

2023 Episode-Based Cost Measures Field Testing

Wave 5 Measure Development Process

Winter 2023 Field Testing



Table of Contents

1.0	Introduction	3
1.1	Project Background	4
1.2	Overview of Episode-Based Cost Measures	4
1.3	Process for Developing the Cost Measures	6
1.3.1	Technical Expert Panel (TEP)	6
1.3.2	Clinical Subcommittees (CS) and Clinician Expert Workgroups	6
	Input on Measure Conceptualization and Prioritization	6
	Expert Panel Input on Measure Specification	7
1.3.3	Person and Family Engagement	8
1.3.4	Field Testing	9
2.0	Components of Episode-Based Cost Measures	11
2.1	Definition of the Episode Group	11
2.1.1	Description of this Component	11
2.1.2	Process for Developing this Component	11
2.2	Attribution of Episodes to Clinicians	12
2.2.1	Description of this Component	12
2.2.2	Process for Developing for this Component	12
2.3	Assignment of Costs to the Episode Group	13
2.3.1	Description of this Component	13
2.3.2	Process for Developing this Component	13
2.4	Risk Adjustment	14
2.4.1	Description of this Component	14
2.4.2	Process for Developing this Component	14
2.5	Alignment of Cost with Quality	14
2.5.1	Description of this Component	14
2.5.2	Process for Developing this Component	15
Appendix A: Technical Expert Panel Members		16
Appendix B: Clinician Expert Workgroup Members		17

1.0 Introduction

This document provides the project background and details of the process for developing the 5 episode-based cost measures being field tested from January 17 to February 14, 2023.

This document has been publicly posted as part of field testing. Field testing is part of the measure development process and is an opportunity for clinicians and other interested members of the public to learn about episode-based cost measures and provide input on the draft specifications. During field testing, we'll:

- Distribute Field Test Reports on the [Quality Payment Program website](#)¹ for group practices and solo practitioners who meet the minimum number of cases for each measure.
- Post draft measure specifications (i.e., measure methodology and codes list) and supplemental documentation, such as testing results, on the [MACRA Feedback page](#).²
- Collect feedback on the draft specifications for each measure via online survey:
 - [2023 Cost Measures Field Testing Feedback Survey](#)³ for most feedback, including input on the measures, their draft specifications, the Field Test Reports, and other field testing materials
 - [Person and Family Engagement \(PFE\) Field Testing Survey](#)⁴ for people with lived experience, as a patient or a caregiver, with the conditions represented in the measures undergoing field testing

We're collecting feedback from **January 17 to February 14, 2023**.
To provide feedback on the draft measure specifications, please navigate to the [2023 Cost Measures Field Testing Feedback Survey](#).

This process document contains 2 sections:

- Section 1 provides an overview of the project and the overall approach for development.
- Section 2 describes the process used to develop each component of the episode-based cost measures.

¹ CMS, "Quality Payment Program Account," Quality Payment Program, <https://qpp.cms.gov/login>

² CMS, "Cost Measure Field Testing", MACRA Feedback Page, <https://www.cms.gov/Medicare/Quality-Payment-Program/Quality-Payment-Program/Give-Feedback>

³ The general field testing online survey will open beginning January 17, 2023, at this link: https://acumen.qualtrics.com/jfe/form/SV_a2Zlh0EmpjJJjM

⁴ The person and family field testing online survey will open beginning January 17, 2023, at this link: https://acumen.qualtrics.com/jfe/form/SV_d4OV0CJ62raRQX4

1.1 Project Background

The Medicare Access and Children’s Health Insurance Program (CHIP) Reauthorization Act of 2015 (MACRA) required CMS to collaborate with clinician and other communities to develop measures for potential implementation in the cost performance category of the Merit-based Incentive Payment System (MIPS), one of the tracks of the Quality Payment Program (QPP). CMS has contracted with Acumen, LLC (“Acumen”) to develop methodology for analyzing cost, as appropriate, through consideration of patient condition groups and care episode groups.

Acumen has implemented a measure development process that relies on input from a large number of sources, including multiple groups of clinicians affiliated with a broad range of professional societies, to develop clinically appropriate and transparent measures that provide actionable information to clinicians.

1.2 Overview of Episode-Based Cost Measures

Episode-based cost measures represent the cost to Medicare for the items and services furnished to a patient during an episode of care (“episode”). The term “cost” generally means the standardized Medicare allowed amount, which includes both Medicare and trust fund payments and any applicable deductible and coinsurance amounts on traditional, fee-for-service claims. Claims data from Medicare Parts A and B are used to construct the episode-based cost measures,⁵ and some measures also include data from Medicare Part D.⁶

Episode-based cost measures are intended to measure clinician resource use based on only those costs that occur as part of an attributed clinician’s care management. An episode includes the costs from services that are clinically related to the care being assessed during a defined period, called the episode window. Episodes include services that identify the clinician who is managing or treating a patient’s condition, routine care services, and consequences of care. Episodes don’t include services that are clinically unrelated.

The measure sums up the clinically related costs during the episode window and risk adjusts them to accommodate accurate comparison of cost across clinicians. Risk adjustment is intended to account for characteristics of patients that can affect spending and may be outside of the clinician’s reasonable influence (e.g., age, pre-existing conditions).

