



Measure Information

This document contains the information submitted by measure developers/stewards, but is organized according to NQF's measure evaluation criteria and process. The item numbers refer to those in the submission form but may be in a slightly different order here. In general, the item numbers also reference the related criteria (e.g., item IM1.1 relates to sub criterion IM1).

Brief Measure Information

NQF #: 3575

De.2. Measure Title: Total Per Capita Cost (TPCC)

Co.1.1. Measure Steward: Centers for Medicare & Medicaid Services

De.3. Brief Description of Measure: The Total Per Capita Cost (TPCC) measure assesses the overall cost of care delivered to a beneficiary with a focus on the primary care they receive from their provider(s). The TPCC measure score is a clinician's average risk-adjusted and specialty-adjusted cost across all beneficiary months attributed to the clinician during a one year performance period.

The measure is attributed to clinicians providing primary care management for the beneficiary, who are identified by their unique Taxpayer Identification Number and National Provider Identifier pair (TIN-NPI) and clinician groups, identified by their TIN number. Clinicians are attributed beneficiaries for one year, beginning from a combination of services indicate that a primary care relationship has begun. The resulting periods of attribution are then measured on a monthly level, assessing all Part A and Part B cost for the beneficiary for those months that occur during the performance period. The beneficiary populations eligible for the TPCC include Medicare beneficiaries enrolled in Medicare Parts A and B during the performance period.

IM.1.1. Developer Rationale: Effective primary care management can support Medicare savings in several ways. For example, more effective primary care management can improve the treatment of chronic conditions by obviating the need for high-cost hospital or emergency department services. It can also direct a greater proportion of patients to lower hospital costs for inpatient services. [1] Given the potential for decreasing spending through improvements in primary care delivery, the TPCC measure allows for a savings opportunity by capturing the broader healthcare costs influenced by primary care.

[1] "Valuation of Care Management Performed by Primary Care Services: An Issue Brief." American Academy of Family Physicians, 2018.

De.1. Measure Type: Cost/Resource Use

S.5. Data Source: Assessment Data

Claims

Enrollment Data

Other

S.3. Level of Analysis: Clinician : Group/Practice, Clinician : Individual

IF Endorsement Maintenance – Original Endorsement Date: Nov 20, 2020 **Most Recent Endorsement Date:** Nov 20, 2020

IF this measure is included in a composite, NQF Composite#/title:

IF this measure is paired/grouped, NQF#/title:

De.4. IF PAIRED/GROUPED, what is the reason this measure must be reported with other measures to appropriately interpret results?

Importance to Measure and Report

Extent to which the specific measure focus is evidence-based, important to making significant gains in healthcare quality, and improving health outcomes for a specific high-priority (high-impact) aspect of healthcare where there is variation in or overall less-

than-optimal performance. ***Measures must be judged to meet all sub criteria to pass this criterion and be evaluated against the remaining criteria.***

IM.1. Opportunity for Improvement

IM.1.1. Briefly explain the rationale for this measure (e.g., the benefits or improvements in performance envisioned by use of this measure)

Effective primary care management can support Medicare savings in several ways. For example, more effective primary care management can improve the treatment of chronic conditions by obviating the need for high-cost hospital or emergency department services. It can also direct a greater proportion of patients to lower hospital costs for inpatient services. [1] Given the potential for decreasing spending through improvements in primary care delivery, the TPCC measure allows for a savings opportunity by capturing the broader healthcare costs influenced by primary care.

[1] "Valuation of Care Management Performed by Primary Care Services: An Issue Brief." American Academy of Family Physicians, 2018.

IM.1.2. Provide performance scores on the measure as specified (current and over time) **at the specified level of analysis.** (This is required for endorsement maintenance. Include mean, stddev, min, max, interquartile range, scores by decile. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities include).

This information also will be used to address the subcriterion on improvement (U.3.1.) under Usability and Use.

Performance scores are provided for 74,191 clinician group practices (identified by Tax Identification Number [TIN]) and 335,480 practitioners (identified by a combination of TIN and National Provider Identifier [NPI]). These counts represent attributed clinicians and clinician groups billing Part B Physician/Supplier claims under a Merit-based Incentive Payment System (MIPS)-eligible clinician specialty, and do not reflect other MIPS eligibility criteria (e.g., Advanced APM participation). Clinicians and clinician groups are included if they are attributed 20 or more TPCC beneficiaries, as identified in Medicare Parts A and B claims data, during January 1, 2018, to December 31, 2018. Beneficiaries from all 50 States and D.C. receiving evaluation and management care indicative of primary care were included, with their respective costs evaluated from all claim settings.

TIN Level Scores:

- Mean score: \$1,109
- Standard deviation: \$257
- Min score: \$35
- Max score: \$8,449
- Score IQR: \$255
- Score percentiles
 - o 10th: \$833
 - o 20th: \$935
 - o 30th: \$999
 - o 40th: \$1,049
 - o 50th: \$1,095
 - o 60th: \$1,141
 - o 70th: \$1,192
 - o 80th: \$1,262
 - o 90th: \$1,383
- Number of beneficiaries: 26,636,602

TIN-NPI Level Scores:

- Mean score: \$1,169
- Standard deviation: \$310
- Min score: \$7
- Max score: \$10,024
- Score IQR: \$297
- Score percentiles
 - o 10th: \$855
 - o 20th: \$961

- o 30th: \$1,030
- o 40th: \$1,087
- o 50th: \$1,140
- o 60th: \$1,194
- o 70th: \$1,257
- o 80th: \$1,341
- o 90th: \$1,489
- Number of beneficiaries: 26,374,993

IM.1.3. If no or limited performance data on the measure as specified is reported in IM.1.2., then provide a summary of data from the literature that indicates opportunity for improvement or overall less than optimal performance on the specific focus of measurement.

N/A.

IM.1.4. Provide disparities data from the measure as specified (current and over time) by population group, e.g., by race/ethnicity, gender, age, insurance status, socioeconomic status, and/or disability. (This is required for endorsement maintenance. Describe the data source including number of measured entities; number of patients; dates of data; if a sample, characteristics of the entities include.) This information also will be used to address the subcriterion on improvement (U.3.1.) under Usability and Use.

N/A.

IM.1.5. If no or limited data on disparities from the measure as specified is reported in IM.1.4., then provide a summary of data from the literature that addresses disparities in care on the specific focus of measurement. Include citations.

N/A.

IM.2. Measure Intent

IM.2.1. Describe intent of the measure and its components/ Rationale (including any citations) for analyzing variation in resource use in this way.

An earlier version of the TPCC measure was originally used in the Physician Value-Based Payment Modifier (VM) Program and reported in the annual Quality and Resource Use Reports (QRURs). With the introduction of the Quality Payment Program, the TPCC measure was finalized with minor adaptations from the VM Program's version and added to the Merit-based Incentive System (MIPS), where it was part of the MIPS cost performance category during the 2017-2019 MIPS performance periods. In 2018, the TPCC measure went through re-evaluation to address stakeholder feedback received from prior public comment periods. This stakeholder input informed modifications to the TPCC measure's attribution methodology, timing of cost assignment, and risk adjustment. The resulting TPCC measure submitted here will be used in MIPS starting with the 2020 performance period. A summary of the differences between the NQF submitted TPCC measure for use in the MIPS 2020 performance period and the previously used version of the TPCC measure can be found in Appendix B of the Measure Information Form for the revised TPCC on the CMS MACRA Feedback webpage. [1]

Rationale for Measuring Cost through All-Cost Measure vs. Episode-Based Cost Measure

TPCC is a broad measure that focuses on measuring the performance of clinicians delivering primary care services, which can include both primary care and specialty clinicians. By allowing more clinicians to have their cost performance measured, this broad measure complements more specific episode-based cost measures, which measure the performance of a subset of specialties concentrated around a specific condition or procedure. In complementing episode-based cost measures, all-cost measures, such as TPCC, become an important means to enhance the coverage of patients and effectively incentivize improvements in the efficiency of care delivery in Medicare. Inclusions of all costs provides a broad assessment of a clinician's management of the overall health of a patient, as opposed to episode-based cost measures, which only capture clinically-related services for a given procedure or condition. In managing a patient's complete health, clinicians measured under the TPCC measure are incentivized to conduct patient follow-up, coordinate care amongst specialists, offer necessary referrals, and actively diagnose patients.

Rationale for Measuring the Total Per Capita Cost (TPCC)

A recent study indicates that physician beliefs about treatment may be the most important factor explaining the variation in health care expenditures. [2] However, these same clinicians are often unaware of how their care decisions can influence the overall costs

of care. One of the goals for using cost measures is to help inform clinicians of the cost of their patient's care, as well as provide detail that is informative and actionable for clinicians. Clinicians may be able to review these costs and determine which are most high yield and efficient.

Research shows that primary care management in certain settings, such as Patient-Centered Medical Homes (PCMH), has brought about measurable reductions to the total cost of care by reducing utilization of high-cost services and in some cases, by directing patients to lower cost hospitals. [3] With this research-based evidence available for certain settings, a key question for policymakers is whether primary care management would achieve similar results across a wider variety of settings. In light of this question, a measure that captures the cost performance of primary care providers across a range of settings can help to confirm the benefits of effective primary care management. Given that, as noted above, clinicians are often unaware of how their choices affect the total costs of care, such a measure can help guide primary care providers towards practices that reduce costs, while maintaining or improving quality.

Another key opportunity presented by a cost performance measure for primary care is the opportunity to reward primary care providers for delivering value and to thereby improve patients' access to primary care services. As noted by MedPAC, beneficiaries experience more difficulty accessing primary care than with accessing specialty care. [4] More specifically, 1.3 percent of the Medicare population reported a "big problem" finding a primary care doctor, while just 0.9 percent of this population reported such a problem in finding a specialist in 2017. Relatedly, among patients desiring to switch primary care providers, some patients felt that this was not an option due to long wait times or due to practices being closed to new patients. This may be related to another fact that MedPAC observes in the same report, which is that the Physician Fee Schedule's orientation to discrete services with a clear beginning and end does not support primary care, with its need for ongoing care coordination for a group of patients. Given this, MedPAC recommended the establishment of a per beneficiary payment for primary care practitioners to replace the expired Primary Care Incentive Payment (PCIP) program. This program provided a 10 percent bonus on fee schedule payments for some E&M services delivered by primary care practitioners. While the establishment of such a revised payment policy for primary care management might be an optimal solution to increase the availability of primary care, it may take substantial time to implement. Given this, it is particularly important to utilize an existing measure of the cost performance of primary care clinicians to identify and provide financial incentives for good performance.

Rationale for Use of Claims Data to Measure Cost

- There is no additional submission burden, as clinicians must already submit claims for reimbursement.
- Using Medicare Parts A and B claims data allows CMS to evaluate TIN and TIN-NPI cost across all conditions and procedures, resulting in a comprehensive set of data on TPCC cost performance.
- Additionally, the wide reach of Medicare claims data maximizes the impact of the measure, ensuring that the most TINs and TIN-NPIs benefit from the information provided on TPCC cost performance.

[1] CMS, "Merit-Based Incentive Payment System (MIPS): Total Per Capita Cost (TPCC) Measure – Measure Information Form," <https://www.cms.gov/files/zip/2020-cost-measure-information-forms.zip>.

