Quality Payment
PROGRAM

2023 Summary of Cost Measures

December 2022

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1.0 Introduction

This document provides a summary of cost measures in relation to the Merit-based Incentive Payment System (MIPS), one of the tracks of the Quality Payment Program (QPP). As required by Section 51003(a)(2) of the Bipartisan Budget Act of 2018, this document includes information on: resource use (or cost) measures currently in use in MIPS, cost measures under development and the time frame for such development, potential future cost measure topics, expert input and public engagement activities, and the percent of expenditures under Medicare Parts A and B that are covered by cost measures.[1] This section of the Bipartisan Budget Act of 2018 amended Section 1848(r)(2) of the Social Security Act and required that this information be provided on the website of the Centers for Medicare & Medicaid Services (CMS) no later than December 31st each year.

The Medicare Access and Children's Health Insurance Program (CHIP) Reauthorization Act of 2015 (MACRA) required CMS to collaborate with clinician experts and other interested parties to develop measures for potential implementation in the cost performance category of MIPS. CMS has contracted with Acumen, LLC (hereafter, "Acumen") to develop methodology for analyzing cost, as appropriate, through consideration of patient condition groups and care episode groups.

As defined in the MACRA statute, care episode groups consider the "patient's clinical problems at the time items and services are furnished during an episode of care, such as the clinical conditions or diagnoses, whether or not inpatient hospitalization occurs, and the principal procedures or services furnished." Patient condition groups consider the "patient's clinical history at the time of a medical visit, such as the patient's combination of chronic conditions, current health status, and recent significant history." Both care episode groups and patient condition groups can consider other factors determined appropriate by the Secretary.

As a result, CMS and Acumen have developed episode-based cost measures, which are designed to inform clinicians of the cost of their beneficiary's care for which they're responsible during a specified time frame.

Throughout this document, the term "cost" generally means the Medicare allowed amount, which includes both Medicare payments and any applicable patient deductible and coinsurance amounts on traditional, fee-for-service claims. Medicare allowed amounts are adjusted through payment standardization, which is the process of adjusting the allowed charge for a Medicare service to account for differences in regional health care clinician expenses and delivery choices. 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, or other payment adjustments, such as those for teaching hospitals.[2]

The rest of this document provides details on cost measures. Section 2 provides information on cost measures used in MIPS. Section 3 provides information on episode-based cost measures under development and plans for future development. Section 4 provides estimates on the percentage for Medicare Parts A and B expenditures and clinicians covered by measures in MIPS. Section 5 describes the avenues through which Acumen has gathered expert input during measure development and other public engagement activities.

[1]Bipartisan Budget Act, Pub. L. 115-123 (2018). https://www.congress.gov/bill/115th-congress/house-bill/1892/text.
[2]CMS, "CMS Price (Payment) Standardization Overview" ResDAC page, https://resdac.org/articles/cms-price-payment-standardization-overview.

2.0 Cost Measures in MIPS

The MIPS cost performance category has 25 cost measures in the 2023 MIPS performance period. Section 2.1 lists these measures. Section 2.2 describes the episode-based cost measures in MIPS which are based on a range of procedures, inpatient conditions, and chronic conditions. Finally, Section 2.3 provides detail on population-based cost measures in MIPS which are focused more broadly on primary and inpatient care.

2.1 List of Cost Measures in MIPS Calendar Year (CY) 2023

Table 1 provides information on cost measures currently used in MIPS. Each measure also lists its type, case minimum, and the first year in MIPS. Note that the cost performance category was reweighted for the 2020 and 2021 performance period due to COVID-19.[3]

Table 1. MIPS CY 2023 Cost Measures

ISO	Cost Measure	Type of Cost Measure	Case Minimum	First Year of Use
1	Total Per Capita Cost	Population-based (primary care)	20	2017; refined measure from 2020
2	Medicare Spending Per Beneficiary Clinician	Population-base (inpatient care)	35	2017; refined measure from 2020
3	Elective Outpatient Percutaneous Coronary Intervention (PCI)	Episode-based (procedural)	10	2019
4	Intracranial Hemorrhage or Cerebral Infarction	Episode-based (acute inpatient medical condition)	20	2019
5	Knee Arthroplasty	Episode-based (procedural)	10	2019
6	Revascularization for Lower Extremity Chronic Critical Limb Ischemia	Episode-based (procedural)	10	2019
7	Routine Cataract Removal with Intraocular Lens (IOL) Implantation	Episode-based (procedural)	10	2019
8	Screening/Surveillance Colonoscopy	Episode-based (procedural)	10	2019
9	Simple Pneumonia with Hospitalization	Episode-based (acute inpatient medical condition)	20	2019
10	ST-Elevation Myocardial Infarction (STEMI) with Percutaneous Coronary Intervention (PCI)	Episode-based (acute inpatient medical condition)	20	2019
11	Acute Kidney Injury Requiring New Inpatient Dialysis	Episode-based (procedural)	10	2020
12	Elective Primary Hip Arthroplasty	Episode-based (procedural)	10	2020
13	Femoral or Inguinal Hernia Repair	Episode-based (procedural)	10	2020