⁵ Claim payments are standardized to account for differences in Medicare payments for the same service(s) across Medicare providers. Payment standardized costs remove the effect of differences in Medicare payment among health care providers that are the result of differences in regional health care provider expenses measured by hospital wage indexes and geographic price cost indexes (GPCIs) or other payment adjustments such as those for teaching hospitals. For more information, please refer to the “CMS Part A and Part B Price (Payment) Standardization - Basics” and “CMS Part A and Part B Price (Payment) Standardization - Detailed Methods” documents posted on the CMS Price (Payment) Standardization Overview page. (<https://www.resdac.org/articles/cms-price-payment-standardization-overview>).

⁶ Claim payments from Part D are payment standardized to allow resource use comparisons for providers who prescribe the same drug, even if the drug products are covered under varying Part D plans, produced by different manufacturers, or dispensed by separate pharmacies. For more information, please refer to the “CMS Part D Price (Payment) Standardization” document posted on the CMS Price (Payment) Standardization Overview page. (<https://www.resdac.org/articles/cms-price-payment-standardization-overview>).

Part D branded drug costs are also adjusted to account for post-point of sale drug rebates; more information can be found in the Methodology for Rebates in Part D Standardized Amounts on the MACRA Feedback Page (<https://www.cms.gov/Medicare/Quality-Payment-Program/Quality-Payment-Program/Give-Feedback>).

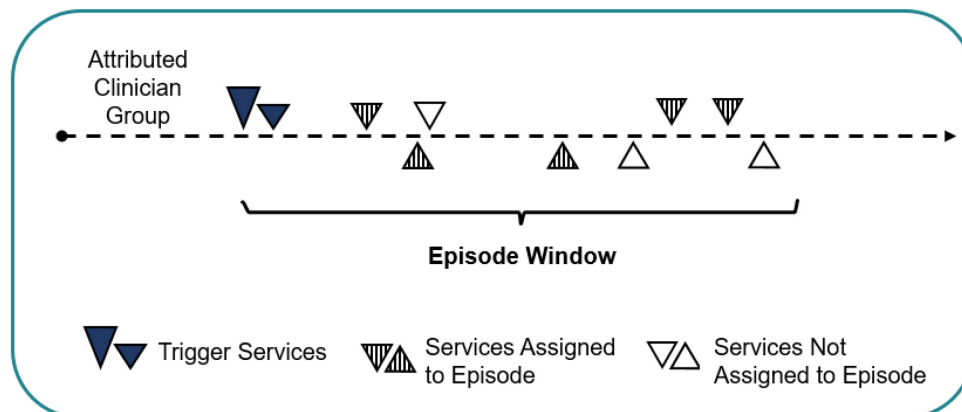
Currently, there are 4 types of episode groups that serve as the basis for cost measures:

- Procedural episode groups focus on procedures of a defined purpose or type, such as surgeries.
- Acute inpatient medical condition (“acute”) episode groups represent treatment for self-limited acute illness or treatment for flares or an exacerbation of a condition that requires a hospital stay.
- Chronic condition episode groups account for the ongoing management of a disease or condition. The measures being field tested in 2023 are based on a chronic condition episode group framework:
 - **Chronic Kidney Disease** (ckd)
 - **End-Stage Renal Disease** (esrd)
 - **Kidney Transplant Management** (kidney_tplt)
 - **Prostate Cancer** (prost_ca)
 - **Rheumatoid Arthritis** (rheum_arth)
- The Emergency Medicine measure, developed during Wave 4 of development, is centered around a setting of care rather than a unique condition or procedure, and focuses on the care provided by clinicians in the emergency department.

The short form name of each measure (provided in parentheses after the measure name above) is used in the file names of the Draft Cost Measure Methodology and Draft Cost Measure Codes List files, which provide full details of the measure specifications and which will be available on the [MACRA Feedback Page](#) at the start of field testing.

Figure 1 below presents a constructed episode example for chronic condition episode groups.

Figure 1. Diagram Showing a Constructed Episode for Chronic Condition Episodes



The measures being field tested in 2023 are all based on chronic condition episode groups. Therefore, this document primarily focuses on the measure components and measure development process for chronic condition episode groups. Similar information for other types of episode groups is available in the development process documents from previous years of field testing, available on the [MACRA Feedback Page](#).

1.3 Process for Developing the Cost Measures

Input from clinical experts and other interested members of the public is critical to the development of robust, meaningful, and actionable episode-based cost measures. Throughout the measure development process, Acumen seeks input from clinicians and other interested parties to inform the development of the cost measures. Acumen incorporates input from the following input activities:

- (i) Technical Expert Panel (TEP)
- (ii) Clinical Subcommittees (CS) and Clinician Expert Workgroups
- (iii) Person and Family Engagement
- (iv) Field Testing

The TEP serves a high-level advisory role and provides guidance on the overall direction of measure development, while Clinical Subcommittees and Clinician Expert Workgroups make recommendations about clinical specifications for episode-based cost measures. Through person and family engagement, patients and caregivers provide feedback that informs key components of cost measure development. The field testing period offers all interested parties another opportunity to provide input on the cost measurement approach. The remaining subsections of this section describe each input activity and its role in the development of episode-based cost measures for this project.