[2] David Cutler et al., "Physician Beliefs and Patient Preferences: A New Look at Regional Variation in Health Care Spending," *American Economic Journal: Economic Policy* 11, no. 1 (February 1, 2019): 192–221.

[3] "Valuation of Care Management Performed by Primary Care Services: An Issue Brief." American Academy of Family Physicians, 2018.

[4] "Report to the Congress: Medicare Payment Policy," MedPAC, 2018, http://www.medpac.gov/docs/default-source/reports/mar18_medpac_entirereport_sec.pdf.

Scientific Acceptability of Measure Properties

Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the quality of care when implemented. ***Measures must be judged to meet the sub criteria for both reliability and validity to pass this criterion and be evaluated against the remaining criteria.***

Specifications The measure is well defined and precisely specified so it can be implemented consistently within and across organizations and allows for comparability. eMeasures should be specified in the Health Quality Measures Format (HQMF) and the Quality Data Model (QDM).

De.5. Subject/Topic Area (check all the areas that apply):

De.6. Non-Condition Specific (check all the areas that apply):

De.7. Care Setting (Select all the settings for which the measure is specified and tested):

No Applicable Care Setting

S.1. Measure-specific Web Page (Provide a URL link to a web page specific for this measure that contains current detailed specifications including code lists, risk model details, and supplemental materials. Do not enter a URL linking to a home page or to general information.)

<https://qpp-cm-prod-content.s3.amazonaws.com/uploads/812/2020+MIPS+Cost+Measure+Info+Forms.zip> | <https://qpp-cm-prod-content.s3.amazonaws.com/uploads/811/2020+MIPS+Cost+Measure+Code+List.zip>

S.2. Type of resource use measure (Select the most relevant)

Per capita (population- or patient-based)

S.3. Level of Analysis (Check ONLY the levels of analysis for which the measure is SPECIFIED AND TESTED):

Clinician : Group/Practice, Clinician : Individual

S.4. Target Population Category (Check all the populations for which the measure is specified and tested if any):

S.5. Data Source (Check ONLY the sources for which the measure is SPECIFIED AND TESTED).

If other, please describe in S.5.1.

Assessment Data

Claims

Enrollment Data

Other

S.5.1. Data Source or Collection Instrument (Identify the specific data source or data collection instrument, e.g. name of database, clinical registry, collection instrument, etc.)

Medicare Part A and Part B claims data: TPCC uses Part A and B claims data to attribute beneficiaries to clinicians, calculate beneficiary's costs, and construct risk adjusters. CMS Office of Information Systems (OIS) maintains a detailed Medicare Claims Processing Manual available at the following URL: <https://www.cms.gov/Regulations-and-Guidance/Guidance/Manuals/Internet-Only-Manuals-IOMs-Items/CMS018912>.

Medicare Enrollment Database (EDB): This is used to determine beneficiary-level exclusions and supplemental risk adjusters, specifically Medicare Parts A, B, and C enrollment; other primary payers; disability status; sex; end-stage renal disease (ESRD); beneficiary birth dates; and beneficiary death dates.

Common Medicare Environment (CME) database: This is used to determine beneficiary's dual status.

<https://www.ccwdata.org/documents/10280/19002256/medicare-enrollment-impact-of-conversion-from-edb-to-cme.pdf>.

Minimum Data Set (MDS): The MDS is used to identify beneficiaries that should be risk adjusted through the CMS-HCC v22 institutional model.

<https://www.resdac.org/cms-data/files/mds-3.0>.

For measure testing purposes, data from the American Census, American Community Survey (ACS) is used in the analyses evaluating patient cohorts and social risk factors in risk adjustment.

<https://www.census.gov/programs-surveys/acs/technical-documentation/summary-file-documentation.html>.

S.5.2. Data Source or Collection Instrument Reference (available at measure-specific Web page URL identified in S.1 OR in the file attached here) (Save file as: S_5_2_DataSourceReference)

<SamplingMethodologySpecificDataSourceAttachment nodeType="0">2020_01_06_testing_form_appendix_tpcc.xlsx

S.6. Data Dictionary or Code Table (Please provide a web page URL or attachment if exceeds 2 pages. NQF strongly prefers URLs. Attach documents only if they are not available on a web page.)

Data Dictionary:

URL: The Research Data Assistance Center (ResDAC) maintains Medicare claims and administrative data dictionaries. <https://www.resdac.org/file-availability-vrdc>. CMS maintains the Medicare Enrollment Database and data dictionary: edbonline@cms.hhs.gov

Please supply the username and password:

Attachment:

Code Table:

URL:

Please supply the username and password:

Attachment: 2020-04-29-icd-10-codes.xlsx

Construction Logic

S.7.1. Brief Description of Construction Logic

If applicable, summarize the general approach or methodology to the measure construction. This is most relevant to measures that are part of or rely on the execution of a measure system or applies to multiple measures.

The TPCC measure score is calculated as the average payment-standardized, risk-adjusted, and specialty-adjusted monthly costs across all beneficiary months in the performance period attributed to a clinician group (TIN) or individual clinician (TIN-NPI).

The measure population is identified as beneficiaries for whom a clinician group (TIN) provides two outpatient 'primary care services' within 90 days and to the individual clinician (TIN-NPI) within a TIN that provides the most 'primary care evaluation and management services'. Certain types of clinicians are excluded from attribution if their practice patterns identified through claims billing focus on global surgery, anesthesia, therapeutic radiation, or chemotherapy. Certain specialties that are not reasonably responsible for providing primary care are also excluded based on their HCFA Specialty designation. Beneficiaries are attributed for a one year period and measured on a monthly basis for those months occurring during the performance period. The costs of all Part A and Part B services occurring during the attributed beneficiary's months are summed to obtain each month's standardized observed cost. The monthly observed costs are risk-adjusted by dividing by the beneficiary's risk scores as determined by the CMS-HCC and CMS-ESRD risk adjustment models for patient characteristics found in the year prior to that particular month. A specialty adjustment is then applied to monthly risk-adjusted costs to account for the fact that costs vary across specialties and across TINs with different specialty compositions.

S.7.2. Construction Logic (Detail logic steps used to cluster, group or assign claims beyond those associated with the measure's clinical logic.)

STEP 1: Identify Beneficiaries for Attribution (i.e., Candidate Events)

A 'candidate event' indicates the start of a primary care relationship between a clinician and beneficiary, and is identified by the occurrence of two Part B Physician/Supplier (Carrier) claims with particular CPT/HCPCS services billed in close proximity. There are two different sets of CPT/HCPCS codes used: E&M primary care services and primary care services.

E&M primary care services are a specific set of evaluation and management codes for clinician visits in the outpatient setting, physician office, nursing facility, or assisted living.

Primary care services are a broader list of services related to routine primary care and generally fall into the following categories: Durable Medical Equipment (DME) and Supplies, Electrocardiogram, Laboratory - Chemistry and Hematology, Other Diagnostic Procedures (Interview, Evaluation, and Consultation), Other Diagnostic Radiology and Related Techniques, Prophylactic Vaccinations and Inoculations, Routine Chest X-ray, Clinical Labs, Preventive Services.

To identify a candidate event, firstly, an initial E&M primary care service billed on Part B Physician/Supplier (Carrier) claim is identified. This E&M primary care service is not considered if it occurs during a beneficiary's stay at a Critical Access Hospital (CAH), Inpatient Facility, or Skilled Nursing Facility (SNF). Secondly, in addition to the initial E&M primary care service, the presence of at least one of the following services confirms the candidate event:

- From any TIN within +/- 3 days: Another primary care service,
- From the same TIN within + 90 days: A second E&M primary care service OR another primary care service

See the "Prim_Care_E&Ms" and the "Prim_Care_Services" tabs of the TPCC Measure Codes List file for the list of the Current Procedural Terminology/Healthcare Common Procedure Coding System (CPT/HCPCS) codes that identify E&M primary care services and primary care services, respectively. The URL of this downloadable file is linked in Section S.1.

STEP 2: Exclude Clinicians Unlikely to be Providing Primary Care

Once candidate events are identified, individual clinicians (identified by TIN-NPI) can be attributed based on their involvement in the candidate event and how their practice relates to primary care. The TIN-NPI assigned responsible for a candidate event is the clinician found on the initial E&M primary care service claim of the candidate event. TIN-NPIs are excluded from attribution if they meet one of two types of exclusions: service category exclusions and specialty exclusions. Candidate events belonging to TIN-NPIs who meet any of these exclusions are removed from attribution and measure calculation for both the TIN-NPI and their respective clinician group (identified by TIN).

STEP 2.1: Exclude Clinicians Based on Service Category Exclusions

Clinicians whose billing patterns indicate that they tend to provide services that are not within the scope of primary care are excluded from attribution of the TPCC measure. A TIN-NPI and all their candidate events are removed from attribution if he or she bills the volume of services below within +/-180 days of a candidate event for a beneficiary:

- At least 15 percent of the clinician's candidate events are billed with 10-day or 90-day global surgery services.
- At least 5 percent of the clinician's candidate events are billed with anesthesia services.
- At least 5 percent of the clinician's candidate events are billed with therapeutic radiation services.
- At least 10 percent of the clinician's candidate events are billed with chemotherapy services.

The list of CPT/HCPCS codes used for each of the service exclusions can be found in the tabs of the TPCC Measure Codes List file labeled: "HCPCS_Surgery," "HCPCS_Anesthesia," "HCPCS_Ther_Rad," and "HCPCS_Chemo." The downloadable file is linked in Section S.1.

STEP 2.2: Exclude Clinicians Based on Specialty Exclusions

Clinicians who – based on their specialty – would not reasonably be responsible for providing primary care are excluded from attribution of the TPCC measure. This exclusion aims to keep primary care specialists and internal medicine subspecialists who frequently manage patients with chronic conditions falling in their areas of specialty. The excluded specialties list contains 56 specialties that fall into the following broad categories:

- Surgical sub-specialties
- Non-physicians without chronic management of significant medical conditions
- Internal medicine sub-specialties with additional highly procedural sub-specialization
- Internal medicine specialties that practice primarily inpatient care without chronic care management
- Pediatricians who do not typically practice adult medicine

The list of HCFA Specialty codes that identify clinicians that are included or excluded from the measure attribution can be found in the "Eligible_Clinicians" tab of the TPCC Measure Codes List. The downloadable file is linked in Section S.1.

STEP 3: Construct Risk Windows

Candidate events that are not excluded initiate the opening of a risk window, a year-long period that begins on the date of the initial E&M primary care service of the candidate event. The performance period is divided into 13 four-week blocks called beneficiary months. Beneficiary months during the risk window are considered attributable if they occur during the performance period. In the event that a risk window begins or ends with a partially covered month, only the portion during the risk window and the performance period is considered for attribution.

STEP 4: Attribute Beneficiary Months to TINs and TIN-NPIs

Beneficiary months are attributed to a TIN according to the following steps:

- Identify the TIN billing the initial E&M primary care service claim of each candidate event.
- Determine beneficiary months that fall within the risk windows of the candidate events that were initiated by the TIN and overlap the performance period and attribute those beneficiary months to the TIN.

