services, and reimbursement varies for different encounters or services; for example, procedures are more expensive. Related to this, two TEP members suggested testing whether “most charges” indicates “most responsibility.”
    - Multiple clinicians may have billed the same amount for a patient.

*The materials within this document do not represent final specifications for the Development of Inpatient Outcome Measures for the Merit-based Incentive Payment System.*

- Some of the charges may not have been warranted.
- Three TEP members supported the attribution rule. Of these:
  - One supported combining the “most charges” with the “discharging clinician” rule (with an emphasis on the “discharging clinician”).
  - One ranked it as fourth choice (of eight).
  - One supported it as one of four top choices (the other three: discharging clinician, most charges, most claims).
- Seven TEP members commented on the “most claims” attribution rule:
  - Three TEP members supported the attribution rule:
    - One of the three supported combining the “most claims” with the “discharging clinician” attribution rule (with an emphasis on the “discharging clinician”).
    - One of the three ranked it as first choice (of eight).
    - One of the three supported it as one of four top choices (the other three: attending, discharging clinician, most charges).
  - Five TEP members were concerned with this “most claims” attribution rule for the same reasons as the “most charges” attribution rule.
- Thirteen TEP members commented on the “Value Modifier, adapted” and “Value Modifier, specialist” attribution rules:
  - Ten TEP members were concerned about the rules because, for example:
    - It is highly disruptive if the physician who interacts the most with a patient does not follow their patients to the hospital.
    - The Value Modifier definition of primary care should be revised.
    - A primary care provider typically cannot influence care for an AMI patient; for other conditions, they may have more responsibility.
  - Three TEP members supported the attribution rules:
    - One TEP member noted that using the Value Modifier approach combined with the “discharging clinician” rule could capture the joint responsibility for a patient.
    - One TEP member stated that this rule can only be successful if each patient has an established primary care provider with whom they regularly interact.
    - One TEP member stated the rules were promising especially if they encouraged communication between inpatient and outpatient providers and stated that a primary care provider stands the best chance of knowing how a patient is likely to respond to care. However, the TEP

*The materials within this document do not represent final specifications for the Development of Inpatient Outcome Measures for the Merit-based Incentive Payment System.*

- member was concerned with attributing patient outcomes to a primary care provider for incorrect diagnoses made by an admitting physician.
- Fifteen TEP members commented on the “multiple” attribution rule.
    - Twelve TEP members supported the rule because it made sense conceptually. Of these (not mutually exclusive):
      - One TEP member stated this is consistent with the approach being taken for CMS cost measures.
      - Four TEP members voiced that the attribution rule was the most compelling as it would make transparent the many clinicians providing care to a patient.
      - A few TEP members commented on whether the attribution rule should include weighting.
        - One TEP member favored the rule as long as higher weight could be placed on discharging clinicians.
        - One TEP member asked whether the rule could be weighted based on amount of contact with a patient and if the rule could accommodate both inpatient and outpatient clinicians.
        - One TEP member did not favor weighting although it makes clinical sense because it would be confusing to explain and challenging to construct given varied responsibilities of providers.
      - Although supportive of the attribution rule:
        - One TEP member was unsure it would be fair (need data).
        - One TEP member noted it would not account for degree of influence a provider has for a patient.
        - One TEP member felt the operator should be held responsible for procedure-based complications.
      - Two TEP members called for data to understand the implications.
      - One TEP member noted that attribution at the individual provider level will never completely encompass all those responsible for a patient’s care. The TEP member stated that single attribution methods would likely create disharmony and lead to behavior avoiding problematic patients.
      - One TEP member ranked it as fifth choice (of eight).
    - One TEP member asked if the rule would include primary care providers.
    - One TEP member asked if CMS could afford if all clinicians were to be penalized or receive an incentive, if multiple providers were attributed an outcome.
  - Seven TEP members commented on the “hospital measure” attribution rule:
    - Six TEP members did not agree with the attribution rule.