1.3.1 Technical Expert Panel (TEP)

Acumen convenes a TEP to gather high-level guidance on topics across the measure development process. The TEP is a standing TEP, meaning that it retains the same composition over multiple meetings.

Acumen has held 2 public calls for nominations in 2016 and 2019, and the current standing TEP has 20 members. The TEP is composed of members from different clinical areas, academia, health care and hospital administration, and patient and family representatives. TEP members are listed in Appendix A.

To date, Acumen has held 11 TEP meetings (in August 2016, December 2016, March 2017, August 2017, May 2018, November 2018, December 2018, February 2020, July 2021, and 2 in August 2022). Each meeting covers overarching topics related to cost measures, such as on the development of a framework to assess the costs of care in a novel area (e.g., chronic conditions), or principles to guide the measure lifecycle (e.g., how to prioritize clinical areas for future development). Future TEP meetings are planned to gather essential expert input on additional measure development and maintenance topics.

1.3.2 Clinical Subcommittees (CS) and Clinician Expert Workgroups

Acumen gathers input from clinical experts during the measure development process to inform 2 main processes: (i) measure prioritization, based on feedback from Clinical Subcommittees and public comments, and (ii) development of measure specifications, based on feedback from Clinician Expert Workgroups.

Input on Measure Conceptualization and Prioritization

In previous waves of development, Acumen used an approach wherein sets of Clinical Subcommittees, each focused on a particular clinical area, convened to recommend episode groups to develop into cost measures and to provide initial input on the measures'

specifications. Members of Clinical Subcommittees are nominated through a call for Clinical Subcommittee Nominations.

In Wave 4, Acumen began obtaining input on candidate episode groups through a public comment period instead of convening Clinical Subcommittees. In Wave 5, an extended public comment period was held from February to April 2022. This approach addressed previous feedback expressing interest in more flexible participation options for specialty societies, professional associations, and clinicians during the COVID-19 pandemic. The Wave 5 public comment period also widened the range of participants who could contribute feedback. In addition to posting a Call for Public Comment,⁷ Acumen also hosted 2 office hour sessions for specialty societies to address questions, posted a presentation recording with additional information, and sent multiple email notifications to various relevant expert groups and outreach email lists. This approach may be revisited for future waves of development.

During this Wave 5 public comment period, Acumen received 32 comments via email and survey responses from 28 organizations, 11 individuals, and 5 person and family commenters. More information about the public comment period and the comments received is available in the Wave 5 Measure Development Public Comment Summary Report on the [MACRA Feedback Page](#).⁸

Expert Panel Input on Measure Specification

Acumen also convenes measure-specific Clinician Expert Workgroups, which are smaller groups that provide detailed input on each component of the episode-based cost measures. These workgroups were introduced following feedback from members of the Wave 1 Clinical Subcommittees. Acumen works with CMS to compose balanced workgroups reflecting public comment or Clinical Subcommittee suggestions of the specialties and types of expertise and experience that would be most relevant to the selected episode group and the clinicians who would be attributed the measure. Workgroup composition has drawn from the Clinical Subcommittees or by recruiting clinicians and other members of the healthcare community with relevant expertise through outreach and/or a standing pool of nominees.

The Wave 5 Clinician Expert Workgroups met via a webinar in July 2022 to discuss initial measure specifications for all components of the measure, with a focus on measure scope, framework, and triggering,⁹ followed by a webinar in September/October 2022 for detailed discussions on service assignment, risk adjustment, and other refinements.¹⁰ The Chronic Kidney Disease/End-Stage Renal Disease (CKD/ESRD) workgroup met to provide initial input on measure specifications in September 2021.¹¹ After field testing, the workgroups will revisit and refine the measure specifications based on testing results and consideration of the feedback received during field testing. The workgroups will also evaluate the final measures by reviewing the final specifications and testing results of the measures.

⁷ CMS, "MACRA Episode-Based Cost Measures: Wave 5 Measure Development Call for Public Comment," Public Comment Page: Currently Accepting Comments, <https://www.cms.gov/files/document/wave-5-measure-development-call-public-comment.pdf>

⁸ CMS, "Wave 5 Public Comment Summary," MACRA Feedback Page, <https://www.cms.gov/files/document/wave-5-public-comment-summary-report.pdf>

⁹ CMS, "Summary of Wave 5 Workgroup Meetings," MACRA Feedback Page, <https://www.cms.gov/files/zip/summary-wave-5-workgroup-meeting.zip>

¹⁰ CMS, "Summary of Wave 5 Service Assignment & Refinement (SAR) Workgroup Meetings," MACRA Feedback Page, <https://www.cms.gov/files/zip/summary-wave-5-service-assignment-and-refinement-sar.zip>

¹¹ CMS, "Summary of CKD/ESRD Workgroup Webinar", MACRA Feedback Page, <https://www.cms.gov/files/document/summary-ckdesrd-workgroup-webinar.pdf>

Each Clinician Expert Workgroup made detailed recommendations on the following: (i) the codes for trigger events, (ii) the length of the episode and attribution windows, (iii) the sub-groups to compare like patients, (iv) the costs of which services should be evaluated in the measure, (v) the variables to include in the risk adjustment model, and (vi) the measure exclusion criteria.