Beneficiary months are attributed to a TIN-NPI according to the following steps:

- Identify the TIN-NPI billing the initial E&M primary care service claim of each candidate event.
- Determine beneficiary months that fall within the risk windows of the candidate events that were initiated by the TIN-NPI and that overlap the performance period.
- Identify the TIN-NPI within an attributed TIN that is responsible for the plurality of candidate events provided to the beneficiary. If two or more TIN-NPIs under a single TIN provide the same proportion of candidate events to a beneficiary, attribute the beneficiary to the TIN-NPI that provided the earliest candidate event.
- Attribute only the beneficiary months from candidate events that the TIN-NPI is responsible for initiating, which is not necessarily all candidate events attributed to the TIN for that beneficiary.

STEP 5: Calculate Payment-Standardized Monthly Observed Costs

The monthly observed cost for attributed beneficiary months is the sum of all service costs billed for a particular beneficiary during a beneficiary month. Monthly observed costs are standardized to account for differences in Medicare payments for the same service(s) across Medicare providers. Payment standardization accounts for differences in Medicare payment unrelated to the care provided, such as those from payment adjustments supporting larger Medicare program goals (e.g. indirect medical education add-on payments) or variation in regional healthcare expenses as measured by hospital wage indexes and geographic price cost indexes (GPCIs). Standardized costs that occur during partially covered months are pro-rated, based on the portion of the month covered by the risk window.

STEP 6: Risk-Adjust Monthly Costs

Beneficiary cost may differ across clinicians for reasons unrelated to the attributed clinicians' treatment and outside of their control. Risk adjustment accounts for case-mix of patients and other non-clinical characteristics that influence complexity of case-mix and is defined by a patient's claims found one year prior the start of a respective beneficiary month. The CMS Hierarchical Condition Category Version 22 (CMS-HCC V22) 2016 Risk Adjustment models are used for beneficiaries without End Stage Renal Disease (ESRD). Specifically,

- The new enrollee model is used for beneficiaries that have fewer than 12 months of Medicare medical history. The model accounts for each beneficiary's age, sex, disability status, original reason for Medicare entitlement (age or disability), and Medicaid eligibility.
- The community model is used for beneficiaries that have least 12 months of Medicare medical history. The model includes the same demographic information as the new enrollee model but also accounts for clinical conditions as measured by HCCs.
- The institutional model is used for beneficiaries who were in long-term institutional settings. The model includes demographic variables, clinical conditions as measured by HCCs, and various interaction terms.

The CMS-ESRD Version 21 (CMS-ESRD V21) 2016 Risk Adjustment models are used for ESRD beneficiaries receiving dialysis. Specifically,

- The dialysis new enrollee model is used for ESRD beneficiaries that have fewer than 12 months of Medicare medical history. The model accounts for each beneficiary's age, sex, disability status, original reason for Medicare entitlement (age or disability), Medicaid eligibility, and ESRD.
- The dialysis community model is used for ESRD beneficiaries that have at least 12 months of Medicare medical history. The model includes the same demographic information as the new enrollee model but also accounts for clinical conditions as measured by HCCs.

The "HCC_Risk_Adjust" tab of the Measure Codes List file lists all variables included in the CMS-ESRD V21 and the CMS-HCC V22 risk adjustment models. The downloadable file is linked in Section S.1.

The standardized risk scores from the CMS-ESRD V21 and CMS-HCC V22 models are generated for each beneficiary's month that summarizes the beneficiary's expected cost of care relative to other beneficiaries. Risk scores for ESRD beneficiaries are normalized to be on a comparable scale with the HCC V22 risk scores. A risk score equal to 1 indicates risk associated with expenditures for the average beneficiary nationwide. A risk score greater than 1 indicates above average risk, while a risk score less than 1 indicates below average risk.

The risk-adjusted monthly cost for each attributed month is calculated according to the following steps:

- Calculate CMS risk score for each beneficiary month using diagnostic data from the year prior to the month. This risk score is normalized by dividing by the average risk score for all beneficiary months.
- Divide observed costs for each beneficiary month by the normalized risk score to obtain risk-adjusted monthly costs.
- Winsorize risk-adjusted monthly costs at the 99th percentile by assigning the 99th percentile of monthly costs to all attributable beneficiary months with costs above the 99th percentile.
- Normalize monthly costs to account for differences in expected costs based on the number of clinician groups to which a beneficiary is attributed in a given month. The normalization factor is the inverse cube root of the number of attributed clinician groups for that beneficiary month.

STEP 7: Specialty-Adjust Monthly Cost

The specialty adjustment for the TPCC measure is a cost adjustment applied to account for the fact that costs vary across specialties and across TINs with varying specialty compositions. The specialty adjustment at the TIN and TIN-NPI levels is calculated as follows:

- 1) Calculate the average risk-adjusted monthly cost for each TIN and TIN-NPI by averaging risk-adjusted monthly cost across all attributed beneficiary months.
- 2) Calculate the national specialty-specific expected cost for each specialty as the weighted average of TIN/TIN-NPI's risk-adjusted monthly cost.
 - 2a) Define the weight for each TIN/TIN-NPI as the percentage of clinicians with that specialty multiplied by the total number of beneficiary months attributed to the TIN/TIN-NPI multiplied by the number of clinicians with that specialty.
 - 2b) There will only be one specialty designation for a TIN-NPI. Therefore, the percentage of clinicians with a specialty and number of clinicians with a specialty will always be equal to 1.
- 3) Calculate the specialty-adjustment factor for each TIN or TIN-NPI as follows:
 - 3a) Multiply the national specialty-specific expected cost for each specialty by the respective specialty's share of Part B payment within a TIN or TIN-NPI.
 - 3b) Sum the weighted share of national specialty-specific expected cost calculated in the previous step across all the specialties under a given TIN or TIN-NPI.

STEP 8: Calculate the TPCC Measure Score

Calculate final risk-adjusted, specialty-adjusted cost measure by dividing each TIN and TIN-NPI's average risk-adjusted monthly cost by their specialty-adjustment factor and multiply this ratio by the average non-risk-adjusted, winsorized observed cost across the total population of attributed beneficiary months.

S.7.2a. CONSTRUCTION LOGIC ATTACHMENT or URL: If needed, attach supplemental documentation (Save file as:

S_7_2_Construction_Logic). All fields of the submission form that are supplemented within the attachment must include a summary of important information included in the attachment and its intended purpose, including any references to page numbers, tables, text, etc.

URL: See URL provided in Section S.1

Please supply the username and password:

Attachment:

S.7.3. Concurrency of clinical events, measure redundancy or overlap, disease interactions (Detail the method used for identifying concurrent clinical events, how to manage them, and provide the rationale for this methodology.)

The TPCC measure can identify the same beneficiary months to be attributed to the same clinician or clinician group as a result of separate overlapping candidate events (i.e., trigger events described in Section S.7.2. in Step 1). When this occurs, the measure will only include the beneficiary month once in the calculation for the respective clinician or clinician group.

The measure can attribute a beneficiary to multiple clinicians or clinician groups if evidence is found that both groups are managing the beneficiary concurrently. The measure calculation risk adjusts each clinician's observed costs for the patient with the same observable characteristics among their peers, rather than to a pre-defined standard. By comparing clinicians to their peers, who are all attributed in the same way, and measuring all clinicians who are responsible for the patient's care, we can expect this comparison to be fair. Allowing multiple clinicians to be attributed a beneficiary is an important feature of the measure as it ensures that all clinicians involved in a beneficiary's care are appropriately measured and subject to similar incentives, promoting joint accountability.

The measure accounts for disease interactions through its risk adjustment models specified by CMS' Hierarchical Condition Category Version 22 (CMS-HCC V22) and CMS' ESRD Version 21 (CMS-ESRD V21). In addition to the HCCs, the model includes disease interactions (e.g., Cancer * Immune Disorders). Further details about the risk adjustment models and disease interaction terms are included in Section S.8.6. and Section S.9.2.

S.7.4. Complementary services *(Detail how complementary services have been linked to the measure and provide rationale for this methodology.)*

Identification of a primary care relationship between a clinician and beneficiary are identified by the occurrence of two Part B Physician/Supplier (Carrier) claims with particular CPT/HCPCS services indicative of primary care. Specifically, evaluation and management codes for clinician visits in the outpatient setting, physician office, nursing facility, or assisted living, and a broader list of services related to routine primary care are used.

The TPCC measure includes all services during periods of attribution in the measurement. The TPCC captures a broad view of provider care, and focuses on measuring the performance of clinicians delivering primary care services. By not excluding services, this intends to capture overall costs of care, reflect the general management of beneficiary health that clinicians who provide primary care undertake, and incentivize accountability for primary care clinicians to help protect against the diverse set of consequences for inappropriately managed diseases, missed diagnoses, or inappropriate specialty referrals.

S.7.5. Clinical hierarchies *(Detail the hierarchy of codes or condition groups used and provide rationale for this methodology.)*

The TPCC measure uses clinical indicators from CMS' Hierarchical Condition Category (HCC) and ESRD models, as described in Section S.7.2. Using different models for different types of patients helps to capture comorbidities that reflect particular patient profiles, such as patients in long-term care settings. This approach is adopted to ensure sufficient capture of the patient's comorbid disposition prior to the beneficiary month's cost being accessed to allow more comprehensive risk adjustment of comorbid factors. The Hierarchical Condition Categories prevent collinearity by suppressing HCCs for less severe manifestations of a conditions when evidence for the more severe condition is found. The general risk adjustment approach is detailed in Sections S.7.2. and S.9.3.

S.7.6. Missing Data *(Detail steps associated with missing data and provide rationale for this methodology (e.g., any statistical techniques to impute missing data)*

:

Since the TPCC measure uses claims data, we expect a high degree of data completeness. CMS has in place several auditing programs used to assess overall claims code accuracy, to ensure appropriate billing, and to recoup any overpayments. CMS routinely conducts data analysis to identify potential problem areas and detect fraud, and audits important data fields used in this measure, including diagnosis and procedure codes and other elements that are consequential to payment. Specifically, CMS works with Zone Program Integrity Contractors (ZPICs), and formerly Program Safeguard Contractors (PSCs), to ensure program integrity; the agency also uses Recovery Audit Contractors (RACs) to identify and correct for underpayments and overpayments.

CMS also uses the Comprehensive Error Rate Testing (CERT) Program to ensure that Medicare payments are correct in accordance with coverage, coding, and billing rules. Between 2005 and 2017, CERT estimates that proper payment, which is payments that met Medicare coverage, coding, and billing rules, ranged from 87.3 to 96.4 percent of total payments each year. The FY 2018 Medicare FFS program proper payment rate was 91.9 percent.[1] CMS continues to perform successful corrective actions and give providers additional education to ensure accurate billing.

To further ensure the completeness and accuracy of data for each beneficiary included, the measure excludes beneficiary when the date of birth information (an input to the risk adjustment model) cannot be found in the EDB.

The TPCC measure also excludes beneficiary enrolled in Medicare Part C or has a primary payer other than Medicare at any point during the performance period. In such situations, Medicare Parts A and B claims data may not capture the complete clinical profile for the beneficiary needed to capture the clinical risk of the beneficiary in risk adjustment. Furthermore, Parts A and B claims data may not capture all Medicare resource use if some portion of the beneficiary's care is covered under Medicare Part C.