[3] CMS, "2021 MIPS Performance Feedback Patient-Level Data Reports Supplement," https://qpp-cm-prod-content.s3.amazonaws.com/uploads/2036/2021%20MIPS%20Performance%20Feedback%20Patient-Level%20Data%20Reports%20Supplement.pdf.

ISO	Cost Measure	Type of Cost Measure	Case Minimum	First Year of Use
14	Hemodialysis Access Creation	Episode-based (procedural)	10	2020
15	Inpatient Chronic Obstructive Pulmonary Disease (COPD) Exacerbation	Episode-based (acute inpatient medical condition)	20	2020
16	Lower Gastrointestinal Hemorrhage (at group level only)	Episode-based (acute inpatient medical condition)	20	2020
17	Lumbar Spine Fusion for Degenerative Disease, 1-3 Levels	Episode-based (procedural)	10	2020
18	Lumpectomy, Partial Mastectomy, Simple Mastectomy	Episode-based (procedural)	10	2020
19	Non-Emergent Coronary Artery Bypass Graft (CABG)	Episode-based (procedural)	10	2020
20	Renal or Ureteral Stone Surgical Treatment	Episode-based (procedural)	10	2020
21	Asthma/Chronic Obstructive Pulmonary Disease (COPD)	Episode-based (chronic condition)	20	2022
22	Colon and Rectal Resection	Episode-based (procedural)	20	2022
23	Diabetes	Episode-based (chronic condition)	20	2022
24	Melanoma Resection	Episode-based (procedural)	10	2022
25	Sepsis	Episode-based (acute inpatient medical condition)	20	2022

These measures share certain common features. They're risk-adjusted measures, which means that they account for variation in clinician costs (e.g., accounting for patient age, comorbidities and other factors) so that only the costs that clinicians can reasonably influence are included. They also use a clear attribution methodology based on service and diagnosis information in administrative claims data to identify a care relationship between a clinician and patient. Additionally, they only include clinically related services and apply certain exclusions to ensure only appropriate, relevant costs are measured. Measure specifications are available on the QPP Resource Library.[4]

2.2 Episode-Based Cost Measures

Section 1848(r) of the Social Security Act, as added by section 101(f) of MACRA, requires the development of episode-based cost measures that take into consideration patient condition groups and care episode groups ("episode groups"), which are units of comparison that represent a clinically coherent set of medical services rendered to treat a given medical condition.

[4] Quality Payment Program, Resource Library, https://qpp.cms.gov/about/resource-library.

Episode-based cost measures represent the cost to Medicare for the items and services furnished to a patient during an episode of care ("episode"). They can be used to inform clinicians on the costs related to the role of the attributed clinician in providing a particular type of care during a defined period.

The episode-based measures in MIPS in 2023 represent various types of care episode and patient condition groups. Specifically, they cover:

- Patient condition groups, defined by:
    - Chronic conditions requiring ongoing management of a long-term health condition.
- Care episode groups, defined by:
    - Procedures of a defined purpose or type. These can be performed in different settings depending on the specific measure's intended focus (e.g., outpatient, inpatient).
    - Acute inpatient medical conditions requiring a hospital stay. These can represent treatment for a self-limited acute illness or treatment for a flare-up or an exacerbation of a condition.

2.3 Population-Based Cost Measures

The 2023 MIPS cost performance category includes 2 population-based measures: Medicare Spending Per Beneficiary (MSPB) Clinician and Total Per Capita Cost (TPCC).

The MSPB Clinician measure focuses on inpatient care. It assesses the cost of Medicare for Parts A and B services provided to a patient during an episode which comprises the period immediately prior to, during, and following a hospital stay. Specifically, an episode includes Medicare Part A and Part B claims with a start date between 3 days prior to a hospital admission through 30 days after hospital discharge, excluding a defined list of services that are unlikely to be influenced by the clinician's care decisions and are, thus, considered unrelated to the hospital admission.

The TPCC measure focuses on primary care and evaluates the overall cost of care delivered to a patient. The TPCC measure is an average of per capita costs across all attributed patients and includes all Medicare Parts A and B costs for one year following the identification of a primary care relationship.