The workgroups providing input on the 5 measures undergoing field testing in 2023 represent a total of 57 members affiliated with 40 professional societies, as listed in Table 1 below.

Table 1. Information on the Clinician Expert Workgroups with Measures in 2023 Field Testing

Measure-Specific Clinician Expert Workgroup	# Workgroup Members	# Affiliated Specialty Societies
Chronic Kidney Disease/End-Stage Renal Disease	16	10
Kidney Transplant Management	14	11
Prostate Cancer	17	15
Rheumatoid Arthritis	14	11

1.3.3 Person and Family Engagement

Acumen incorporates person and family perspectives into the measure development process to ensure that the measure incorporates relevant experiences from patients and caregivers. Acumen’s approach to gather and incorporate this feedback has changes across the waves of development.

During Waves 1 through 3, Acumen convened a Person and Family Committee (PFC) comprised of Medicare patients and caregiver/family members of Medicare patients who had experience with health care and/or patient advocacy, health care delivery, concepts of value, and outcomes that are important to patients across delivery/disease/episodes of care. Throughout the measure development process, over 100 interviews were conducted with the PFC members.

Beginning with the February 2020 TEP and for Wave 4 of measure development, Acumen transitioned to a Person and Family Engagement (PFE) process where patients and caregivers provide direct input in the clinician expert discussions. The standing TEP includes 2 patients who provide high-level guidance on topics, such as measure conceptualization and prioritization. The Clinician Expert Workgroups also include approximately 5 individuals with applicable lived experiences for the selected measure concepts, known as Person and Family Partners (PFPs), who can offer direct, integrated input during the workgroup meetings and structured interviews. In Wave 5, PFPs for each episode group participated in focus groups, interviews, or surveys to provide input on the following: (i) patient diagnosis and the start of treatment, (ii) the healthcare providers and care team involved in the patient’s care, (iii) the services furnished and episode duration related to the patient’s care, and (iv) indicators of care quality. Similar to in previous years, this feedback was shared with the Clinician Expert Workgroups for their consideration as they developed the episode group.

Through PFE representation in the TEP for high-level guidance and PFPs’ involvement at each touchpoint with the Workgroups during measure specification, PFE is present throughout the measure development process. For example, the impact of PFE input on measure specifications through Wave 3 is described in the “Summary of Person and Family Engagement

(PFE) and Input for Wave 3 Episode-Based Cost Measure Development” document on the MACRA Feedback Page.¹² In future waves of cost measure development, person and family perspectives will be incorporated through more integrated methods as Acumen and CMS look to further engage patients and caregivers.

1.3.4 Field Testing

CMS conducts field testing to provide clinicians an opportunity to gain experience with and review their performance on cost measures under development. Extensive field testing outreach activities aim to ensure that clinicians will understand the episode-based cost measures and what actions they could take to improve their performance on the measures, before the measures are implemented into a future MIPS performance period. During the field testing period, clinicians and clinician groups meeting the minimum number of episodes for each cost measure receive an informational Field Test Report. These reports aim to illustrate the clinician’s performance on a cost measure and provide detailed information to help clinicians understand their score, including the types of services that comprise a large or small share of episode costs.

The field testing feedback summary reports for field testing the episode-based cost measures from Waves 1, 2, 3, and 4, which took place in October to November 2017, October to November 2018, August to September 2020, and January to April 2022, respectively, are available on the [MACRA Feedback Page](#).^{13,14,15,16,17}

Field testing for the 3 new Wave 5 measures under development and the CKD and ESRD measures is taking place from January 17 to February 14, 2023. Clinicians and clinician groups who meet the minimum number of episodes during the measurement period are encouraged to review their Field Test Report on the [Quality Payment Program website](#). Clinicians who don’t receive a Field Test Report are invited to review a Mock Field Test Report and provide feedback on the report structure and metrics. All interested members of the public, regardless of whether they have received a Field Test Report, are encouraged to review the Frequently Asked Questions (FAQ) document, National Summary Data Report containing testing results, and the draft measure specifications, and submit their feedback through the [online field testing feedback survey](#).¹⁸ A document containing the specific questions about the measures for reference while reviewing the materials is available on the [MACRA Feedback Page](#).

CMS and Acumen conduct a range of education and outreach activities to inform the public about field testing. In addition to the publicly posted materials described above, CMS and

¹² CMS, “Summary of Person and Family Engagement (PFE) and Input”, MACRA Feedback Page, <https://www.cms.gov/files/document/summary-person-and-family-engagement.pdf>

¹³ Field Testing Feedback Summary Report for Eight MACRA Episode-Based Cost Measures,” Quality Payment Program (June 2018), <https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/MACRA-MIPS-and-APMs/2018-field-testing-feedback-summary-report.pdf>

¹⁴ “October-November 2018 Field Testing Feedback Summary Report for MACRA Episode-Based Cost Measures,” Quality Payment Program (May 2019), <https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/MACRA-MIPS-and-APMs/2019-ft-feedback-summary-report.pdf>

¹⁵ In addition to the episode-based cost measures developed in Wave 2, the October to November 2018 field testing period included field testing of the re-evaluated Medicare Spending Per Beneficiary (MSPB) clinician and Total Per Capita Cost (TPCC) measures.