[1] Comprehensive Error Rate Testing (CERT) Program. "Appendices Medicare Fee-for-Service 2018 Improper Payments Report". Table A6. <https://www.cms.gov/Research-Statistics-Data-and-Systems/Monitoring-Programs/Medicare-FFS-Compliance->

[Programs/CERT/Downloads/2018MedicareFFSSupplementalImproperPaymentData.pdf](#)

S.7.7. Resource Use Service Categories (Units) (Select all categories that apply)

Inpatient services: Inpatient facility services

Inpatient services: Evaluation and management

Inpatient services: Procedures and surgeries

Inpatient services: Imaging and diagnostic

Inpatient services: Lab services

Inpatient services: Admissions/discharges

Other inpatient services

Ambulatory services: Outpatient facility services

Ambulatory services: Emergency Department

Ambulatory services: Pharmacy

Ambulatory services: Evaluation and management

Ambulatory services: Procedures and surgeries

Ambulatory services: Imaging and diagnostic

Ambulatory services: Lab services

Other ambulatory services

Durable Medical Equipment (DME)

Other services not listed

All Part A

All Part A and B

All Part A and B

S.7.8. Identification of Resource Use Service Categories (Units)

(For each of the resource use service categories selected above, provide the rationale for their selection and detail the method or algorithms to identify resource units, including codes, logic and definitions.)

The TPCC measure focuses on primary care by design and includes all costs to provide a broad assessment of a clinician's management of the overall health of a patient, rather than a specific condition. In managing a patient's complete health, clinicians measured under the TPCC measure are incentivized to conduct patient follow-up, coordinate care amongst specialists, offer necessary referrals, and actively diagnose patients.

S.7.8a. If needed, provide supplemental resource use service category specifications in either URL (preferred) or as an attachment (Save file as S.7.8a_RU_Service_Categories):

URL: See URL provided in Section S.1

Please supply the username and password:

Attachment:

Clinical Logic

S.8.1. Brief Description of Clinical Logic (Briefly describe your clinical logic approach including clinical topic area, whether or not your account for comorbid and interactions, clinical hierarchies, clinical severity levels and concurrency of clinical events.)

The measure aims to capture the overall costs of care to provide information to clinicians providing primary care services with the goal of incentivizing the provision of high-quality, cost-effective care. The clinical logic is constructed to achieve this objective.

Clinical Topic Area: Population-based measure for beneficiaries receiving primary care

Comorbidity and interactions: The risk adjustment models include a series of interaction terms between comorbidities. The risk adjustment models are also used to account for clinical severity levels of beneficiaries.

Clinical hierarchies: Clinical hierarchies are embedded within the risk adjustment models, and in determining which model applies to a given beneficiary.

Additional clinical logic includes accounting for the attribution of beneficiaries to clinicians through an evaluation of Part B services indicating primary care practice relationships, and ensuring that the measure is appropriately capturing clinicians who provide primary care services by excluding a defined set of clinicians either through their CMS HCFA specialty or Part B billing patterns.

S.8.2. Clinical Logic *(Detail any clustering and the assignment of codes, including the grouping methodology, the assignment algorithm, and relevant codes for these methodologies.)*

As described in Section S.7.2, to account for the clinical severity of patients, one of five separate risk adjustment models are applied based on the patients characteristics observed in the year prior to the beneficiary month being measured. For non-ESRD patients, the three models are the new enrollee model, community model, and institutional model from CMS' Hierarchical Condition Category Version 22 (CMS-HCC V22). For ESRD patients, the two models are the dialysis new enrollee model and dialysis community model from CMS' ESRD Version 21 (CMS-ESRD V21). Each model includes beneficiary demographic and enrollment information such as age, gender, disability, and dual enrollment status. Both the new enrollee model and dialysis new enrollee models are limited to these factors as the patient does not have sufficient Medicare claims history for further evaluation. The remaining models (community model, institutional model, and dialysis community) include either 79 (CMS-HCC V22) or 87 (CMS-ESRD V21) hierarchical condition categories to characterize the patient severity and comorbidities. The indicators used for risk adjustment and the methodology are detailed in the Measure Information Form linked in Section S.1.

The start of a primary care relationship between a clinician and beneficiary is identified by the occurrence of two Part B Physician/Supplier (Carrier) claims with particular CPT/HCPCS services billed in close proximity. There are two different sets of CPT/HCPCS codes used: E&M primary care services and primary care services. E&M primary care services are a specific set of evaluation and management codes for physician visits in the outpatient setting, physician office, nursing facility, or assisted living. Primary care services are a broader list of services related to routine primary care that generally fall into the following categories: Durable Medical Equipment (DME) and Supplies, Electrocardiogram, Laboratory - Chemistry and Hematology, Other Diagnostic Procedures (Interview, Evaluation, Consultation), Other Diagnostic Radiology and Related Techniques, Prophylactic Vaccinations and Inoculations, Routine Chest X-ray, Clinical Labs, and Preventive Services

The codes used to attribute beneficiaries to clinicians are listed in the tabs titled E&M_Prim_Care and Prim_Care_Services within the Measure Codes List linked in Section S.1.

Clinicians who would not reasonably be responsible for providing primary care are excluded from attribution of the revised TPCC measure using their CMS HCFA specialty designation assigned on Part B physician/supplier claims. This exclusion aims to keep primary care specialists and internal medicine subspecialists who frequently manage patients with chronic conditions falling in their areas of specialty. The excluded specialties list contains 56 specialties that fall into the following broad categories:

- Surgical sub-specialties
- Non-physicians without chronic management of significant medical conditions
- Internal medicine sub-specialties with additional highly procedural sub-specialization
- Internal medicine specialties that practice primarily inpatient care without chronic care management
- Pediatricians who do not typically practice adult medicine

The codes used to exclude clinicians from attribution base on their CMS HCFA specialty are listed in in the tab titled Eligible_Clinicians within the Measure Codes List linked in Section S.1.

Additionally, TIN-NPI are removed from attribution if a clinician met any of the following four service category thresholds for the same beneficiary by billing the specified CPT/HCPCS within +/-180 days of the candidate event on Part B physician/supplier claims:

- At least 15 percent of the clinician's attributable events are comprised of 10-day or 90-day global surgery services.
- At least 5 percent of the clinician's attributable events are comprised of anesthesia services.

- At least 5 percent of the clinician's attributable events are comprised of therapeutic radiation services.
- At least 10 percent of the clinician's attributable events are comprised of chemotherapy services.

The codes used to exclude clinicians from attribution base on Part billing patterns are listed in the tabs titled HCPCS_Surgery, HCPCS_Anesthesia, HCPCS_Ther_Rad, HCPCS_Chemo within the Measure Codes List linked in Section S.1.

S.8.3. Evidence to Support Clinical Logic Described in S.8.2 *Describe the rationale, citing evidence to support the grouping of clinical conditions in the measurement population(s) and the intent of the measure (as described in IM3)*

The clinical logic used in the TPCC measure is informed by the literature, expert input, and feedback from a broad range of stakeholders.

The intent of the measure is to assess the overall resource use for patients with a focus on clinician(s) providing primary care services. The rationale for assessing this area of care is in line with the overall goals of MIPS to evaluate costs, along with other domains such as quality, to reward clinicians who provide high-quality and cost-effective care. This measure is also intended to meet one of the Meaningful Measure areas and National Quality Strategy objectives to make care affordable. One of the goals for using cost measures is to help inform clinicians on the costs attributable to their decision-making, as well as the total cost of their patient's care. A cost measure offers opportunity for improvement if clinicians can exercise influence on a significant share of costs during periods in which they can be considered responsible for a beneficiary, or if lower spending and better care quality can be delivered through changes in clinical practice. [1]

Physician services are an area of high spending where increased cost effectiveness can be impactful in reigning in Medicare spending: in 2017, Medicare FFS paid \$69.1 billion for physician and other health professional services, accounting for around 14 percent of FFS Medicare spending.[4] Payment models like MIPS can have significant impacts on reducing costs and making care more affordable. Clinicians providing primary care can reduce the total cost of care by reducing utilization of high-cost services and in some cases, by directing patients to lower cost hospitals.[3] Small practice changes by all clinicians can have a sizable impact on reducing unnecessary healthcare spending; these findings led to the Choosing Wisely campaign that contains over 550 recommendations for unnecessary tests and treatments, with the participation of over 80 specialty societies.[8,9] Primary care clinicians have a role in minimizing the use of low value services where there is little or no clinical benefit or care where the risk of harm from the service outweighs the potential benefit [6,7,8]. Low-value services include unnecessary tests and treatment (e.g., imaging for non-specific low back pain which has been shown not to be associated with improved outcomes), which have flow-on effects for further low-value services (e.g., follow-up tests, referrals to specialists, procedures) which are often difficult to assess. [6,7] A total cost of care measure like TPCC is able to capture these downstream costs and minor actions from clinicians that can help curb health care costs.

The clinical logic of attributing the measure to clinicians who provide primary care services is to account for the wide range of clinicians who can provide this type of care, regardless of their designated specialty. For example, the majority of clinicians who billed Medicare as hospitalists in 2017 after the introduction of that specialty code had previously reported a primary care specialty code in 2016.[4] Many beneficiaries see a nurse practitioner (NP) or physician assistant (PA) for their primary care, with 16 percent reporting that they saw an NP or PA for all their primary care and 29 percent saying they saw an NP or PA for some of their primary care.[4] Both primary care clinicians and specialists can provide care for an 'index condition'. [5] Multidisciplinary teams providing primary care have become more common, particularly for preventative services.[10] This underscores the need for the TPCC measure to be constructed in a way that identifies and attributes clinicians who provide primary care through the services that they provide and accounts for team-based care.

The TPCC measure accounts for patients with comorbidities through the use of different risk models. This is because patients with comorbidities are associated with higher resource use, such as through more frequent visits to the primary care clinician and specialists.[5] The increase in percentage of beneficiaries with five or more chronic conditions has been noted by MedPAC as having fueled rapid growth in Medicare spending.[4] These underscore the importance of a risk adjustment model that accounts for comorbidities, as well as interactions between comorbidities.

The measure methodology was developed with input from a technical expert panel and field tested nationally to gather further input and feedback from the broader clinician community and other stakeholders. Further details about the development and testing process – including results of a vote to establish face validity - are contained in the Measure Testing Form, question 2b1.

[1] Fred, Herbert L. "Cutting the Cost of Health Care: The Physician's Role." Texas Heart Institute Journal, vol. 43, no. 1, 2016.

- [2] Crosson, FJ. "Change the microenvironment. Delivery system reform essential to control costs." *Mod Healthc.*, vol. 39, no. 17, 2009, pp. 20-1
- [3] American Academy of Family Physicians. "Valuation of Care Management Performed by Primary Care Services: An Issue Brief.", 2018
- [4] MedPAC. "Report to the Congress: Medicare Payment Policy," 2019, http://www.medpac.gov/docs/default-source/reports/mar19_medpac_entirereport_sec.pdf
- [5] Starfield, B, Lemke K, Bernhardt R, Foldes S, Forrest C, and Weiner J. "Comorbidity: Implications for the Importance of Primary Care in Case Management." *The Annals of Family Medicine* 1, no. 1 (January 2003): 8–14. <https://doi.org/10.1370/afm.1>
- [6] MedPAC. "Report to the Congress: Medicare and the Health Care Delivery System" June 2018
- [7] Fried, J, Andrew A, Ring N, Pastel D, "Changes in Primary Care Health Utilization after Inclusion of Epidemiologic Data in Lumbar Spine MR Imaging Reports for Uncomplicated Low Back Pain" *Radiology*, Volume 287: number 2, May 2018
- [8] Choosing Wisely Campaign, <http://www.choosingwisely.org/>
- [9] Mafi J, Russel K, Bortz B, Dachary M, Hazel W, Fendrick M, "Low-Cost, High-Volume Health Services Contribute The Most To Unnecessary Health Spending", *Health Affairs*, Vol 36, no 10 (Oct 2017)
- [10] Rodriguez, Hector P., William H. Rogers, Richard E. Marshall, and Dana Gelb Safran. "Multidisciplinary Primary Care Teams." *Medical Care* 45, no. 1 (January 2007): 19–27. <https://doi.org/10.1097/01.mlr.0000241041.53804.29>

S.8.3a. CLINICAL LOGIC ATTACHMENT or URL: If needed, attach supplemental documentation (Save file as: S_8_3a_Clinical_Logic). All fields of the submission form that are supplemented within the attachment must include a summary of important information included in the attachment and its intended purpose, including any references to page numbers, tables, text, etc.