*The materials within this document do not represent final specifications for the Development of Inpatient Outcome Measures for the Merit-based Incentive Payment System.*



- Five TEP members agreed that applying the hospital score to clinicians would defeat the purpose of clinician attribution.
  - One TEP member stated that this attribution rule was the least attractive to them because it would be hard to distinguish between providers versus within-provider variation. The TEP member noted applying the hospital score makes less sense for hospitals in which many providers care for smaller samples of patients.
- One TEP member stated that this method aligns with the MIPS hospital-based provider reporting option, yet moves away from individual clinician attribution.
- Additionally, eight TEP members proposed attribution rules for the team to consider or offered additional insights:
  - TEP members requested data to help understand trade-offs.
  - One TEP member stated that attribution rules should be evaluated across different types of health systems to ensure attribution performs well in all settings of care.
  - One TEP member found the list of candidate attribution rules to be adequate.
  - Two TEP members stated the importance of empirical testing to determine movement across attribution rules.
  - One TEP member proposed that certain clinical conditions may provide an expected list of clinicians that would be most likely to influence care for a patient. This condition, identified through specialty billing codes, could be used to narrow the list of clinicians responsible and promote team-based care.
  - Two TEP member supported attribution rules that are transparent or easily messaged to clinicians.
  - One TEP member voiced support for investigating attribution based on prescriptions written for patients, as complications resulting from inappropriately prescribed medications, or without full disclosure of side effects and risk is a substantial cause of adverse outcomes.
  - One TEP member commented on several aspects related to measure re-specification and testing. The TEP member:
    - Asked how reliability and validity at the individual clinician level would be determined, and noted that if using intraclass correlation coefficients, data would not support comparison of individual clinicians unless composites are created.

*The materials within this document do not represent final specifications for the Development of Inpatient Outcome Measures for the Merit-based Incentive Payment System.*

- Noted that ranking clinicians who are being compared (distribution scoring) would be difficult and identified the need for confidence intervals around measure scores.
- Commented on clustering of the hospital effect on quality included in clinician scores. The TEP member favored a components of variation analysis to try to discriminate the effects of institution, provider, and patients on outcome measures. Additionally, the TEP member stated that disentangling hospital from clinician-level quality raises issues for hospitals where few clinicians provide the majority of care and the number of physicians per institution or comparison unit.
- Asked how turnover of clinician group membership would be addressed.

*CORE Response to TEP Feedback*

- The TEP's input on the example attribution rules for CMS's AMI readmission measure will be used as we determine attribution rules and testing during measure development.

## Appendix A. CORE Project Team

**Table A1. Center for Outcomes Research and Evaluation (CORE) Project Team Members**

Team member	Role
<b>Faseeha K. Altaf</b> , MPH	Project Coordinator
<b>Katie Balestracci</b> , PhD	Research Scientist
<b>Susannah M. Bernheim</b> , MD, MHS	Project Director
<b>Elizabeth E. Drye</b> , MD, SM	Clinical Investigator
<b>Jeph Herrin</b> , PhD	Project Lead
<b>Raymond Jean</b> , MD	Clinical Investigator
<b>Harlan M. Krumholz</b> , MD, SM	Principal Investigator
<b>Shu-Xia Li</b> , PhD	Analyst
<b>Yixin Li</b> , MS	Analyst
<b>Zhenqiu Lin</b> , PhD	Analytics Director
<b>Melissa Miller</b> , MPH	Project Manager
<b>Sriram Ramanan</b> , BS	Research Assistant
<b>Ilana Richman</b> , MD	Clinical Investigator
<b>Rushi Shah</b> , BS	Research Assistant

*The materials within this document do not represent final specifications for the Development of Inpatient Outcome Measures for the Merit-based Incentive Payment System.*

## Appendix B. Technical Expert Panel Call Schedule

TEP feedback of CORE's approach to measure re-specification will inform the adaptation of existing hospital measures for clinicians. CORE will engage and seek input from the TEP through email communication and at least two meetings:

- TEP Meeting #1: Thursday, September 14, 2017 – 2:00 PM – 4:00 PM EST (Location: Teleconference/Webinar)
- TEP Meeting #2: Tentatively anticipated to occur no earlier than fall 2017.

Additional TEP meetings will be schedule after fall 2017, as needed.