¹⁶ “2020 Field Testing Feedback Summary Report for 5 Episode-Based Cost Measures,” Quality Payment Program (December 2020), <https://www.cms.gov/files/document/macra-2020-ft-feedback-summary-report.pdf>

¹⁷ “2022 Field Testing Feedback Summary Report for 5 Episode-Based Cost Measures,” Quality Payment Program (May 2022), <https://www.cms.gov/files/document/field-testing-feedback-summary-report.pdf>

¹⁸ Comments and feedback can be submitted through this online field testing feedback survey: https://acumen.qualtrics.com/jfe/form/SV_a2Zlh0EmpjkJJiM

Acumen host information sessions to engage with interested parties. CMS and Acumen host a national field testing webinar that provides details regarding the field testing process and draft measure specifications for measures undergoing field testing. Acumen also holds specialty society office hours during field testing for targeted specialty societies who represent specialties that are likely to be attributed the measures undergoing testing; these sessions provide information about Field Test Reports and how they can be accessed, how to submit comments, and how to access additional information about the measures. They also provide opportunities for bidirectional question-and-answer to improve understanding. For 2023 field testing, Acumen is continuing the expanded education and outreach efforts introduced during the 2022 field testing period in order to increase engagement with the wider community as well as specialty societies and organizations during measure development, including sending additional outreach emails to build engagement around the field testing period and encourage interested parties to submit comments during field testing while the measures are still being developed.

Following field testing, Acumen analyzes the measure-specific field testing feedback received and provides a summary report to each Clinician Expert Workgroup to inform measure refinements. A full field testing feedback summary will also be posted on the [MACRA Feedback Page](#).

2.0 Components of Episode-Based Cost Measures

The measure development approach incorporates extensive input on each component of the episode-based cost measures.

Episode-based cost measures have 5 essential components:

- Defining the episode group
- Attributing the episode group to clinician(s)
- Assigning costs to the episode group
- Risk adjusting
- Aligning cost with quality

The following sub-sections describe each component and summarize the process used for developing that component. Further details regarding the construction of each episode-based cost measure are available on the Draft Cost Measure Methodology documents on the [MACRA Feedback Page](#).

2.1 Definition of the Episode Group

This sub-section describes the first component of episode-based cost measures: the definition of the episode group.

2.1.1 Description of this Component

Episodes are defined by the codes that trigger (or open) the episode, as these codes determine the patient cohort included in the episode group. These episode trigger codes are identifiable on Medicare claims in a patient's history and indicate the occurrence of the episode. To enable meaningful clinical comparisons, episode groups may also be divided into more granular, mutually exclusive episode sub-groups based on clinical criteria (e.g., information available on the patient's trigger claim), wherever appropriate. Episode sub-groups are useful in ensuring clinical comparability so that the corresponding cost measure fairly compares clinicians with a similar patient case-mix. Sub-groups must be balanced against the need to have an adequate number of cases that can be attributed to a clinician.

2.1.2 Process for Developing this Component

During the July 2022 webinar meetings, the Wave 5 Clinician Expert Workgroups provided detailed input on the scope and the trigger codes of the episode group. Using the episode trigger codes determined by input from the internal Acumen clinician team and feedback from the Wave 5 Public Comment Posting as a starting point, Acumen ran initial analyses on starting trigger codes for discussion on recommended refinements to the trigger codes and a vote at the July webinar meetings. Workgroup members also discussed the measure framework and triggering algorithms and considered potential adjustments specific to each measure.

Workgroup members also held detailed discussions on how to account for various sub-populations of the patient cohort that they believed the episode group should take into consideration to ensure clinical comparability, informed by statistics provided by Acumen on the frequency and costs associated with these different sub-populations. Workgroup members considered the following methods of accounting for these sub-populations of patients: creating

episode group sub-groups, risk adjusting or excluding the sub-population (described further in Section 2.4), or monitoring the sub-population for testing and future consideration. Members also identified other sub-populations of interest for further investigation. Members provided their input via a poll, which Acumen's clinicians used as guidance on how to implement these sub-populations into the measure specifications. These were brought back to the workgroups for discussion with further analyses and confirmation of how the measure would account for each sub-population.

2.2 Attribution of Episodes to Clinicians

The second component of a cost measure is attribution: the assignment of responsibility for episode costs.

2.2.1 Description of this Component

Episodes are attributed to a clinician based on the trigger event, and an attributed clinician is held responsible for the assigned costs of care during the episode. The episode defines the period during which a clinician or clinician group can be held responsible for associated patient costs. Information from claims (i.e., services billed on the claim) are used to identify the clinician being considered for attribution.

Future attribution rules may also benefit from the implementation of patient relationship categories and codes. Beginning January 1, 2018, clinicians may voluntarily report their patient relationships on claims. As required by section 101(f) of MACRA, CMS will consider how to incorporate the patient relationship categories into episode-based cost measurement methodology as clinicians and billing experts gain experience with them. During the voluntary reporting period, CMS will collect data on the use and submission of the patient relationship codes for validity and reliability testing before considering their potential future use in the attribution methodology for MIPS cost measures. Patient relationship categories and codes were not used during the development of these measures but may be used in conjunction with other claims-based attribution rules in the future.