URL: See URL provided in Section S.1

Please supply the username and password:

Attachment:

S.8.4. Measure Trigger and End mechanisms (*Detail the measure's trigger and end mechanisms and provide rationale for this methodology*)

Measure Trigger: The start of a primary care relationship between a clinician and beneficiary and is identified by the occurrence of two Part B Physician/Supplier (Carrier) claims with particular CPT/HCPCS services billed within 90 days of each other. There are two different sets of CPT/HCPCS codes used: E&M primary care services and primary care services.

E&M primary care services are a specific set of evaluation and management codes for physician visits in the outpatient setting, physician office, nursing facility, or assisted living.

Primary care services are a broader list of services related to routine primary care and generally fall into the following categories: Durable Medical Equipment (DME) and Supplies, Electrocardiogram, Laboratory - Chemistry and Hematology, Other Diagnostic Procedures (Interview, Evaluation, and Consultation), Other Diagnostic Radiology and Related Techniques, Prophylactic Vaccinations and Inoculations, Routine Chest X-ray, Clinical Labs, Preventive Services

To trigger the measure, firstly, an initial E&M primary care service billed on Part B Physician/Supplier (Carrier) claim is identified. This E&M primary care service is not considered if it occurs during a beneficiary's stay at a Critical Access Hospital (CAH), Inpatient Facility, or Skilled Nursing Facility (SNF). Secondly, in addition to the initial E&M primary care service, at least one of the following services should be billed to confirm the candidate event:

- From any TIN within +/- 3 days: Another primary care service,
- From the same TIN within + 90 days: A second E&M primary care service OR another primary care service

End mechanisms: The risk window that opens from the time that the primary care relationship is identified as beginning, ends one year from the service date of the initial E&M primary care service.

Rationale: The triggering methodology for the TPCC measure identifies primary care relationships between a clinician and a patient by requiring at least two claims with services indicative of primary care. Requiring multiple claims within a defined, relatively short

period of time avoids attribution from just a single claim (a refinement from the previous version of the TPCC measure) and ensures evidence of a sustained relationship using codes representative of overall health care evaluation and management. Exclusions are applied to further protect against potential misattribution. The specialty exclusions prevent clinicians unrelated to primary care from triggering events in a clinician group. Additionally, clinicians are excluded using their billing patterns to characterize their clinical role. This includes removing clinicians exceeding a low threshold of beneficiaries in which they are providing anesthesia, global surgery, therapeutic radiation, and/or chemotherapy.

The intent of the measure is to capture primary care relationships, which by its nature, is long-term and includes all costs in a one year long observation period to provide a broad assessment of a clinician's management of the overall health of a patient, rather than a specific condition. A longer window is able to capture the costs of downstream services that are related to the scope of primary care (e.g., preventive care). Additionally, initiating a one year long observation period from the initial claim of the paired services also ensures that attributed clinicians and clinician groups know which patients will be attributed at the time of service, allowing actionability and improvement on the measure.

The trigger mechanism allows for multiple attribution of the eligible clinicians and clinician groups that are responsible for a patient's primary care management to be concurrently attributed that patient's beneficiary-months. Holding multiple clinician groups that demonstrate responsibility for the patient is not only fairer, it encourages coordination of care between these providers. Overall, both patients and clinicians benefit when all providers involved in the care of the beneficiary are covered by similar incentives.

S.8.5. Clinical severity levels *(Detail the method used for assigning severity level and provide rationale for this methodology)*

Clinical severity levels are embedded in the risk adjustment methodology of the different CMS-HCC and CMS-ESRD models. These models include variables indicating a patient's health status at the start of each beneficiary month, allowing for the measure to capture changes in health status over time. The range of models reflect different clinical severity levels; for example, patients with ESRD have different clinical profiles from patients without ESRD. See Sections S.8.2 and S.9.3 for further details.

S.8.6. Comorbid and interactions *(Detail the treatment of co-morbidities and disease interactions and provide rationale for this methodology.)*

Comorbidities and severity of illness are accounted for within the risk adjustment models. Where beneficiaries have sufficient Medicare medical history, the models use HCCs which are indicator variables for comorbidities and clinical conditions. As the relationship between comorbidities' resource use may be non-linear in some cases, the models take into account sets of interactions between HCCs, demographic, and/or enrollment status variables.

The CMS-HCC and CMS-ESRD models were selected based on previous studies evaluating its appropriateness for use in risk adjusting Medicare claims data. These models were developed specifically for use in the Medicare population, meaning that it accounts for conditions found in the Medicare population and is calibrated on Medicare fee-for-service beneficiaries to predict annual cost. In addition, the CMS-HCC and CMS-ESRD models are routinely updated for changes in coding practices (e.g., the transition from ICD-9 to ICD-10 codes) and is exhaustive on these code sets. CMS has also used this risk adjustment model in a number of other settings (e.g., ACOs, previous physician QRUR programs, and other measures such as NQF #2158: MSPB-Hospital cost measure). Recalling that the risk models exist for use in the Part C Medicare Advantage program, testing results for factors included in the CMS-HCC V22 and CMS-ESRD V21 model can be found in the Pope et al (2011) report and the December 2018 CMS Report to Congress on risk adjustment in Medicare Advantage (CMS 2018).

Adjustments for Comparability

S.9.1. Inclusion and Exclusion Criteria *Detail initial inclusion/exclusion criteria and data preparation steps (related to clinical exclusions, claim-line or other data quality, data validation, e.g. truncation or removal of low or high dollar claim, exclusion of ESRD patients)*

:
Included population:

The beneficiary population eligible for the TPCC measure consists of Medicare beneficiaries enrolled in Medicare Parts A and B for whom the measure identifies as having a primary care relationship with a clinician. To be included, the beneficiary must have at one of his or her beneficiary month occurring during the performance period.

Exclusions:

Several steps in the construction of the TPCC measure ensure comparability by fostering comparability in the beneficiary population captured and clinician population measured. These are detailed in Section S.7.2.

In keeping with the measure intent to capture the overall costs of care for beneficiaries receiving primary care services, there are a limited set of exclusions primarily to ensure that, as part of data processing, sufficient data are available to accurately determine resource use and calculate risk adjustment for each beneficiary. These exclusions, along with their rationales, are listed below:

- The beneficiary was not continuously enrolled in Medicare Parts A and B unless partial enrollment was the result of either new enrollment or death only. These beneficiaries may have gaps in their Medicare claim records when benefits are covered by other payers.
- The beneficiary resides outside the United States or its territories during the performance period. Differences in reimbursement policy for healthcare services provided outside the U.S. can lead to unfair comparisons of cost.
- The beneficiary receives benefits from the Railroad Retirement Board (RRB). Beneficiaries covered by the RRB may have healthcare benefits normally covered by Medicare paid by the RRB, which may bias the observed cost for these beneficiaries.

To ensure the clinicians attributed the measure are within the intended scope of primary care management, exclusions of clinicians are used to ensure comparability. Clinicians who would not reasonably be responsible for providing primary care are excluded from attribution of the revised TPCC measure using their CMS HCFA specialty designation assigned on Part B physician/supplier claims. This exclusion aims to keep primary care specialists and internal medicine subspecialists who frequently manage patients with chronic conditions falling in their areas of specialty. Additionally, clinicians are characterized by their Part B billing behavior and excluded from attribution if found meeting a threshold of billing for the following service categories; 10-day or 90-day global surgery services, anesthesia services, therapeutic radiation services, chemotherapy services. The methodology and clinical logic for exclusions of clinicians from attribution is further detailed in Section S.8.2

Data truncation is applied to risk-adjusted beneficiary monthly costs for outlier values through winsorization on the right tail. Monthly costs at the 99th percentile are assigned to all attributable beneficiary months with costs above the 99th percentile. Winsorization aims to limit the effects of extreme values on expected costs. Winsorization is a statistical transformation that limits extreme values in data to reduce the effect of possible outliers. The risk adjustment approach is detailed in Section S.7.2 and in S.9.3.

S.9.2. Risk Adjustment Type (Select type)

Stratification by risk category/subgroup

If other:

S.9.3. Stratification Details/Variables *(All information required to stratify the measure results including the stratification variables, definitions, specific data collection items/responses, code/value sets)*

Differences in patient case mix are accounted for by using separate risk adjustment models for the following types of beneficiaries, as discussed in Section S.7.2:

- 1) Beneficiaries without ESRD
 - 1a) Beneficiaries with fewer than 12 months of Medicare medical history
 - 2a) Beneficiaries with at least 12 months of Medicare medical history
- 3a) Beneficiaries in long-term institutional care settings
- 2) Beneficiaries with ESRD receiving dialysis
 - 2a) Beneficiaries with fewer than 12 months of Medicare medical history
 - 2b) Beneficiaries with at least 12 months of Medicare medical history

This stratification accounts for the very different patient clinical profiles for patients with ESRD receiving dialysis and patients without ESRD, as well as maximizes the availability of Medicare claims history to be able to construct indicator variables for clinical conditions.

The TPCC measure uses the CMS-HCC V22 risk adjustment models for new enrollee, community, and long-term institutional beneficiaries without ESRD. A beneficiary month is measured under the new enrollee model if they do not have a full one-year lookback of Medicare claims data as of the start of a beneficiary month. As a result, the model is derived primarily from beneficiary enrollment data. This model adjusts for gender, age, dual Medicare and Medicaid enrollment, and whether the beneficiary was originally entitled to Medicare due to disability through a series of interacted covariates. Beneficiaries with sufficient Medicare claims history are measured under the community or the institutional model if they are institutionalized in a long term care facility. In both models, severity of illness is measured using HCCs and disease interactions. 79 HCCs are accounted for under CMS-HCC V22 model for beneficiaries classified as community enrollees and long-term institutional enrollees while the exact number and types of disease interaction can vary. Both models interact beneficiary age with gender. In addition, the community model interacts dual enrollment status, gender, and the indicator for whether the beneficiary was originally entitled to Medicare due to disability, while the institutional model adjusts for disability as the original reason for Medicare enrollment and dual enrollment status independently.

For ESRD beneficiaries receiving dialysis, the TPCC measure utilizes the CMS-ESRD V21 risk adjustment models. Differentiated models are implemented for dialysis new enrollees and dialysis community enrollees. Similar to the CMS-HCC V22, enrollees are classified as new enrollees if they were not continuously enrolled in Parts A and B for the one-year lookback period prior to each beneficiary month. As a result of this, the model primarily uses information from the beneficiary's enrollment data. This model adjusts for gender, age, dual enrollment status, and whether the beneficiary was originally entitled to Medicare due to disability through a series of interacted covariates. In addition to accounting for these patient characteristics, the dialysis community model also risk adjusts for medical severity using 87 HCCs and additional disease interactions.