These measures have been in MIPS since 2020. They were updated through a reevaluation process, so they're different from the earlier versions of the measures that were in MIPS from 2017 to 2019.

3.0 Future Cost Measures for MIPS

Acumen continues to develop episode-based cost measures for potential use in MIPS. Section 3.1 outlines the measures that are on the 2022 Measures Under Consideration List (MUC). Section 3.2 outlines the progress of measures currently under development. Section 3.3 discusses future plans for cost measure development. Section 3.4 discusses the measures that are going through maintenance and reevaluation.

3.1 Measures on the 2022 MUC List

CMS is considering the following 5 episode-based measures for use in MIPS as detailed in the 2022 MUC List.[5] The measures span a range of types of care, including chronic conditions, acute inpatient medical conditions, and care provided in the emergency department (ED):

- Depression (MUC2022-101)
- Heart Failure (MUC2022-106)
- Low Back Pain (MUC2022-097)
- Psychoses and Related Conditions (MUC2022-129)
- Emergency Medicine (MUC2022-100)

Measures included on this list are part of CMS's pre-rulemaking process.[6]

3.2 Measures Currently Under Development

CMS is currently developing the following 5 episode-based cost measures for potential future use in the MIPS cost performance category:

- Chronic Kidney Disease (CKD)
- End-Stage Renal Disease (ESRD)
- Kidney Transplant Management
- Prostate Cancer
- Rheumatoid Arthritis

These measures are being developed with extensive input from the clinician community as part of Wave 5 of episode-based cost measure development. Acumen held a public comment period in early 2022 to obtain input on episode group prioritization and the composition of measure-specific workgroups. Clinician Expert Workgroups for Kidney Transplant Management, Prostate Cancer, and Rheumatoid Arthritis convened in July and September-October 2022 to provide detailed input on the measure specifications. The Workgroup for CKD and ESRD met previously in 2021 to develop initial specifications. The development timeline was extended so that these measures could be field tested at the same time as the Kidney Transplant Measure as part of a comprehensive suite of kidney care measures.

These measures are slated to begin national field testing in early 2023. During this time, clinicians with the minimum number of episodes for any of the measures will be able to access a feedback report. All interested parties can provide input on the measure specifications. After field testing, the workgroups will convene to consider field testing feedback to refine the measures. These measures are scheduled to finish development by mid-2023. CMS will consider a range of input before considering the potential use of any episode-based cost measures in MIPS, including any recommendations from the Measure Applications Partnership

[5] CMS, "Measures Under Consideration List for 2022," https://mmshub.cms.gov/sites/default/files/2022-MUC-List.xlsx.
[6] CMS, "Measure Implementation," https://mmshub.cms.gov/measure-lifecycle/measure-implementation/pre-rulemaking/overview.

(MAP) and feedback from interested parties. CMS also anticipates that any developed measures would be submitted to the National Quality Forum (NQF) for endorsement.

3.3 Future Plans for Cost Measure Development

CMS recognizes the interests from clinicians and the public in the development of new episode-based cost measures that focus on specific procedures and conditions.[7] Any future development will consider prioritization criteria developed by our Technical Expert Panel (TEP), including clinical coherence, impact and importance, the opportunity for cost performance improvement, and alignment with quality indicators to assess clinician value. For consistency within MIPS, new measures will share the features also required of developed cost measures established through rulemaking.[8]

Newly developed cost measures could potentially be used in future, applicable MIPS Value Pathways (MVPs) if they're finalized for use in MIPS. MVPs are a participation option available for MIPS in 2023 which align and connect measures and activities across the quality, cost, improvement activities, and Promoting Interoperability performance categories of MIPS.[9]

3.4 Measure Reevaluation

Measures undergo maintenance and reevaluation after development and implementation of measures to ensure that they continue to function as intended. Comprehensive reevaluation is an opportunity to consider any public feedback, and follows the processes described in the CMS Measures Management System Blueprint.[10]

Acumen is currently conducting comprehensive reevaluation of the following Wave 1 measures, which have been in MIPS since 2019:

- Simple Pneumonia with Hospitalization
- ST-Elevation Myocardial Infarction (STEMI) with Percutaneous Coronary Intervention (PCI)
- Routine Cataract Removal with Intraocular Lens (IOL) Implantation

The reevaluation process began in early 2022 with a public comment period to gather input on each of the measures and whether there are any changes that may be needed. CMS approved the above 3 measures to undergo comprehensive reevaluation by reconvening the clinical expert workgroup to consider specific updates. This process is anticipated to be completed in 2023. If the measures are substantively changed, the revised versions would go through the notice-and-comment rulemaking process before they can replace the current version. The remaining measures will undergo routine annual maintenance.