As part of the current field testing period, data on the patient relationship codes that were reported on the trigger claim are available in the .CSV file accompanying the Field Test Report. The goal of this data is to provide clinicians with an idea of how the patient relationship codes can align with the attribution methodology of the episode-based cost measures.

2.2.2 Process for Developing for this Component

As a part of defining the episode group (Section 2.1 above), the Clinical Subcommittee or public commenters considered the scope of the episode group and provided input on the types of clinicians who should be on the Clinician Expert Workgroup to reflect those who would be attributed the selected episode group. In considering attribution rules, workgroup members were encouraged to consider which clinician(s) would likely be responsible for the costs and care during the episode when considering which episode trigger codes to select, given the types of clinicians who bill those codes.

For chronic condition episode groups, the method of attribution is as follows:

- Clinician groups, identified by Taxpayer Identification Number, or TIN: An episode is attributed to the TIN(s) who bill a pair of trigger services: (i) a trigger code, which is a code from a set of Current Procedural Terminology / Healthcare Common Procedure

Coding System (CPT/HCPCS) codes for clinically relevant outpatient services when accompanied by a relevant diagnosis, followed by (ii) a confirming code.¹⁹

- Clinicians, identified by a unique TIN and National Provider Identifier pair, or TIN-NPI: An episode is attributed to a TIN-NPI within an attributed TIN if that TIN-NPI bills at least 30% of the trigger/confirming services with a relevant diagnosis on the Part B Physician/Supplier claim lines during the episode.

Each workgroup also discussed the attribution algorithms to evaluate whether adjustments would be appropriate given the nature of care for the particular condition. For example, the base chronic condition framework requires that an episode is only attributed to a clinician if the clinician saw the patient within the year prior to the start of the episode, ensuring clinicians are only attributed after they have had their first encounter with the patient. For a detailed discussion of the attribution method for each measure, please see the Draft Cost Measure Methodology documents available on the [MACRA Feedback Page](#) at the start of field testing.

2.3 Assignment of Costs to the Episode Group

This section describes the third component of episode-based cost measures: the assignment of costs (i.e., assignment of services) to the episode group.

2.3.1 Description of this Component

Services, and their respective Medicare costs, are assigned to an episode only when clinically related to the attributed clinician's role in managing patient care during an episode. Assigned services might include diagnostic services, treatment services, ancillary items, and services directly related to treatment, and services following the initial treatment period that may be rendered to patients as follow-up care. Services furnished as a consequence of care, such as complications, readmissions, unplanned care, and emergency department visits may also be included. Unrelated services are not assigned to the episode, such as the cost of care for a procedure that occurs in the episode window for a chronic condition but that is not related to the clinical management of the patient's chronic condition.

2.3.2 Process for Developing this Component

Ahead of the September/October 2022 webinar, Acumen provided members with an analysis on the use and timing of the most frequently provided services for the episode group. During the meeting, Acumen sought further input on service assignment topics and gathered workgroup member recommendations via a post-webinar poll. Acumen clinical and technical teams reviewed workgroup member input to create the draft service assignment rules for the episode group.

The draft service assignment rules were used to determine episode costs for the Field Test Reports. After field testing, workgroups will have the opportunity to refine their recommendations on service assignment rules and provide updated input after considering feedback. Acumen clinicians will use this refined input to finalize the service assignment rules for the episode group. As a part of measure maintenance, service assignment rules will be revisited in the future to ensure the codes for assigned services are up-to-date and remain clinically relevant.

¹⁹ Depending on the particular measure, a confirming code is (a) any code from the same set of trigger CPT/HCPCS codes with a relevant diagnosis, or (b) any code from the same set of trigger CPT/HCPCS codes with a relevant diagnosis, or a code from an additional set of clinically relevant CPT/HCPCS with a relevant diagnosis.

2.4 Risk Adjustment

This section describes the fourth component of episode-based cost measures: risk adjustment.

2.4.1 Description of this Component

Risk adjustment facilitates a more accurate comparison of cost across clinicians by adjusting for clinical factors that can influence spending, such as a patient's age and comorbidities. Risk adjustment aims to isolate the variation in clinicians' costs to Medicare to those costs that clinicians can reasonably influence. Accounting for these factors is one way to ensure the validity of cost measures and mitigate potential unintended consequences.

Similarly, certain patients or episodes with particular clinical characteristics may be excluded from episode-based cost measure calculation altogether. Exclusions remove unique groups of patients from cost measure calculation in cases where it may be impractical and unfair to compare the costs of caring for these patients to the costs of caring for the cohort at large. Exclusions, like risk adjustment, help improve the validity of the cost measure by removing sources of variation outside of clinician influence and prevent unintended consequences of measuring clinician cost performance when treating unique patient populations.

2.4.2 Process for Developing this Component

Acumen received broad feedback on risk adjustment used in episode-based cost measure calculation during the August 2017 TEP meeting. Acumen solicited TEP feedback on the proposed approach and materials used to gather workgroup input on risk adjustment and incorporated that feedback into the materials provided to the workgroup. Other recommendations gathered during the risk adjustment TEP will be evaluated by CMS and considered in future waves of episode-based cost measure development.