The CMS-ESRD V21 and CMS-HCC V22 models both generate a risk score for each beneficiary that summarizes the beneficiary's expected cost of care relative to other beneficiaries. Risk scores for ESRD beneficiaries are normalized to enable comparison with the HCC V22 risk scores. This is achieved by multiplying ESRD risk scores by the mean annual Medicare spending for the ESRD population applied in the CMS-ESRD V21 model and dividing by the mean annual Medicare spending for the total Medicare population applied in the CMS-HCC V22 model, effectively renormalizing ESRD risk score values to the equivalent scale of the HCC models. A risk score equal to one indicates risk associated with expenditures for the average beneficiary nationwide. Risk scores below or above one indicate below and above average risk, respectively.

The complete list of risk adjustment variables for each model are listed in the Measure Codes List linked in Section S.1 in the tab titled HCC_Risk_Adjust.

S.9.4 Costing method

Detail the costing method including the source of cost information, steps to capture, apply or estimate cost information, and provide rationale for this methodology.

Standardized pricing

The measure removes sources of variation in spending that are unrelated to healthcare delivery choices, as described in Section S.7.2. The methodology used to payment standardize the Medicare claims used to specify this measure is available for download ("CMS Price (Payment) Standardization") from the following URL: <https://www.qualitynet.org/inpatient/measures/payment-standardization>

S.10. Type of score (Select the most relevant):

Continuous variable

If other:

Attachment:

S.11. Interpretation of Score (Classifies interpretation of a ratio score(s) according to whether higher or lower resource use amounts is associated with a higher score, a lower score, a score falling within a defined interval, or a passing score, etc.)

The TPCC measure score is the average payment-standardized, risk-adjusted, and specialty-adjusted monthly cost across all beneficiary months in the performance period attributed to a clinician or clinician group. A lower measure score indicates that the observed episode costs are lower than or similar to expected costs for the care provided for the particular patients included in the calculation. A higher measure score indicates that the observed episode costs are higher than expected for the care provided for the particular patients included in the calculation.

S.12. Detail Score Estimation (Detail steps to estimate measure score.)

As described in Section S.7.2, the TPCC measure is calculated for each clinician and clinician group practice by averaging the risk-adjusted and specialty-adjusted cost across the beneficiary months attributed. Adjustments to observed monthly costs are calculated as follows:

- 1) Divide observed costs for each beneficiary month by the normalized risk score to obtain risk-adjusted monthly costs.
- 2) Winsorize risk-adjusted monthly costs at the 99th percentile by assigning the 99th percentile of monthly costs to all attributable beneficiary months with costs above the 99th percentile.
- 3) Normalize monthly costs to account for differences in expected costs based on the number of clinician groups to which a beneficiary is attributed in a given month. The normalization factor is the inverse cube root of the number of attributed clinician groups for that beneficiary month.
- 4) Calculate the average risk-adjusted monthly cost for each TIN and TIN-NPI by averaging risk-adjusted monthly cost across all attributed beneficiary months.
- 5) Calculate the national specialty-specific expected cost for each specialty as the weighted average of TIN/TIN-NPI's risk-adjusted monthly cost.
- 5a) Define the weight for each TIN/TIN-NPI as the percentage of clinicians with that specialty multiplied by the total number of beneficiary months attributed to the TIN/TIN-NPI multiplied by the number of clinicians with that specialty.
- 6) Calculate the specialty-adjustment factor for each TIN or TIN-NPI as follows:
 - 6a) Multiply the national specialty-specific expected cost for each specialty by the respective specialty's share of Part B payment within a TIN or TIN-NPI and sum the weighted share of national specialty-specific expected cost calculated in the previous step across all the specialties under a given TIN or TIN-NPI.
- 7) Calculate final risk-adjusted, specialty-adjusted cost measure by dividing each TIN and TIN-NPI's average risk-adjusted monthly cost by their specialty-adjustment factor and multiply this ratio by the average non-risk-adjusted, winsorized observed cost across the total population of attributed beneficiary months.

Reporting Guidelines

This section is optional and will be available for users of the measure as guidance for implementation and reporting.

S.13.1. Describe discriminating results approach

Detail methods for discriminating differences (reporting with descriptive statistics--e.g., distribution, confidence intervals).

This version of the TPCC measure that underwent comprehensive re-evaluation in 2018 and rulemaking in 2019 will be reported as part of the MIPS Cost Performance Category for the CY 2020 performance period onwards. The Cost Performance Category score is calculated as the equally weighted average of all cost measures for which a clinician has the required number of cases. The Cost Performance Category score will make up 15% of the composite MIPS Final Score in CY 2020, balanced with scores from the other performance categories: Quality (45%), Improvement Activities (15%), and Promoting Interoperability (25%). While this measure does capture consequences of care such as complications, there are other quality metrics that cannot be captured by a cost measure alone. As such, this measure is most meaningful when reported as part of a program such as MIPS where clinicians are also assessed on quality measures.

While this version of the TPCC measure has not yet been reported as part of MIPS, the clinician community has had opportunities to review and become familiar with the revised measure. During measure development, we conducted national field testing in October 2018 where a total of over 550,000 field test reports containing cost measure performance on the draft TPCC measure as specified at that time were available to clinicians and clinician groups meeting a 20-beneficiary case minimum (120,266 TIN-level reports and 446,973 TIN-NPI level reports). During field testing, a National Summary Data Report was also posted containing summary statistics, including information on the distribution of TIN and TIN-NPI level measure scores.

S.13.2. Detail attribution approach

Detail the attribution rules used for attributing resources/costs to providers (e.g., a proportion of total measure cost or frequency of visits during the measure's measurement period) and provide rationale for this methodology.

As described in Step 2 in Section S.7.2, the TPCC measure is attributed to a TIN billing two Part B Physician/Supplier (Carrier) claims with particular CPT/HCPCS services billed within 90 days. There are two different sets of CPT/HCPCS codes used: E&M primary care services and primary care services. E&M primary care services are a specific set of evaluation and management codes for physician visits in the outpatient setting, physician office, nursing facility, or assisted living. Primary care services are a broader list of services related to routine primary care. The pairing of these code sets is used because they represent primary care services and requires more than one claim to confirm that a clinical relationship has been established.

Once clinician exclusions are applied, the individual clinician (TIN-NPI) within a TIN that provides the most primary care evaluation and management services for the beneficiary is attributed their respective attribution events.

Based on input from a technical expert panel, this attribution methodology was incorporated as a refinement as part of the comprehensive re-evaluation process that the version of the TPCC measures (used in MIPS 2017-19) underwent. This revised methodology accounts for the nature of primary care where multiple clinicians can have an ongoing relationship with a beneficiary. This attribution methodology also prevents attribution of a beneficiary prior to a clinician meeting him or her, which was part of the previous version of the measure.

S.13.3. Identify and define peer group

Identify the peer group and detail how peer group is identified and provide rationale for this methodology.

The peer group for this measure includes all clinicians and clinician groups providing primary care services to beneficiaries, as identified by meeting the logic described in Section S.7.2 and S.13.2 to identify when a primary care relationship has begun. The peer group is limited to clinicians who are reasonably providing primary care. This is achieved by excluding clinicians who are unlikely to be providing primary care either based on HCFA specialty designation or clinician billing patterns. The rationale for identifying the peer group in this way is to focus the measure on clinicians providing primary care, in line with the intent of the measure and to assess the resource use of clinicians for the cost performance category of MIPS. This program and the requirement to have a cost performance category was established by the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA). The measure ensures clinical comparability through the techniques described in Sections S.9.1-S.9.4, such as to adjust for the specialty composition of a clinician group.

S.13.4. Sample size

Detail the sample size requirements for reporting measure results.

From the MIPS CY 2020 performance year and onwards, the TPCC measure will be calculated and reported via confidential reports for TINs and TIN-NPIs with 20 or more attributed beneficiaries. Public reporting may be introduced for MIPS cost measures in the future.

S.13.5. Define benchmarking and comparative estimates

Detail steps to produce benchmarking and comparative estimates and provide rationale for this methodology.

The measure is not calculated against a benchmark, but as the average payment-standardized, risk-adjusted, and specialty-adjusted monthly costs across all beneficiary months in the performance period attributed to a TIN or TIN-NPI. It will be used in the MIPS cost performance category for the 2020 performance period onwards. Reporting this measure as part of the cost performance category helps to measure clinicians' resource use for services they administer to Medicare beneficiaries related to primary care management to hold clinicians accountable for their cost effectiveness. Combined with measures in the other MIPS performance categories, such as the quality performance category, the TPCC measure allows CMS to assess the value of care and incentivize both achievement and improvement in the provision of high-quality, cost-effective care.

Validity – See attached Measure Testing Submission Form

SA.1. Attach measure testing form

[2020-04-29-nqf-testing-form-tpcc-v6.docx](#)

Feasibility

F.1. Byproduct of Care Processes

For clinical measures, the required data elements are routinely generated and used during care delivery (e.g., blood pressure, lab test, diagnosis, medication order).

F.1.1. Data Elements Generated as Byproduct of Care Processes.

Generated by and used by healthcare personnel during the provision of care, e.g., blood pressure, lab value, medical condition
Coded by someone other than person obtaining original information (e.g., DRG, ICD-9 codes on claims)

If other:

F.2. Electronic Sources

The required data elements are available in electronic health records or other electronic sources. If the required data are not in electronic health records or existing electronic sources, a credible, near-term path to electronic collection is specified.

F.2.1. To what extent are the specified data elements available electronically in defined fields (i.e., data elements that are needed to compute the performance measure score are in defined, computer-readable fields)

ALL data elements are in defined fields in a combination of electronic sources

F.2.1a. If ALL the data elements needed to compute the performance measure score are not from electronic sources, specify a credible, near-term path to electronic capture, OR provide a rationale for using other than electronic sources.

F.2.2. If this is an eMeasure, provide a summary of the feasibility assessment in an attached file or make available at a measure-specific URL.

Attachment:

F.3. Data Collection Strategy

Demonstration that the data collection strategy (e.g., source, timing, frequency, sampling, patient confidentiality, costs associated with fees/licensing of proprietary measures) can be implemented (e.g., already in operational use, or testing demonstrates that it is ready to put into operational use). For eMeasures, a feasibility assessment addresses the data elements and measure logic and demonstrates the eMeasure can be implemented or feasibility concerns can be adequately addressed.

F.3.1. Describe what you have learned/modified as a result of testing and/or operational use of the measure regarding data collection, availability of data, missing data, timing and frequency of data collection, sampling, patient confidentiality, time and cost of data collection, other feasibility/implementation issues.

Lessons and associated modifications are categorized into three types: data collection procedures, handling of missing data, and sampling data associated with beneficiaries who died during the measurement period.

Data Collection

Acumen receives claims data directly from the Common Working File (CWF) maintained at the CMS Baltimore Data Center. Medicare claims are submitted by healthcare providers to a Medicare Administrative Contractor (MAC), and are subsequently added to the CWF. However, these claims may be denied or disputed by the MAC, leading to changes to historical CWF data. In rare circumstances, finalizing claims may take many months, or even years. As a result, it is not practical to wait until all claims for a given month are finalized before calculating this measure. As such, there is a trade-off between efficiency (accessing the data in a timely manner) and accuracy (waiting until most claims are finalized) when determining the length of the time (i.e., the “claims run-out” period) after which to pull claims data. To determine the appropriate claims run-out period, Acumen has performed testing on the delay between claim service dates and claims data finalization. Based on this analysis, Acumen uses a run-out period of three months after the end of the calendar year to collect data for development and testing purposes.