[7] CY 2022 Centers for Medicare & Medicaid Services Interim Final Rule (87 FR 69404)
[8] CY 2022 Centers for Medicare & Medicaid Services Final Rule (86 FR 64996)
[9] CMS, "MIPS Value Pathways (MVPs)," https://qpp.cms.gov/mips/mips-value-pathways.
[10] CMS, "Welcome to the Measures Management System," https://mmshub.cms.gov/.

4.0 Metrics for Cost Measure Coverage

This section provides measure coverage metrics for the episode-based and population-based cost measures. Specifically, Section 4.1 provides estimated cost coverage metrics, while Section 4.2 provides estimated clinician coverage metrics.[11]

4.1 Cost Coverage

This section presents the estimated cost coverage for the 2023 MIPS cost measures and for measures on the 2022 MUC List, calculated on a study period of January 1 to December 31, 2019. All figures in this section are estimates for reference only and don't reflect cost coverage for the measures as implemented in MIPS.[12]

Costs for each measure are calculated by summing the cost of services included in the measure. The cost coverage figures are estimates assuming that all clinicians meeting the attribution criteria for cost measures are MIPS participants (e.g., Alternative Payment Model [APM] participants aren't removed from the estimate), and that all MIPS participants are participating as a group. More details on the costs counted for the denominators and the numerators of these coverage estimates are provided in the tables. Any percentages representing the union of certain groups of cost measures (e.g., "Episode-Based Cost Measures") don't count claims more than once if included in multiple measures.

Additional analyses for these measures are available in the 2017, 2018, 2020, and 2022 National Summary Data Reports.[13, 14, 15, 16]

Table 2 presents the estimated cost coverage for Waves 1, 2, and 3 measures using the MIPS case minima noted in Table 1.

Table 2. Cost Coverage at the Group Level for MIPS CY 2023 Cost Measures[17]

Cost Measure	% of Total Spending Covered w/ No Case Minimum[18]	% of Total Spending Covered w/ Case Minimum[19]
Population-Based Measures	**93.0%**	**92.6%**
Medicare Spending Per Beneficiary (MSPB)	26.6%	25.9%
Total Per Capita Cost (TPCC)	75.4%	75.4%
All Wave 1, 2, & 3 Episode-Based Cost Measures	**15.1%**	**14.2%**
All Wave 1 Episode-Based Cost Measures	**3.7%**	**3.5%**

[11] The cost metrics listed within this document only include Parts A and B Medicare claims data, not Part D claims data. As a note, Medicare Part D data is used in the Asthma/COPD, Diabetes, and Sepsis episode-based cost measures specifications.
[12] The percentage figures provided in this posting are only estimates, and don't reflect the coverage of these measures as used in MIPS. Performance data on the measures in the 2023 MIPS performance period wouldn't be available until after the end of the performance period. CY 2019 performance period data was used for the analyses to avoid using data affected by rapid and unprecedented changes to health care services due to the COVID-19 pandemic.
[13] CMS, "2017 Field Testing materials," MACRA Feedback Page, https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/MACRA-MIPS-and-APMs/2017-field-test-materials.zip.
[14] CMS, "2018 National Summary Data Report," MACRA Feedback Page, https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/MACRA-MIPS-and-APMs/2018-national-summary-data-report.zip.
[15] CMS, "2020 National Summary Data Report," MACRA Feedback Page, https://www.cms.gov/files/zip/2020-national-summary-data-report.zip.
[16] CMS, "National Summary Data Report on 5 Episode Based Cost Measures", MACRA Feedback Page, https://www.cms.gov/files/document/macra-2020-cmft-national-summary-data-report.pdf.
[17] The denominator ($411,123,570,021) for all metrics in this table is the sum of positive payment standardized allowed amounts for all inpatient, outpatient, Part B Physician/Supplier, home health, skilled nursing facility (SNF), durable medical equipment, prosthetics, orthotics and supplies (DMEPOS), and hospice claims billed during the study period.
[18] Share of Total Medicare Parts A and B spending for all Medicare clinicians billing a claim during the study period with no case minimum applied. The numerator includes costs for clinicians with at least one episode or patient for the given measure.
[19] Share of Total Medicare Parts A and B spending for all Medicare clinicians billing a claim during the study period with case minima applied. The numerator includes costs for only clinicians who meet the case minimum for a given measure.

Cost Measure	% of Total Spending Covered w/ No Case Minimum[18]	% of Total Spending Covered w/ Case Minimum[19]
Elective Outpatient Percutaneous Coronary Intervention (PCI)	0.3%	0.3%
Intracranial Hemorrhage or Cerebral Infarction	0.7%	0.6%
Knee Arthroplasty	1.1%	1.1%
Revascularization for Lower Extremity Chronic Critical Limb Ischemia	0.5%	0.5%
Routine Cataract Removal with Intraocular Lens (IOL) Implantation	0.4%	0.4%
ST-Elevation Myocardial Infarction (STEMI) with Percutaneous Coronary Intervention (PCI)	0.1%	0.1%
Screening/Surveillance Colonoscopy	0.2%	0.2%
Simple Pneumonia with Hospitalization	0.4%	0.3%
All Wave 2 Episode-Based Cost Measures	**2.9%**	**2.6%**
Acute Kidney Injury Requiring New Inpatient Dialysis	0.1%	0.1%
Elective Primary Hip Arthroplasty	0.6%	0.5%
Femoral or Inguinal Hernia Repair	0.1%	0.1%
Hemodialysis Access Creation	0.1%	0.1%
Inpatient Chronic Obstructive Pulmonary Disease (COPD) Exacerbation	0.7%	0.6%
Lower Gastrointestinal Hemorrhage	0.2%	0.2%
Lumbar Spine Fusion for Degenerative Disease, 1-3 Levels	0.5%	0.5%
Lumpectomy, Partial Mastectomy, Simple Mastectomy	0.1%	0.1%
Non-Emergent Coronary Artery Bypass Graft (CABG)	0.4%	0.4%
Renal or Ureteral Stone Surgical Treatment	0.1%	0.1%
All Wave 3 Episode-Based Cost Measures	**9.3%**	**8.8%**
Asthma/Chronic Obstructive Pulmonary Disease (COPD)	2.0%	1.9%
Colon and Rectal Resection	0.3%	0.2%
Diabetes	5.3%	5.1%
Melanoma Resection	0.0%	0.0%
Sepsis	2.2%	2.1%

Table 3 presents the estimated cost coverage for the cost measures on the 2022 MUC List. These measures used a 20-episode case minimum for the purposes of this estimate: if the measures are finalized for MIPS, a case minimum would be established through rulemaking.

Table 3. Cost Coverage at the Group Level for Cost Measures on the 2022 MUC List

Cost Measure	% of Total Spending Covered w/ No Case Minimum[20]	% of Total Spending Covered w/ Case Minimum[21]
All Wave 4 Episode-Based Cost Measures	**23.1%**	**22.6%**
Depression	0.5%	0.4%
Emergency Medicine	17.5%	17.5%
Heart Failure	3.7%	3.3%

[20] Share of Total Medicare Parts A and B spending for all Medicare clinicians billing a claim during the study period with no case minimum applied. The numerator includes costs for clinicians with at least one episode or patient for the given measure

[21] Share of Total Medicare Parts A and B spending for all Medicare clinicians billing a claim during the study period with case minima applied. The numerator includes costs for only clinicians who meet the case minimum for a given measure.

Cost Measure	% of Total Spending Covered w/ No Case Minimum[20]	% of Total Spending Covered w/ Case Minimum[21]
Low Back Pain	2.3%	2.1%
Psychoses and Related Conditions	0.5%	0.5%

4.2 Clinician Coverage

This section presents the estimated clinician coverage for 2023 MIPS cost measures and for measures on the 2022 MUC List, calculated using the study period of January 1 to December 31, 2019. Clinician groups are identified by a Taxpayer Identification Number (TIN) and clinicians are identified by a TIN and National Provider Identifier combination (TIN-NPI). The following tables provide a range of coverage metrics for groups and individuals:

- % TINs: The share of TINs meeting the MIPS case minimum.
- % TIN-NPIs Attributed 1+ Episode under TIN: The share of clinicians under a clinician group that are attributed one episode. This metric indicates the share of clinicians who are involved in the type of care that the measure is assessing under group reporting.
- % TIN-NPIs Billing Under TIN: The share of TIN-NPIs billing a positive claim amount during the measurement period or attributed at least one episode under a TIN that meets the case minimum. This metric approximates the share of clinicians who may receive a cost measure score if they were reporting as part of a clinician group. The estimates assume that if a clinician meets the attribution criteria for cost measure, they're a MIPS participant who also report part of a clinician group.

The percentages representing the union of the cost measures don't count clinicians more than once if they're attributed under multiple measures.

Table 4. Clinician Coverage at the Group Level for MIPS CY 2023 Cost Measures

Cost Measure(s)	% TINs Meeting Case Min	TIN-NPIs under TINs Meeting Case Min	
		% TIN-NPIs Attributed 1+ Episode	% TIN-NPIs Billing Positive Claim
Medicare Spending Per Beneficiary	6.7%	21.9%	49.2%
Total Per Capita Cost	26.6%	31.6%	63.4%
All Wave 1 Episode-Based Cost Measures	**4.8%**	**10.3%**	**43.7%**
Elective Outpatient Percutaneous Coronary Intervention (PCI)	0.6%	0.4%	25.1%
Intracranial Hemorrhage Or Cerebral Infarction	0.6%	5.0%	30.7%
Knee Arthroplasty	1.0%	1.0%	27.3%
Revascularization for Lower Extremity Chronic Critical Limb Ischemia	0.7%	0.5%	25.2%
Routine Cataract Removal with Intraocular Lens (IOL) Implantation	1.6%	0.6%	18.2%
ST-Elevation Myocardial Infarction (STEMI) with Percutaneous Coronary Intervention (PCI)	0.1%	0.8%	13.8%
Screening/Surveillance Colonoscopy	1.5%	1.1%	31.5%
Simple Pneumonia with Hospitalization	0.7%	4.7%	29.6%
All Wave 2 Episode-Based Cost Measures	**3.1%**	**10.2%**	**41.3%**

Cost Measure(s)	% TINs Meeting Case Min	TIN-NPIs under TINs Meeting Case Min	
		% TIN-NPIs Attributed 1+ Episode	% TIN-NPIs Billing Positive Claim
Acute Kidney Injury Requiring New Inpatient Dialysis	0.3%	0.4%	14.2%
Elective Primary Hip Arthroplasty	0.7%	0.8%	24.9%
Femoral or Inguinal Hernia Repair	0.8%	0.7%	27.7%
Hemodialysis Access Creation	0.4%	0.3%	22.3%
Inpatient Chronic Obstructive Pulmonary Disease (COPD) Exacerbation	1.1%	6.1%	33.7%
Lower Gastrointestinal Hemorrhage	0.4%	3.8%	26.5%
Lumbar Spine Fusion for Degenerative Disease, 1-3 Levels	0.5%	0.5%	19.8%
Non-Emergent Coronary Artery Bypass Graft (CABG)	0.4%	0.3%	25.4%
Lumpectomy, Partial Mastectomy, Simple Mastectomy	0.3%	0.3%	19.9%
Renal or Ureteral Stone Surgical Treatment	0.6%	0.5%	23.9%
All Wave 3 Episode-Based Cost Measures	**16.6%**	**22.4%**	**54.2%**
Asthma/Chronic Obstructive Pulmonary Disease (COPD)	7.1%	9.0%	44.3%
Colon and Rectal Resection	0.3%	0.5%	20.0%
Diabetes	14.5%	11.6%	49.4%
Melanoma Resection	0.7%	0.5%	20.1%
Sepsis	1.6%	10.3%	37.0%

Table 5 presents the estimated clinician coverage for Wave 4 measures that are currently on the 2022 MUC List.

Table 5. Clinician Coverage at the Group Level for Cost Measures on the 2022 MUC List

Cost Measure	% TINs Meeting Case Min	TIN-NPIs under TINs Meeting Case Min	
		% TIN-NPIs Attributed 1+ Episode	% TIN-NPIs Billing Positive Claim
All Wave 4 Episode-Based Cost Measures	**21.4%**	**31.0%**	**63.4%**
Depression	6.1%	10.3%	43.8%
Emergency Medicine	1.5%	8.9%	36.6%
Heart Failure	4.0%	7.3%	40.9%
Low Back Pain	14.0%	13.0%	47.7%
Psychoses and Related Conditions	0.8%	1.7%	21.2%

5.0 Expert Input and Public Engagement

Episode-based cost measures are developed through a systematic process that combines empirical data with expert and community input. This input is critical to the development of robust, meaningful, and actionable episode-based cost measures. Section 5.1 provides a summary of the TEP convened to date. Section 5.2 discuses broad clinical engagement in measure prioritization. Section 5.3 discusses the Clinician Expert Workgroups that provide input to build out measure specifications. Section 5.4 discusses the role of Person and Family Engagement (PFE). Section 5.5 details national field testing processes. Finally, Section 5.6 describes education and outreach activities conducted to inform the public of the measure development process.

5.1 Technical Expert Panel

Acumen convenes a TEP to gather high-level guidance on topics across the cost measure project. This is a standing TEP, meaning that it retains the same composition over multiple meetings. Acumen held 2 public calls for nominations in 2016 and 2019.[22] Our current TEP has 20 members.[23] It's composed of members from different clinical areas, academia, health care and hospital administration, and patient and family representatives.

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 twice 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).

5.2 Broad Clinical Engagement

Acumen gathers feedback from a broad range of societies and clinicians on measure concepts as part of prioritizing which measures to develop in a Wave. Gathering input from a wide range of interested parties provides many perspectives on topics such as the opportunities for cost improvement within a clinical area and technical challenges and how to address them.
For Waves 1, 2, and 3 of measure development, Acumen sought this input by convening Clinical Subcommittees, each focused on a clinical area (e.g., cardiovascular disease management). These Clinical Subcommittees were intended to be large panels with diverse member experience in types of care within that clinical area (e.g., heart failure, cardiothoracic surgery, acute myocardial infarction). They met at one meeting to discuss measure concepts and reach consensus on the measures that they believed to be the most promising for development. Table 6 provides information on the Clinical Subcommittees that have been convened for Waves 1, 2, and 3.

Table 6. Clinical Subcommittees Convened for Episode-Based Cost Measure Development

Development Cycle	Dates	Clinical Subcommittees			# Measures Approved for Development
		#	Members	Affiliated Professional Societies	
Wave 1	May 2017	7	148	98	8
Wave 2	April 2018	10	267	120	11
Wave 3	May-June 2019	4	142	100	5

[22] CMS, "Technical Expert Panels" CMS Measures Management System, https://mmshub.cms.gov/get-involved/technical-expert-panel/overview.
[23] CMS, "Technical Expert Panels: TEP Current Panels" CMS Measures Management System," https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/MMS/TEP-Current-Panel.

In Waves 4 and 5, Acumen obtained input on measure prioritization through public comment periods. This approach involved posting a call for public comment, which included a list of candidate measure concepts, targeted questions, and preliminary codes that could be used to define the patient cohort. A public comment period allowed Acumen to seek feedback across a greater variety of measure concepts, rather than being limited to measure concepts within specific clinical areas. It also enabled interested parties to suggest additional measure concepts for consideration.

5.3 Clinician Expert Workgroups

Acumen convenes Clinician Expert Workgroups to provide detailed input on each component of the episode-based cost measure specifications. Workgroups are composed of around 15 members with expertise in care for a particular condition or procedure, including both clinicians who would be attributed the measure and other members of the care team who provide care throughout the patient's care journey. The Workgroups meet around 3 times per Wave to provide clinical input and advice to the measure development and specifications through an iterative process. They provide input on topics such as trigger codes, sub-groups to compare like patients, service assignment, risk adjustment variables, and measure exclusion criteria. Their input is guided not only by their clinical expertise, but also by empirical data. The Workgroups' input is recorded through a structured voting process using a >60% consensus threshold.

Table 7 provides information on the workgroups that have been convened during each cycle of measure development. In Wave 1, the same panel fulfilled the functions of both the Clinical Subcommittee and Clinician Expert Workgroup by providing input on prioritization and building out detailed specifications. Over the 5 Waves of measure development, Acumen has worked with 484 unique members of Clinical Subcommittees and Clinician Expert Workgroups affiliated with 175 professional societies. Table 7 provides information on workgroups that have been convened across all measure development cycles.

Table 7: Workgroups Convened for Episode-Based Cost Measure Development

Development Cycle	Dates	# Measures	Clinician Expert Workgroups		
			#	Members	Affiliated Professional Societies
Wave 1	2017-2018	8	7	148	98
Wave 2	2018	11	11	138	79
Wave 3	2019-2020	5	5	85	73
Wave 4	2021-2022	5	5	73	63
Wave 5	2022-2023	5	5	57	40

5.4 Person and Family Engagement

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

During Waves 1 through 3, Acumen convened a Person and Family Committee (PFC) comprised of Medicare patients and caregivers/family members of Medicare patients. Over 100 interviews were conducted with the PFC members. The PFC provided input on many topics, including their views on what quality and value means to them, what types of clinicians were part of their care team, what aspects of their care experience could've been improved, and what was the most useful in aiding recovery or avoiding complications. This feedback was relayed to

Clinical Subcommittees and Workgroups so that they could also consider the patient and family perspective when making their respective recommendations.

Beginning with the February 2020 TEP and for Wave 4 of measure development, Acumen transitioned to integrating PFE with expert panels. The TEP includes 2 members who are individuals with lived experience as patients. For each Clinician Expert Workgroup, there are approximately 5 Person and Family Partners (PFPs): individuals with lived experience with the condition or procedure for which a measure is being developed. Their input is collected via structured focus groups, interviews, or surveys which is then summarized and presented to the Clinician Expert Workgroup by 1-2 PFPs, allowing for opportunities for bidirectional conversations between workgroup members and PFPs. For more information on how PFP's input is used in measure development, please see the MACRA Feedback Page.[24, 25]

5.5 Field Testing

Acumen conducts field testing to provide clinicians an opportunity to gain experience with and provide feedback on cost measures under development. Clinicians and clinician groups who met the minimum number of cases for each measure are able to access a field test report which details how they would've performed on the draft measure. The reports contain aggregated information like their average spending for categories of services (e.g., inpatient hospitalizations) compared to their peers, as well as episode-level details (e.g., the breakdown of costs by each setting for each episode). Table 8 shows the number of field test reports generated in each field testing period.

Table 8. Number of Field Test Reports for Each Field Testing Period

Field Testing Period	Number of Field Test Reports		
	TIN Reports	TIN-NPI Reports	Total
Wave 1: October-November 2017	17,557	48,263	65,820
Wave 2: October-November 2018	155,355	638,487	793,842
Wave 3: August-September 2020	46,546	168,046	214,592
Wave 4: January-March 2022	83,965	198,169	282,134
Wave 5: January-February 2023	7,029	13,771	20,800

The general public is invited to provide feedback on the draft measure specifications by reviewing the field test reports, testing results, and other materials. This input is then considered by the Clinician Expert Workgroups as part of refining and finalizing the measure specifications. To date, Acumen has conducted field testing in Waves 1, 2, 3 and 4 of measure development. Field testing feedback summary reports are publicly available on the MACRA Feedback Page.[26]

5.6 Education and Outreach

CMS and Acumen conduct education and outreach activities to inform the public and increase transparency around cost measures and the development process. These activities include informational webinars, office hours, producing educational materials and other activities that

[24] CMS, "Person and Family Committee Guiding Principles," https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/MACRA-MIPS-and-APMs/2019-pfc-guiding-principles.pdf.
[25] CMS, MACRA Feedback Page, https://www.cms.gov/Medicare/Quality-Payment-Program/Quality-Payment-Program/Give-Feedback. Please refer to PFE and PFE input summaries of Wave 2-3 and workgroup meeting summaries of Wave 2-5 to see PFP input.
[26] CMS, "2022 Field Testing Feedback Summary Report for 5 Episode-Based Cost Measures," MACRA Feedback Page, https://www.cms.gov/files/document/field-testing-feedback-summary-report.pdf.

are conducted throughout the measure lifecycle. If there are additional questions, CMS and Acumen address any inquiries about the cost measures via the QPP Helpdesk.[27]

Acumen presents webinars during key measure development activities and supports CMS's MIPS webinars.

- During field testing, Acumen hosts webinars that outline the draft measure specifications, explain what is contained in field test reports, and provide details on how to participate.
- There are various MIPS webinars that include information about cost measures that Acumen supports. These include webinars about proposed and final rules, MVPs, and an annual cost category webinar. This provides an overview of the cost performance category, including a review of new measures and new policies effective for the specific performance period. Slides, recordings, and transcripts from these webinars, including the most recent 2022 MIPS Quality and Cost Performance Categories webinar are available in the QPP Webinar Library.

Acumen holds office hours to provide occasional updates on the expert input gathered in measure development and refinements to measure specifications.

- Office hours for nomination periods across Waves and for the public comment period in Wave 4 publicize the opportunity for input on the prioritization of candidate episode groups and participation in expert panels during measure development.
- Public office hours sessions are held to share updates with individuals and specialty societies and organizations alike, as well as to provide a channel to answer questions from the public. Office hours contain a short informational presentation to address frequently asked questions. They also dedicate a portion of the event to an open-ended question-and-answer format that allows attendees to ask questions. Office hours events are held across multiple stages of the measure development process.
- Specialty society office hours are held 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 provide opportunities for bidirectional question-and-answer to improve the public's understanding. Specialty office hours were held for the 4 field testing periods that have been conducted.
- Office hours have been held to provide occasional updates on the input gathered in measure development and refinements to measure specifications.

Interested parties can access a wide range of materials on the MACRA Feedback Page. This includes field testing documents, such as a frequently asked questions document, mock field test reports, draft measure specifications documents, a description of the measure development process, and documents with measure testing results and summary statistics. Other materials include descriptions of the cost measure framework and key features, such as shared data across episodes.

Acumen also shares information about workgroup meetings through a public dial-in line to workgroup meetings in listen-only mode and by posting meeting summaries. This allows all interested parties the opportunity to observe workgroup discussions and considerations that inform the preliminary measure specifications. Members of the public are also able to sign-up for email updates via listservs to receive regular updates on measure development.

[27] CMS, "Help & Support," https://qpp.cms.gov/resources/help-and-support.