During the Wave 5 workgroup webinar in July 2022, members were provided an analysis of Medicare claims specific to the measure to help identify sub-populations of patients with certain services and diagnoses occurring in a specified time period that may predict high episode costs. In that meeting, workgroup members discussed and provided initial input on how to account for patient sub-populations to create clinically homogenous groups of patients to allow for accurate comparisons of clinician performance (see Section 2.1.2). Acumen clinical and technical teams used the input gathered through polls during the webinar meeting to create an initial set of risk adjustment variables. At the subsequent September/October webinar, based on their review of updated analysis results and their clinical experience and expertise, workgroup members shared their recommendations on the risk adjustment, sub-group, and exclusion specifications. They also suggested whether any of the sub-populations needed further consideration or information; these were designated to be monitored and potentially revisited after field testing. The workgroup will have the opportunity to further refine the specifications after considering feedback collected during field testing.

2.5 Alignment of Cost with Quality

This section describes the fifth and final component of episode-based cost measures: the alignment of cost with quality.

2.5.1 Description of this Component

This component involves the consideration of how to align cost measure performance with quality measures. Such quality measures include outcomes, processes of care, and patient engagement and experience. These quality measures need to be considered along with cost

measures to ensure that clinicians throughout a patient's care trajectory are incentivized to provide high-value, patient-centered care, with the goal of mitigating potential unintended consequences. For instance, pairing cost measure performance with quality measures that share similar characteristics would allow for patient outcomes such as functional status and mortality to be interpreted alongside with cost. This component is particularly salient given the introduction of MIPS Value Pathways (MVPs), a participation framework for MIPS meant to align and connect measures and activities across the 4 performance categories in MIPS. The transition to MVPs will begin in the 2023 MIPS performance year.

2.5.2 Process for Developing this Component

To assist with the approach for aligning cost and quality, Acumen asked commenters during the Wave 5 public comment period to provide input on alignment of each of the proposed cost measures with existing quality measures. These comments, coupled with input provided by Acumen's clinician team, provided a baseline of quality measures for consideration. Clinician Expert Workgroup members were provided information on these quality measures for discussion during the July 2022 webinar meetings. Following field testing, the workgroups will have the opportunity to review feedback on the measures through the lens of quality alignment and suggest relevant refinements to the measure specifications.

Appendix A: Technical Expert Panel Members

Technical Expert Panel Members (2016-2018)

Adolph Yates, American Academy of Orthopaedic Surgeons
Alan Lazaroff, American Geriatrics Society
Allison Madson, American Society of Cataract and Refractive Surgery
Alvia Siddiqi, American Academy of Family Physicians
Anupam Jena, Harvard Medical School
Caroll Koscheski, American College of Gastroenterology
Chandy Ellimoottil, American Urological Association
Diane Padden, American Association of Nurse Practitioners
Dyane Tower, American Podiatric Medical Association
Edison A. Machado, Jr., The American Health Quality Association
Jackson Williams, Dialysis Patient Citizens
James Naessens, Mayo Clinic
John Bulger, American Osteopathic Association
Juan Quintana, American Association of Nurse Anesthetists
Kata Kertesz, Center for Medicare Advocacy
Kathleen Blake, American Medical Association
Mary Fran Tracy, National Association of Clinical Nurse Specialists
Parag Parekh, American Society of Cataract and Refractive Surgery
Patrick Coll, University of Connecticut Health Center
Shelly Nash, Adventist Health System
Sophie Shen, Johnson and Johnson Health Care Systems, Inc.

Technical Expert Panel Members (2020-present)

Adolph Yates, American Association of Hip and Knee Surgeons
Akinluwa Demehin, American Hospital Association
Alan Lazaroff, American Geriatrics Society
Anita Bemis-Dougherty, American Physical Therapy Association
Caroll Koscheski, American College of Gastroenterology
Danny van Leeuwen, Society for Participatory Medicine
David Seidenwurm, American College of Radiology
Diane Padden, American Association of Nurse Practitioners
Edison Machado, Jr., The American Health Quality Association
Gregory Wozniak, American Medical Association²⁰
James Naessens, Mayo Clinic
Janice Tufte, Society for Participatory Medicine
Kurtis Hoppe, American Academy of Physical Medicine and Rehabilitation
Mary Fran Tracy, National Association of Clinical Nurse Specialists
Michael Wasserman, California Association of Long Term Care Medicine
Parag Parekh, American Society of Cataract and Refractive Surgery
Robert Leviton, American Medical Informatics Association
Shelly Nash, Adventist Health System
Shirley Levenson, American Academy of Nurse Practitioners
Ugochukwu Uwaoma, American College of Physicians

²⁰ Gregory Wozniak replaced previous member, Kathleen Blake, also associated with the American Medical Association, in July 2022.