Missing Data

This measure requires complete beneficiary information, and a small number of beneficiaries with missing data are excluded to ensure completeness of data and accurate comparability across beneficiary months.

F.3.2. Describe any fees, licensing, or other requirements to use any aspect of the measure as specified (e.g., value/code set, risk model, programming code, and algorithm)?

N/A.

F.3.3. If there are any fees associated with the use of this measure as specified, attach the fee schedule here. (Save file as: F3_3_FeeSchedule)

Usability and Use

Extent to which intended audiences (e.g., consumers, purchasers, providers, policy makers) can understand the results of the measure and are likely to find them useful for decision making.

NQF-endorsed measures are expected to be used in at least one accountability application within 3 years and publicly reported within 6 years of initial endorsement in addition to performance improvement.

U.1.1. Current and Planned Use

Specific Plan for Use	Current Use (for current use provide URL)
	Payment Program Quality Payment Program Merit-based Incentive Payment System https://qpp.cms.gov/mips/overview

U.1.2. For each CURRENT use, checked above, provide:

- Name of program and sponsor
- Purpose
- Geographic area and number and percentage of accountable entities and patients included

Program Name: [Quality Payment Program \(QPP\) Merit-based Incentive Payment System \(MIPS\)](#)

Sponsor: CMS

Purpose: The Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) established the Quality Payment Program. Under the Quality Payment Program, clinicians are incentivized to provide high-quality and high value care through Advanced Alternate Payment Models (APMs) or the Merit-based Incentive Payment System (MIPS). MIPS eligible clinicians will receive a performance-based payment adjustment to their Medicare payment. This payment adjustment is based on a MIPS final score that assesses evidence-based and practice-specific data across the following categories:

1. Quality
2. Improvement activities
3. Promoting interoperability
4. Cost

As specified in the CY 2020 Physician Fee Schedule final rule (84 FR 62959 through 62979), this measure will be implemented as part of MIPS beginning in the 2020 MIPS performance year and 2022 MIPS payment year.

Geographic Area: U.S.

Number/Percentage of Accountable Entities: The number of clinicians in the Quality Payment Program varies by performance period. For 2018, there were 889,995 MIPS eligible clinicians receiving a MIPS payment adjustment. [1] As clinicians have choices on how to participate in the Quality Payment Program (e.g., through MIPS or the Advanced APMs, as groups or individuals), the exact number and percentage of clinicians who will receive a performance score on this measure will only be confirmed after the end of each performance period.

[1] CMS, 2018 Quality Payment Program (QPP) Performance Results, <https://www.cms.gov/blog/2018-quality-payment-program-qpp-performance-results>.

U.1.3. If not currently publicly reported OR used in at least one other accountability application (e.g., payment program, certification, licensing) what are the reasons? (e.g., Do policies or actions of the developer/steward or accountable entities restrict access to performance results or impede implementation?)

N/A.

U.1.4. If not currently publicly reported OR used in at least one other accountability application, provide a credible plan for implementation within the expected timeframes -- any accountability application within 3 years and publicly reported within 6 years of initial endorsement. (Credible plan includes the specific program, purpose, intended audience, and timeline for implementing the measure within the specified timeframes. A plan for accountability applications addresses mechanisms for data aggregation and reporting.)

N/A.

U.2.1.1. Describe how performance results, data, and assistance with interpretation have been provided to those being measured or other users during development or implementation. How many and which types of measured entities and/or others were included? If only a sample of measured entities were included, describe the full population and how the sample was selected.

Development: Field Testing

Acumen and CMS conducted a national field test of 11 episode-based cost measures and two population-level cost measures, including the Total Per Capita Cost (TPCC), developed during 2018 for a 35-day comment period (October 3, 2018 to November 5, 2018). We provided TPCC Field Test Reports to a sample of eligible clinician groups and clinicians. Each report included information on measure performance for a clinician or clinician group attributed 20 or more beneficiaries. [1] The testing sample was selected to balance coverage and reliability, since a key goal of field testing was to test the measure with as many stakeholders as possible. The number of field test reports shared with the public was:

- Total reports: 793,842
- Total TPCC reports: 567,239
- TIN reports: 120,266
- TIN-NPI reports: 446,973

All stakeholders, including those who did not receive a field test report, could review a mock field test report that was posted on the CMS website. Other public documentation posted during field testing included: measure specifications (comprising a Draft Cost Measure Methodology document and a Draft Measure Codes List file), a Frequently Asked Questions document, and a Fact Sheet. [2] During field testing, Acumen conducted education and outreach activities, including a national webinar, office hours with specialty societies, and Help Desk support.

Implementation: Pre-Rulemaking and Rulemaking

The TPCC measure was implemented in MIPS after going through the pre-rulemaking process and notice-and-comment rulemaking. The measure was submitted to and included in the 2018 Measures Under Consideration (MUC) List. It was then considered by National Quality Forum (NQF)'s Measure Applications Partnership (MAP) Clinician Workgroup and Coordinating Committee in December 2018 and January 2019, respectively.

The measure with the revised specifications was proposed for use in the MIPS cost performance category in the CY 2020 Physician Fee Schedule proposed rule. [3] A National Summary Data Report containing information about the measure performance (e.g., measure score distributions by different provider characteristics) was also publicly posted. [4] Stakeholders submitted comments on the proposed rule during a 44-day public comment period. CMS considered these comments and finalized the measure for use in MIPS from the CY 2020 performance period onwards in the CY 2020 Physician Fee Schedule final rule. [5]

[1] The field test reports were available for download from the CMS Enterprise Portal:
<https://portal.cms.gov/wps/portal/unauthportal/home/>.

[2] The Measure Development Process, Frequently Asked Questions, and Fact Sheet documents are posted on the MACRA Feedback Page: <https://www.cms.gov/Medicare/Quality-Payment-Program/Quality-Payment-Program/Give-Feedback>.

[3] The CY 2020 Physician Fee Schedule proposed rule can be found here:
<https://www.federalregister.gov/documents/2019/08/14/2019-16041/medicare-program-cy-2020-revisions-to-payment-policies-under-the-physician-fee-schedule-and-other>.

[4] CMS, "National Summary Data Report: 11 Episode-Based Cost Measures and Two Revised Cost Measures, Updated Following Field Testing (Oct-Nov 2018)," 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>.

[5] The CY 2020 Physician Fee Schedule final rule can be found here:
<https://www.federalregister.gov/documents/2019/11/15/2019-24086/medicare-program-cy-2020-revisions-to-payment-policies-under-the-physician-fee-schedule-and-other>.

U.2.1.2. Describe the process(es) involved, including when/how often results were provided, what data were provided, what educational/explanatory efforts were made, etc.

Field Testing

During the feedback period, 12,902 field test reports for TPCC were downloaded by 703 clinician groups (TINs) and 12,199 clinicians (TIN-NPIs). Stakeholder comments from field testing were summarized for the TEP to consider in recommending refinements to the measure based on the testing data and feedback.

The following sections offer more details on the contents of the report and describe the education and outreach efforts associated with the field testing feedback period.

Data Provided During Field Testing

Each TPCC field test report contained the following:

- The clinician or clinician group's measure score along with the national median score and percentile rank
- TPCC cost breakdown by claim type to explain the factors driving the clinician or clinician group measure score (e.g., home health agency, hospice, inpatient, outpatient)
- TPCC cost breakdown by specialty type. The TPCC measure is mostly attributed to primary care physicians and non-physician practitioners, so figures for these two categories are further broken down by specialty (e.g., general practice, family practice, internal medicine, geriatric medicine)
- TPCC cost breakdown by categories of service to show the average cost per category (e.g., acute inpatient services, post-acute care)
- Statistics of the TIN or TIN-NPI's specific performance compared to the state and national average (e.g., number of beneficiaries, average standardized cost per beneficiary)

A mock field test report can be viewed on the CMS MACRA Feedback webpage. [1] Along with the Field Test Report, attributed clinicians and clinician groups received a beneficiary-level CSV file that include the risk profile of the attributed beneficiaries.

Education and Outreach

Acumen directly conducted outreach via email to tens of thousands of stakeholders using the stakeholder contact list developed through previous education and outreach and clinician engagement efforts, as well as CMS, Quality Payment Program, and other available listservs. More detail on this outreach can be found in the Field Test Summary Report on the CMS MACRA Feedback webpage.

Acumen and CMS hosted two office hour sessions in October 2018, to provide an overview of field testing to specialty societies, discuss what information their members would be particularly interested in, and answer any questions. Across both office hours sessions, there were 50 attendees.

Acumen worked with the Physician Value helpdesk and QPP Service Center to answer stakeholder questions during field testing and continued to answer questions after the feedback period ended.

Acumen and CMS hosted a national field testing webinar on October 9, 2018 to provide an overview of the measures being field tested and the information available for public comment. The webinar consisted of an hour-long presentation, outlining (i) the cost measure development activities, (ii) field testing activities, (iii) how to access and understand the confidential field test reports, and (iv) the contents of the reports. The presentation was followed by a 30-minute Q&A session.

A post-field testing webinar was held on March 27, 2019 to provide an update on the measures following field testing. The 60-minute webinar provided an overview of the basics of measure construction, highlighted refinements made after field testing, and provided a summary of testing done on the measures. The presentation was followed by a 30-minute Q&A portion. [2]

Pre-Rulemaking

There was a public comment period after the release of the Measures Under Consideration (MUC) list from December 1, 2018, to December 6, 2018, prior to the MAP Clinician Workgroup Meeting. The MAP Clinician Workgroup met on December 12, 2018 to consider measure specifications and testing updates. In accordance with MAP procedure, these documents were not publicly released but were made available to MAP members. Following the release of the Clinician Workgroup's preliminary recommendation, the report was open for a public comment period from December 21, 2018, to January 10, 2019. The MAP Coordinating Committee met on January 22-23, 2019, to consider these comments alongside the Clinician Workgroup's recommendation. Both MAP meetings were open to the public.

Rulemaking

During the public comment period for the proposed rule from August 14, 2019, to September 27, 2019, stakeholders could review the proposed rule language, measure specifications, and National Summary Data Report when submitting comments. CMS conducted email outreach via its listserv to notify stakeholders about the release of the proposed rule.

[1] CMS, "Total Per Capita Cost Measure Mock Field Test Report," MACRA Feedback Page, <https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/Value-Based-Programs/MACRA-MIPS-and-APMs/Mock-report-for-revised-TPCC.pdf>.
[2] CMS, MACRA Cost Measures Post-Field Testing Webinar, Quality Payment Program, https://qpp-cm-prod-content.s3.amazonaws.com/uploads/521/MACRA%20Cost%20Measures%20Post%20Field%20Testing%20_Slides.pdf.

U.2.2.1. Summarize the feedback on measure performance and implementation from the measured entities and others described in 4d.1. Describe how feedback was obtained.