Appendix B: Clinician Expert Workgroup Members

Tables B-1 through B-4 list the members of each Clinician Expert Workgroup along with their specialty, city, and state. Clinician Expert Workgroup chairs are denoted with an asterisks (*).²¹

Table B-1. Composition of the Chronic Kidney Disease/End-Stage Renal Disease Clinician Expert Workgroup

Name and Credentials	Specialty	City, State
Donnie Batie, MD, FAAFP	Family Medicine	Baton Rouge, LA
Peter Bustamante, MD	Nephrology	Carmel, IN
Daniel Duzan, MD, SFHM, CPC	Internal Medicine	Knoxville, TN
Connie Hemeyer, MSN, APRN, FNP-BC	Nephrology	Jacksonville, FL
Stephen Hohmann, MD, FACS	Vascular Surgery	Dallas, TX
Muralidharan Jagadeesan, MBBS, FACP, FASN	Nephrology	Washington, DC
Namirah Jamshed, MD	Geriatric Medicine	Dallas, TX
Stephanie Jernigan, MD	Pediatric Medicine	Atlanta, GA
Daniel Lam, MD	Nephrology	Seattle, WA
Alexander Liang, MD*	Nephrology	Dallas, TX
Devika Nair, MD, MSCI	Nephrology	Nashville, TN
Connie Rhee, MD, MSc	Internal Medicine	Huntington Beach, CA
Jane Schell, MD	Nephrology	Pittsburgh, PA
Jeffrey Silberzweig, MD, FACP, FASN	Nephrology	New York, NY
Joseph Vassalotti, MD	Nephrology	New York, NY
Dan Weiner, MD, MS	Nephrology	Boston, MA

Table B-2. Composition of the Kidney Transplant Management Clinician Expert Workgroup

Name and Credentials	Specialty	City, State
Kenneth Andreoni, MD, FACS	General Surgery	Cleveland, OH
Sharon Bartosh, MD	Nephrology	Middleton, WI
Patricia Bartzak, DNP, RN, CMSRN, TCRN, CNRN	Critical Care	Natick, MA
John Ducker, MD	Nephrology	Fort Wayne, IN
Muralidharan Jagadeesan, MBBs, FASP, FASN	Internal Medicine	Washington, DC
Vineeta Kumar, MD	Nephrology	Birmingham, AL
Krista Lentine, MD, PhD*	Nephrology	St. Louis, MO
Alexander Liang, MD	Nephrology	Dallas, TX
Sabrina McCarley, MBA-SL, OTR/L, CLIPP, RAC-CT, QCP, FAOTA	Occupational Therapist	Napa, CA
Clifford Miles, MD	Internal Medicine	Omaha, NE
Linda Moore, PhD, RDN, CCRP	Registered Dietitian or Nutrition Professional	Humble, TX
Stephen Pastan, MD	Nephrology	Atlanta, GA
Jeffrey Silberzweig, MD, FACP, FASN	Nephrology	New York, NY
Daniel Weiner, MD, MS	Nephrology	Boston, MA

²¹ Chairs facilitated discussions and assisted in reaching consensus on cost measure development recommendations during workgroup webinars and activities.

Table B-3. Composition of the Prostate Cancer Clinician Expert Workgroup

Name and Credentials	Specialty	City, State
Daniel Barocas, MD, MPH	Urology	Nashville, TN
Robert Dreicer, MD, MS, FASCO, MACP	Medical Oncology	Charlottesville, VA
Sarah Eakin, MD	Pathology	Erie, PA
Andrew Harris, MD	Urology	Lexington, KY
Karen Henry, DNP, MSN, APRN, FNP-BC, AOCNP	Medical Oncology	Miami, FL
John Lam, MD, MBA, FACS	Urology	Los Angeles, CA
Kathleen Latino, MD	Urology	Farmingdale, NY
John Lin, MD	Medical Oncology	Houston, TX
Join Luh, MD*	Radiation Oncology	Eureka, CA
Megan May, PharmD, BCOP	Hematology-Oncology	Lexington, KY
Timothy McClure, MD	Interventional Radiology	New York, NY
Alicia Morgans, MD, MPH	Hematology-Oncology	Boston, MA
Christopher Peters, MD	Radiation Oncology	Dunmore, PA
David Seidenwurm, MD	Diagnostic Radiology	Sacramento, CA
Abhishek Solanki, MD, MS	Radiation Oncology	Chicago, IL
Barbara Spivak, MD	Internal Medicine	Newton, MA
Sean Woolen, MD, MSc	Diagnostic Radiology	San Francisco, CA

Table B-4. Composition of the Rheumatoid Arthritis Clinician Expert Workgroup

Name and Credentials	Specialty	City, State
Puneet Bajaj, MD, MPH	Rheumatology	Dallas, TX
Vivian Bykerk, MD	Rheumatology	New York, NY
Jessica Farrell, PharmD	Rheumatology	Albany, NY
Carolyn Fruci, MD, PhD	Critical Care	Cambridge, MA
Mustafa Hamed, MD, MBA, MPH, FAAFP	Family Medicine	Novi, MI
Kent Huston, MD	Rheumatology	Kansas City, MO
Shraddha Jatwani, MD, FACP, FACR, RhMSUS	Rheumatology	East Norriton, PA
Alex Limanni, MD*	Rheumatology	Dallas, TX
Robert Richardson, PT, MEd, FAPTA	Physical Therapist	Durham, NC
Luis Rodriguez, MD, FAMSSM	Internal Medicine	Miami, FL
David Schultz, MD, FAAFP	Family Medicine	Newburgh, IN
Michael Schweitz, MD	Internal Medicine	West Palm Beach, FL
Dirk Steinert, MD, MBA	Internal Medicine	Milwaukee, WI
Jamieson Wilcox, OTD, OTR/L	Occupational Therapist	Los Angeles, CA