The overarching feedback that we received on measure performance and implementation from the measured entities and others included comments that (i) the revised specifications made several improvements to the current TPCC measure, (ii) while the field test reports and other supplementary materials were helpful, the complexity of these documents was a challenge to some stakeholders, and; (iii) general feedback on the measure's attribution methodology, candidate events, and specialty adjustment. This feedback is detailed in sections U.2.2.2 and U.2.2.3, with references to publicly-available feedback where appropriate.

Field Testing

In total, Acumen received 67 survey responses and 25 comment letters, including many from specialty societies representing large numbers of potentially attributed clinicians.

Survey responses and comment letters were collected via an online survey, which contained general and detailed questions on the reports themselves, questions on the supplemental documentation, and questions on the measure specifications.

Pre-Rulemaking

CMS received 12 comments on the revised TPCC cost measure included in the Measures Under Consideration List released in December 2018. After the MAP Clinician Workgroup meeting in December 2018, there was another public comment period on the preliminary recommendation, which received seven comments specific to the TPCC measure. [1] These public comment periods were facilitated by NQF. Stakeholders were able to submit their comments via the NQF website.

Rulemaking

CMS received over 41,943 comments on the CY 2020 Physician Fee Schedule Proposed rule. A search on the regulations.gov website returns 64 results for "tpcc" as a rough approximation of the number of comments on the TPCC measure during rulemaking. Stakeholders could submit comments through the Federal Register website or via mail.

[1] Measure Applications Partnership, National Quality Forum, http://public.qualityforum.org/MAP/MAP%20Clinician%20Workgroup/2018-2019%20Clinician%20Workgroup%20Archive/MAP_Clinician_Workgroup_Discussion_Guide.html#COMMENTMUC2018-149MIPS.

U.2.2.2. Summarize the feedback obtained from those being measured.

Field Testing

The Field Testing Feedback Summary Report presents all feedback gathered during the field testing period. [1] The following list synthesizes some of the key points that were raised through the field testing feedback period:

- Stakeholder engagement and involvement remains an important aspect of the measure development process. Stakeholders expressed appreciation for the opportunity to provide feedback during field testing and for CMS' continued efforts to involve them in the measure development process. Commenters also valued the decision to operationalize previously collected feedback, as demonstrated through the addition of measure-specific workgroups to the development process.
- Field test reports present useful information for understanding clinician performance, though reduced complexity could encourage more clinician participation. Stakeholders praised the presentation and content of the field test reports. However, the complexity of the information presented in the reports was a challenge for some stakeholders.
- Improved supplemental field testing materials are helpful but can be further refined. Some stakeholders found the supplemental field testing materials to be informative and thorough, providing useful information on field testing and the specifications of the cost measures. However, many noted that although the materials are comprehensive, they remain lengthy and complex, and they believe the amount of information provided is too overwhelming to be useful.
- Ample time for review of field testing reports and materials is vital to collecting meaningful stakeholder feedback. Some stakeholders suggested the field testing period be extended or kept open, given the large amount and complexity of the information that was presented.

The report additionally contains measure-specific feedback, which was used as the basis for the post-field testing refinements that

were made to the measures, summarized below:

- Refinements to the list of primary care services used as candidate events to ensure they better reflect primary care services.
- Addition of the specialty exclusions so that HCFA specialties who are not identified to be reasonably responsible for providing primary care are not attributed the TPCC measure.
- Ensuring a specialty adjustment is applied to account for costs that vary across specialties and across TINs with varying specialty compositions.

Pre-Rulemaking

The MAP gives feedback on performance measures from a wide variety of perspectives, with representatives including “consumers, businesses and purchasers, laborers, health plans, clinicians and providers, communities and states, and suppliers.” [2] The Clinician Workgroup specifically aims to “ensure the alignment of measures and data sources to reduce duplication and burden, identify the characteristics of an ideal measure set to promote common goals across programs, and implement standardized data elements.” [3]

Rulemaking/Public Comment

CMS received comments on the proposed measures during the public comment period for the CY 2020 Physician Fee Schedule proposed rule. Measure-specific comments were received on the measure specifications, which CMS and Acumen review to determine whether changes needed to be made to the measure specifications. For more detailed information on the comments received on the measures as part of the proposed rule public comment period, please see the revised cost measures section in the CY 2020 Physician Fee Schedule final rule for a summary of the public comments received along with CMS’ responses: <https://www.federalregister.gov/documents/2019/11/15/2019-24086/medicare-program-cy-2020-revisions-to-payment-policies-under-the-physician-fee-schedule-and-other>.

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

[2] National Quality Forum, Measure Applications Partnership

https://www.qualityforum.org/Setting_Priorities/Partnership/Measure_Applications_Partnership.aspx.

[3] National Quality Forum, MAP Member Guidebook

<http://www.qualityforum.org/WorkArea/linkit.aspx?LinkIdentifier=id&ItemID=80515>.

U.2.2.3. Summarize the feedback obtained from other users.

Pre-Rulemaking

The revised TPCC measure underwent MAP review during the 2018-2019 cycle. In December 2018, the MAP Clinician Workgroup gave the preliminary recommendation of ‘conditional support for rulemaking,’ with the condition of NQF endorsement. In January 2019, the MAP Coordinating Committee reversed the Clinician Workgroup’s preliminary recommendation and provided a final recommendation of ‘do not support for rulemaking with potential for mitigation’. More detail on the mitigating factors is available in the MAP’s final report. [1]

[1] “MAP Clinicians 2019 Considerations for Implementing Measures Final Report,” National Quality Forum, http://www.qualityforum.org/Publications/2019/03/MAP_Clinicians_2019_Considerations_for_Implementing_Measures_Final_Report.aspx.

U.2.3. Describe how the feedback described in 4a2.2 has been considered when developing or revising the measure specifications or implementation, including whether the measure was modified and why or why not

Field Testing

Careful consideration was given to all feedback gathered during field testing, and several updates were made to the measure based on the recommendations of field testing commenters and TEP comprised of subject matter and measure-development experts.

After completing field testing, Acumen compiled the feedback provided through the survey and comment letters into a measure-specific report, which was then provided to the TEP, along with empirical analyses to inform their discussion and evaluation of any refinements needed to ensure that the measure is capturing what it was intended to capture.

The changes to the TPCC measure made after consideration of field testing analyses and stakeholder feedback are:

- Candidate events: Primary care services list was refined to better reflect primary care services, and went from around 5200 codes to 3200 codes. The categories for primary care services have not changed.

- Attributable Clinicians: Excluded clinician from attribution based on their HCFA specialties:
- HCFA specialties eligible for attribution are those that can be reasonably be responsible for providing primary care:
 - o Primary care specialties
 - o Internal medicine sub-specialties that frequently manage chronic patients with significant conditions in their areas of specialties along with other medical comorbidities
 - o Non-physician clinicians who often provide primary care services
- HCFA specialties excluded from attribution were identified as not providing chronic care for significant medical conditions and fall into the following broad categories:
 - o Surgical sub-specialties
 - o Non-physicians without chronic management of significant medical conditions
 - o Internal medicine sub-specialties with additional highly procedural subspecialization
 - o Internal medicine that practice primarily inpatient without chronic management
 - o Pediatricians who do not typically practice adult medicine
- Specialty Adjustment: Will be applied based on clinician specialty.

Rulemaking/Public Comment

While the measure did not receive MAP support due to their concerns regarding the revised specifications, CMS believes that the revised measure provides a more appropriate and valid attribution approach than the current TPCC measure used in MIPS and has adequately addressed the mitigating factors outlined by the MAP. For example, CMS has engaged in a range of education and outreach to increase familiarity with the revisions to the measure, including through field testing and national webinars both during and after field testing. The measure has also been tested, including examining how the measure performs at small numbers, and has been found reliable for TINs at various sizes. Testing results are also publicly posted on the MACRA Feedback Page. [1] After consideration of the public comments, the revised TPCC measure was finalized as proposed.

[1] CMS, "National Summary Data Report: 11 Episode-Based Cost Measures and Two Revised Cost Measures, Updated Following Field Testing (Oct-Nov 2018)," 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>.

U.3.1. Progress on Improvement. (Not required for initial endorsement unless available.) Performance results on this measure (current and over time) should be provided in IM.1.2 and IM.1.4.

Discuss:

- Purpose Progress (trends in performance results)
- Geographic area and number and percentage of accountable entities and patients included

N/A.

U.3.2. If no improvement was demonstrated, what are the reasons? If not in use for performance improvement at the time of initial endorsement, provide a credible rationale that describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations.

N/A.

U.4.1. Please explain any unexpected findings (positive or negative) during implementation of this measure including unintended impacts on patients.

N/A. There were no unexpected findings during the development and testing of this measure.

U.4.2. Please explain any unexpected benefits from implementation of this measure.

N/A. There were no unexpected benefits during the development and testing of this measure.

Related or Competing Measures

If a measure meets the above criteria and there are endorsed or new related measures (either the same measure focus or the same target population) or competing measures (both the same measure focus and the same target population), the measures are compared to address harmonization and/or selection of the best measure.

H.1. Relation to Other NQF-endorsed Measures

If there are related measures (conceptually, either same measure focus or target population) or competing measures (conceptually both the same measure focus and same target population)? If yes, list the NQF # and title of all related and/or competing measures.

<p>H.1.1. List of related or competing measures (selected from NQF-endorsed measures) 1604 : Total Cost of Care Population-based PMPM Index</p> <p>H.1.2. If related or competing measures are not NQF endorsed please indicate measure title and steward. N/A.</p>
<p>H.2. Harmonization</p> <p>H.2.1. If this measure conceptually addresses EITHER the same measure focus OR the same target population as NQF-endorsed measure(s): Are the measure specifications completely harmonized? No</p> <p>H.2.2. If the measure specifications are not completely harmonized, identify the differences, rationale, and impact on interpretability and data collection burden. TCOC is tested and endorsed for a population of patients less than 65 years of age, while TPCC was developed and tested on the Medicare population, affecting the appropriate intended use of each respective measure.</p>
<p>H.3. Competing Measure(s)</p> <p>H.3.1. If this measure conceptually addresses both the same measure focus and the same target population as NQF-endorsed measure(s): Describe why this measure is superior to competing measures (e.g., a more valid or efficient way to measure quality); OR provide a rationale for the additive value of endorsing an additional measure. (Provide analyses when possible.) N/A. There are no competing NQF-endorsed or non-NQF-endorsed cost measures that address the same measure focus and target population.</p>

<p>Contact Information</p> <p>Co.1 Measure Steward (Intellectual Property Owner): Centers for Medicare & Medicaid Services Co.2 Point of Contact: Ronique, Evans, Ronique.Evans1@cms.hhs.gov, 410-786-3966- Co.3 Measure Developer if different from Measure Steward: Acumen, LLC Co.4 Point of Contact: N/A., N/A., macra-cost-measures-info@acumenllc.com, 650-558-8882-</p>
<p>Additional Information</p> <p>Ad.1 Workgroup/Expert Panel involved in measure development List the workgroup/panel members' names and organizations. Describe the members' role in measure development. Technical Expert Panel Members: 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</p>

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

Measure Developer/Steward Updates and Ongoing Maintenance

Ad.2 Year the measure was first released:

Ad.3 Month and Year of most recent revision:

Ad.4 What is your frequency for review/update of this measure?

Ad.5 When is the next scheduled review/update for this measure?

Ad.6 Copyright statement:

Ad.7 Disclaimers:

Ad.8 Additional Information/Comments: