#2165 Payment-Standardized Total Per Capita Cost Measure for Medicare Fee-for-Service (FFS) Beneficiaries, Date Submitted: Jan 31, 2013

Resource Use Measure Evaluation Form Version 2.0

This form contains the information submitted by measure developers/stewards, organized according to NQF's measure evaluation criteria and process. For more information about Resource Use Measures and the Resource Use measure evaluation criteria, please visit the Cost & Resource Use Project Page.

Developer submission items are indicated by Blue Text
Questions to be answered by the Steering Committee about the criteria are indicated by Red Text

NQF Generic Rating Scale (for use unless otherwise indicated)
High - Based on the information submitted, there is high confidence (or certainty) that the criterion is met
Moderate - Based on the information submitted, there is moderate confidence (or certainty) that the criterion is met
Low - Based on the information submitted, there is low confidence (or certainty) that the criterion is met
Insufficient - There is insufficient information submitted to evaluate whether the criterion is met (e.g., blank, incomplete, or not relevant, responsive, or specific to the particular question)

Reviewer Name: **Date:**

Descriptive Measure Information

Measure Number and Name: #2165 Payment-Standardized Total Per Capita Cost Measure for Medicare Fee-for-Service (FFS) Beneficiaries
Steward: Centers for Medicare & Medicaid Services
Description: The Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries assesses the per capita (per beneficiary) cost of health care services for Medicare FFS beneficiaries enrolled in Parts A and B and attributed to medical group practices. The measure includes all Medicare Part A and Part B costs during a calendar year and is payment-standardized and risk-adjusted (using patient demographics and medical conditions) to account for any potential differences in costs among providers that result from circumstances beyond the physician's control. Under CMS' attribution rule, beneficiaries are attributed on the basis of the plurality of primary care services, to those medical group practices with the greatest potential to influence the quality and cost of care delivered to Medicare FFS beneficiaries.
Resource Use Measure Type: Per capita (population- or patient-based)
Data Source: Administrative claims
Level of Analysis: Clinician : Group/Practice
Costing Method: Standardized pricing
Target Population: Senior Care
Resource Use Service Categories: 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; Inpatient services: Labor (hours, FTE, etc.); Ambulatory services: Outpatient facility services; Ambulatory services: Emergency Department; Ambulatory services: Evaluation and management; Ambulatory services: Procedures and surgeries; Ambulatory services: Imaging and diagnostic; Ambulatory services: Lab services; Durable Medical Equipment (DME); Other services not listed

1. Importance to Measure and Report

Resource use measures will be evaluated based on the extent to which the specific measure focus is important to making significant contributions toward understanding healthcare costs for a specific high-impact aspect of healthcare where there is variation or a demonstrated high-impact aspect of healthcare (e.g., affects large numbers, leading cause of morbidity/mortality, variation in resource use [current and/or future], severity of illness, and patient/societal consequences of poor quality) or overall poor performance. Candidate consensus standards must be judged to be important to measure and report in order to be evaluated against the remaining criteria.

1a. High Priority

The measure focus addresses:

A specific national health Goal/Priority identified by DHHS or the National Priorities Partnership convened by NQF:

OR

A demonstrated high-impact aspect of healthcare (e.g., affects large numbers, leading cause of morbidity/mortality, high resource use [current and/or future], severity of illness, and patient/societal consequences of poor quality).

IM.1. Demonstrated High Impact Aspect of Healthcare

Affects large numbers; High resource use; Other

If other: Provider accountability for costs of care; tool for assessing differences in costs across providers; tool for monitoring cost effects of quality performance changes; tool for pay-for-performance and other payment reform efforts that focus on high value care and not volume

IM.1.1. Summary of Evidence of High Impact *(Provide epidemiologic or resource use data)*

The U.S. health care system has the highest per capita expenditure ($8,086 per person in 2009) of any nation (Klees et al. 2011). For the Medicare program alone, the total expenditure in 2010 reached $522.8 billion and is expected to grow at an average annual rate of 6.3 percent from 2013 to 2020 (Klees et al. 2011). Despite this intensive use of societal resources, there is wide variation in how health services are used, and disparities in access, quality of care, and health outcomes persist (Fisher et al. 2009; Agency for Healthcare Research & Quality 2002; Committee on Quality of Health Care in America 2001). Decades of research have revealed regional variation in health care utilization and expenditure—in the Medicare program—that is primarily due to differences in the volume of services provided, not geographic differences or regional variations in patients' health (Fisher et al. 2009). Contributing to the phenomenon of regional variation is the FFS reimbursement model in Medicare Parts A and B, which fails to support primary care functions such as care coordination, rewards care delivered by multiple providers, disperses accountability for patient care, and does not reward better outcomes or more appropriate use of services (Fisher et al. 2009, Guterman et al. 2009; Thorpe et al. 2010; Berenson and Rich 2010; Rich et al. 2012).

As part of its efforts to reform Medicare reimbursement policies and alter incentives that affect care delivery, CMS will begin applying a value-based payment modifier (VBM) under the Medicare Physician Fee Schedule in 2015 (CMS 2012). An integral step toward systematically evaluating—and paying for—high-value care is the development of resource use measures and the integration of quality and resource use measures into an assessment of the value of care provided (CMS 2012; Quality Alliance Steering Committee 2010). To work with physicians and medical group practices regarding this change in reimbursement policies, CMS has invited large medical group practices that provide PCSs to participate in quality reporting through the Physician Quality Reporting System (PQRS), receive reports regarding their quality and cost performance, and provide feedback to CMS regarding the process and reports. Since 2008, CMS has delivered, to select physicians and physician groups, confidential feedback reports that assess providers' prior-year performance on a range of resource use and, as of 2010, quality measures.

The Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries

To what extent does the summary of evidence of high impact support the categories listed in IM.1.?

- ☐ High
- ☐ Moderate
- ☐ Low
- ☐ Insufficient

is among the measures in the report and will ultimately feed into the calculation of the VBM intended to reward high-value care. Beginning in 2015, participating medical group practices can elect to be evaluated based on a combination of quality composite and cost composite scores using 2013 Medicare data. Medical group practices that deliver higher-value care (high-quality care at low risk-adjusted, payment-standardized costs) will have the opportunity to receive a positive adjustment to their payments, whereas those providing lower-value care will receive a negative payment adjustment. The Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries is foundational to the calculation of the cost composite that will feed into the VBM. In addition to the importance of this measure to CMS, myriad stakeholders have expressed interest in the availability of reliable, valid resource use measures for programmatic and policy uses (McGlynn 2008), and the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries supports broader initiatives. According to the Institute for Healthcare Improvement (IHI), reducing per capita cost growth is part of the triple aim first posited by IHI and then adopted as part of the U.S. National Quality Strategy as the affordable care aim (Stiefel and Nolan 2012). Thus, the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries fulfills an important aspect of the National Quality Strategy. Because the area of resource use reporting is emergent, limited evidence exists regarding the effect of this information on providers' behavior. Some early work in areas of high managed care penetration suggested the use of physician practice pattern profiles was associated with lower costs (Kralewski et al. 2000). Further, physicians have indicated that they would consider cost information when making clinical decisions but often do not have access to this information (American Institutes for Research 2012). The Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries could provide necessary information to medical groups that could ultimately lead to behavior change. ***Citations available in Appendix B***	
1b. Opportunity for Improvement Demonstration of resource use or cost problems and opportunity for improvement, i.e., data demonstrating variation in the delivery of care across providers and/or population groups (disparities in care). IM.2.1. **Briefly explain the benefits (improvements in performance) envisioned by use of this measure.** We anticipate several key benefits due to the use of this measure, including the following: • Improved information to provider groups about their patients' health care costs. The Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries will be used to give providers information about the costs of their patients' care, filling a current information gap. In a recent study, physicians indicated that they would use information about their resource use to guide their clinical decision making and communications with patients about treatment options (American Institutes for Research 2012). This measure would equip providers with information they need to act as stewards of health care resources. • Greater insight into the relationship between health care costs and quality. The measure can help elucidate the relationship between quality changes and costs (Chung et al., 2008; CMS 2009). According to CMS, a per capita resource use measure could be used to "compare expected annual costs with actual costs to determine whether certain performance improvements decrease resource use" (CMS 2009). • Clearer provider accountability for patient health care costs. This measure is an important step toward holding provider groups accountable for their patients' health care costs, particularly as the per capita cost information is aligned with quality measures. • Opportunity to construct measures of care efficiency by integrating resource use with quality measures. A 2008 systematic review of efficiency measures found a dearth of measures	**To what extent does the information presented demonstrate this measurement area as a cost problem or that there is variation in resource across entities?** ☐ **High** ☐ **Moderate** ☐ **Low** ☐ **Insufficient**

that can actually be classified as measures of efficiency that integrate information about the quality of care and resources used (McGlynn 2008).

- Improved resource use measures that can aid understanding of variations in per capita costs by care quality or provider organization characteristics. To date, there have been significant gaps in the area of resource use measurement – and a general lag behind quality measures despite the growing demand for measures of resource use. Although episode-based measures of resource use have been developed, particularly in the commercial sector, applying these measures involves several methodological challenges. Such challenges include attributing episodes to individual providers and defining an episode of care for chronic conditions, which have less clear initiation and end points. The Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries complements extant episode-based measures as a population-based measure of resource utilization, providing an overall estimate of costs that takes into account costs for overall patient health – not just those associated with particular disease states or clinical events.
- Improved quality through examination of the breakdown of costs by type of service. The physician feedback reports provide per capita costs for all services covered under FFS Medicare in total and by detailed type of service. The goal of separating per capita costs into categories of services is to provide medical group practices with details on how their costs of delivering specific health care services compare with those of their peers. Note that different categories of service can be substitutes or complements. For example, practices providing more ambulatory preventive care might avoid some hospitalizations of their patients (service substitutes), leading to higher evaluation and management costs but lower inpatient hospital costs compared with peers. At the same time, higher numbers of evaluation and management visits also could be associated with higher ancillary services, such as diagnostic tests (service complements). Displaying costs by categories of service provides greater detail on areas in which providers might be able to improve the quality and efficiency of care.
- Provide actionable information to physicians about their patients. Future physician feedback reports will contain quality and cost information for all attributed Medicare FFS beneficiaries, as well as a detailed breakdown of specific patients that were attributed to the medical group practice. This will provide physicians with information to make actionable changes for the care they provide to each of their patients.

Citations

American Institutes for Research. "Lessons Learned: Physicians' Views of Comparative Information on Costs and Resource Use Findings and Implications for Report Developers." Princeton, NJ: Robert Wood Johnson Foundation, October 2012. Available at [http://www.rwjf.org/content/dam/farm/reports/issue_briefs/2012/rwjf402127]. Accessed January 3, 2013.

Centers for Medicare & Medicaid Services. "Medicare Resource Use Measurement Plan." Baltimore, MD: CMS, 2009. Available at [http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/QualityInitiativesGenInfo/downloads/ResourceUse_Roadmap_OEA_1-15_508.pdf]. Accessed January 3, 2013.

Chung, Jeanette, Erin Kaleba, and Gregory Wozniak. "A Framework for Measuring Healthcare Efficiency and Value." Chicago, IL: American Medical Association, August 2008. Available at [http://www.ama-assn.org/ama1/pub/upload/mm/370/framewk_meas_efficiency.pdf]. Accessed January 3, 2013.

McGlynn, Elizabeth A. "Identifying, Categorizing, and Evaluating Health Care Efficiency Measures: Final Report." AHRQ Publication No. 08-0030. Rockville, MD: Agency for Healthcare Research & Quality, April 2008. Available at [http://www.ahrq.gov/qual/efficiency/efficiency.pdf]. Accessed January 3, 2013.

IM.2.2. **Summary of Data Demonstrating Performance Gap** *(Variation or overall less than*

optimal performance across providers)

A recent Institute of Medicine report indicated that the use of unnecessary health services and inefficiently delivered care accounted for excess spending of $210 billion and $130 billion, respectively, in 2009 (Smith et al. 2012). As mentioned earlier, wide variation in FFS Medicare practice patterns and expenditures have been extensively documented. According to a Dartmouth Atlas analysis of 2006 Medicare data, regions with the highest spending levels had expenditures that were twice the expenditures of regions with the lowest spending levels after accounting for geographic differences in payment and patient illness (Fisher et al. 2009).

Using Medicare Parts A and B administrative claims data for beneficiaries with 12 months of continuous enrollment, we applied the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries and found that for groups with at least 25 eligible professionals and 20 attributed beneficiaries the average payment-standardized risk-adjusted per capita cost was $10,602 (standard deviation= $4,076; median = $9, 837) across all participating medical groups in California, Illinois, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, and Wisconsin in 2011. For more information, please see Section 2, Scientific Acceptability (Measure Testing attachment). Although all variation might not necessarily indicate poor quality, there is a wide gap between the highest and lowest per capita costs. More information is needed regarding the source of variation, the relationship between costs and quality, and the implications for efficiency.

IM.2.4. **Summary of Data on Disparities by Population Group** *(for example by race/ethnicity, gender, age, insurance status, socioeconomic status, and/or disability, etc. If you do not have data on your specific measure, perform a literature search/review and report data for the measure or similar appropriate concept.)*

Health disparities contribute to rising health care expenditures. A 2009 Urban Institute report projected that health disparities among African Americans, Hispanics, and non-Hispanic whites will cost the health care system approximately $337 billion, including $220 billion for Medicare, from 2009 to 2018 (Waidman 2009). Costs to the Medicare program are projected to double due to health disparities among African Americans and Hispanics as they comprise a higher proportion of the elderly (Waidman 2009). Medicare beneficiaries who are dually eligible for Medicaid due to disability, low income, or some combination of these factors are particularly vulnerable because they are more likely to be in poor health and have multiple chronic illnesses than other beneficiaries (Kaiser Family Foundation 2012; MedPAC 2004). In 2008, Medicare spending on these dually eligible beneficiaries was almost two times higher than spending on nondual eligible Medicare beneficiaries (Jacobson et al. 2012).

Although certain subgroups may account for a disproportionate share of Medicare spending, our analysis of risk-adjusted per capita costs (using the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries) for medical group practices, stratified by certain patient characteristics showed no consistent pattern in terms of mean costs across the proportion of beneficiaries with these characteristics in either category. Average costs were $9,914 (standard deviation of $3,527) for groups with the lowest proportion of dual eligible beneficiaries and $10,606 (standard deviation of $4,106) for the groups with the highest proportion of dual eligible beneficiaries and were $12,052 (standard deviation of $5,132) for the groups with the lowest proportion of nonwhites and $10,132 (standard deviation of $3,925) for the groups with the highest proportion of nonwhites. An analysis of differences by subgroups would have to be taken in the context of the quality of care provided.

Citations available in Appendix B

1c. Measure Intent

The intent of the resource use measure and the measure construct are clearly described.
AND
The resource use service categories (i.e., types of resources/costs) that are included in the resource use measure are consistent with and representative of the intent of the measure.

IM.3.1. **Describe intent of the measure and its components/ Rationale (including any citations) for analyzing variation in resource use in this way.**

As stated earlier, the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries has two primary purposes. First, it is an integral component of the reporting aspect of CMS's Value-Based Payment Modifier Program and Physician Feedback Reporting Program. The measure aims to provide confidential information to participating medical group practices regarding the costs of care they provide to attributed beneficiaries to inform their practice patterns (CMS 2012). More importantly, through confidential reporting of the quality of care furnished to Medicare beneficiaries compared with the cost of that care, the reports support efforts by medical group practices to provide high quality care to their Medicare FFS patients in an efficient and effective manner. Second, the measure will also be used in the calculation of the Medicare FFS VBM to redress the incentives in FFS reimbursement for high volume (CMS 2012). More specifically, under the optional quality tiering approach, the VBM, which will be based on the quality and cost of care medical group practices furnish to Medicare beneficiaries, will be used to adjust Medicare physician fee schedules payments. When combined with quality information, the measure aims to facilitate the introduction of provider accountability into the Medicare FFS program for the value of care beneficiaries receive.

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; Inpatient services: Labor (hours, FTE, etc.); Ambulatory services: Outpatient facility services; Ambulatory services: Emergency Department; Ambulatory services: Evaluation and management; Ambulatory services: Procedures and surgeries; Ambulatory services: Imaging and diagnostic; Ambulatory services: Lab services; Durable Medical Equipment (DME); Other services not listed

If other: Hospice; Home health; skilled nursing facility; Anesthesia; Ambulance services; Chemotherapy; Drugs administered in an ambulatory setting or used with DME (covered by Medicare Part B); Orthotics, chiropractic, enteral and parenteral nutrition; some vision services; some hearing and speech services; immunizations

To what extent do the categories of costs represented by the resource use service categories (listed in S.7.7.) support the stated intent of the measure? (i.e., are all of the resource use service categories represented that should be? Are any missing?)

☐ **High**
☐ **Moderate**
☐ **Low**
☐ **Insufficient**

1. Overall Importance to Measure and Report

1a. High Impact	H	M	L	I
1b. Opportunity for Improvement	H	M	L	I
1c. Measure Intent	H	M	L	I

Based on your rating of the subcriteria, make a summary determination of the extent to which the criterion of **Importance to Measure and Report** has been met. Please provide a rationale based on specific subcriteria.

Rationale:

☐ **High**
☐ **Moderate**
☐ **Low**
☐ **Insufficient**

2. Scientific Acceptability of the Measure Properties

Extent to which the measure, as specified, produces consistent (reliable) and credible (valid) results about the cost or resources used to deliver care. **Measures must be judged** to meet the subcriteria for both reliability and validity to pass this criterion and be evaluated against the remaining criteria.

Construction Logic

S.7.1. **Brief Description of Construction Logic**

The Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries is formed by first attributing beneficiaries to medical group practices. Then, unadjusted per capita costs are calculated as the sum of all Medicare Part A and Part B costs for all beneficiaries attributed to a medical group practice, divided by the number of attributed beneficiaries. All unadjusted costs are then payment-standardized and risk adjusted to accommodate differences in costs between peers that result from circumstances beyond physicians' control. Risk-adjusted costs are computed as the ratio of a medical group practice's payment-standardized (but not risk-adjusted) per capita costs to its expected per capita costs, as determined by the risk adjustment algorithm. Finally, to express the risk-adjusted cost in dollars and for ease of interpretation, the ratio is multiplied by the mean cost of all beneficiaries attributed to all practices.

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

The Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries is calculated according to the steps outlined below. Detailed information regarding each of the steps is available in the Comparability Section.

STEP 1. ATTRIBUTE ELIGIBLE BENEFICIARIES TO A MEDICAL GROUP PRACTICE THAT PROVIDED THE PLURALITY OF PRIMARY CARE SERVICES.

Beneficiaries are attributed to medical group practices that provided the plurality of primary care services (PCS). Only beneficiaries that received PCS from at least one physician during the measurement period are eligible for assignment. The attribution method is a two-step process, where in the first step beneficiaries are assigned to medical group practices based on PCS provided by primary care physicians (PCPs)—defined as physicians practicing internal medicine, family practice, general practice, or geriatric medicine. A beneficiary is attributed to a medical group practice if the PCPs in the medical group practice accounted for a larger amount of total Medicare allowable charges for PCS than PCPs in any other group or solo practice. In the second step, beneficiaries who are unassigned to a group and had at least one PCS from a physician, regardless of specialty, are assigned to a medical group practice if the professionals in the group accounted for a larger amount of total Medicare allowable charges for PCS than professionals in any other group or solo practice. This step recognizes that some beneficiaries may receive PCS from non-PCPs (i.e., specialist physicians, nurse practitioners, physician assistants, and clinical nurse specialists).

A list of CMS specialties identified as physicians is available in the attachment titled S_7_2_Construction_Logic. Also, see Adjustments of Comparability Section S.13.2 (Detail Attribution Approach) for a full description of the attribution methodology.

STEP 2. COMPUTE PAYMENT-STANDARDIZED COSTS TO ACCOUNT FOR GEOGRAPHIC VARIATIONS IN MEDICARE COSTS.
To adjust for variations in beneficiary costs due to Medicare geographic adjustment factors (e.g., wage rates, rent, etc.), standardized payments are calculated.
See Adjustments for Comparability Section S.9.6 (Costing Method) for details on standardizing Medicare payments for beneficiaries.
STEP 3. CALCULATE TOTAL OBSERVED PAYMENT-STANDARDIZED COSTS, AT THE BENEFICIARY LEVEL.
Sum costs (calculated in Step 2) across all Part A and Part B claim types for a beneficiary for the calendar year.
STEP 4. TRUNCATE BENEFICIARY-LEVEL COSTS TO ACCOUNT FOR EXTREME OUTLIERS.
Outlier values are truncated to prevent extreme values from having a disproportionate effect on cost distributions and the risk adjustment model. Specifically, beneficiaries whose payment-standardized total costs are in the bottom one percentile of the distribution are excluded; for beneficiaries with payment-standardized total costs in the top 1 percentile among all beneficiaries attributed to all groups in the sample, the beneficiary's cost is set to the value of the 99th percentile cost (note: this approach is equivalent to Winsorization which is a statistical transformation that limits extreme values in data to reduce the effect of possibly spurious outliers).
STEP 5. ESTIMATE THE EXPECTED BENEFICIARY-LEVEL PAYMENT-STANDARDIZED COSTS.
The expected payment-standardized costs are calculated by an ordinary least squares regression, where the beneficiary's annual payment-standardized costs are regressed on the beneficiary's prior year community CMS-HCC risk score, squared prior year community CMS-HCC risk score, prior year new enrollee CMS-HCC score (if a new Medicare enrollee in the prior year), squared prior year new enrollee CMS-HCC risk score, and prior year ESRD indicator flag.
See Adjustments for Comparability Section S.9.2 (Risk-Adjustment Type) and S.9.3 (Statistical risk model method and variables) for details on the risk adjustment model.
STEP 6. CALCULATE OBSERVED-TO-EXPECTED COST RATIO FOR GROUPS.
For each group, divide the sum of the observed payment-standardized costs (estimated in step 3) by the sum of the expected payment-standardized costs (estimated in step 5) to obtain the group's observed-to-expected (O/E) ratio.
STEP 7. CALCULATE RISK-ADJUSTED PAYMENT-STANDARDIZED COSTS IN DOLLAR FIGURES.
To express the risk-adjusted per capita cost in dollar figures, the group's O/E ratio (calculated in Step 6) is multiplied by the mean observed payment-standardized costs across all beneficiaries for whom an expected cost is calculated. This step recognizes that due to missing HCC risk scores and truncation, expected per capita costs may not be computed for some beneficiaries. As such, these beneficiaries are not included in the computation of the mean observed payment-standardized costs.

Click here to go to the Construction Logic 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.)*
We do not provide This is an annual per capita cost measure for medical group practices that applies to all clinical events and conditions. Therefore, we do not provide any specifications for the concurrency of clinical events, measure redundancy or overlap, and disease interactions.

S.7.4. **Complementary services** *(Detail how complementary services have been linked to the measure and provide rationale for this methodology.)*
We do not provide This is an annual payment-standardized per capita cost measure for medical group practices that applies to all service categories, care settings, and conditions. Therefore, we do not provide any specifications for complementary services.

S.7.5. **Clinical hierarchies** *(Detail the hierarchy of codes or condition groups used and provide rationale for this methodology.)*
We do not provide This is accounted for during the risk-adjustment process. The measure is risk-adjusted based on prior year CMS-HCC risk scores. Detailed information and an evaluation of the CMS-HCC risk model can be found at [http://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Downloads/Evaluation_Risk_Adj_Model_2011.pdf].
See Adjustments for Comparability Section S.9.3 (Statistical Risk Model Method and variables) for details on the risk adjustment model and a description of the CMS-HCC score.

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)*
We do not provide The computation of the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries is

based on all final action Medicare claims for the measurement year. We recognize that there may be claims in which relevant information is missing; however, we did not develop any measure specifications or specific guidelines for handling missing data because there is no indication from examination of our data that the data are missing systematically. As such, calculation of the measure should not be biased by missing information.

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; Inpatient services: Labor (hours, FTE, etc.); Ambulatory services: Outpatient facility services; Ambulatory services: Emergency Department; Ambulatory services: Evaluation and management; Ambulatory services: Procedures and surgeries; Ambulatory services: Imaging and diagnostic; Ambulatory services: Lab services; Durable Medical Equipment (DME); Other services not listed
If other: Hospice; Home health; skilled nursing facility; Anesthesia; Ambulance services; Chemotherapy; Drugs administered in an ambulatory setting or used with DME (covered by Medicare Part B); Orthotics, chiropractic, enteral and parenteral nutrition; some vision services; some hearing and speech services; immunizations

2a1. The measure is well defined and precisely specified so that it can be implemented consistently within and across organizations and allow for comparability. Electronic health record (EHR) measure specifications are based on the quality data model (QDM).	**To what extent is the construction logic well defined and precisely specified?** ☐ **High/Moderate** *(Specifications are unambiguous)* ☐ **Low** *(One or more specifications are ambiguous)*
2b1. The measure specifications are consistent with the measure intent described under criterion 1c and captures the most inclusive target population.	**To what extent is the clinical logic consistent with the measure intent and captures the broadest target population?** ☐ **High/Moderate** *(Measure specifications are consistent with the measure intent and captures the broadest target population)* ☐ **Low** *(Measure specifications do not reflect the measure intent)*

Clinical Logic

S.8.1. **Brief Description of Clinical Logic** *(Briefly describe your clinical logic approach including clinical topic area, whether or not you account for comorbid and interactions, clinical hierarchies, clinical severity levels and concurrency of clinical events.)*
This is an annual payment-standardized per capita cost measure for medical group practices that applies to all clinical topic areas. Comorbidities and clinical hierarchies are accounted for during the risk-adjustment process. See Adjustments for Comparability Section S.9.3 (Statistical Risk Model Method and Variables) for details on the risk adjustment model.

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.)*
Not applicable. This is an annual per capita cost measure for medical group practices that applies to all service categories, care settings, and conditions.

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)*
Not applicable

S.8.4. **Measure Trigger and End mechanisms** *(Detail the measure's trigger and end mechanisms and provide rationale for this methodology)*
There is no discrete trigger for the per capita measure. The measure captures total annual Medicare Parts A and B costs from January 1 to December 31 of the measurement year. The rationale for the one-year period is that it is long enough to provide meaningful data. In addition, it is easily measured because there are often fewer changes in physician fee schedule rules, for example, within a

calendar year than across calendar years and it is also readily understood by providers. By providing a broader picture of a beneficiary's treatment costs than a single episode of care, the per capita measure promotes an emphasis on primary care to reduce expensive hospitalizations, coordination of care to reduce overutilization, and the use of more efficient settings of care (that is, fewer emergency department visits) to reduce the overall medical costs of a beneficiary over a longer period.

S.8.5. **Clinical severity levels** *(Detail the method used for assigning severity level and provide rationale for this methodology)*
We do not provideThis is accounted for during the risk-adjustment process. See Adjustments for Comparability Section S.9.3 (Statistical Risk Model Method and Variables) for details on the risk adjustment model.

S.8.6. **Comorbid and interactions** *(Detail the treatment of co-morbidities and disease interactions and provide rationale for this methodology.)*
We do not provide This is accounted for during the risk-adjustment process. See Adjustments for Comparability Section S.9.3 (Statistical Risk Model Method and Variables) for details on the risk adjustment model.

2a1. The measure is well defined and precisely specified so that it can be implemented consistently within and across organizations and allow for comparability. Electronic health record (EHR) measure specifications are based on the quality data model (QDM).	**To what extent is the clinical logic well defined and precisely specified?** ☐ **High/Moderate** *(Specifications are unambiguous)* ☐ **Low** *(One or more specifications are ambiguous)*
2b1. The measure specifications are consistent with the measure intent described under criterion 1c and captures the most inclusive target population	**To what extent is the clinical logic consistent with the measure intent and captures the broadest target population?** ☐ **High/Moderate** *(Measure specifications are consistent with the measure intent and captures the broadest target population)* ☐ **Low** *(Measure specifications do not reflect the measure intent)*

Adjustments for Comparability – Inclusion/Exclusion Criteria

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)*

Beneficiaries who are not fully and continuously enrolled in Medicare FFS Parts A and B during the measurement year or who met certain other criteria are excluded and therefore not attributed to a medical group practice. [1] Specifically, a beneficiary is excluded from the sample of beneficiaries if between January and December of the measurement year, one or more of the following exclusion criteria was met:

- Newly enrolled or disenrolled in Medicare FFS Part A or Part B coverage.

Beneficiaries who were not continuously enrolled in both Medicare FFS Parts A and B for the entire measurement year are excluded from the measure. The per capita cost measure has a one calendar year measurement period and as to ensure comparability in beneficiary costs for group comparisons, only beneficiaries continuously enrolled for all 12 months of the year are included in the measure.

- Enrolled in Medicare Advantage for any part of the year.

Beneficiaries who were enrolled in Medicare Advantage any time during the measurement year are excluded from the measure to ensure comparability in beneficiary costs for group comparisons.

- Resided outside the United States.

To fully capture beneficiaries' medical services and their associated costs, we excluded beneficiaries who resided outside the United States or U.S. possessions or territories. Medicare claims do not capture the costs associated with services rendered outside the United States. Including beneficiaries who receive care outside the United States may underestimate total costs and result in unfair comparisons across groups.

In addition to those beneficiaries who are excluded prior to attribution to a medical group practice, beneficiaries attributed to

medical group practices with outlier values are truncated to ensure that extreme outlier costs do not have a disproportionate effect on cost distributions and the risk-adjustment model. Specifically, beneficiaries whose payment-standardized total costs are below the first percentile are eliminated.
[1] Although death during the measurement year is not an explicit exclusion criterion, Part A or Part B beneficiaries who died during the measurement year would no longer be enrolled in Medicare and are therefore a subset of those excluded due to disenrollment in Medicare Parts A or B.

2b.3. Exclusion Analysis
Click here to go to the developer submission for Exclusion Analysis (2b3)

2a1. The measure is well defined and precisely specified so that it can be implemented consistently within and across organizations and allow for comparability. Electronic health record (EHR) measure specifications are based on the quality data model (QDM).	**To what extent are the inclusion/exclusion criteria well defined and precisely specified?** ☐ **High/Moderate** *(Specifications are unambiguous)* ☐ **Low** *(One or more specifications are ambiguous)*
2b1. The measure specifications are consistent with the measure intent described under criterion 1c and captures the most inclusive target population.	**To what extent is the clinical logic consistent with the measure intent and captures the broadest target population?** ☐ **High/Moderate** *(Measure specifications are consistent with the measure intent and captures the broadest target population)* ☐ **Low** *(Measure specifications do not reflect the measure intent)*
2b3. Exclusions are supported by the clinical evidence. **AND/OR** There is a rationale or analysis demonstrating that the measure results are sufficiently distorted due to the magnitude and/or frequency of the non-clinical exclusions; **AND** Measure specifications for scoring include computing exclusions so that the effect on the measure is transparent (i.e., impact clearly delineated, such as number of cases excluded, exclusion rates by type of exclusion); **AND** If patient preference (e.g., informed decision-making) is a basis for exclusion, there must be evidence that the exclusion impacts performance on the measure; in such cases, the measure must be specified so that the information about patient preference and the effect on the measure is transparent (e.g., numerator category computed separately, denominator exclusion category computed separately).	**To what extent are the inclusion/exclusion criteria supported by the clinical evidence or supported by evidence of sufficient frequency and impact on performance results?** ☐ **High** ☐ **Moderate** ☐ **Low** ☐ **Insufficient**

Adjustments for Comparability – Risk Adjustment
S.9.2. Risk Adjustment Type *(Select type)*
Statistical risk model

S.9.3. Statistical risk model method and variables *(Name the statistical method - e.g., logistic regression and list all the risk factor variables.)*
In computing the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries, cost data for each beneficiary are risk adjusted. The risk adjustment process involves several steps, beginning with preparing the data for risk adjustment at the

beneficiary level and culminating with the computation of a group practice-specific risk-adjusted per capita cost. Risk-adjusted costs are computed as the ratio of a medical group practice's payment-standardized , observed, per capita costs to its expected per capita costs, as determined by the risk adjustment algorithm. Finally, to express the risk-adjusted cost in dollars and for ease of interpretation, the ratio is multiplied by the mean cost of all beneficiaries attributed to all practices.

These steps are described in Section 7.2 (Construction Logic), under Steps 3-7. The discussion below focuses on the calculation of the expected beneficiary costs.

To control for patient differences that can affect medical costs, regardless of the care provided, per capita cost measures are risk adjusted prospectively using CMS-HCC risk scores from the year prior to the measure year. An ordinary least squares model is estimated where the truncated payment-standardized total costs (TOT_COST) are regressed on the following independent variables:

1. COMMUNITY_HCC_SCORE: Prior year community CMS-HCC risk score (if no new enrollee risk score is available)
2. COMMUNITY_HCC_SCORE_SQUARED: Prior year community CMS-HCC risk score squared (if no new enrollee risk score if available)
3. NEW_ENROLLEE_HCC_SCORE: Prior year new enrollee CMS-HCC risk score (if new enrollee or if both new enrollee and community scores are available)
4. NEW_ENROLLEE_HCC_SCORE_SQUARED: Prior year new enrollee CMS-HCC risk score squared (if new enrollee or if both new enrollee and community scores are available)
5. NEW_AVAIL: An indicator equal to 1 if a new CMS-HCC score is available, and 0 otherwise
6. ESRD_FLAG: Prior year ESRD status indictor

More specifically, the following linear regression is estimated:

TOT_COST = ß0 + ß1 *(1-NEW_AVAIL)*COMMUNITY_HCC_SCORE
+ ß2*(1-NEW_AVAIL)*COMMUNITY_HCC_SCORE_SQUARED
+ß3*NEW_AVAIL*NEW_ENROLLEE_HCC_SCORE
+ ß4 *NEW_AVAIL*NEW_ENROLLEE_HCC_SCORE_SQUARED
+ß5*ESRD_FLAG + error

where ß0 is a constant term, ß1 through ß5 are regression coefficients, and error is an error term. The regression yields a set of coefficients, one per independent variable. Each coefficient measures the association between its corresponding independent variable and total beneficiary cost when the other independent variables are held constant. Squared CMS-HCC scores were added in the regression model to capture the diminishing impact of the risk scores on total costs as it increases. The testing of the risk adjustment model described in the Measure Testing attachment supports the functional form.

The CMS-HCC model assigns International Classification of Diseases–9th Revision (ICD-9) diagnosis codes to 70 clinical conditions. The CMS-HCC risk adjustment model is developed and calibrated using Medicare FFS claims, making it a well-suited tool for the risk adjustment of total per capita costs. It is also used to adjust payments for Part C benefits offered by Medicare Advantage plans and Program of All Inclusive Care for the Elderly organizations to aged/disabled beneficiaries. The CMS-HCC model incorporates prior year diseases and demographic factors to compute separate sets of coefficients for beneficiaries in the community, beneficiaries in long-term care institutions, new Medicare enrollees, and beneficiaries with end stage renal disease (ESRD) (both community and institutional).

The community and new enrollee CMS-HCC risk scores are used in the regression model. The former are composed of two major components: demographic information and medical conditions; the latter are composed only of demographic information. Demographic information includes age, sex, Medicaid status, and disability as the original reason for Medicare eligibility. The medical conditions are based on previous years' diagnoses and are classified in clinically meaningful categories that are expected to predict medical expenditures.

Detailed information and an evaluation of the CMS-HCC risk model can be found at [http://www.cms.gov/Medicare/Health-Plans/MedicareAdvtgSpecRateStats/Downloads/Evaluation_Risk_Adj_Model_2011.pdf]. The 70 HCCs that CMS incorporates into its risk scores are available on page 17 of the document found at [http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeedbackProgram/Educational-Resources.html].

S.9.4. **Detailed Risk Model Specifications** *available at measure-specific Web page URL identified in S.1 OR in attached data dictionary/code list Excel or csv file.*

Available at measure-specific web page URL identified in S.1

S.9.5. **Stratification Details/Variables** *(All information required to stratify the measure results including the stratification variables,*

definitions, specific data collection items/responses, code/value sets)
This measure uses risk-adjusted costs for comparison purposes and further stratification is not done.

2b.4. **Risk Adjustment Statistics**
Click here to go to the developer submission for Risk Adjustment (2b4)

2a1. The measure is well defined and precisely specified so that it can be implemented consistently within and across organizations and allow for comparability. Electronic health record (EHR) measure specifications are based on the quality data model (QDM).	**To what extent is the risk adjustment strategy well defined and precisely specified?** ☐ **High/Moderate** *(Specifications are unambiguous)* ☐ **Low** *(One or more specifications are ambiguous)*
2b1. The measure specifications are consistent with the measure intent described under criterion 1c and captures the most inclusive target population	**To what extent is the clinical logic consistent with the measure intent and captures the broadest target population?** ☐ **High/Moderate** *(Measure specifications are consistent with the measure intent and captures the broadest target population)* ☐ **Low** *(Measure specifications do not reflect the measure intent)*
2b4. An evidence-based risk-adjustment strategy (e.g., risk models, risk stratification) is specified; is based on factors that influence the measured outcome (but not factors related to disparities in care or the quality of care) and are present at start of care; and has demonstrated adequate discrimination and calibration **OR** Rationale/data support no risk-adjustment/-stratification.	**To what extent are the risk adjustment factors present at the start of care with adequate discrimination and calibration?** ☐ **High** ☐ **Moderate** ☐ **Low** ☐ **Insufficient**

Adjustments for Comparability – Costing Method

S.9.6. **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

S.9.6a. **Describe the Costing method**

For most types of medical services, Medicare adjusts payments to providers to reflect differences in local input payments (for example, wage rates and real estate costs). Payment standardization equalizes the costs associated with a specific service, such that a given service is paid at the same level across all providers of the same type, regardless of geographic location or differences in Medicare payment rates among some facilities. [1]

The per capita cost measure uses CMS' payment standardization methodology. Specifically, the payment standardization methodology:

- Eliminates adjustments made to national payment amounts to reflect differences in regional labor costs and practice expenses (measured by hospital wage indexes and geographic practice cost indexes)
- Substitutes a national amount in the case of services paid on the basis of state fee schedules
- Eliminates Medicare's payments to hospitals for graduate indirect medical education (IME) and for serving a disproportionate population of poor and uninsured (i.e., disproportionate share payments (DSH))
- Maintains differences that exist in actual payments resulting from: (i) the choice of setting in which a services is provided, (ii) the choice about who provides the service, (iii) the choice as to whether to provide multiple services in the same encounter, and (iv) differences in provider experience with regard to outlier cases
- Treats outlier payments as a given rather than trying to determine what outlier payment would have been in a standardized world. Actual outlier payments are adjusted for differences in wages using the wage index.

Detailed specifications can be found on QualityNet at [http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228772057350]. Furthermore, the standardization methodology is similar to that adopted by the Institute of Medicine: http://iom.edu/Activities/HealthServices/GeographicVariation/Data-Resources.aspx.
A summary of the standardization methodology for seven of the Medicare claim types—inpatient hospital; outpatient hospital; skilled nursing facility; home health agency; hospice; physician services; and durable medical equipment, prosthetics, orthotics, and supplies (DMEPOS)—is available here, starting on page 19, [http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeedbackProgram/downloads/2011_group_detail_methodology.pdf].
[1] Payment-standardization and price-standardization are terms that are often used interchangeably. The standardizing pricing approach discussed in this submission is referred to as payment-standardization since Medicare claims payments are being standardized.

S.9.6b. **Attach pricing table here** *(Select Actual Prices Paid, Relative Value Units [RVUs], Other, or We do not provide specifications for a costing method)*

Pricing Table not provided

2a1. The measure is well defined and precisely specified so that it can be implemented consistently within and across organizations and allow for comparability. Electronic health record (EHR) measure specifications are based on the quality data model (QDM).	**To what extent is the costing method well defined and precisely specified?** ☐ **High/Moderate** *(Specifications are unambiguous)* ☐ **Low** *(One or more specifications are ambiguous)*
2b1. The measure specifications are consistent with the measure intent described under criterion 1c and captures the most inclusive target population	**To what extent is the clinical logic consistent with the measure intent and captures the broadest target population?** ☐ **High/Moderate** *(Measure specifications are consistent with the measure intent and captures the broadest target population)* ☐ **Low** *(Measure specifications do not reflect the measure intent)*

Adjustments for Comparability – Scoring

S.10. **Type of Score** *(Select the most relevant)*
Continuous variable; Attachment
Click here to go to the sample score report

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 quality and resource use reports (QRURs), which are confidential feedback reports disseminated to medical group practices, display payment-standardized (to remove geographic Medicare payment differences) and risk-adjusted per capita (per beneficiary) costs for each group's attributed patients. Risk adjusted per capita costs for attributed beneficiaries are expressed in dollar figures to allow for easier comparison among medical practice groups. The total per capita cost can be interpreted as follows:

- A simple difference greater than zero from the national benchmark indicates that the medical practice group's total per capita costs are higher than the average total per capita costs of all groups.
- A simple difference less than zero from the national benchmark indicates that the medical practice group's total per capita costs are lower than the average total per capita costs of all groups.
- A simple difference equal to zero from the national benchmark indicates that the medical practice group's total per capita costs are equal to the average total per capita costs of all groups.

The computation of the national benchmark is described in Section 13.5 (Define benchmarking or comparative estimates).

S.12. Detail Score Estimation *(Detail steps to estimate measure score.)* Steps for computing the risk adjusted total per capita cost is described in Section 7.2 (Construction Logic).	
2a1. The measure is well defined and precisely specified so that it can be implemented consistently within and across organizations and allow for comparability. Electronic health record (EHR) measure specifications are based on the quality data model (QDM).	**To what extent is the scoring method well defined and precisely specified?** ☐ **High/Moderate** *(Specifications are unambiguous)* ☐ **Low** *(One or more specifications are ambiguous)*
2b1. The measure specifications are consistent with the measure intent described under criterion 1c and captures the most inclusive target population	**To what extent is the clinical logic consistent with the measure intent and captures the broadest target population?** ☐ **High/Moderate** *(Measure specifications are consistent with the measure intent and captures the broadest target population)* ☐ **Low** *(Measure specifications do not reflect the measure intent)*
2b5. Data analysis demonstrates that methods for scoring and analysis of the specified measure allow for identification of statistically significant and practically/clinically meaningful differences in performance.	**To what extent does the scoring method allow for identification of statistically significant and practically/clinically meaningful differences in performance?** ☐ **High** ☐ **Moderate** ☐ **Low** ☐ **Insufficient**
Comparability of Multiple Data Sources ***Measure not specified for multiple data sources – Not Applicable***	
2b6. If multiple data sources/methods are specified, there is demonstration that they produce comparable results.	**To what extent do the multiple data sources/methods produce comparable results?** ☐ **High** ☐ **Moderate** ☐ **Low** ☐ **Insufficient** ☐ **Not Applicable**
Reliability Testing ***Click here to go to the developer submission for Reliability Testing (2a2)***	

2a2. Reliability testing demonstrates the measure data elements are repeatable, producing the same results a high proportion of the time when assessed in the same population in the same time period and/or that the measure score is precise.	☐ **High** *(Data element **AND** measure score reliability testing done and is acceptable)* ☐ **Moderate** *(Data element **OR** measure score reliability testing is done and acceptable)* ☐ **Low** *(There is empirical evidence of Unreliability for either data elements or measure score)* ☐ **Insufficient** *(Inappropriate method or scope of reliability testing)*
Validity Testing ***Click here to go to the developer submission for Validity Testing (2b2)***	
2b2. Validity testing demonstrates that the measure data elements are correct and/or the measure score correctly reflects the quality of care provided, adequately identifying differences in quality.	☐ **High** *(Data element **AND** measure score were tested with the appropriate method, scope and the results are within acceptable norms **AND** Threats to validity are empirically assessed and adequately addressed; measure results are not biased)* ☐ **Moderate** *(Data element **OR** measure score were tested with the appropriate method, scope and the results are within acceptable norms **OR** face validity was systematically assessed **AND** Threats to validity are empirically assessed and adequately addressed; measure results are not biased)* ☐ **Low** *(Statistical results of the testing of data element OR measure score are outside of acceptable norms **OR** Threats to validity have not been addressed and the measure score is bias.)* ☐ **Insufficient** *(Inappropriate method or scope of testing; inadequate assessment of face validity)*

2a. Overall Reliability

2a1. Construction Logic	**H/M**		**L**	
2a1. Clinical Logic	**H/M**		**L**	
2a1. Adjustments for Comparability – Inclusion/Exclusion Criteria	**H/M**		**L**	
2a1. Adjustments for Comparability – Risk Adjustment	**H/M**		**L**	
2a1. Adjustments for Comparability – Costing Method	**H/M**		**L**	
2a1. Adjustments for Comparability – Scoring	**H/M**		**L**	
2a2. Reliability Testing	**H**	**M**	**L**	**I**

Based on your ratings for the above criteria, how would you rate the overall reliability of this measure? How well overall has the developer demonstrated the measure results are repeatable and can be implemented consistently?

☐ **High** *(Specifications are unambiguous; data element **AND** measure score reliability testing done and is acceptable)*
☐ **Moderate** *(Specifications are unambiguous and data element **OR** measure score reliability testing is done and acceptable)*
☐ **Low** *(One or more specifications are ambiguous **OR** there is empirical evidence of unreliability for either data elements or measure score)*
☐ **Insufficient** *(Inappropriate method or scope of reliability testing)*

Rationale:

2b. Overall Validity

2b1. Construction Logic	H/M L
2b1. Clinical Logic	H/M L
2b1. Adjustments for Comparability – Inclusion/Exclusion Criteria	H/M L
2b3. Exclusions	H M L I
2b1. Adjustments for Comparability – Risk Adjustment	H/M L
2b4. Risk Adjustment	H M L I
2b1. Adjustments for Comparability – Costing Method	H/M L
2b1. Adjustments for Comparability – Scoring	H/M L
2b5. Significant Differences in Performance	H M L I
2b6. Comparability of Multiple Data Sources	H M L I NA
2b2. Validity Testing	H M L I

Based on your ratings for the above criteria, how would you rate the overall validity of this measure? How well overall has the developer demonstrated this measure is valid?

☐ **High** *(Data element **AND** measure score were tested with the appropriate method, scope and the results are within acceptable norms **AND** Threats to validity are empirically assessed and adequately addressed; measure results are not biased)*
☐ **Moderate** *(Data element **OR** measure score were tested with the appropriate method, scope and the results are within acceptable norms **OR** face validity was systematically assessed **AND** Threats to validity are empirically assessed and adequately addressed; measure results are not biased)*
☐ **Low** *(Statistical results of the testing of data element **OR** measure score are outside of acceptable norms **OR** Threats to validity have not been addressed and the measure score is bias.)*
☐ **Insufficient** *(Inappropriate method or scope of testing; inadequate assessment of face validity)*

Rationale:

2c. Disparities in Care

If disparities in care have been identified, measure specifications, scoring, and analysis allow for identification of disparities through stratification of results (e.g., by race, ethnicity, socioeconomic status, gender)
OR
Rationale/data justifies why stratification is not necessary or not feasible.

SA.10.1. **If measure is stratified for disparities, provide stratified results** *(Scores by stratified categories/cohorts)*
The Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries is not stratified to detect disparities.

SA.10.2. **If disparities have been reported/identified, but measure is not specified to detect disparities, please explain.**

To what extent do the measure specifications, scoring, and analysis allow for identification of disparities through stratification of results (Refer to item IM2.4 for summary of disparities data)?

☐ **High**
☐ **Moderate**

As described in Section IM.2.4., we have examined per capita costs by certain demographic characteristics and have not detected a consistent pattern. Furthermore, any differences in per capita resource use by subgroup would have to be considered in the context of the quality of care provided. To date, we have not identified disparities through the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries.	☐ **Low** ☐ **Insufficient**

3. Feasibility

Extent to which the required data are readily available or could be captured without undue burden, and can be implemented for performance measurement.

3a. 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. **Data Elements Generated as Byproduct of Care Processes.** Coded by someone other than person obtaining original information (e.g., DRG, ICD-9 codes on claims); Other **If other:** The data elements come from Medicare administrative claims	**To what extent are the data elements generated as byproducts of care processes?** ☐ **High** ☐ **Moderate** ☐ **Low** ☐ **Insufficient**
3b. 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. **To what extent are the specified data elements available electronically in defined fields?** ALL data elements are in defined fields in electronic claims	**To what extent are the data elements available in electronic health records or other electronic sources?** ☐ **High** ☐ **Moderate** ☐ **Low** ☐ **Insufficient**
3c. 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). F.4. **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.** During operational use of the measures in the QRURs, we have modified the way in which the Medicare administrative claims data are obtained. Rather than using Standard Analytic Files, the claims data are now available on CMS' IDR, where the data are readily retrievable without undue burden. The IDR contains only the final action claims developed from the Medicare National Claims History database—that is, non-rejected claims for which a payment has been made after all disputes and adjustments have been resolved and details clarified. However, we understand that there may be discrepancies, missing information, and/or errors in the claims and therefore conduct a rigorous quality assurance process to ensure that the information that we utilize is correct to the best of our	**To what extent can the data collection strategy be implemented?** ☐ **High** ☐ **Moderate** ☐ **Low** ☐ **Insufficient**

knowledge.

F.5. **Describe any fees, licensing, or other requirements to use any aspect of the measure as specified.**
Not applicable. There are no fees, licensing, or other requirements to use any aspect of the measure as specified.

F.5.a. **If there are any fees associated with the use of this measure as specified, attach the fee schedule here**

3. Overall Feasibility

3a. Byproduct of Care Processes	H	M	L	I
3b. Electronic Sources	H	M	L	I
3c. Data Collection Strategy	H	M	L	I

Based on your rating of the subcriteria, make a summary determination of the extent to which the criterion of **Feasibility** has been met. Please provide a rationale based on specific subcriteria.

Rationale:

☐ **High**
☐ **Moderate**
☐ **Low**
☐ **Insufficient**

4. Usability and Use

Extent to which potential audiences (e.g., consumers, purchasers, providers, policymakers) are using or could use performance results for both accountability and performance improvement to achieve the goal of high-quality, efficient healthcare for individuals or populations.

4a. Accountability and Transparency

Performance results are used in at least one accountability application within three years after initial endorsement and are publicly reported within six years after initial endorsement (or the data on performance results are available). If not in use at the time of initial endorsement, then a credible plan for implementation within the specified timeframes is provided.

U.1. **Current and Planned Use**

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.

Planned	Current	For Current use, Provide URL
Payment Program	Quality Improvement with Benchmarking (external benchmarking to multiple organizations)	http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeedbackProgram/
	Quality Improvement (Internal to the specific organization)	http://www.cms.gov/Medicare/Medicare-Fee-for-Service-

To what extent have performance results been used in accountability applications or a credible plan for use has been provided?

☐ **High**
☐ **Moderate**
☐ **Low**
☐ **Insufficient**

		Payment/PhysicianFeedbackProgram/

U.1.1. **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

The Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries is currently in use: (1) for quality improvement with external benchmarking and (2) for internal quality improvement. Details regarding the current use of the measure for these purposes are provided below.

PROGRAM AND SPONSOR: Centers for Medicare & Medicaid Services' Physician Value-Based Payment Modifier and Physician Feedback Reporting Program

PURPOSE: The Value-Based Payment Modifier and Physician Feedback Reporting Program addresses Section 3003 and 3007 respectively, of the 2010 Affordable Care Act, which directs the Secretary of Health and Human Services to provide confidential feedback information to physicians and groups of physicians about the cost and quality of care furnished to their Medicare FFS beneficiaries. To enhance the quality and efficiency of health care services provided to Medicare beneficiaries, since 2008, CMS has disseminated confidential feedback reports—the Quality and Resource Use Reports (QRURs)—to a select group of medical group practices that contain measures of quality and cost of care. The medical group practice–specific information in the QRURs is intended to support efforts to provide high quality care in an efficient and effective manner. Furthermore, this information is provided alongside benchmarks and is intended to stimulate medical group practices to deliver the highest quality and most efficient care with an emphasis on system-based care to their Medicare FFS beneficiaries.

GEOGRAPHIC AREA AND PERCENTAGE OF ACCOUNTABLE ENTITIES AND PATIENTS INCLUDED: In 2011, 54 group practices across the nation that participated in the Group Practice Reporting Option (GPRO) I of the Physician Quality Reporting System (PQRS) in 2011 received reports. Each of the groups comprised at least 200 eligible professionals sharing a single TIN. In fall 2013, medical group practices nationwide with at least 25 eligible professionals billing under the group's TIN will receive these confidential reports. Approximately 7,000 medical group practices will receive reports at that time.

U.1.2. **If not currently publicly reported OR used in at least one other accountability application (e.g., payment program, certification, licensing) what are the reasons?**

The Value-Based Payment Modifier program addresses Section 3007 of the 2010 Affordable Care Act, which directs the Secretary to develop and implement a budget-neutral VBM. The CY2012 Medicare Physician Fee Schedule (MPFS) Final Rule specifies that, beginning in 2015, the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries will be an input to the calculation of the VBM for those groups of physicians that elect the optional quality tiering methodology. Under this approach, the VBM will be based on the quality and cost of care medical group practices furnish to Medicare beneficiaries and will be used to adjust Medicare physician fee schedule payments. The Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries is foundational to the costs of care in the VBM under the quality tiering approach. While the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries is currently being used in the Quality and Resource Use Reports provided to medical group practices as described above, the measure is not currently used to adjust payment; however, it will be used in the VBM, which the Secretary will phase in over a three-year period, beginning in 2015.

U.1.3. **If not currently publicly reported OR used in at least one 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. As described in Section U1.2, the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries will be used under the Value-Based Payment Modifier and Physician Feedback Reporting Program, which is intended to enhance the quality and efficiency of health care services provided to Medicare beneficiaries. As finalized in the CY2012 Medicare Physician Fee Schedule (MPFS) Final Rule, the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries will serve as the foundation to the cost component of a composite measure that will be applied to the VBM under the quality tiering approach. The VBM will be phased in over a three-year period, beginning in 2015. A timeline for implementation and the intended audience of the VBM are as follows: September 2013: Confidential Physician Feedback Reports will be disseminated to medical group practices with at least 25 eligible professionals. Quality and cost information shown in these reports will be based on calendar year 2012 performance. Medical group practices will have the opportunity to preview the optional quality tiering approach to calculating the VBM in these reports. The report is for informational purposes only and will not affect payment. September 2014: Confidential Physician Feedback Reports will be disseminated to medical group practices. Quality and resource use information in these reports will be based on calendar year 2013 performance. Providers will have the opportunity to see their performance using the optional quality tiering approach before the VBM is rolled out in 2015. January 2015: The VBM will be applied to medical group practices with at least 100 eligible professionals, who elect quality tiering. The initial performance period is calendar year 2013. September 2015: Confidential Physician Feedback Reports will be disseminated to all medical group practices. Quality and resource use information in these reports will be based on performance during 2014. January 2016: CMS has not yet made proposals on how the VBM will be applied to medical group practices in 2016. The performance period is calendar year 2014. September 2016: Confidential Physician Feedback Reports will be disseminated to all medical group practices. Quality and resource use information in these reports will be based on performance during 2015. January 2017: The phase in of the VBM will be complete. All physicians paid under the Medicare physician fee schedule will be affected by the modifier.	
4b. Improvement Progress toward achieving the goal of high-quality, efficient healthcare for individuals or populations is demonstrated. If not in use for performance improvement at the time of initial endorsement, then a credible rationale describes how the performance results could be used to further the goal of high-quality, efficient healthcare for individuals or populations. U.2.1. **Provide data that demonstrate improvement in performance and/or health.** This is an initial endorsement. Data are not currently available. U.2.2. **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.** This is an initial endorsement. Data are not currently available.	**To what extent has progress toward high-quality, efficient healthcare been demonstrated or a credible rationale has been provided?** ☐ **High** ☐ **Moderate** ☐ **Low** ☐ **Insufficient**
4c. Unintended Consequences The benefits of the performance measure in facilitating progress toward achieving high-quality, efficient healthcare for individuals or populations outweigh evidence of unintended negative consequences to individuals or populations (if such evidence exists).	**To what extent do the benefits of the measure outweigh any evidence**

U.3. **Were any unintended negative consequences to individuals or populations identified during testing; OR has evidence of unintended negative consequences to individuals or populations been reported since implementation? If so, identify the negative unintended consequences and describe how benefits outweigh them or actions taken to mitigate them.** Unintended or negative consequences to individuals or populations have not been identified during testing or reported since the confidential feedback reports have been disseminated to medical group practices. CMS will continue to monitor for unintended consequences to vulnerable populations.	**of unintended negative consequences?** ☐ **High** ☐ **Moderate** ☐ **Low** ☐ **Insufficient**
4d. Measure Deconstruction Data and result detail are maintained such that the resource use measure, including the clinical and construction logic for a defined unit of measurement can be deconstructed to facilitate transparency and understanding.	**Based on your review of the specifications, to what extent can the measure be deconstructed to facilitate transparency and understanding for those being measured (e.g., clinicians, hospitals) and those using the measure results (e.g., consumers, purchasers)?** ☐ **High** ☐ **Moderate** ☐ **Low** ☐ **Insufficient**

4. Overall Usability and Use

4a. Accountability and Transparency	**H**	**M**	**L**	**I**
4b. Improvement	**H**	**M**	**L**	**I**
4c. Unintended Consequences	**H**	**M**	**L**	**I**
4d. Measure Deconstruction	**H**	**M**	**L**	**I**

Based on your rating of the subcriteria, make a summary determination of the extent to which the criterion of **Usability and Use** has been met. Please provide a rationale based on specific subcriteria.

Rationale:

☐ **High**
☐ **Moderate**
☐ **Low**
☐ **Insufficient**

5. Comparison to 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.

5a. Harmonization

The measure specifications are harmonized with related measures;

OR

The differences in specifications are justified

H.1. 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), select the NQF # and title of all related and/or competing measures.

1598 : Total Resource Use Population-based PMPM Index

H.1.1. 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

H.1.2. If the measure specifications are not completely harmonized, identify the differences, rationale, and impact on interpretability and data collection burden.

The Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries and the Total Resource Use Population-Based Per Member Per Month (PMPM) Index measure, which is intended for use in commercial health plans, have distinct target populations and important differences, despite sharing a measure focus on per capita resource use. These differences include those relating to the structure of the insurance coverage provided, population characteristics, data sources, and payment-standardization and risk adjustment methodologies. The Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries provides a better assessment of overall spending on healthcare services for Medicare FFS beneficiaries and CMS programs than the Total Resource Use Population-Based Per Member Per Month (PMPM) Index measure. The Medicare FFS program has fundamentally different enrollment, coverage, payment, and delivery structures than commercial insurance, which is the focus of the Total Resource Use Population-Based Per Member Per Month (PMPM) Index measure. Within the Medicare FFS environment, beneficiaries can receive medical services from any provider that accepts Medicare as total or partial payment for services rendered. The Medicare FFS program does not require a primary care provider of record. Moreover, Medicare FFS does not restrict beneficiaries to receive care from providers who are part of a network, which is often the case in commercial insurance plans. Unlike commercial insurers, or even Medicare Advantage, annual enrollment or contracts for health care services do not apply to care covered under Medicare FFS during a 12-month period. Furthermore, Medicare and Dual Eligible beneficiaries (who comprised about a quarter of the 2011 beneficiaries for whom CMS computed per capita costs) also have different health status, medical needs/utilization, and costs than members of commercial insurance plans. In order to have a stable population to track and compare, the beneficiaries included in the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries are limited to those who were continuously enrolled in both Parts A and B Medicare for 12 months. CMS estimates that approximately 15 percent of Medicare beneficiaries are excluded from the target population by a combination of initial exclusions and use of attribution rules that are applied to this measure to ensure that the population for whom data are collected has received primary care services. Unlike the Total Per Capita Resource Use Per Member Per Month (PMPM) Index that includes prescription drug costs, CMS does not have prescription drug data for all covered beneficiaries, so the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries cannot include those costs. Only about 60 percent of Medicare FFS beneficiaries are enrolled in the voluntary Part D prescription program, and currently CMS does not have access to private prescription data on a beneficiary claim basis. Furthermore, a significant portion of Medicare beneficiaries receive prescription coverage through employment-based benefits, and CMS does not have access to those data. Lastly, CMS is committed to maintaining and enhancing its approaches to risk adjustment using the CMS-HCC methodology, which was developed for and tested on the Medicare population, and payment standardization that can readily be applied to Medicare FFS data. Without adequate risk adjustment and payment standardization methods, making meaningful assessments and comparisons of provider resource use would not be possible, since the unadjusted resource use measure would not reflect differences in the populations that providers treat or the geographic areas where they practice. CMS' continued use of these risk adjustment and payment standardization methodologies for computing total per capita Medicare FFS costs will ensure that analyses take into account coverage and payment policies that are both distinct and important for this population.

5b. Competing Measures

The measure is superior to competing measures (e.g., is a more valid or efficient way to measure);
OR
Multiple measures are justified.

H.1. 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), select the NQF # and title of all related and/or competing measures.

1598 : Total Resource Use Population-based PMPM Index

H.1.3. 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.)

The Total Resource Use Population-Based Per Member Per Month (PMPM) Index measure (#1598) from HealthPartners is the only NQF-endorsed measure with the same measure focus (total resource use) and a non-condition specific target population as the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries. It should be noted that the HealthPartners measure focuses on a target population of patients who are younger than 65 years of age and are enrolled in commercial health plans, whereas the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries has been developed for Medicare FFS beneficiaries, of whom approximately 75 percent are age 65 or older. In 2011, a quarter of patients (whose data are cited here) were covered by both Medicare and Medicaid.

The Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries is a superior approach to computing the total per capita cost for CMS's Medicare FFS beneficiary population than the previously endorsed Total Resource Use Population-Based Per Member Per Month (PMPM) Index for the following reasons. First, HCC risk scores have been uniquely tailored, tested, and calibrated as a risk-adjustment approach specifically for Medicare FFS beneficiaries, unlike the Johns Hopkins ACG approach. For example, CMS's Program of All-Inclusive Care for the Elderly (PACE) Program, Medicare Advantage, and Medicare Shared Savings Program, among others, all use the HCC risk-adjustment method. As such, the HCC risk score is the preferred approach for risk adjustment for Medicare FFS beneficiaries. Similarly, the attribution, exclusion, and payment-standardization methods that are applied to this measure are unified across CMS initiatives, such as the Medicare Shared Savings Program, Medicare Advantage, and PACE. Thus, the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries is broadly applicable across Agency initiatives and is specifically tailored to the Medicare FFS structure and beneficiary population.

Preliminary Recommendation for Endorsement

In this section we ask for your preliminary recommendation for this measure on its overall suitability for endorsement. Based on your individual rating of each of the four major criteria, provide your initial recommendation for endorsement for this measure.

Based on your individual rating of all the criteria, does the measure meet the criteria to be suitable for endorsement?

1. Importance to Measure and Report	H	M	L	I
2a. Overall Reliability	H	M	L	I
2b. Overall Validity	H	M	L	I
2c. Disparities in Care	H	M	L	I
3. Feasibility	H	M	L	I
4. Usability and Use	H	M	L	I

Rationale:

☐ **Yes**

☐ **No**

Appendix A

Reporting Guidelines (Optional)

S.13.1. **Describe discriminating results approach** *Detail methods for discriminating differences (reporting with descriptive statistics--e.g., distribution, confidence intervals).*

The results of the measure (per capita costs) are analyzed through descriptive statistics (for example, minimum, maximum, percentiles, and means). The QRURs, in which the measure is currently reported, give providers the opportunity to compare their total per capita costs with the total per capita costs of their peers.

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.*

DESCRIPTION OF ATTRIBUTION APPROACH

Beneficiaries are attributed to medical group practices that provided the plurality of primary care services (PCS). Only beneficiaries that received PCS from at least one physician during the measurement period are eligible for assignment. PCS are defined based on the following Healthcare Common Procedure Coding System (HCPCS)/Current Procedural Terminology (CPT) codes (Source: RTI International and American Medical Association, 2010 Current Procedural Terminology: Professional Edition):

99201–99205 Office or other outpatient visits for the evaluation and management of a new patient
99211–99215 Office or other outpatient visit for the evaluation and management of an established patient
99304–99306 Initial nursing facility care, per day, for the evaluation and management of a patient
99307–99310 Subsequent nursing facility care, per day, for the evaluation and management of a patient
99315–99316, 99318 Nursing facility discharge day management
99318 Evaluation and management of a patient involving an annual nursing facility assessment
99324–99328 Domiciliary or rest home visit for the evaluation and management of a new patient
99334–99337 Domiciliary or rest home visit for the evaluation and management of an established patient
99339–99340 Individual physician supervision of a patient (patient not present) in home, domiciliary, or rest home
99341–99345 Home visit for the evaluation and management of a new patient
99347–99350 Home visit for the evaluation and management of an established patient
G0402 Initial Medicare visit
G0438 Annual wellness visit, initial
G0438 Annual wellness visit, subsequent

The attribution method is a two-step process, where in the first step beneficiaries are assigned to medical group practices based on PCS provided by primary care physicians (PCPs)—defined as physicians practicing internal medicine, family practice, general practice, or geriatric medicine. A beneficiary is attributed to a medical group practice if the PCPs in the medical group practice accounted for a larger amount of total Medicare allowable charges for PCS than PCPs in any other group or solo practice. In the second step, beneficiaries who are unassigned to a group and had at least one PCS from a physician, regardless of specialty, are assigned to a medical group practice if the professionals in the group accounted for a larger amount of total Medicare allowable charges for PCS than professionals in any other group or solo practice. This step recognizes that some beneficiaries may receive PCS from non-PCPs (i.e., specialist physicians, nurse practitioners, physician assistants, and clinical nurse specialists).

Two-digit CMS specialty codes that appear in Medicare carrier claims files are used to define specialties. For some medical professionals, different CMS specialty codes are included on different claims—for example, general practitioner versus endocrinologist. A medical professional's specialty is determined from carrier claims from the performance year and based on the specialty code listed most frequently on line items for services rendered by the professional. There is one exception to this rule: if a medical professional is associated in Medicare claims with multiple specialties and the most commonly listed code is 99 (the Unknown Physician specialty), then the professional is assigned the second-most-frequently listed specialty.

A table of CMS specialty codes is available in the attachment titled S_7_2_Construction_Logic. It should also be noted that CMS requires that each eligible professional designate one clinical specialty when they enroll as a Medicare provider. Clinicians are expected to update these and other data that are part of Medicare's online Provider Enrollment, Chain and Ownership System (PECOS) at https://pecos.cms.hhs.gov/pecos/login.do.

RATIONALE FOR ATTRIBUTION APPROACH

The proposed attribution method places an emphasis on PCS provided by PCPs through the first step attribution rule, while also acknowledging the role that physicians of other specialties and other eligible professionals have in providing PCS through the second

step of the method. This attribution method is devised to promote more coordinated care for all services provided to Medicare FFS beneficiaries. The attribution method for the proposed measure of per capita cost is closely aligned with the beneficiary assignment methods used for the Medicare Shared Savings Program, the Physician Quality Reporting System, the Quality and Resource Use Reports, and the Physician Value Based Modifier. Applying consistent assignment methods across these programs would allow us to streamline our processes and potentially reduce confusion among group practices considering participation in these different programs. In addition, large physician group practices providing the plurality of PCS should be responsible for coordinating the care of the beneficiaries; therefore, the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries is appropriate for these groups. We note that single specialty groups that do not provide primary care services (e.g., anesthesiologists would not be attributed beneficiaries under this rule). Thus this measure would not be used for such single specialty groups.

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.*
A medical practice group's peer group consists of all other medical practice groups nationwide.

S.13.4. **Sample size** ***Detail the sample size requirements for reporting measure results.***
Only those medical group practices with at least 20 attributed beneficiaries receive the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries. This sample size was tested to ensure that the measure is statistically reliable, while providing measure results for a maximum number of medical group practices.

Eligible professionals are defined in more detail in the attachment titled S_7_2_Construction_Logic.

S.13.5. **Define benchmarking and comparative estimates** *Detail steps to produce benchmarking and comparative estimates and provide rationale for this methodology.*
A medical practice group's total per capita costs are compared with the average total per capita cost of all medical group practices. To compute the benchmark, each group's performance is weighted by the number of attributed beneficiaries, giving less weight in this benchmark to those with fewer attributed beneficiaries. This acknowledges that the total per capita cost of groups with fewer attributed beneficiaries may not be as reliable as those with a greater number of attributed beneficiaries. Simple differences are then calculated to compare a practice's and its peers' total per capita costs. This is intended to stimulate medical group practices to deliver the highest quality care, efficiently and effectively.

Detailed steps for the computation of the benchmarks are as follows:

STEP 1. COMPUTE THE BENCHMARK MEAN.

- Compute the numerator of the benchmark by first multiplying the total per capita cost of each medical group practice by the number of its attributed beneficiaries. The sum of these yields the numerator.
- Compute the denominator of the benchmark by summing the number of attributed beneficiaries across all medical practice groups.
- Compute the benchmark by dividing the numerator by the denominator.

STEP 2. COMPUTE THE SIMPLE DIFFERENCE.

The difference between a practice's and the benchmark total per capita cost is computed by subtracting the benchmark total per capita cost from the practice's total per capita cost.

- A simple difference greater than zero indicates that the medical group practice's total per capita costs are higher than the average total per capita costs of all groups.
- A simple difference less than zero indicates that the medical group practice's total per capita costs are lower than the average total per capita costs of all groups.
- A simple difference equal to zero indicates that the medical group practice's total per capita costs are equal to the average total per capita costs of all groups.

Appendix B

Citations

IM.1.2. Citations for Evidence of High Impact cited in IM.1.1.

Agency for Healthcare Research & Quality. "Improving Health Care Quality." AHRQ Pub. No. 02-P032. Rockville, MD: Agency for Healthcare Research & Quality. September 2002. Available at [http://www.ahrq.gov/news/qualfact.pdf]. Accessed January 3, 2013.

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McGlynn, Elizabeth A. "Identifying, Categorizing, and Evaluating Health Care Efficiency Measures: Final Report." AHRQ Publication No. 08-0030. Rockville, MD: Agency for Healthcare Research & Quality. April 2008. Available at [http://www.ahrq.gov/qual/efficiency/efficiency.pdf]. Accessed January 3, 2013.

Quality Alliance Steering Committee. "Measuring Costs of Care: A Promising Strategy for Episode-Based Measurement." Washington, DC: Robert Wood Johnson Foundation and Engelberg Center for Health Care Reform at the Brookings Institution, August 2010. Available at [http://www.healthqualityalliance.org/userfiles/COC%20draft%20080410.pdf]. Accessed January 3, 2013.

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IM.2.3. Citations for Data on Performance Gap

Fisher, Elliot, David Goodman, Jonathan Skinner, and Kristen Bronner. "Health Care Spending, Quality, and Outcomes: More Isn't Always Better." Hanover, NH: Dartmouth Institute for Health Policy and Clinical Practice, February 2009. Available at [http://www.dartmouthatlas.org/downloads/reports/Spending_Brief_022709.pdf]. Accessed January 3, 2013.

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IM.2.5. **Citations for Data on Disparities cited in IM.2.4**

Jacobson, Gretchen, Tricia Neuman, and Anthony Damico. "Medicare's Role for Dual Eligible Beneficiaries." Menlo Park, CA: Henry J. Kaiser Family Foundation, 2012. Available at [http://www.kff.org/medicare/upload/8138-02.pdf]. Accessed January 7, 2013.
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Contact Information

Co.1 **Measure Steward (Intellectual Property Owner):**
Centers for Medicare & Medicaid Services

Co.2 **Point of Contact:**
Sheila | Roman | sheila.roman@cms.hhs.gov | 410-786-6004

Co.3 **Measure Developer if different from Measure Steward:**
Centers for Medicare & Medicaid Services

Co.4 **Point of Contact:**
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Additional Information

Workgroup/Expert Panel involved in measure development
Ad.1 **Provide a list of sponsoring organizations and workgroup/panel members' names and organizations. Describe the members' role in measure development.**

Measure Developer/Steward Updates and Ongoing Maintenance
Ad.3 **Year the measure was first released:** 1998
Ad.4 **Month and Year of most recent revision:** 12/2012
Ad.5 **What is your frequency for review/update of this measure?** Annual
Ad.6 **When is the next scheduled review/update for this measure?** 09/2013

Ad.7 **Copyright statement:**
Ad.8 **Disclaimers:**
Ad.9 **Additional Information/Comments:**

Measure Testing to Demonstrate Scientific Acceptability of Measure Properties

Measure Title: Payment-Standardized Total Per Capita Cost Measure for Medicare Fee-for-Service (FFS) Beneficiaries

Date of Submission: 3/8/2013

Type of Measure:

☐ Composite	☐Outcome
X Cost/resource	☐Process
☐Efficiency	☐Structure

This Word document template must be used to submit information for measure testing.

- **For all measures, sections 1, 2a2, 2b2, 2b3, 2b5 must be completed**
- **For outcome or resource use measures**, section **2b4** also must be completed
- If specified for **multiple data sources** (e.g., claims and medical records), section **2b6** also must be completed
- Respond to all questions with answers immediately following the question (*unless meet the skip criteria or those that are indicated as optional*).
- Maximum of 10 pages (*incuding questions/instructions; do not change margins or font size; contact project staff if need more pages*)
- All information on testing to demonstrate meeting the criteria for scientific acceptability of measure properties (2a,2b) must be in this form. An appendix for *supplemental* materials may be submitted, but there is no guarantee it will be reviewed.

1. DATA/SAMPLE USED FOR ALL TESTING OF THIS MEASURE

Often the same data are used for all aspects of measure testing. In an effort to eliminate duplication, the first five questions apply to all measure testing. If there are differences by aspect of testing,(e.g., reliability vs. validity) be sure to indicate the specific differences in question 7.

1.1. What type of data was used for testing? (*Check all the sources of data identified in the measure specifications and data used for testing the measure. Testing must be provided for all the types of data specified and intended for measure implementation*)

Measure Specified to Use Data From:	Measure Tested with Data From:
☐abstracted from paper record	☐abstracted from paper record
X administrative claims	X administrative claims
☐clinical database/registry	☐clinical database/registry
☐abstracted from electronic health record	☐abstracted from electronic health record
☐eMeasure implemented in electronic health record	☐eMeasure implemented in electronic health record
☐other: Click here to describe	☐other: Click here to describe

1.2. If used an existing dataset, identify the specific dataset *(the dataset used for testing must be consistent with the measure specifications for target population and healthcare entities being measured; e.g., Medicare Part A claims, Medicaid claims, other commercial insurance, nursing home MDS, home health OASIS, clinical registry).*

Testing of the measure is based on Medicare Parts A and B administrative claims and enrollment data for the measurement year, and CMS' Hierarchal Condition Category (HCC) risk scores (used in risk adjustment). This is consistent with the measure specifications for the target population and healthcare entities being measured.

1.3. What are the dates of the data used in testing? January 1, 2011 to December 31, 2011

1.4. What levels of analysis were tested? (*testing must be provided for all the levels specified and intended for measure implementation, e.g., individual clinician, hospital, health plan*)
☐ **individual clinician** **X group/practice** ☐ **hospital/facility/agency** ☐ **health plan**
☐ **other**: Click here to describe

1.5. How many and which measured entities were included in the testing and analysis (by level of analysis and data source)? (*identify the number and descriptive characteristics of measured entities included in the analysis (e.g., size, location, type); if a sample was used, describe how entities were selected for inclusion in the sample*)

The primary data used in this analysis include medical group practices, identified by Taxpayer Identification Number (TIN), that satisfied the following criteria in 2011: (1) at least 25 eligible professionals (EPs) billed Medicare under the group's TIN; (2) at least 20 beneficiaries were attributed to the medical group practice; and (3) the medical group practice was located in California, Illinois, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, or Wisconsin. Medical group practices in these nine states received Individual Physician Quality and Resource Use Reports (QRURs) in December, 2012. In fall 2013, QRURs will be disseminated to all medical group practices nationwide with at least 25 EPs. (More information on the attribution rule can be found in Adjustments of Comparability Section S.13.2., Detail Attribution Approach.)

There were 1,450 medical group practices in the nine states in total, regardless of whether or not they had at least 20 attributed beneficiaries. Of those, 881 (61 percent) had at least 20 beneficiaries attributed to the group, and, of these, 802 medical group practices (91 percent) had at least 25 EPs as well as at least 20 attributed beneficiaries. Among these 802 groups, 44 percent (353 groups) had 25 to 50 EPs, 25 percent (202 groups) had 51 to 100 EPs, 17 percent (136 groups) had 101 to 200 EPs, and 14 percent (111 groups) had more than 200 EPs. The number of groups with and without at least 20 attributed beneficiaries, by the number of EPs, is available in Exhibit I.1 in Section I.A of the supplementary materials.

Among the medical group practices with at least 25 EPs and 20 attributed beneficiaries, approximately 22 percent of groups were located in California. Illinois and Michigan had the second- and third-highest number of groups among the nine states with 20 and 16 percent of groups located in the two states, respectively. Minnesota, Missouri, and Wisconsin each had between 9 and 10 percent. Finally, Iowa, Kansas, and Nebraska had the fewest number of groups within each state with 5, 4, and 3 percent, respectively.

For medical group practices with at least 25 EPs and 20 attributed beneficiaries, the average number of EPs in a group was 145 (median = 59; coefficient of variation[1] = 2.4) and the average number of beneficiaries attributed to the group was 3,267 (median = 1,189; coefficient of variation = 1.6). The average number of EPs in a medical group practice was highest in California, with an average of 202 EPs per medical group practice. Minnesota, Wisconsin, and Michigan had the second-, third-, and fourth-highest number of EPs per group with 197, 197, and 118, respectively. The remaining five states had an average ranging from 88 to 111 EPs. The average number of beneficiaries attributed to a group practice was highest in Wisconsin, with 5,501 beneficiaries attributed to a group. Iowa, Missouri, and Kansas had the second-, third-, and fourth-highest number of attributed beneficiaries with 4,553, 3,702, and 3,349 attributed beneficiaries on average, respectively. All other states had fewer than 3,079 attributed beneficiaries. California had the lowest number of attributed beneficiaries, at 2,621.

EPs were associated with medical specialties based on the plurality of the two-digit CMS specialty codes on all 2011 professional claims for which the physician was listed as the "performing provider." Primary care physicians—comprising physicians practicing Internal Medicine, Family Practice, General Practice, or Geriatric Medicine—represented 33 percent of all EPs practicing in the nine states, followed by Medical Specialists at 20 percent and Surgeons at 16 percent. Other (Non-Physician) Medical Professionals[2] made up 16 percent of the sample, Other Physicians 9 percent, and Emergency Medicine Physicians 5 percent.

1.6. How many and which <u>patients</u> were included in the testing and analysis (by level of analysis and data source)? (*identify the number and descriptive characteristics of patients included in the analysis (e.g., age, sex, race, diagnosis); if a sample was used, describe how patients were selected for inclusion in the sample*)

Medicare fee-for-service (FFS) beneficiaries were attributed to medical group practices based on the attribution methodology described in the Adjustments of Comparability Section S.13.2 (Detail Attribution Approach). There were 2,619,746 beneficiaries attributed to medical group practices with at least 25 EPs and at least 20 attributed beneficiaries across the nine states. By states, the greatest number of beneficiaries was attributed to groups in Illinois (488,854) and California (469,091) and the fewest number of beneficiaries was attributed to Nebraska (70,194). Approximately three-quarters (75.2 percent) of beneficiaries are 65 years old or older and approximately 23 percent are 80 years old or older. About 56 percent of beneficiaries are female and the racial/ethnic composition of the sample is as follows: 84 percent white, 9 percent black, 3 percent Hispanic, 2 percent Asian, and 2 percent other races/ethnicities. About one-quarter (26 percent) of the sample is dually eligible, meaning that the beneficiary was dually eligible for Medicaid due to disability, low income, or some combination of factors. Lastly, the average HCC score is approximately 1.1, with an inter-quartile range of 0.21 (0.93 at the 25th percentile and 1.14 at the 75th percentile). A comparison of patient descriptive characteristics, by the size of the medical group practices, is available in Exhibit I.2 in Section 1.B of the Supplementary Materials.

[1] The coefficient of variation is equal to the standard deviation divided by the mean and provides a standardized measure of variation.

[2] A list of non-physician specialties can be found in the attachment S13_Specialty_Code.

1.7. If there are differences in the data or sample used for different aspects of testing (e.g., reliability, validity, exclusions, risk adjustment), identify how the data or sample are different for each aspect of testing reported below.
Not applicable. The same data and sample were used for all testing below.

_____

2a2. RELIABILITY TESTING
Note*: If accuracy/correctness (validity) of data elements was empirically tested, separate reliability testing of data elements is not required – report validity of data elements in 2b2*

2a2.1. What level of reliability testing was conducted? (*may be one or both levels*)
☐ **Critical data elements used in the measure** (*e.g., inter-abstractor reliability*)
X **Performance measure score** (e.g., *signal-to-noise*)

2a2.2. For each level checked above, describe the method of reliability testing and what it tests (*describe the steps—do not just name a method; what type of error does it test; what statistical analysis was used*)

To assess reliability of the Payment-Standardized Total Per Capita Cost Measure for Medicare Fee-for-Service (FFS) Beneficiaries, we measured the extent of variation in the measure due to actual differences in the performance of medical group practices versus variation that arose from measurement error. Statistically, reliability depends on performance variation for a measure across medical group practices ("signal"), the random variation in performance for a measure within a group's panel of attributed beneficiaries ("noise"), and the number of beneficiaries attributed to the group. High reliability for a measure suggests that comparisons of relative performance across groups are likely to be stable over different performance periods and that the performance of one group on the measure can be confidently distinguished from another. For each medical group practice, reliability was estimated as a ratio of variation between groups and the total variation (between groups and variation from measurement error):

$$\text{Reliability} = \frac{\text{Variation Between Groups}}{\text{Variation Between Groups} + \text{Variation from Measurement Error}}$$

Potential reliability values range from 0.00 to 1.00, where 1.00 (highest possible reliability) signifies that all variation in the measure's rates is the result of variation in differences in performance across groups, whereas 0.0 (lowest possible reliability) signifies that all variation is a result of measurement error. Although there is no universally agreed-upon minimum reliability threshold above which performance can be deemed reliable, reliabilities in the 0.50–0.70 range are often considered moderate and values greater than 0.70 high.

A detailed description of how the reliability was computed is available in Section II.A of the supplementary materials.

2a2.3. For each level checked above, what were the statistical results from reliability testing? *(e.g., percent agreement and kappa for the critical data elements; distribution of reliability statistics from a signal-to-noise analysis and association with case volume)*

For medical group practices with at least 25 EPs and 20 attributed beneficiaries, we found that the average reliability was 0.95, that 99 percent of groups (797 of 802) had a reliability exceeding 0.50, and 96 percent of groups (769 of 802) had a reliability exceeding 0.70—a common threshold for high

reliability. Reliability increased with the size of the medical group practice. For example, the average reliability for groups with more than 200 EPs was 0.99 and exceeded 0.70 for all 111 groups of this size.

All groups in the three highest quartiles for number of attributed beneficiaries had reliabilities exceeding 0.70. For these groups, which had more than 249 attributed beneficiaries, average reliabilities ranged from 0.97 to 1.00. For groups with 249 or fewer attributed beneficiaries, the average reliability was 0.83. About 98 percent (196 of 201) had reliabilities exceeding 0.50, and 84 percent (168 of 201) had reliabilities exceeding 0.70. Like group size, the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries is more reliable among practices with more attributed beneficiaries. The threshold of at least 20 attributed beneficiaries allows for high reliabilities across the majority of groups while allowing more groups to receive resource use information in their confidential feedback reports (QRURs).

Exhibits II.1 and II.2 in Section II.B of the supplementary materials show the breakdown of reliabilities by group size and by the number of attributed beneficiaries.

2a2.4. What is your interpretation of the results in terms of demonstrating reliability? *(i.e., what do the results mean and what are the norms for the test conducted?)*

Our findings show that the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries is a reliable measure of total resource use for medical group practices. The results show that for groups with at least 20 attributed beneficiaries, measure reliability exceeds 0.70 for 96 percent of groups.

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2b2. VALIDITY TESTING

2b2.1. What level of validity testing was conducted? (*may be one or both levels*)

☐ **Critical data elements**

X Performance measure score

X Empirical validity testing

☐ **Systematic assessment of face validity of performance measure score as an indicator** of quality or resource use. *(i.e., is an accurate reflection of performance quality or resource use and can distinguish performance)*

2b2.2. For each level checked above, describe the method of validity testing and what it tests. *(describe the steps—do not just name a method; what was tested, e.g., accuracy of data elements compared to authoritative source, relationship to another measure as expected; what statistical analysis was used)*

Construct validity was tested in three ways. First, the non-price-standardized and non-risk-adjusted total per capita costs were compared to the risk-adjusted per capita cost measure using Pearson correlations at the group practice level. Then, standard utilization statistics were compared with the total per capita cost measure using Pearson correlations at the group practice level. The standard utilization statistics examined included counts of the following: professional evaluation and management services, procedures, hospital services, emergency services, ancillary services, post-acute services, and all other services. Lastly, for a subset of medical group practices, namely those that practiced in Iowa, Kansas, Missouri, or Indiana, we examined whether their standard utilization statistics in 2010 correlated with the total per capita cost measure in 2011.

The non-price-standardized and non-risk-adjusted measures and the utilization statistics were utilized as proxies to evaluate how well the Payment-Standardized Total Per Capita Cost Measure for

Medicare Beneficiaries measures the overall performance of medical group practices. The underlying assumption behind the first correlation is that the correlation between the unadjusted (non-payment-standardized and non-risk-adjusted) costs and the risk-adjusted costs should be highly correlated. For correlations between the utilization measures and total per capita cost, the anticipated strength of the correlation is anticipated to depend on the costliness of the service being counted. For example, expensive services such as inpatient hospital services and post-acute care services (such as services in a skilled nursing facility) should have a strong positive correlation with the measure.

The Pearson correlation coefficient could theoretically range from –1.00 to 1.00 and indicates the strength of a linear relationship between two variables. The closer the value is to positive or negative 1, the stronger the relationship between the two variables. A positive correlation indicates that the values of the two variables are moving together in the same direction, whereas a negative correlation indicates movement in opposite directions.

In Section III.B of the Supplemental Materials we describe some findings from face validity tests that were conducted during the development phase of the measure.

2b2.3. What were the statistical results from validity testing? *(e.g., correlation; t-test, ANOVA)*

The non payment-standardized and non risk-adjusted total per capita costs were positive and highly correlated with a correlation of 0.852 ($p < 0.0001$). The total per capita cost measure and the utilization statistics were positive and highly correlated. All correlations were greater than 0.790. Lastly, the total per capita cost measure and the utilization statistics in 2010 were also positive and highly correlated. All correlations were greater than 0.900 except for the number of evaluation and management services (corr=0.643, $p < 0.0001$) and the number of procedures (corr=0.267, $p < 0.0001$).

Exhibit III.1 in Section III.A of the supplementary materials shows the correlation of total per capita cost with the utilization statistics in more detail.

2b2.4. What is your interpretation of the results in terms of demonstrating validity? *(i.e., what do the results mean and what are the norms for the test conducted?)*

This indicates that the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries accurately identifies the performance of medical group practices. The high correlation for higher cost services, such as inpatient and post-acute care services, indicates that the measure accurately captures the resources that are used by medical group practices.

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2b3. EXCLUSIONS ANALYSIS

NA ☐ no exclusions — *skip to #2b5*

2b3.1. Describe the method of testing exclusions and what it tests. *(describe the steps—do not just name a method; what was tested, e.g., whether exclusions affect overall performance scores; what statistical analysis was used*)

Excluded demographic characteristics of beneficiaries were compared with those included in the computation of the total per capita cost measure. T-tests were performed to examine whether there were statistically significant differences in beneficiary demographics. The demographic characteristics

that we examined were age, sex, race/ethnicity, dual eligibility status for Medicare and Medicaid, and the distribution of HCC risk scores.[3]

2b3.2. What were the statistical results from testing exclusions? *(include overall number and percentage of individuals excluded, frequency distribution of exclusions across measured entities, and impact on performance measure scores)*

There were 3,027,955 beneficiaries attributed to medical group practices with at least 25 EPs and 20 attributed beneficiaries across the nine states. Based on the following exclusion restrictions, 408,209 beneficiaries were excluded from the analysis:

- Newly enrolled or disenrolled in Medicare FFS Part A or Part B coverage[4]
- Enrolled in Medicare Advantage for any part of the year
- Those residing outside the United States

Following exclusions, 2,619,746 beneficiaries were included in our analysis. Compared to the original sample of beneficiaries, we observed no statistically significant differences in beneficiary characteristics after the exclusions were applied. A table comparing beneficiary-level characteristics of the original sample of beneficiaries to those who were included in the analysis is available in Exhibit IV.1 in Section IV of the supplementary materials.

2b3.3. What is your interpretation of the results in terms of demonstrating that exclusions are needed to prevent unfair distortion of performance results? *(i.e., the value outweighs the burden of increased data collection and analysis. Note: **If patient preference is an exclusion**, the measure must be specified so that the effect on the performance score is transparent, e.g., scores with and without exclusion*)

The statistically insignificant difference in the demographic characteristics of those beneficiaries included in the target population and those from the original sample indicates that our exclusions do not distort the performance of our results.

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2b5. IDENTIFICATION OF STATISTICALLY SIGNIFICANT & MEANINGFUL DIFFERENCES IN PERFORMANCE

2b5.1. Describe the method for determining if statistically significant and clinically/practically meaningful differences in performance measure scores among the measured entities can be identified. *(describe the steps—do not just name a method; what statistical analysis was used)*

To address statistical significance of the quality and per capita cost measures, we examined whether a group's performance rate differed significantly from the average rate across all groups. We conducted a two-sided test of the null hypothesis that the group's performance did not differ from the mean performance of all groups with at least one measure-eligible case. We estimated the percentage

[3] These characteristics were selected to compare included and excluded beneficiaries based on aspects of vulnerability (e.g., high risk scores, dual eligibility) among the Medicare population.

[4] Although death during the measurement year is not an explicit exclusion criterion, Part A or Part B beneficiaries who died during the measurement year would no longer be enrolled in Medicare and are therefore a subset of those excluded due to disenrollment in Medicare Parts A or B.

of groups that were statistically significantly different from the mean at the five percent significance level.

A detailed description of how the reliability was computed is available in Section V.A of the supplementary materials.

2b5.2. What were the statistical results from testing the ability to identify differences in performance measure scores across measured entities? *(at a minimum, the distribution of performance measure scores for the measured entities by decile/quartile, mean, std dev; preferably also number and percentage statistically different from mean or some benchmark, different form expected, etc.)*

For groups with at least 25 EPs and 20 attributed beneficiaries, the average payment-standardized, risk-adjusted per capita cost was $10,602. The interquartile range was $2,346 ($8,819 at the 25th percentile and $11,165 at the 75th percentile). The average per capita cost decreased as group size increased from $11,075 for group practices with 25 to 50 EPs to $9,862 for group practices with more than 200 EPs.

Exhibit V.1 in Section V.B of the supplementary materials shows the distribution of the per capita cost by group size and by state.

Across the 802 medical group practices with at least 25 EPs and 20 attributed beneficiaries, 65 percent (523 of 802) reported payment-standardized, risk-adjusted total per capita costs that were either statistically significantly greater or less than the mean payment-standardized, risk-adjusted total per capita cost at the 5 percent significance level. Slightly less than one-fifth (19 percent, (155 of 802) had costs that were statistically greater (more expensive) than the mean, and 46 percent (368 of 802) had costs that were statistically less than (less expensive) than the mean. Groups with more than 200 EPs were more likely than smaller groups to have total per capita costs that were statistically significantly different (either greater or less) than the mean.

The average payment-standardized, risk-adjusted per capita costs were $16,151 for groups that were statistically significantly greater than the mean, $10,218 for groups statistically no different from the mean, and $8,555 for groups that were significantly lower than that mean. The interquartile range was $6,094 for groups that were significantly greater than the mean; $1,670 for groups that were significantly lower than the mean; and $1,179 for groups statistically no different from the mean.

2b5.3. What is your interpretation of the results in terms of demonstrating the ability to identify statistically significant and clinically/practically meaningful differences in performance across measured entities? *(i.e., what do the results mean and what are the norms for the test conducted?*)

The substantial variation in the payment-standardized total per capita costs and the substantial number of medical group practices that can be identified as being statistically lower or higher than the peer group mean indicate that the total per capita cost measure is able to meaningfully differentiate group performance.

_____

If not an intermediate or health outcome or resource use measure, this section can be deleted.

2b4. RISK ADJUSTMENT/STRATIFICATION FOR OUTCOME OR RESOURCE USE MEASURES

2b4.1. What method of controlling for differences in case mix is used?

X Statistical risk model with 6 risk factors

☐ **Stratification by** Click here to enter number of categories **risk categories**

☐ **No risk adjustment or stratification**

☐ **Other,** Click here to enter description

2b4.2. If an outcome or resource use measure is not risk adjusted or stratified, provide rationale and analyses to demonstrate that controlling for differences in patient characteristics (case mix) is not needed to achieve fair comparisons across measured entities.

Not applicable. Our model is risk-adjusted to control for patient risk factors.

2b4.3. Describe the conceptual/clinical and statistical methods and criteria used to select factors used in the statistical risk model or for stratification by risk. *(e.g., potential factors identified in literature and/or expert panel; regression analysis; statistical significance of p<0.10; correlation of x or higher)*

The risk adjustment of the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries utilizes the CMS-HCC risk score derived from the CMS-HCC risk-adjustment model that Medicare uses to adjust payments to Medicare Advantage plans. Each risk score summarizes a Medicare beneficiary's expected costs of care relative to other beneficiaries into one score based on a beneficiary's demographic characteristics and medical history. The CMS-HCC risk-adjustment methodology has undergone an extensive review process to ensure its suitability for the Medicare FFS population and to select reliable input diagnoses that are specifically relevant for the system and for the Medicare FFS population. This credibility of the risk-adjustment approach, along with the transparency of the approach and the desire to harmonize it with other CMS initiatives, led to the selection of this risk-adjustment approach.

During development of the risk-adjusted, payment-standardized total per capita cost measure, we tested several different options for severity adjustment including, individual HCCs and risk scores, CMS' Complication or Comorbidity (CC) or Major Complication or Comorbidity (MCC) lists in the Medicare Severity Diagnosis Related Groups (MS-DRG) grouper, individual MS-DRGs and a combination of CCs, MCCs, and HCCs. All options were tested in combination with age- and sex-interacted dummy variables, with dual Medicare and Medicaid enrollment status, and local market characteristics. The models were compared using goodness of fit as measured by R-squared and coefficient estimates using split-half testing, in which the sample was split into two randomly selected halves and the correlations in cost rankings examined.

2b4.4. What were the statistical results of the analyses used to select risk factors?

The HCC model fit the data better than the CC/MCC model. Addition of CCs and MCCs to the model did little to improve the fit of the model of HCC scores alone, increasing the R-squared by 0.002 points. Addition of MS-DRGs also did little to improve the fit, increasing the R-squared by a factor of 0.017 points. Two models, one that contained only the HCC score and its square and another that contained both HCC scores and MS-DRGs were selected for split-half testing. We found that the correlation was slightly worse in the second model. The addition of CCs and MCCs or MS-DRGs did little to improve the model fit.

The R-squared of the model was 0.20 and all coefficients included in the regression model were statistically significant at the 1 percent significance level. The effect of the risk-adjustment methodology was also examined. Groups with the lowest 20 percent of all costs were adjusted upward by an average of 17 percent and the highest 20 percent of all costs were adjusted downward by an average of 24 percent. The middle 60 percent of groups, on average, had per capita costs adjusted upward by about 1 percent.

2b4.5. Describe the method of testing/analysis used to develop and validate the adequacy of the statistical model or stratification approach. *(describe the steps—do not just name a method; what statistical analysis was used)*

During the development phase of the model, a logarithmic model was considered in addition to the linear regression model. A linear model was selected based on lack of improvement in model fit from a logarithmic model and due to the potential difficulty it might pose in interpretation by the public.

Provide the statistical results from testing the approach to controlling for differences in patient characteristics (case mix) below.
if stratified, skip to 2b4.9

2b4.6. Statistical Risk Model Discrimination Statistics

Discrimination of the measure is described by the R-squared of the model, because this is a multivariate linear regression model. R-squared results are described in Section 2b4.4.

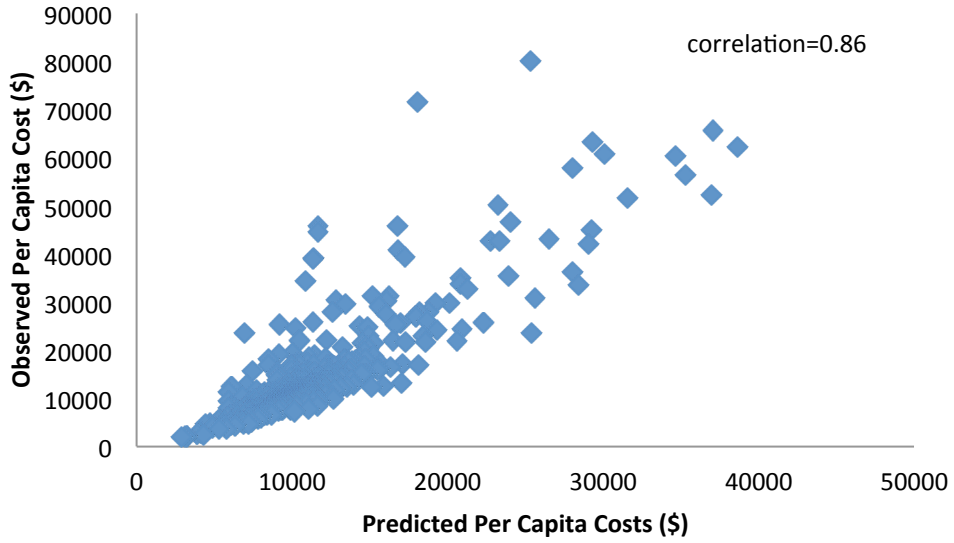
2b4.7. Statistical Risk Model Calibration Statistics

To examine the fit of the risk adjustment model to the data set, we examined the Pearson's correlation between the unadjusted total per capita cost (observed costs) and the risk-adjusted total per capita cost (expected costs).

2b4.8. Statistical Risk Model Calibration – Risk decile plots or calibration curves:

Exhibit 1 shows a scatter plot of the payment standardized non risk-adjusted (observed) per capita costs and risk-adjusted (predicted) per capita costs. There is a strong positive correlation of 0.86 ($p < 0.001$) between the two variables, indicating that the model accurately fits our data.

Exhibit 1. Scatterplot of Payment Standardized Non Risk-Adjusted (Observed) Per Capita Costs and Risk-Adjusted (Predicted) Per Capita Costs



Source: Medicare fee-for-service (FFS) claims data, January to December 2011.

Note: The total number of medical group practices (N = 802) includes only those groups with at least 25 EPs and at least 20 attributed beneficiaries practicing in California, Illinois, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, or Wisconsin in 2011. Groups are identified by their taxpayer identification numbers (TINs). The diagonal line represents the fitted line.

2b4.9. Results of Risk Stratification Analysis

Not applicable. Our model is not stratified.

2b4.10. What is your interpretation of the results in terms of demonstrating adequacy of controlling for differences in patient characteristics (case mix)? *(i.e., what do the results mean and what are the norms for the test conducted)*

The statistical significance of the coefficients included in the regression model, the explanatory power of these coefficients included in the model as indicated by the R-squared value, and the face validity of the risk adjustment approach demonstrate that the CMS-HCC risk score adequately controls for patient risk factors.

***2b4.11. Optional Additional Testing** *(not required, but would provide additional support of adequacy of risk model, e.g., testing of risk model in another data set; sensitivity analysis for missing data; other methods)*

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SUPPLEMENTAL MATERIALS

PAYMENT-STANDARDIZED TOTAL PER CAPITA COST MEASURE FOR MEDICARE FEE-FOR-SERVICE BENEFICIARIES

Submitted by:

The Centers for Medicare & Medicaid Services

January 31, 2013

Revised March 8, 2013

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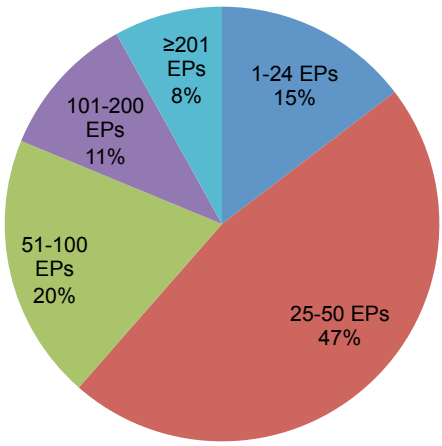
I. DESCRIPTION OF SAMPLE USED FOR TESTING

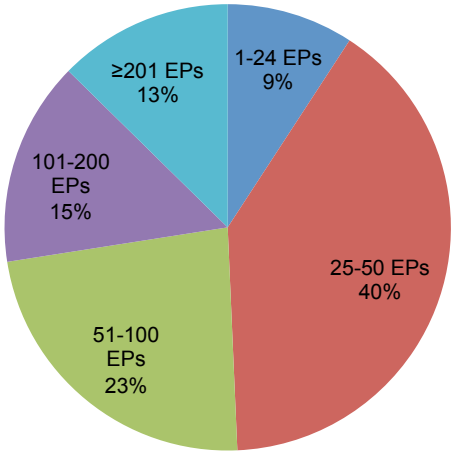
A. Measured Entities Included in Testing and Analysis

- **Among all groups, 85 percent (1,238 of 1,450) had at least 25 eligible professionals (EPs) (Exhibit I.1).** Almost half (47 percent) of all groups had 25 to 50 EPs, 20 percent had 51 to 100 EPs, 11 percent had 101 to 200 EPs, and 8 percent had 201 or more EPs.
- **881 of the 1,450 groups (61 percent) had at least 20 attributed beneficiaries.**[5] Groups without attributed beneficiaries were more likely to be the smallest groups (25 to 50 EPs) than to be groups with more than 50 EPs.
- **Among groups with at least 20 attributed beneficiaries,** 91 percent (802 of 881) overall had at least 25 EPs; 40 percent of all groups had 25 to 50 EPs, 23 percent had 51 to 100 EPs, 15 percent had 101 to 200 EPs, and 13 percent had 201 or more EPs. The proportion of groups within group size categories that had at least 20 attributed beneficiaries increased as group size increased.
    - Within group size categories, 52 percent of groups with 25 to 50 EPs, 70 percent of groups with 51 to 100 EPs, 88 percent of groups with 101 to 200 EPs, and 95 percent of groups with 201 or more EPs had at least 20 attributed beneficiaries and were ultimately included in the analysis.

Exhibit I.1. Number of Groups in the Nine States, by Medical Group Practice Size



With and Without Attributed Beneficiraries (N = 1,450)



With at Least 20 Attributed Beneficiaries (N = 881)

Source: Medicare fee-for-service (FFS) claims data, January to December 2011.
Note: Medical group practices are identified by their taxpayer identification numbers (TINs). The analysis is restricted to medical group practices with eligible professionals (EPs) practicing in California, Illinois, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, or Wisconsin in 2011.

[5] A description of the attribution methodology can be found in Section S.7.2. Construction Logic.

B. Patients Included in Testing and Analysis

- **There were 2,619,746 beneficiaries attributed to medical group practices with at least 25 EPs and at least 20 attributed beneficiaries across the nine states.** The greatest number of beneficiaries was attributed to groups in Illinois (488,854) and California (469,091); the fewest number to beneficiaries was attributed to Nebraska (70,194). Approximately three-quarters (75.2 percent) of beneficiaries are 65 years old or older and approximately 23 percent are 80 years old or older. About 56 percent of beneficiaries are female, and the racial/ethnic decomposition of the sample is as follows: 84 percent white, 9 percent black, 3 percent Hispanic, 2 percent Asian, and 2 percent other races/ethnicities. Dual eligible beneficiaries—namely, those who are eligible for Medicaid due to disability, low income, or some combination of factors—constitute about one-quarter (26 percent) of the sample. The average hierarchical condition category (HCC) risk score is approximately 1.1, with an interquartile range of 0.21 (0.93 at the 25th percentile and 1.14 at the 75th percentile).
- **Beneficiaries attributed to larger medical group practices were similar in age distribution, more likely to be female, less likely to be white, and less likely to be dually eligible.** Beneficiaries attributed to larger groups were also slightly more likely to be female (57.6 percent female for groups with more than 200 EPs, compared with 56.3 percent in groups with 25 to 50 EPs) and slightly less likely to be white (79.8 percent white for groups with more than 200 EPs, compared with 85.2 percent in groups with 25 to 50 EPs).
- **Beneficiaries in larger groups had similar hierarchical condition category (HCC) risk scores.** The average risk score was 1.08 for groups with 25 to 50 EPs and 1.07 for groups with more than 200 EPs. The HCC risk scores at the 25th and 75th percentiles ranged from 0.90 to 1.17 for groups with 25 to 50 EPs and from 0.97 to 1.13 for groups with more than 200 EPs.

Exhibit I.2. Summary of Characteristics of Beneficiaries Attributed to Medical Group Practices for Groups with At Least 25 Eligible Professionals (EPs) and At Least 20 Attributed Beneficiaries, by Group Size (Percentages Unless Otherwise Noted)

Beneficiary Characteristic	Averages Across All Groups	Groups with 25 to 50 EPs	Groups with 51 to 100 EPs	Groups with 101 to 200 EPs	Groups with More than 200 EPs
Age (%)					
< 45	7.68	6.77	8.31	9.75	6.88
≥ 45 and < 65	17.13	17.04	17.51	16.79	17.11
≥ 65 and < 70	21.17	21.36	20.74	21.57	20.86
≥ 70 and < 75	17.56	17.61	17.55	17.34	17.70
≥ 75 and < 80	13.90	13.96	13.86	13.54	14.26
≥ 80 and < 85	11.30	11.41	11.19	10.82	11.71
≥ 85	11.27	11.87	10.83	10.17	11.48
Sex (%)					
Female	56.14	56.28	55.05	56.24	57.55
Male	43.86	43.72	44.95	43.76	42.45
Race/Ethnicity (%)					
White	84.31	85.17	86.43	82.59	79.84
Black	8.80	7.83	8.22	9.43	12.16
Hispanic	2.64	2.55	2.20	3.50	2.69
Asian	1.79	1.85	1.19	1.77	2.68
Other	2.11	2.36	1.63	1.96	2.37
Dual Status[a] (%)					
Yes	25.50	25.91	24.47	26.01	25.44
No	74.50	74.09	75.53	73.99	74.56
Distribution of HCC[b] Scores					
Mean	1.07	1.08	1.07	1.04	1.07
Standard Deviation	0.27	0.31	0.27	0.22	0.19
Min	0.44	0.44	0.61	0.55	0.85
1%	0.62	0.60	0.69	0.68	0.85
25%	0.93	0.90	0.93	0.94	0.97
50%	1.02	1.03	1.02	0.99	1.02
75%	1.14	1.17	1.12	1.09	1.13
95%	1.60	1.63	1.62	1.42	1.37
99%	2.01	2.16	1.94	1.91	1.89
Max	2.86	2.63	2.86	2.08	2.22

Source: Medicare FFS claims data, January to December 2011.

Note: The total number of medical group practices (N = 802) includes only those groups with at least 25 EPs and at least 20 attributed beneficiaries practicing in California, Illinois, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, or Wisconsin in 2011. Groups are identified by their taxpayer identification numbers (TINs).

[a] An indicator showing whether the Medicare beneficiary was dually eligible for Medicaid due to disability, low income, or some combination of these factors.

[b] HCC Score: Hierarchical Condition Category Score.

II. RELIABILITY ANALYSIS

A. Methods

1. Overview

To assess reliability of the Payment-Standardized Total Per Capita Cost Measure for Medicare Fee-for-Service (FFS) Beneficiaries, we measured the extent of variation in the measure that is due to actual differences in the performance of medical group practices versus variation that arises from measurement error. Statistically, reliability depends on performance variation for a measure across medical group practices ("signal"), the random variation in performance for a measure within a group's panel of attributed beneficiaries ("noise"), and the number of beneficiaries attributed to the group. High reliability for a measure suggests that comparisons of relative performance across groups are likely to be stable over different performance periods and that the performance of one group on the measure can be confidently distinguished from another. For each medical group practice, reliability was estimated as a ratio of variation between groups and the total variation (between groups and variation from measurement error):

$$\text{Reliability} = \frac{\text{Variation Between Groups}}{\text{Variation Between Groups} + \text{Variation from Measurment Error}}$$

2. Detailed Methods

The methods outlines below follows closely with Adams (2009).

Step 1. Compute the Variation from Measurement Error

For a given medical group practice, the cost profile is the average cost of total Part A and Part B Medicare expenditures among all n beneficiaries in the sample ($\bar{c}$) multiplied by the ratio of group j's observed to expected costs (O_j/E_j). As the number of attributed beneficiaries grows large, O_j/n will converge in distribution to a normal distribution by the central limit theorem, and E_j/n wll converge in probability to $E(x^{\square})\beta$. By the Slutsky theorem, O_j/E_j converges in distribution to a normal distribution.

Observed costs are the sum of Part A and Part B expenditures across all beneficiaries i attributed to the group—that is, $i \in i(j)$—where these beneficiary-level expenditures are assumed equal to a linear combination of HCC risk scores (and squared scores), an end-stage renal disease indicator ($x_i^{\square}$), and a homoskedastic error term (ε_i):

$$O_j = \sum_{i \in i(j)} x_i'\beta + \varepsilon_i = \sum_{i \in i(j)} x_i'\beta + \iota_i'\varepsilon,$$

where ι_i' is a $1 \times n$ matrix with a 1 in the ith position and zeros in all other positions.

Expected costs are the predicted values from linear regression:

$$E_j = \sum_{i \in i(j)} x_i'\hat{\beta} = \sum_{i \in i(j)} x_i'\beta + x_i'(X'X)^{-1}X'\varepsilon$$

Given that $V(\varepsilon) = \sigma^2 I$, $V(O_j/E_j)$ can be computed using the delta method. The partial derivative of O_j/E_j with respect to ε is the following:

$$D_\varepsilon(O_j/E_j) = \frac{1}{E_j^2}\left\{\sum_{i\in i(j)} E_j \iota_i' - O_j[x_i' (X' X)^{-1} X']\right\},$$

which implies a variance of

$$V(O_j/E_j) = D_\varepsilon(O_j/E_j) V(\varepsilon) D_\varepsilon' (O_j/E_j)$$

$$= \frac{\sigma^2}{(E_j^2)^2}\left\{\sum_{i\in i(j)} E_j \iota_i' - O_j[x_i' (X' X)^{-1} X']\right\}\left\{\sum_{i\in i(j)} E_j \iota_i - O_j[X(X' X)^{-1} x_i]\right\}$$

$$= \frac{\sigma^2}{E_j^4}\left[n_j E_j^2 - \left(2O_j E_j - O_j^2\right) M_j\right],$$

where $M_j \equiv \left(\sum_{i\in i(j)} x_i'\right)(X' X)^{-1}\left(\sum_{i\in i(j)} x_i\right)$ and noting that $\iota_i' X = x_i'$.

The variance of the cost profile (variation within groups) is then equal to $\bar{c}^2 V(O_j/E_j)$.

Step 2. Compute the Variation Between Groups

To compute the variation between groups, SAS's PROC MIXED procedure was used. Sample code from Adams (2009) is as follows:

```
PROC MIXED DATA=scoredata METHOD=REML;

   CLASS perf_upin;

   MODEL cost_profile = ;

   RANDOM perf_upin /GDATA=gdata;

RUN;
```

In the example, scoredata is the data set that was created in Step 1 above.

Step 3. Compute Reliabilities

After computing the variation between groups, the reliability of the measure can be computed for each medical group practice.

Reference

Adams, John L. "The Reliability of Provider Profiling: A Tutorial." Santa Monica, CA: RAND Corporation, 2009.

B. Results

Average reliabilities across all groups with at least 25 EPs and at least 20 attributed beneficiaries and by group size are shown in Exhibit II.1.

- **For medical group practices with at least 25 EPs and at least 20 attributed beneficiaries, the average reliability was 0.95.** Of all groups, more than 99 percent (797 of 802) had a reliability exceeding 0.50 and 96 percent (769 of 802) had a reliability exceeding 0.70—a common threshold for high reliability.
- **Reliability increased with the size of the medical group practice, defined by the number of EPs.** For all 111 groups with 201 or more EPs, the average reliability was 0.99 and the reliability exceeded 0.70. For about 99 percent of groups with 101 to 200 EPs, the reliability exceeded 0.70. Thus, the measure is more reliable among practices with 101 or more EPs. CMS specified the current threshold of at least 25 EPs to maximize the number of group practices that receive confidential Quality and Resource Use Reports (QRURs) in anticipation of the value-based payment modifier implementation in 2015. Limiting the threshold to groups with at least 101 EPs would limit the percentage of groups eligible to receive a QRUR with resource use information to 31 percent (247 of 802).

Exhibit II.1. Reliability of Risk-Adjusted, Payment-Standardized Total Per Capita Cost Measure by Group Size, for Groups with At Least 25 Eligible Professionals and At Least 20 Attributed Beneficiaries

Group Size	Number of Groups Reporting	Average Number of Beneficiaries Attributed to a Group	Average of Per Capita Cost Measure	Average Reliability	Number & Percent of Groups with Reliability Exceeding: 0.50	0.70
All Groups	802	3,267	10,602	0.95	797 (99.4%)	769 (95.9%)
25 to 50 EPs	353	914	11,075	0.91	350 (99.2%)	329 (93.2%)
51 to 100 EPs	202	2,490	10,674	0.96	201 (99.5%)	195 (96.5%)
101 to 200 EPs	136	4,233	9,870	0.97	135 (99.3%)	134 (98.5%)
201 or more EPs	111	10,979	9,862	0.99	111 (100%)	111 (100%)

Source: Medicare fee-for-service (FFS) claims data, January to December 2011.

Note: The total number of medical group practices (N = 802) includes only those groups with at least 25 EPs and at least 20 attributed beneficiaries practicing in California, Illinois, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, or Wisconsin in 2011. Groups are identified by their taxpayer identification numbers (TINs).

Average reliabilities for groups with at least 25 EPs and 20 or more attributed beneficiaries by the number of attributed beneficiaries are shown in Exhibit II.2.

All groups in the three highest quartiles for number of attributed beneficiaries had reliabilities exceeding 0.70. For these groups, which had more than 249 attributed beneficiaries, average reliabilities ranged from 0.97 to 1.00. For groups with fewer than 250 attributed beneficiaries, the average reliability was 0.83. About 98 percent (196 of 201) had reliabilities exceeding 0.50, and 84 percent (168 of 201) had reliabilities exceeding 0.70. Like group size, the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries is more reliable among practices with more attributed beneficiaries. The threshold of at least 20 attributed beneficiaries allows for high reliabilities across the majority of groups while allowing more groups to receive resource use information in their confidential feedback reports (QRURs).

Exhibit II.2. Reliability of Risk-Adjusted, Payment-Standardized Total Per Capita Cost Measure by the Number of Attributed Beneficiaries, for Groups with At Least 25 Eligible Professionals and At Least 20 Attributed Beneficiaries

Group Size Quartile of Number of Attributed Beneficiaries	Number of Groups Reporting	Average of Per Capita Cost Measure	Average Reliability	Number & Percent of Groups with Reliability Exceeding: 0.50	0.70
All Groups	802	10,602	0.95	797 (99.4%)	769 (95.9%)
Lowest quartile (20 to 249 attributed beneficiaries)	201	12,089	0.83	196 (97.5%)	168 (83.6%)
2nd quartile (250 to 1,189 attributed beneficiaries)	200	10,229	0.97	200 (100%)	200 (100%)
3rd quartile (1,190 to 4,341 attributed beneficiaries)	201	10,115	0.99	201 (100%)	201 (100%)
Highest quartile (4,342 to 52,194 attributed beneficiaries)	200	9,968	1.00	200 (100%)	200 (100%)

Source: Medicare fee-for-service (FFS) claims data, January to December 2011.

Note: The total number of medical group practices (N = 802) includes only those groups with at least 25 EPs and at least 20 attributed beneficiaries practicing in California, Illinois, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, or Wisconsin in 2011. Groups are identified by their taxpayer identification numbers (TINs).

III. VALIDITY TESTING

A. Tests of Construct Validity

Construct validity was tested in three ways. First, the non-price-standardized and non-risk-adjusted total per capita costs were compared to the risk-adjusted per capita cost measure using Pearson correlations at the group practice level. Then, standard utilization statistics were compared with the total per capita cost measure using Pearson correlations at the group practice level. The standard utilization statistics examined included counts of the following: professional evaluation and management services, procedures, hospital services, emergency services, ancillary services, post-acute services, and all other services. Lastly, for a subset of medical group practices, namely those that practiced in Iowa, Kansas, Missouri, or Indiana, we examined whether their standard utilization statistics in 2010 correlated with the total per capita cost measure in 2011.

The non-price-standardized and non-risk-adjusted measures and the utilization statistics were utilized as proxies to evaluate how well the Payment-Standardized Total Per Capita Cost Measure for Medicare Beneficiaries measures the overall performance of medical group practices. The underlying assumption behind the first correlation is that the correlation between the unadjusted (non-payment-standardized and non-risk-adjusted) costs and the risk-adjusted costs should be highly correlated. For correlations between the utilization measures and total per capita cost, the anticipated strength of the correlation is anticipated to depend on the costliness of the service being counted. For example, expensive services such as inpatient hospital services and post-acute care services (such as services in a skilled nursing facility) should have a strong positive correlation with the measure.

The Pearson correlation coefficient could theoretically range from –1.0 to 1.0 and indicates the strength of a linear relationship between two variables. The closer the value is to positive or negative 1, the stronger the relationship between the two variables. A positive correlation indicates that the values of the two variables are moving together in the same direction, whereas a negative correlation indicates movement in opposite directions.

- The non-payment-standardized and non-risk-adjusted total per capita costs were positive and highly correlated with a correlation of 0.852 ($p < 0.0001$). This indicates that the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries accurately identifies the performance of medical group practices.
- The total per capita cost measure and the utilization statistics were positive and highly correlated. All correlations were greater than 0.785 (Exhibit III.1).
- The total per capita cost measure and the utilization statistics in 2010 were also positive and highly correlated. All correlations were greater than 0.900 except for the number of evaluation and management services (corr=0.643, $p < 0.0001$) and number of procedures (corr=0.267, $p < 0.0001$). This indicates that the measure accurately captures the resources that are used by medical group practices.

Exhibit III.1. Validity of Per Capita Cost Measure: Correlations Between the Risk-Adjusted, Payment-Standardized Total Per Capita Cost Measure and Utilization Statistics in 2011 and 2010

Utilization Statistics	Correlations with 2011 Utilization Measures[a]	Correlations with 2010 Utilization Measures[a]
Number of Professional Evaluation and Management Services	0.982	0.643
Number of Procedures	0.979	0.267
Number of Hospital Services	0.984	0.931
Number of Emergency Services	0.975	0.916
Number of Ancillary Services	0.974	0.911
Number of Post-Acute Services	0.786	0.900
Number of All Other Services	0.944	0.912

Source: Medicare fee-for-service (FFS) claims data, January to December 2011.

Note: The total number of medical group practices (N = 802) includes only those groups with at least 25 EPs and at least 20 attributed beneficiaries practicing in California, Illinois, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, or Wisconsin in 2011. Groups are identified by their taxpayer identification numbers (TINs).

[a] All correlations are statistically significant with $p < 0.0001$.

E&M = evaluation and management.

B. Tests of Face Validity

During development of the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries, in-depth interviews were conducted with physicians on the measure. Three rounds of one-on-one, in-depth interviews with 20-25 physicians were conducted in Baltimore, Maryland; Boston, Massachusetts; and Indianapolis, Indiana. Approximately one-half of physicians were primary care physicians (PCPs) and half were a mix of medical specialists and surgeons. Several key findings emerged from the interviews:

- Many physicians responded favorable to holding multiple providers (such as providers in medical group practices) responsible for patient costs, rather than a single physician.
- Once the physicians understood the measures would be risk-adjusted, physicians stated that they would look at inpatient admissions and utilization of expensive tests or procedures to understand what might be driving their patient costs if they were identified as high cost physicians.
- Primary care physicians (PCPs) appeared to find more merit in per capita cost measures than did specialists. Because PCPs treat a wide range of health conditions and illnesses, they agreed that the per capita cost approach presented a holistic view of treatment costs.

Based on these findings, we believe that the Payment-Standardized Total Per Capita Cost Measure for Medicare FFS Beneficiaries is a meaningful measure for medical group practices. In particular, the attribution rule that places an emphasis on PCS provided by PCPs through the first step attribution rule, while also acknowledging the role that physicians of other specialties and other eligible professionals have in providing PCS through the second step of the method makes this an appropriate method for capturing costs.

IV. EXCLUSION ANALYSIS

There were 3,027,955 beneficiaries attributed to medical group practices with at least 25 EPs and 20 attributed beneficiaries across the nine states. Based on the following exclusion restrictions, 408,209 beneficiaries were excluded from the analysis:

- Newly enrolled or disenrolled in Medicare FFS Part A or Part B coverage[6]
- Enrolled in Medicare Advantage for any part of the year
- Those residing outside the United States

Following exclusions, 2,619,746 beneficiaries were included in our analysis. The rationale for excluding these beneficiaries is available in the Adjustments for Comparability Section S.9.1 (Inclusion and Exclusion Criteria) of the measure information form.

To examine the potential for differences between excluded and included beneficiaries, t-tests were performed to examine whether there were statistically significant differences in beneficiary demographics. The demographic characteristics that we examined were age, sex, race/ethnicity, dual eligibility status for Medicare and Medicaid, and the distribution of HCC risk scores.

- **Compared to the original sample of beneficiaries, we observed no statistically significant differences in beneficiary characteristics after the exclusions were applied (Exhibit IV.1).** This indicates that our exclusions did not distort the performance of our results.

[6] Although death during the measurement year is not an explicit exclusion criterion, Part A or Part B beneficiaries who died during the measurement year would no longer be enrolled in Medicare and are therefore a subset of those excluded due to disenrollment in Medicare Parts A or B.

Exhibit IV.1. Comparison of Excluded and Included Beneficiaries, by Exclusion Criteria

Beneficiary Characteristic	Included Beneficiaries	Included and Excluded Beneficiaries	Excluded Beneficiaries: Part-Year Medicare Parts A or B	Excluded Beneficiaries: Medicare Advantage (HMO)	Excluded Beneficiaries: Living Outside U.S.
Sample Size (N)	2,619,746	3,027,955	407,605	119,434	762
Age (%)	4.43	4.50	4.95	3.79	1.84
<45	12.91	16.07	36.36	19.88	9.97
≥45 and <65	22.23	21.34	15.58	22.89	24.93
≥65 and <70	19.24	18.02	10.14	16.62	25.07
≥70 and <75	15.72	14.82	8.99	13.50	19.29
≥75 and <80	12.97	12.45	9.08	11.26	12.34
≥80 and <85	12.49	12.82	14.91	12.07	6.56
≥85					
Sex (%)	57.92	57.63	55.78	57.86	48.43
Female	42.08	42.37	44.22	42.14	51.57
Male					
Race/Ethnicity (%)	88.48	87.54	81.55	81.31	67.32
White	7.02	7.35	9.51	11.93	3.41
Black	1.26	1.44	2.62	2.39	5.91
Hispanic	1.35	1.59	3.10	2.01	15.22
Asian	1.67	1.73	2.08	1.94	7.48
Other					
Dual Status (%)	17.09	17.91	23.23	22.69	16.54
Yes	82.91	82.09	76.77	77.31	83.46
No					
Distribution of HCC Scores (%)					
Mean	1.03	1.06	1.25	1.14	0.80
Standard Deviation	0.88	0.93	1.20	1.02	0.72
Min	0.11	0.11	0.11	0.11	0.18
1%	0.25	0.25	0.27	0.26	0.27
25%	0.47	0.49	0.49	0.49	0.43
50%	0.75	0.75	0.83	0.81	0.55
75%	1.25	1.27	1.43	1.36	0.92
95%	2.79	2.94	3.81	3.22	2.01
99%	4.48	4.76	5.93	5.12	3.92
Max	14.85	14.85	14.74	12.26	7.28

Source: Medicare fee-for-service (FFS) claims data, January to December 2011.

Note: The total number of medical group practices (N = 802) includes only those groups with at least 25 EPs and at least 20 attributed beneficiaries practicing in California, Illinois, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, or Wisconsin in 2011. Groups are identified by their taxpayer identification numbers (TINs).

HMO = health maintenance organization

V. STATISTICAL SIGNIFICANCE ANALYSIS

A. Methods

1. Overview

To address statistical significance of the quality and per capita cost measures, we examined whether a group's performance rate differed significantly from the average rate across all physicians. We conducted a two-sided test of the null hypothesis that the group's performance is not different from the mean performance of all groups with at least one measure-eligible case. We estimated the percentage of groups that were statistically significantly different from the mean at the five percent significance level.

2. Detailed Methods

Step 1. Compute the Variation from Measurement Error

For a given medical group practice, the cost profile is the average cost of total Part A and Part B Medicare expenditures among all n beneficiaries in the sample ($\bar{c}$) multiplied by the ratio of group j's observed to expected costs (O_j/E_j). As the number of attributed beneficiaries grows large, O_j/n will converge in distribution to a normal distribution by the central limit theorem, and E_j/n wll converge in probability to $E(x^{\square})\beta$. By the Slutsky theorem, O_j/E_j converges in distribution to a normal distribution.

Observed costs are the sum of Part A and Part B expenditures across all beneficiaries i attributed to the group—that is, $i \in i(j)$—where these beneficiary-level expenditures are assumed equal to a linear combination of HCC risk scores (and squared scores), an end-stage renal disease indicator ($x_i^{\square}$), and a homoskedastic error term (ε_i):

$$O_j = \sum_{i \in i(j)} x_i^{\square} \beta + \varepsilon_i = \sum_{i \in i(j)} x_i^{\square} \beta + \iota_i^{\square} \varepsilon,$$

where $\iota_i^{\square}$ is a $1 \times n$ matrix with a 1 in the ith position and zeros in all other positions.

Expected costs are the predicted values from linear regression:

$$E_j = \sum_{i \in i(j)} x_i^{\square} \hat{\beta} = \sum_{i \in i(j)} x_i^{\square} \beta + x_i^{\square} (X^{\square} X)^{-1} X^{\square} \varepsilon$$

Given that $V(\varepsilon) = \sigma^2 I$, $V\left(O_j/E_j\right)$ can be computed using the delta method. The partial derivative of O_j/E_j with respect to ε is the following:

$$D_{\varepsilon}(O_j/E_j) = \frac{1}{E_j^2}\left\{\sum_{i \in i(j)} E_j \iota_i^{\square} - O_j [x_i^{\square} (X^{\square} X)^{-1} X^{\square}]\right\},$$

which implies a variance of

$$V\left(O_j/E_j\right) = D_{\varepsilon}(O_j/E_j) V(\varepsilon) D_{\varepsilon^{\square}}(O_j/E_j)$$

$$= \frac{\sigma^2}{(E_j^2)^2}\{\sum_{i\in i(j)} E_j \iota_i' - O_j[x_i' (X' X)^{-1} X']\}\{\sum_{i\in i(j)} E_j \iota_i - O_j[X(X' X)^{-1} x_i]\}$$

$$= \frac{\sigma^2}{E_j^4}\left[n_j E_j^2 - \left(2O_j E_j - O_j^2\right) M_j\right],$$

where $M_j \equiv \left(\sum_{i\in i(j)} x_i'\right)(X' X)^{-1}\left(\sum_{i\in i(j)} x_i\right)$ and noting that $\iota_i' X = x_i'$.

The variance of the cost profile (variation within groups) is then equal to $\bar{c}^2 V\left(O_j/E_j\right)$.

B. Results

The distribution of risk-adjusted, payment-standardized total per capita costs for groups with at least 25 EPs and 20 or more attributed beneficiaries is shown in Exhibit IV.1. The Exhibit also breaks down per capita costs by group size and by state.

- **For groups with at least 25 EPs and 20 or more attributed beneficiaries, the average risk-adjusted, payment-standardized per capita cost was $10,602.** The interquartile range was $2,346 ($8,819 at the 25th percentile and $11,165 at the 75th percentile). The average per capita cost decreased as group size increased—from $11,075 for group practices with 25 to 50 EPs to $9,862 for group practices with more than 200 EPs.
- **Greater variation in risk-adjusted, payment-standardized total per capita cost was observed for smaller group practices.** Groups with 25 to 50 EPs had a standard deviation of $4,984 compared with $1,923 for groups with more than 200 EPs.
- **The highest risk-adjusted, payment-standardized total per capita costs were observed in Nebraska at $12,253 and the lowest risk-adjusted, payment-standardized per capita costs in California at $9,870.** Per capita costs at the 25th and 75th percentiles were $10,228 and $12,729, respectively, for Nebraska and $7,722 and $10,317, respectively, in California.

The proportion of medical group practices that are statistically significantly different from the mean is provided in Exhibit V.2.

- Across the 802 group practices with 25 EPs and 20 or more attributed beneficiaries, 65 percent (523 of 802) had risk-adjusted, payment-standardized total per capita costs that were statistically significantly different (either greater or less than the sample mean at the 5 percent level. About one-fifth (19 percent, or 155 of 802) had costs that were statistically higher (more expensive) than the mean and 46 percent (368 of 802) had costs that were statistically lower (less expensive) than the mean. Groups with more than 200 EPs were more likely than smaller groups to have total per capita costs that were statistically significantly different (either greater or less) than the mean.
    - The average risk-adjusted, payment-standardized total per capita cost was $16,151 for groups that were statistically significantly higher than the mean, $8,555 for groups that were significantly lower than the mean, and $10,218 for groups statistically no different from the mean (results not shown). The 25th and 75th percentiles ranged from $11,887 to $17,981, respectively, for groups that were significantly higher than the mean; $7,824 to $9,494, respectively, for groups that

were significantly lower than the mean; and $9,723 to $10,903, respectively, for groups statistically no different from the mean.

Table. CMS Specialty Codes, Specialty Descriptions, and Physician Status, and Provider Stratification Category

CMS Specialty Code	Specialty Description	Physician Status	Eligible Professional (Yes/No)	Provider Stratification Category
1	General Practice	Physicians	Yes	Primary Care Physicians
2	General Surgery	Physicians	Yes	Surgeons
3	Allergy/Immunology	Physicians	Yes	Medical Specialists
4	Otolaryngology	Physicians	Yes	Surgeons
5	Anesthesiology	Physicians	Yes	Other Physicians
6	Cardiology	Physicians	Yes	Medical Specialists
7	Dermatology	Physicians	Yes	Medical Specialists
8	Family Practice	Physicians	Yes	Primary Care Physicians
9	Interventional Pain Management	Physicians	Yes	Medical Specialists
10	Gastroenterology	Physicians	Yes	Medical Specialists
11	Internal Medicine	Physicians	Yes	Primary Care Physicians
12	Osteopathic Manipulative Medicine	Physicians	Yes	Medical Specialists
13	Neurology	Physicians	Yes	Medical Specialists
14	Neurosurgery	Physicians	Yes	Surgeons
15	Speech Language Pathologists	Therapists	Yes	Other Medical Professionals
16	Obstetrics/Gynecology	Physicians	Yes	Surgeons
17	Hospice and Palliative Care	Physicians	Yes	Medical Specialists
18	Ophthalmology	Physicians	Yes	Surgeons
19	Oral Surgery (Dentists Only)	Physicians	Yes	Surgeons
20	Orthopedic Surgery	Physicians	Yes	Surgeons
21	Cardiac Electrophysiology	Physicians	Yes	Medical Specialists
22	Pathology	Physicians	Yes	Other Physicians
23	Sports Medicine	Physicians	Yes	Other Physicians
24	Plastic and Reconstructive Surgery	Physicians	Yes	Surgeons
25	Physical Medicine and Rehabilitation	Physicians	Yes	Medical Specialists
26	Psychiatry	Physicians	Yes	Medical Specialists

CMS Specialty Code	Specialty Description	Physician Status	Eligible Professional (Yes/No)	Provider Stratification Category
27	Geriatric Psychiatry	Physicians	Yes	Medical Specialists
28	Colorectal Surgery (Formerly Proctology)	Physicians	Yes	Surgeons
29	Pulmonary Disease	Physicians	Yes	Medical Specialists
30	Diagnostic Radiology	Physicians	Yes	Other Physicians
31	Intensive Cardiac Rehabilitation	Not Applicable	No	Other Physicians
32	Anesthesiologist Assistant	Practitioners	Yes	Other Medical Professionals
33	Thoracic Surgery	Physicians	Yes	Surgeons
34	Urology	Physicians	Yes	Surgeons
35	Chiropractor, Licensed	Physicians	Yes	Other Medical Professionals
36	Nuclear Medicine	Physicians	Yes	Other Physicians
37	Pediatric Medicine	Physicians	Yes	Other Physicians
38	Geriatric Medicine	Physicians	Yes	Primary Care Physicians
39	Nephrology	Physicians	Yes	Medical Specialists
40	Hand Surgery	Physicians	Yes	Surgeons
41	Optometrist	Physicians	Yes	Other Medical Professionals
42	Certified Nurse Midwife	Practitioners	Yes	Other Medical Professionals
43	Certified Registered Nurse Anesthesiologist	Practitioners	Yes	Other Medical Professionals
44	Infectious Disease	Physicians	Yes	Medical Specialists
45	Mammography Screening Center	Not Applicable	No	Not Applicable
46	Endocrinology	Physicians	Yes	Medical Specialists
47	Independent Diagnostic Testing Facility	Not Applicable	No	Not Applicable
48	Podiatry	Physicians	Yes	Other Medical Professionals
49	Ambulatory Surgical Center	Not Applicable	No	Not Applicable
50	Nurse Practitioner	Practitioners	Yes	Other Medical Professionals
51	Medical Supply Company with Certified Orthotist	Not Applicable	No	Not Applicable

CMS Specialty Code	Specialty Description	Physician Status	Eligible Professional (Yes/No)	Provider Stratification Category
52	Medical Supply Company with Certified Prosthetist	Not Applicable	No	Not Applicable
53	Medical Supply Company with Certified Prosthetist-Orthotist	Not Applicable	No	Not Applicable
54	Medical Supply Company For DMERC	Not Applicable	No	Not Applicable
55	Individual Certified Orthotist	Not Applicable	No	Other Medical Professionals
56	Individual Certified Prosthetist	Not Applicable	No	Other Medical Professionals
57	Individual Certified Prosthetist-Orthotist	Not Applicable	No	Other Medical Professionals
58	Medical Supply Company with Registered Pharmacist	Not Applicable	No	Not Applicable
59	Ambulance Service Supplier (e.g., Private Ambulance Companies, Funeral Homes)	Not Applicable	No	Not Applicable
60	Public Health or Welfare Agencies (Federal, State, and Local)	Not Applicable	No	Not Applicable
61	Voluntary Health or Charitable Agencies (e.g., National Cancer Society, National Heart Association, Catholic Charities)	Not Applicable	No	Not Applicable
62	Clinical Psychologist (Billing Independently)	Practitioners	Yes	Other Medical Professionals
63	Portable X-Ray Supplier (Billing Independently)	Not Applicable	No	Not Applicable
64	Audiologist (Billing Independently)	Audiologists	Yes	Other Medical Professionals
65	Physical Therapist (Independently Practicing)	Therapists	Yes	Other Medical Professionals
66	Rheumatology	Physicians	Yes	Medical Specialists
67	Occupational Therapist (Independently Practicing)	Therapists	Yes	Other Medical Professionals
68	Clinical Psychologist	Practitioners	Yes	Other Medical Professionals
69	Clinical Laboratory (Billing Independently)	Not Applicable	No	Not Applicable
70	Single or Multispecialty Clinic or Group Practice	Physicians	Yes	Other Physicians
71	Registered Dietician/Nutrition Professional	Practitioners	Yes	Other Medical Professionals
72	Pain Management	Physicians	Yes	Other Physicians
73	Mass Immunization Roster Biller	Not Applicable	No	Not Applicable
74	Radiation Therapy Centers	Not Applicable	No	Not Applicable

CMS Specialty Code	Specialty Description	Physician Status	Eligible Professional (Yes/No)	Provider Stratification Category
75	Slide Preparation Facilities	Not Applicable	No	Not Applicable
76	Peripheral Vascular Disease	Physicians	Yes	Surgeons
77	Vascular Surgery	Physicians	Yes	Surgeons
78	Cardiac Surgery	Physicians	Yes	Surgeons
79	Addiction Medicine	Physicians	Yes	Medical Specialists
80	Licensed Clinical Social Worker	Practitioners	Yes	Other Medical Professionals
81	Critical Care (Intensivists)	Physicians	Yes	Medical Specialists
82	Hematology	Physicians	Yes	Medical Specialists
83	Hematology/Oncology	Physicians	Yes	Medical Specialists
84	Preventive Medicine	Physicians	Yes	Medical Specialists
85	Maxillofacial Surgery	Physicians	Yes	Surgeons
86	Neuropsychiatry	Physicians	Yes	Medical Specialists
87	All Other Suppliers (e.g., Drug Stores)	Not Applicable	No	Not Applicable
88	Unknown Supplier/Provider	Not Applicable	No	Not Applicable
89	Certified Clinical Nurse Specialist	Practitioners	Yes	Other Medical Professionals
90	Medical Oncology	Physicians	Yes	Medical Specialists
91	Surgical Oncology	Physicians	Yes	Surgeons
92	Radiation Oncology	Physicians	Yes	Other Physicians
93	Emergency Medicine	Physicians	Yes	Emergency Medicine Physicians
94	Interventional Radiology	Physicians	Yes	Other Physicians
95	Unassigned	Not Applicable	No	Not Applicable
96	Optician	Not Applicable	No	Other Medical Professionals
97	Physician Assistant	Practitioners	Yes	Other Medical Professionals
98	Gynecologist/Oncologist	Physicians	Yes	Surgeons
99	Unknown Physician	Physicians	Yes	Other Physicians
A0	Hospital	Not Applicable	No	Not Applicable

CMS Specialty Code	Specialty Description	Physician Status	Eligible Professional (Yes/No)	Provider Stratification Category
A1	Skilled Nursing Facility	Not Applicable	No	Not Applicable
A2	Intermediate Care Nursing Facility (DMERCs Only)	Not Applicable	No	Not Applicable
A3	Nursing Facility, Other (DMERCs Only)	Not Applicable	No	Not Applicable
A4	Home Health Agency (DMERCs Only)	Not Applicable	No	Not Applicable
A5	Pharmacy (DMERCs Only)	Not Applicable	No	Not Applicable
A6	Medical Supply Company with Respiratory Therapist (DMERCs Only)	Not Applicable	No	Not Applicable
A7	Department Store (For DMERC Use)	Not Applicable	No	Not Applicable
A8	Grocery Store (For DMERC Use)	Not Applicable	No	Not Applicable
B2	Pedorthic Personnel	Not Applicable	No	Not Applicable
B3	Medical Supply Company with Pedorthic Personnel	Not Applicable	No	Not Applicable
B4	Rehabilitation Agency	Not Applicable	No	Not Applicable
B5	Ocularist	Not Applicable	No	Not Applicable
C0	Sleep Medicine	Physicians	Yes	Medical Specialists
C1	Centralized Flu	Not Applicable	No	Not Applicable

Return to Measure Evaluation

{Only for groups with insufficient data for both *the quality composite score and the cost composite score:}*

2012 QUALITY AND RESOURCE USE REPORT AND PHYSICIAN QUALITY REPORTING SYSTEM FEEDBACK REPORT

FULL MEDICAL GROUP PRACTICE NAME

Last Four Digits of Your Group's Taxpayer Identification Number (TIN): #

- Medicare did not produce a 2012 Quality and Resource Use Report (QRUR) for this medical group practice because there were insufficient data (fewer than 20 cases for at least one measure) to evaluate the group's quality and cost performance.

- Medicare attributed beneficiaries to the medical group practice that provided the plurality of each beneficiary's Medicare-covered primary care services in 2012. Groups that provide only specialty services may have too few attributed beneficiaries to be evaluated.

- Medicare will apply a value-based payment modifier, starting in 2015, to medical group practices with 100 or more eligible professionals, based on participation in the Physician Quality Reporting system (PQRS) during 2013.

- Under the value-based payment modifier, groups of 100 or more eligible professionals that *do not* participate in PQRS in 2013 will have their Medicare payments *adjusted downward by 1.0%*. **This requirement applies even if the group provided specialty care and had too few beneficiaries to be attributed to the group.**

- Information on how the value-based payment modifier will be computed, including a detailed discussion of the beneficiary attribution process, is available at http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeedbackProgram/index.html.

- Remember, by October 15, 2013, an authorized group representative must self-nominate/register groups of 100 or more eligible professionals to report 2013 PQRS quality data via one of the three available group reporting mechanisms: (1) a web-interface group reporting mechanism, (2) a qualified registry, or (3) CMS-calculated administrative claims. Information on how to self-nominate/register for PQRS is available at http://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/PQRS/index.html.

{End of report groups with insufficient data for both *the quality composite score and the cost composite score}*

{Only for groups with sufficient data for either the quality composite score, the cost composite score, or both :}

2012 QUALITY AND RESOURCE USE REPORT AND PHYSICIAN QUALITY REPORTING SYSTEM FEEDBACK REPORT

FULL MEDICAL GROUP PRACTICE NAME

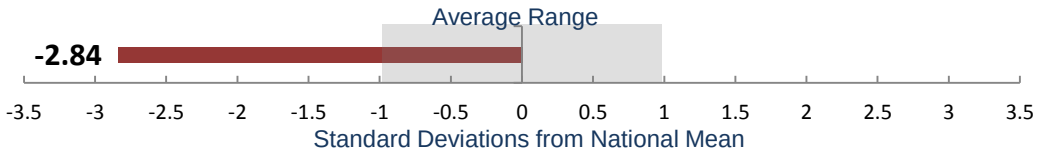
Last Four Digits of Your Group's Taxpayer Identification Number (TIN): #

NOTE: As a participant in the Medicare Shared Savings Program/Pioneer Accountable Care Organization Model/Comprehensive Primary Care Initiative during 2013 and 2014, the value-based payment modifier *would not* apply to your group in 2015 or 2016. This report is informational *only*.

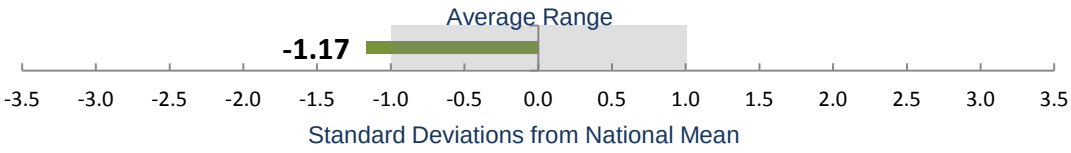
ABOUT THIS REPORT FROM MEDICARE	
WHY	• Medicare will apply a **value-based payment modifier**, starting in 2015, to **medical group practices** with 100 or more **eligible professionals**, based on participation in the **Physician Quality Reporting system (PQRS)** during 2013. Groups that *do not* participate in PQRS in 2013 will have their Medicare payments *adjusted downward by 1.0%*. • Groups that participate in PQRS through one of three PQRS **group practice reporting mechanisms** in 2013 will have their value-based payment modifier set at 0.0%. They may also elect to have it calculated based on a **quality tiering** approach, which could result in an upward, downward, or no payment adjustment. • This report, using quality and cost information for 2012, is designed to show how your group would fare if you requested the quality tiering approach. • Performance information in this report *will not* affect your current Medicare payments.
WHAT	• A summary of your group's 2012 performance, and your quality tiering designation, are shown on the Performance Highlights page of this report. • Exhibits 1 and 2 show how Medicare beneficiaries were **attributed** to your medical group practice in 2012. • Exhibits 3 and 4 show your group's 2012 performance on quality measures and Exhibits 6–10 show your group's 2012 performance on the cost measures that will be used to compute the value-based payment modifier under the quality tiering approach.
WHO	• Medicare is providing 2012 Quality and Resource Use Reports to all groups of physicians with 25 or more eligible professionals (identified by a single Taxpayer Identification Number), so they can understand the methodologies used to calculate the value-based payment modifier. • By law, Medicare must apply the value-based payment modifier to *all physicians* starting January 1, 2017.
WHAT YOU CAN DO	• Participate in PQRS, if your group is not already doing so. Details and deadlines for 2013 participation can be found at http://www.cms.gov/Medicare/Quality-Initiatves-Patient-Assessment-Instruments/PQRS/index.html. • Share your thoughts about the content and format of these reports via e-mail, at QRUR@cms.gov.

PERFORMANCE HIGHLIGHTS

YOUR QUALITY COMPOSITE SCORE: HIGH/AVERAGE/LOW/INSUFFICIENT DATA TO DETERMINE



YOUR COST COMPOSITE SCORE: HIGH/AVERAGE/LOW/INSUFFICIENT DATA TO DETERMINE

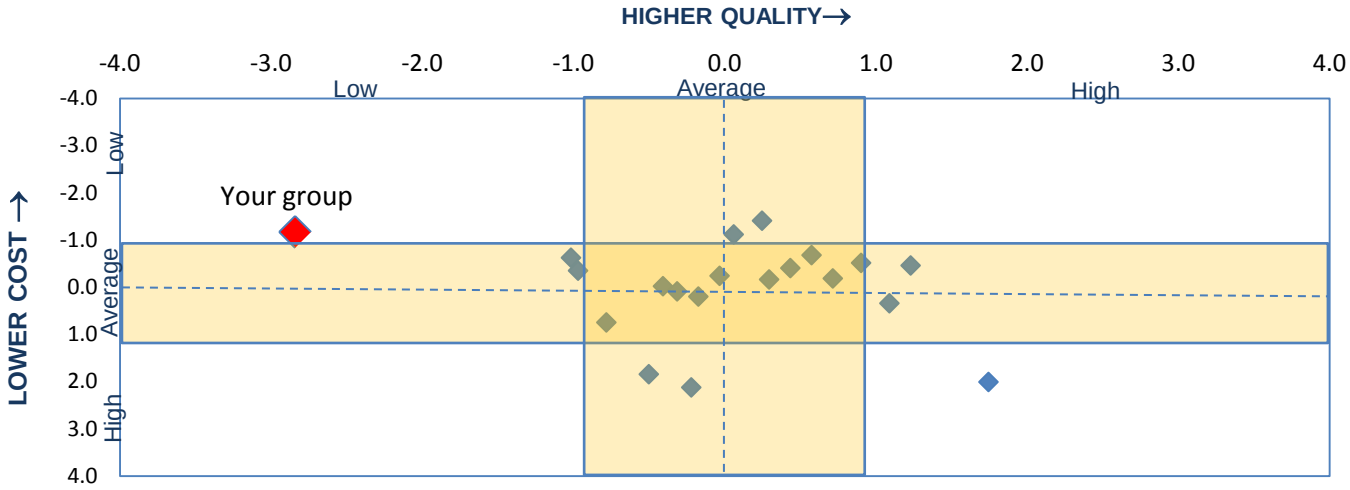


YOUR BENEFICIARIES' AVERAGE RISK SCORE: ##ST/ND/RD/TH PERCENTILE

- To account for your patients' higher-than-/lower-than- average risk, the overall per capita costs of your beneficiaries were risk adjusted downward/upward by # percent.
- Because your Medicare beneficiaries' average risk score is/is not at or above the 75th percentile of all beneficiary risk scores, your group would/would not be eligible for an additional upward adjustment under the **quality tiering** approach for serving high-risk beneficiaries.

YOUR QUALITY TIERING PERFORMANCE: HIGH/AVERAGE/LOW QUALITY, HIGH/AVERAGE/LOW COST/INSUFFICIENT DATA TO DETERMINE

{For groups with "insufficient data to determine," do not *display "Your Group" label or associated red diamond in the figure.}*



YOUR VALUE-BASED PAYMENT ADJUSTMENT BASED ON QUALITY TIERING

- Based on 2012 performance, electing the quality tiering approach would result in a payment adjustment of +/- #.# *x*% , including the additional upward adjustment of +1.0*x*% for treating high-risk beneficiaries.

Payment adjustments for each level of performance are shown below:

	Low Quality	Average Quality	High Quality
Low Cost	+0.0%	+1.0/2.0*x*%	+2.0/3.0*x*%
Average Cost	-0.5%	+0.0%	+1.0/2.0*x*%
High Cost	-1.0%	-0.5%	+0.0%

Note: x refers to a payment adjustment factor yet to be determined due to budget neutrality requirements.

INTRODUCTION

This report provides information on the quality and costs of care provided to Medicare beneficiaries by your **medical group practice**, as identified by Taxpayer Identification Number (TIN), and on beneficiaries' utilization of hospital services, compared to the average for # medical group practices with 25/100 or more **eligible professionals** (**peer group**). Based on Medicare claims, a total of # eligible professionals, of whom # were physicians, billed to your medical group practice's TIN for services provided to Medicare fee-for-service (FFS) beneficiaries in 2012.[1]

Terms and concepts **underlined and in boldface** are defined in the **Glossary of Terms** section of the report. *{Link all terms that are underlined and in blue, boldface type to their respective glossary items.}*

Attribution of Medicare Beneficiaries to Your Medical Group Practice

For the purposes of this report, responsibility for all costs and quality of care provided to each individual Medicare beneficiary has been **attributed** to the single medical group practice whose primary care physicians or non-primary care specialists provided the most primary care services for that beneficiary, based on Medicare allowed charges.

Exhibit 1. Number of Medicare Beneficiaries Attributed to Your Medical Group Practice and Basis for Attribution

	Total	Plurality of Primary Care Services Provided by Primary Care Physicians	Plurality Of Primary Care Services Provided By Non-Primary Care Specialists
Number of Medicare patients attributed to your medical group practice	#	#	#
Average percentage of primary care services provided by your group, per attributed beneficiary	#.#%	#.#%	#.#%

Exhibit 2 shows how many different **medical professionals** billed for services to the beneficiaries attributed to your medical group practice, on average, and what proportion of those professionals were outside of your group, compared to the average among all medical group practices in your peer group.

Exhibit 2. Medicare Beneficiaries Attributed to Your Medical Group Practice in 2012 and the Medical Professionals Treating Them, Compared to Peers

	Your Medical Group Practice	Mean Among All # Medical Group Practices with at Least 25/100 Eligible Professionals
Number of Medicare patients attributed to the medical group practice	#	#
Average percentage of primary care services provided by the medical group practice to each attributed beneficiary	#.#%	#.#%
Average number of eligible professionals in all care settings who treated each attributed beneficiary	#.#	#.#
Percentage of eligible professionals treating beneficiaries attributed to the medical group practice who did not bill under the group's TIN	#.#%	#.#%

[1] An interactive web-based tool providing downloadable data about all eligible professionals billing to your group's TIN and all beneficiaries attributed to your group is available at <insert URL>.

PERFORMANCE ON QUALITY

The **Quality Composite Score** summarizes a **medical group practice's** performance on quality indicators across up to six equally-weighted quality domains: Clinical Process/Effectiveness, Patient and Family Engagement, Population/Public Health, Patient Safety, Care Coordination, and Efficient Use of Healthcare Resources. Standardized scores reflect how much a group's performance differs from the national mean performance on a measure-by-measure basis.

To be considered either a high-quality or low-quality performer for the purposes of **value-based payment modifier** under the **quality tiering** approach in 2015, a group's performance in 2013 must be precisely measured and meaningfully different from average performance. Precise measurement means that a score must be statistically different from the mean at the five percent level of significance. Meaningful difference is performance at least one standard deviation above or below the mean. That is, a statistically significant standardized Quality Composite Score of +1.0 or higher would place a group in the high-quality performance category, while a score of -1.0 or lower would place it in the low-quality category.

Medical Group Practices Participating in the Physician Quality Reporting System (PQRS) Group Practice Reporting Option (GPRO)

For medical group practices that have satisfactorily reported data to the Physician Quality Reporting System (PQRS) via the **Group Practice Reporting Option (GPRO)** web-based interface, the Quality Composite Score reflects performance on the quality indicators reported within each quality domain for your samples of **attributed** patients. The Quality Composite Score also includes three outcomes measures in the Care Coordination domain that Medicare calculates from fee-for-service (FFS) claims submitted for Medicare beneficiaries attributed to your group in 2012.

{Only for non-GPRO groups with no physician PQRS participants :} Your medical group practice did not report PQRS data via the GPRO web interface in 2012. {*Skip to Medicare Claims-Based Quality Measures.*}

{Only for non-GPRO groups with physicians reporting PQRS data as individuals :} Although your medical group practice did not report PQRS data via the GPRO web interface in 2012, physicians in your group participated in PQRS as individuals in 2012. Detailed information about the PQRS performance at both the group and individual level is available at <insert URL>. {*Skip to Medicare Claims-Based Quality Measures.*}

{Only for GPRO groups:} Exhibit 3 shows your medical group practice's 2012 Quality Composite Score under the quality tiering approach based on the GPRO quality indicators. The quality indicators are grouped in four quality domains. Standardized scores are calculated only for measures with at least 20 cases. Your Quality Composite Score of [+/-] [#.##] [was/was not] statistically different from the national mean.

Exhibit 3. Your Medical Group Practice's Performance by Quality Domain in 2012

Quality Domain	Number of Quality Indicators	Standardized Score
Quality Composite Score	**32**	**-2.84* (Low)**
Clinical Process/Effectiveness	23	-3.86
Population/Public Health	4	-1.52
Patient Safety	2	-2.92
Care Coordination	3	-3.04

Note: Standardized scores indicate how many standard deviations from the national mean a medical group practice's performance rate falls, for measures within a domain. Standardized scores are calculated only for domains with at least one measure with at least 20 cases. Positive quality scores reflect performance better than the mean and negative scores reflect performance worse than the mean. The Quality Composite Score is an average of equally-weighted domain scores. Domains in which no quality measures were reported are not included in the calculation.

* Significantly different from the mean at the five percent level.

The following exhibits display your group's performance on the quality measures contributing to each domain score used to calculate the Quality Composite Score. **Only those measures for which you had 20 or more cases are included in the domain and quality composite scores.** Exhibits are displayed only for domains in which your group reported measures.

Exhibit 4-CPE. 2012 Performance on GPRO Quality Indicators in the Clinical Process/Effectiveness Domain

Clinical Process/Effectiveness Domain Score = +/- #.##

Performance Measures		Your Medical Group Practice's Performance		Performance of All PQRS Participants Reporting the Measure		
		Number of Eligible Cases	Performance Rate	Benchmark Rate	Average Range: Benchmark – 1 Standard Deviation	Average Range: Benchmark + 1 Standard Deviation
Chronic Obstructive Pulmonary Disease (COPD)						
COPD-1	COPD: Bronchodilator Therapy*	#	#.#%	#.#%	#.#%	#.#%
Coronary Artery Disease (CAD)						
CAD-1	CAD: Antiplatelet Therapy*					
CAD-2	CAD: Lipid Control†					
CAD-7	CAD: ACE Inhibitor or ARB Therapy for Patients with CAD and Diabetes and/or LVSD†					
Diabetes Mellitus (DM)						
DM-2	DM: Hemoglobin A1c Poor Control in DM (>9.0)‡					
DM-3	DM: High Blood Pressure Control in DM†					
DM-5	DM: LDL-C Control in DM†					
DM-7	DM: Dilated Eye Exam*					
DM-8	DM: Foot Exam*					
DM-10	DM: Hemoglobin A1c Control (< 8.0)†					
DM-11	DM: Daily Aspirin Use for Patients with Diabetes and Ischemic Vascular Disease†					
DM-12	DM: Tobacco Non-Use†					
Heart Failure (HF)						
HF-1	HF: LVEF Assessment*					
HF-2	HF: LVF Testing*					
HF-5	HF: Patient Education*					
HF-6	HF: Beta Blocker Therapy for LVSD					
HF-7	HF: ACE Inhibitor or ARB Therapy for LVSD*					
Hypertension (HTN)						
HTN-2	HTN: Controlling High Blood Pressure					
Ischemic Vascular Disease (IVD)						
IVD-1	IVD: Complete Lipid Profile and LDL-C Control					
IVD-2	IVD: Use of Aspirin or Another Antithrombotic					
Preventive Care Measures (Prev)						
Prev-5	Prev: Screening Mammography					
Prev-6	Prev: Colorectal Cancer Screening					
Prev-8	Prev: Pneumonia Vaccination for Patients ≥ 65					

* Indicates a 2012 GPRO measure that is not included in Quality Composite Score computations because it will not be included in the 2013 web interface set of measures.

† Indicates a measure that will be included with one or more other measures for the same condition as part of an "all-or-nothing" composite when computing Quality Composite Scores for Program Year 2013 and following. However, the Quality Composite Score displayed in this report treats these measures as distinct.

‡ Lower performance rates on this measure indicate better performance. However, the domain score for this domain has been calculated such that positive (+) scores indicate better performance and negative (-) scores indicate worse performance.

Exhibit 4-PPH. 2012 Performance on GPRO Quality Indicators in the Population/Public Health Domain
Population/Public Health Domain Score = +/- #.##

Performance Measures		Your Medical Group Practice's Performance		Performance of All GPRO Groups		
		Number of Eligible Cases	Performance Rate	Benchmark Rate	Average Range: Benchmark – 1 Standard Deviation	Average Range: Benchmark + 1 Standard Deviation
Prev-7	Prev: Influenza Immunization	#	#.#%	#.#%	#.#%	#.#%
Prev-9	Prev: BMI Screening and Follow-Up					
Prev-10	Prev: Tobacco Use: Screening and Cessation Intervention					
Prev-11	Prev: Screening for High Blood Pressure					
Prev-12	Prev: Screening for Clinical Depression*					

* Although not a 2012 GPRO measure, this measure will be included in both the GPRO beginning in 2013 and the value-based payment modifier.

Exhibit 4-PS. 2012 Performance on GPRO Quality Indicators in the Patient Safety Domain
Patient Safety Domain Score = +/- #.##

Performance Measures		Your Medical Group Practice's Performance		Performance of All GPRO Groups		
		Number of Eligible Cases	Performance Rate	Benchmark Rate	Average Range: Benchmark – 1 Standard Deviation	Average Range: Benchmark + 1 Standard Deviation
Care-1	Medication Reconciliation: Reconciliation After Discharge from an Inpatient Facility	#	#.#%	#.#%	#.#%	#.#%
Care-2	Falls: Screening for Future Fall Risk					

Exhibit 4-CC. 2012 Performance on Quality Indicators in the Care Coordination Domain
Care Coordination Domain Score = +/- #.##

Performance Measures		Your Medical Group Practice's Performance		Performance of All GPRO Groups		
		Number of Eligible Patients	Performance Rate*	Benchmark Rate	Average Range: Benchmark – 1 Standard Deviation	Average Range: Benchmark + 1 Standard Deviation
Hospitalization Rate for Ambulatory Care Sensitive Conditions						
CMS-1	Acute Conditions Composite	#	#.#%	#.#%	#.#%	#.#%
	PQI-11 Bacterial Pneumonia					
	PQI-12 Urinary Tract Infection					
	PQI-10 Dehydration					
CMS-2	Chronic Conditions Composite					
	Diabetes (composite of 4 indicators)					
	PQI-5 Chronic Obstructive Pulmonary Disease					
	PQI-8 Congestive Heart Failure					
Hospital Readmissions						
CMS-3	All-Cause Hospital Readmissions					

* Lower performance rates on these measures indicate better performance. However, the domain score for this domain has been calculated such that positive (+) scores indicate better performance and negative (-) scores indicate worse performance.

{Only for GPRO groups: skip to Hospitals Admitting Your Patients.}

{Only for non-GPRO groups:}

Medicare Administrative Claims-Based Quality Indicators

In 2013, medical group practices that do not select the PQRS web interface or registry group reporting mechanism will be able to request that Medicare compute their performance on a set of 17 administrative claims-based quality indicators. Performance on these indicators is derived from FFS Medicare claims submitted for Medicare beneficiaries attributed to your group in 2012.

Please note that these indicators would *only* be used to calculate the value-based payment modifier using the quality tiering approach if your medical group chose the PQRS administrative claims option reporting mechanism.

{Only for non-GPRO groups with at least 20 cases for at least one administrative claims-based quality measure.} Exhibit 3 shows your medical group practice's 2012 Quality Composite Score under the quality tiering approach based on the 17 administrative claims-based quality indicators. The quality indicators are grouped in three quality domains. Standardized scores are calculated only for measures with at least 20 cases. Your Quality Composite Score of [+/-] [#.##] [was/was not] statistically different from the national mean.

Exhibit 3. Your Medical Group Practice's Performance by Quality Domain in 2012

{Display a domain's standardized score only if the domain contains at least one measure with at least 20 cases. Display the Quality Composite Score Standardized Score only if a standardized score is displayed for at least one domain.}

Quality Domain	Number of Quality Indicators	Standardized Score
Quality Composite Score	**17**	**-2.84* (Low)**
Clinical Process/Effectiveness	11	-3.86
Patient Safety	2	-1.62
Care Coordination	4	-3.04

Note: Standardized scores indicate how many standard deviations from the national mean a medical group practice's performance rate falls, for measures within a domain. Standardized scores are calculated only for domains with at least one measure with at least 20 cases. Positive quality scores reflect performance better than the mean and negative scores reflect performance worse than the mean. The Quality Composite Score is an average of equally-weighted domain scores. Domains in which no quality measures were reported are not included in the calculation.

* Significantly different from the mean at the five percent level. *{Skip to next page: "The following exhibits display your group's performance…."}*

{Only for non-GPRO groups with no administrative claims-based measure with at least 20 cases:}

Exhibit 3. Your Medical Group Practice's Performance by Quality Domain in 2012

Performance is assessed only for quality domains containing at least one measure with at least 20 cases. Because your medical group practice did not have at least one administrative claims-based quality indicator with at least 20 cases, there were insufficient data to calculate performance for any quality domain, and consequently Exhibit 3 is not displayed.

The following exhibits display your group's performance on the administrative claims-based quality measures contributing to each domain score used to calculate the Quality Composite Score. **Only those measures for which you had 20 or more cases are included in the domain and quality composite scores.** Exhibits are displayed onlyfor domains in which measures for your group could be calculated.

Exhibit 4-CPE. 2012 Performance on Claims-Based Quality Indicators in the Clinical Process/Effectiveness Domain

Clinical Process/Effectiveness Domain Score = +/- #.##

Performance Measures	Your Medical Group Practice's Performance		Performance of All # Groups with at Least 25/100 Eligible Professionals		
				Average Range	
	Number of Eligible Cases	Performance Rate	Benchmark Rate	Benchmark – 1 Standard Deviation	Benchmark + 1 Standard Deviation
Bone, Joint, and Muscle Disorders					
Osteoporosis Management in Women ≥ 67 Who Had a Fracture	#	#.#%	#.#%	#.#%	#.#%
Chronic Obstructive Pulmonary Disease (COPD)					
Use of Spirometry Testing to Diagnose COPD					
Diabetes Mellitus					
Dilated Eye Exam for Beneficiaries ≤ 75 with Diabetes					
Hba1c Testing for Beneficiaries ≤ 75 with Diabetes					
Urine Protein Screening for Beneficiaries ≤ 75 with Diabetes					
Lipid Profile for Beneficiaries ≤ 75 with Diabetes					
Ischemic Vascular Disease					
Lipid Profile for Beneficiaries with Ischemic Vascular Disease					
Adherence to Statin Therapy for Beneficiaries with Coronary Artery Disease					
Mental Health					
Antidepressant Treatment for Depression:					
1. Acute Phase Treatment (at least 12 weeks)					
2. Continuation Phase Treatment (at least 6 months)					
Medication Management					
Lipid Profile for Beneficiaries Who Started Lipid-Lowering Medications					
Preventive Care Measures					
Breast Cancer Screening for Women ≤ 69					

Exhibit 4-PS. 2012 Performance on Claims-Based Quality Indicators in the Patient Safety Domain

Patient Safety Domain Score = +/- #.##

Performance Measures	Your Medical Group Practice's Performance		Performance of All # Groups with at Least 25/100 Eligible Professionals		
	Number of Eligible Patients	Performance Rate*	Benchmark Rate	Average Range: Benchmark – 1 Standard Deviation	Average Range: Benchmark + 1 Standard Deviation
Medication Management					
Use of High-Risk Medications in the Elderly	#	#.#%	#.#%	#.#%	#.#%
1. Patients Who Receive At Least One Drug to be Avoided					
2. Patients Who Receive At Least Two Different Drugs to be Avoided					
Lack of Monthly INR Monitoring for Beneficiaries on Warfarin					

* Lower performance rates on these measures indicate better performance. Domain scores are calculated such that positive (+) scores indicate better performance and negative (-) scores indicate worse performance.

Exhibit 4-CC. 2012 Performance on Quality Indicators in the Care Coordination Domain

Care Coordination Domain Score = +/- #.##

Performance Measures	Your Medical Group Practice's Performance		Performance of All # Groups with at Least 25/100 Eligible Professionals		
	Number of Eligible Patients	Performance Rate	Benchmark Rate	Average Range: Benchmark - 1 Standard Deviation	Average Range: Benchmark + 1 Standard Deviation
Mental Health					
Follow-Up After Hospitalization for Mental Illness	#	#.#%	#.#%	#.#%	#.#%
1. Percentage of Patients Receiving Follow-Up Within 30 Days					
2. *Percentage of Patients Receiving Follow-Up Within 7 Days*					
Hospitalization Rate for Ambulatory Care Sensitive Conditions*					
CMS-1 Acute Conditions Composite					
PQI-11 Bacterial Pneumonia					
PQI-12 Urinary Tract Infection					
PQI-10 Dehydration					
CMS-2 Chronic Conditions Composite					
Diabetes (Composite of 4 indicators)					
PQI-5 Chronic Obstructive Pulmonary Disease					
PQI-8 Congestive Heart Failure					
Hospital Readmissions*					
CMS-3 All-Cause Hospital Readmissions					

* Lower performance rates on these measures indicate better performance. However, the domain score for this domain has been calculated such that positive (+) scores indicate better performance and negative scores indicate worse performance.

Hospitals Admitting Your Patients

Based on all Medicare Part A claims submitted in 2012, at least five percent of your attributed Medicare beneficiaries' inpatient stays were at the hospitals shown in Exhibit 5. Information on hospital performance is available on the Hospital Compare website (http://www.hospitalcompare.hhs.gov).

Exhibit 5. Hospitals Admitting Medicare Beneficiaries Attributed to Your Medical Group Practice in 2012

{Only for groups with at least one hospital accounting for at least five percent of beneficiary stays: Display the following exhibit as a dynamic table with the number of rows displayed (other than the Total row) equal to the number of hospitals accounting for at least five percent of the group's attributed Medicare beneficiaries' inpatient stays.}

Hospital		Medicare Beneficiaries Attributed to Your Medical Group Practice	
Name	**Location**	**Number of Inpatient Stays**	**Percentage of All Inpatient Stays**
Total		**#**	**#.#%**
Hospital Name	City, State	#	#.#%

{Only for groups with no hospital accounting for at least five percent of beneficiary stays:}
Exhibit 5 is not displayed because no hospital accounted for at least five percent of your attributed Medicare beneficiaries' inpatient stays.

PERFORMANCE ON COSTS

The **Cost Composite Score** summarizes a **medical group practice**'s performance on costs across two equally-weighted cost domains: **Per Capita Costs for All Attributed Beneficiaries** and **Per Capita Costs for Beneficiaries with Specific Conditions** (diabetes, coronary artery disease, chronic obstructive pulmonary disease, and heart failure). Standardized scores reflect how much a group's performance differs from the national mean performance on a measure-by-measure basis.

All comparative cost data have been **risk adjusted** to account for differences in patient characteristics that may affect costs, including age, gender, Medicare eligibility status, history of medical conditions, and ESRD status. In addition, all comparative cost data use **payment standardization** to account for differences in Medicare payments across geographic regions due to differences in such factors as wages or rents. This information is derived from payments for all Medicare Parts A and B claims submitted by all providers who treated Medicare FFS patients attributed to your medical group practice, including providers who are not affiliated with your group. Outpatient prescription drug (Part D) costs are not included.

To be considered either a high-cost or low-cost performer for the purposes of calculating the **value-based payment modifier** under the **quality tiering** approach in 2015, a group's performance in 2013 must be precisely measured and meaningfully different from average performance. Precise measurement means that a score must be statistically different from the mean at the five percent level of significance. Meaningful difference is performance at least one standard deviation above or below the mean. That is, a statistically significant standardized Cost Composite Score of +1.0 or higher would place a group in the high-cost performance category, while a score of -1.0 or lower would place it in the low-cost category.

Your Cost Composite Score of # was/was not statistically different from the national mean. Performance within each domain, expressed in terms of standardized scores, is shown in Exhibit 6.

Exhibit 6. Your Medical Group Practice's Performance by Cost Domain in 2012

{Display a domain's standardized score only if the domain contains at least one measure with at least 20 cases. Display the Cost Composite Score Standardized Score only if a standardized score is displayed for at least one domain.}

Cost Domain	Standardized Score
Cost Composite Score	**-1.17* (Low)**
Per Capita Costs for *All* Attributed Beneficiaries	-2.45
Per Capita Costs for Beneficiaries *with Specific Conditions*	+0.12

Note: Standardized scores indicate how many standard deviations from the national mean a medical group practice's cost performance falls. Positive scores reflect costs higher than the mean and negative scores reflect costs lower than the mean. Standardized scores are calculated only for domains containing at least one measure with at least 20 cases. The Cost Composite Score is an average of equally-weighted domain scores.

* Significantly different from the mean at the five percent level.

{Only for groups with no administrative claims-based measure with at least 20 cases:}

Exhibit 6. Your Medical Group Practice's Performance by Cost Domain in 2012

Performance is assessed only for cost domains containing at least one measure with at least 20 cases. Because your medical group practice did not have at least one cost measure with at least 20 cases, there were insufficient data to calculate performance for either cost domain, and consequently Exhibit 6 is not displayed.

Exhibit 7 shows how the payment standardized per capita costs of your Medicare patients, before and after risk adjustment, compared to the mean per capita costs among medical group practices with at least 25/100 eligible professionals, for each of the cost domains and categories.[2] **Only those measures for which you had 20 or more cases are included in the domain and cost composite scores.**

Exhibit 7. Per Capita Costs for Medicare Beneficiaries Attributed to Your Medical Group Practice Medicare in 2012

Cost Categories	Your Medical Group Practice's Performance			Performance of All # Groups with at Least 25/100 Eligible Professionals		
	Number of Eligible Cases	Per Capita Costs Before Risk Adjustment	Per Capita Costs After Risk Adjustment	Benchmark Per Capita Costs (Risk-Adjusted)	Average Range: Benchmark – 1 Standard Deviation	Average Range: Benchmark + 1 Standard Deviation
Per Capita Costs for All Attributed Beneficiaries (Domain Score = +/- #.##)						
All Beneficiaries	#	$##,###	$##,###	$##,###	$##,###	$##,###
Per Capita Costs for Beneficiaries with Specific Conditions (Domain Score = +/- #.##)						
Diabetes						
COPD						
Coronary Artery Disease						
Heart Failure						

Note: Per capita costs are based on payments for Medicare Part A and Part B claims submitted in 2012 by all providers (including medical professionals, hospitals, and post-acute care facilities) for Medicare beneficiaries attributed to a medical group practice. Outpatient prescription drug costs are not included.

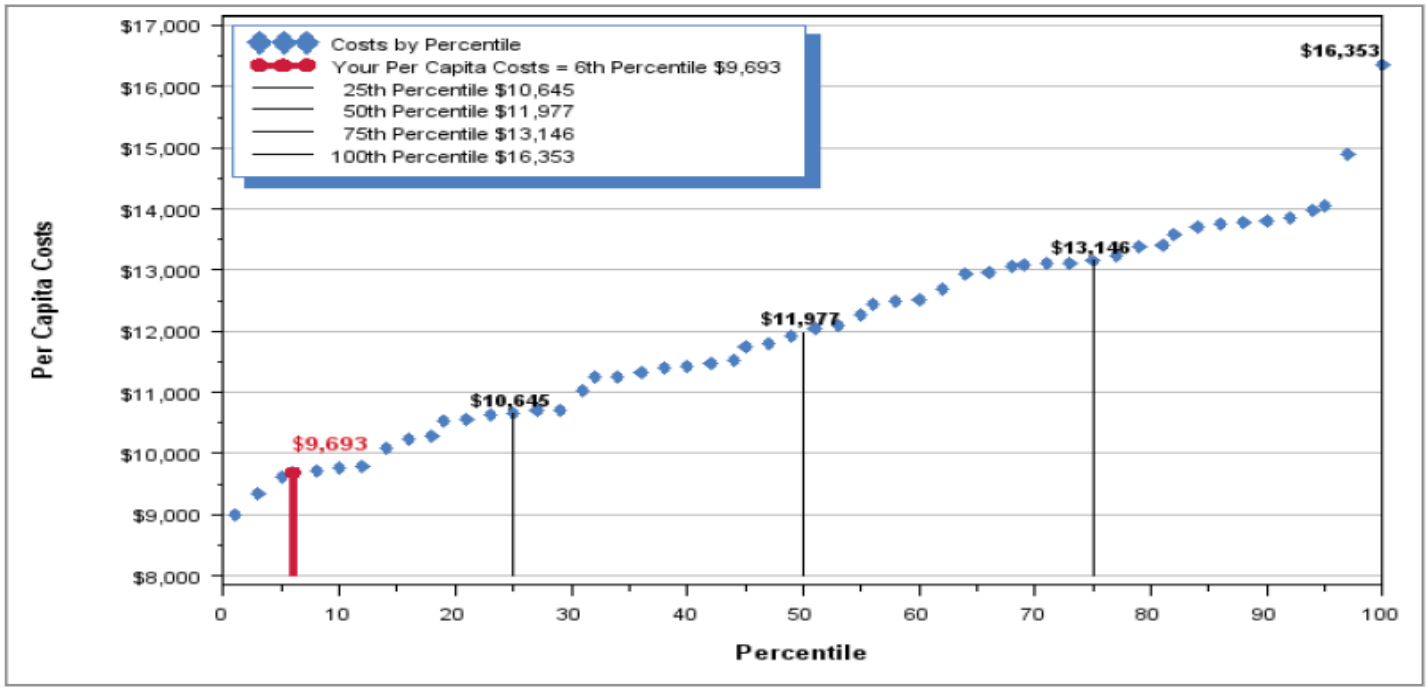
[2] For medical group practices that have a higher than average proportion of patients with costly medical conditions or other risk factors, unadjusted costs will be higher than adjusted costs. For medical group practices with a healthier patient population, unadjusted costs will be lower than adjusted costs. See the Glossary of Terms for a description of risk adjustment used for this report.

Per Capita Costs for All Attributed Beneficiaries

This section provides more detailed information about the total per capita costs of care provided to all Medicare FFS patients attributed to your medical group practice.

Per capita costs for the medical group practices in your peer group ranged from a low of $##,### to a high of $##,###. Total per capita costs for your group were at the #st/nd/rd/th percentile of total per capita costs among all groups with at least 25/100 eligible professionals (Exhibit 8).

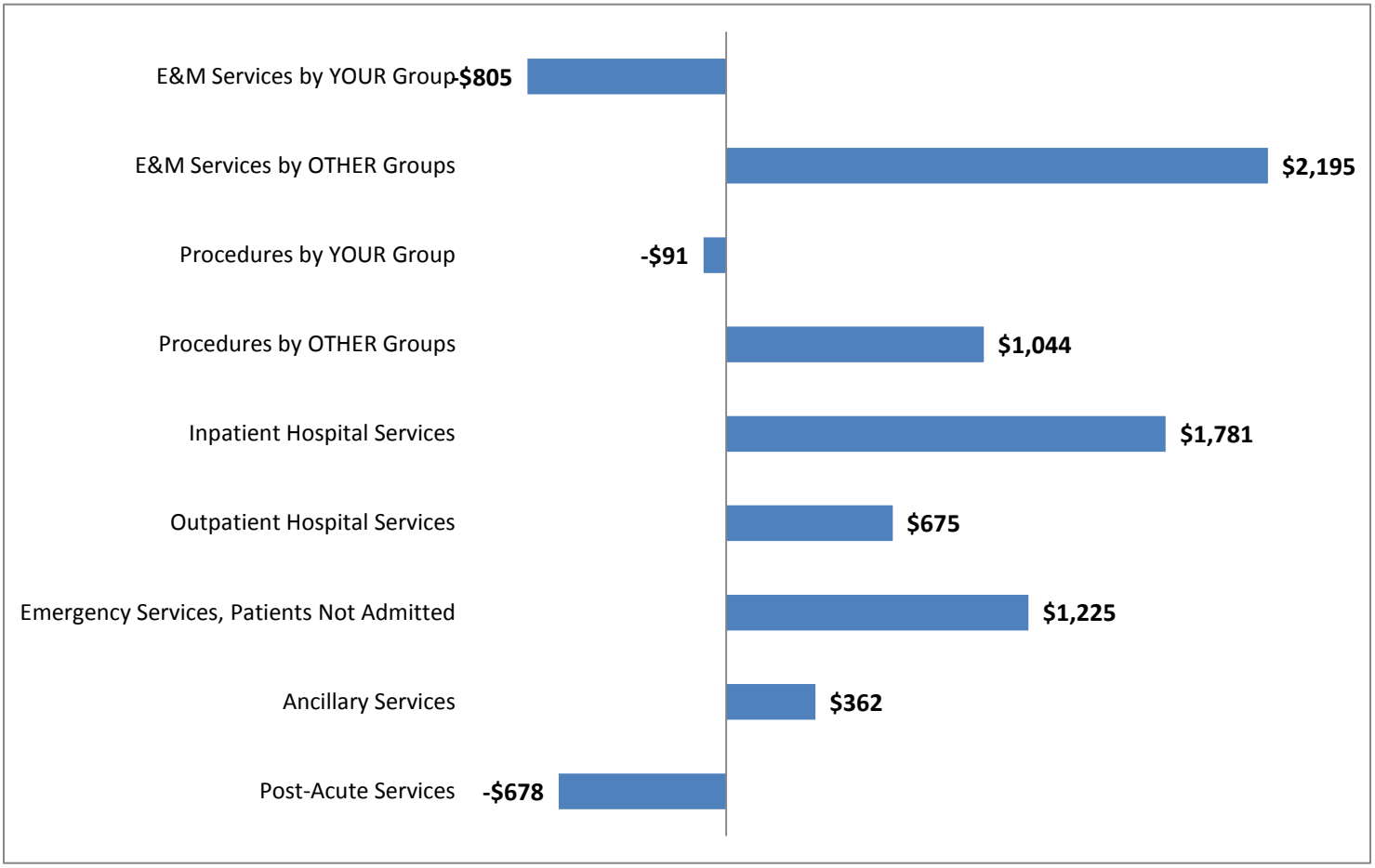
Exhibit 8. Per Capita Costs of Medicare Beneficiaries Attributed to Your Medical Group Practice in 2012, Compared to All # Medical Group Practices with at Least 25/100 Eligible Professionals



Note: Per capita costs are risk adjusted and payment standardized and are based on payments for Medicare Part A and Part B claims submitted in 2012 by all providers (including medical professionals, hospitals, and post-acute care facilities) for Medicare beneficiaries attributed to a medical group practice. Outpatient prescription drug (Part D) costs are not included.

Exhibit 9 shows the difference between the per capita costs of specific types of services for all Medicare patients attributed to your medical group practice and the mean among all medical group practices in your peer group.

Exhibit 9. Difference Between Per Capita Costs for Specific Services for Your Group's Attributed Beneficiaries in 2012 and Mean Per Capita Costs Among All # Groups with at Least 25/100 Eligible Professionals



Note: Per capita costs are based on payments for Medicare Part A and Part B claims submitted in 2012 by all providers (including medical professionals, hospitals, and post-acute care facilities) for Medicare beneficiaries attributed to your group. Outpatient prescription drug (Part D) costs are not included. All per capita costs are payment standardized and risk adjusted. In calculating service-specific per capita costs, the numerator is the total costs for a category of service used by attributed patients; the denominator is the total number of Medicare patients attributed to a medical group, not just those who used the service.

Exhibit 10 on the following page shows additional detail on per capita costs of services for Medicare patients attributed to your medical group practice, compared to average costs among all medical group practices in your peer group.

Exhibit 10. Medicare Patients' Per Capita Costs for Specific Services in 2012

Service Category	Your Medical Group Practice			Mean for All # Groups with at Least 25/100 Eligible Professionals		Amount by Which Your Group's Costs Were Higher or (Lower) than Peer Group Mean
	Your Medicare Patients Using Any Service in This Category		Risk-Adjusted Per Capita Costs	Medicare Patients Using Any Service in This Category	Risk-Adjusted Per Capita Costs	
	Number	Percentage				
All Services	**#**	**100.0%**	**$##,###**	**100.0%**	**$##,###**	**$/($)**
Evaluation and Management (E&M) Services in All Non-Emergency Settings						
All E&M Services Provided by YOUR Group	**#**	**#.#%**	**$##,###**	**#.#%**	**$##,###**	**$/($)**
Primary Care Physicians						
Medical Specialists						
Surgeons						
Other Medical Professionals						
All E&M Services Provided by OTHER Groups	**#**	**#.#%**	**$##,###**	**#.#%**	**$##,###**	**$/($)**
Primary Care Physicians						
Medical Specialists, Surgeons, and Other Medical Professionals						
Procedures in All Non-Emergency Settings						
All Procedures Performed by YOUR Group						
Primary Care Physicians						
Medical Specialists						
Surgeons						
Other Medical Professionals						
All Procedures Performed by OTHER Groups						
Primary Care Physicians						
Medical Specialists, Surgeons, and Other Medical Professionals						
Hospital Services (Excluding Emergency Outpatient)						
Inpatient Hospital Facility Services						
Outpatient Hospital Facility Services						
Emergency Services That Did Not Result in a Hospital Admission						
All Emergency Services						
Emergency Visits						
Procedures						
Laboratory and Other Tests						
Imaging Services						
Services in Non-Emergency Ambulatory Settings						
All Ancillary Services						
Laboratory and Other Tests						
Imaging Services						
Durable Medical Equipment						
Post-Acute Care						
All Post-Acute Services						
Skilled Nursing Facility						
Psychiatric, Rehabilitation, or Other Long-Term Facility						
Hospice						
Home Health						
Other Services Billed by Non-Institutional Providers						
All Other Services						
Ambulance Services						
Chemotherapy and Other Part B–Covered Drugs						
All Other Services Not Otherwise Classified						

Note: In calculating service-specific per capita costs, the numerator is the total costs for a category of service used by attributed patients; the denominator is the total number of Medicare patients attributed to a medical group practice and whose costs were risk adjusted, not just those who used the service. See Appendix A for list of physician specialties assigned to each specialty category.

APPENDIX A

Exhibit A-1. Specialties Associated with Eligible Professional, Physician, and Provider Stratification Categories

Provider or Supplier Specialty Description	CMS Specialty Code	Eligible Professional?	Physician?	Provider Stratification Category
Primary Care Specialties				
Family Practice	08	Yes	Yes	Primary Care Physicians
General Practice	01	Yes	Yes	Primary Care Physicians
Geriatric Medicine	38	Yes	Yes	Primary Care Physicians
Internal Medicine	11	Yes	Yes	Primary Care Physicians
All Other Specialties				
Addiction Medicine	79	Yes	Yes	Medical Specialists
All Other Suppliers (e.g., Drug Stores)	87	No	No	Not Applicable
Allergy/Immunology	03	Yes	Yes	Medical Specialists
Ambulance Service Supplier (e.g., Private Ambulance Companies, Funeral Homes)	59	No	No	Not Applicable
Ambulatory Surgical Center	49	No	No	Not Applicable
Anesthesiologist Assistant	32	Yes	No	Other Medical Professionals
Anesthesiology	05	Yes	Yes	Other Medical Professionals
Audiologist (Billing Independently)	64	Yes	No	Other Medical Professionals
Cardiac Electrophysiology	21	Yes	Yes	Medical Specialists
Cardiac Surgery	78	Yes	Yes	Surgeons
Cardiology	06	Yes	Yes	Medical Specialists
Certified Clinical Nurse Specialist	89	Yes	No	Other Medical Professionals
Certified Nurse Midwife	42	Yes	No	Other Medical Professionals
Certified Registered Nurse Anesthesiologist	43	Yes	No	Other Medical Professionals
Chiropractor, Licensed	35	Yes	Yes	Other Medical Professionals
Clinical Laboratory (Billing Independently)	69	No	No	Not Applicable
Clinical Psychologist	68	Yes	No	Other Medical Professionals
Clinical Psychologist (Billing Independently)	62	Yes	No	Other Medical Professionals
Colorectal Surgery (Formerly Proctology)	28	Yes	Yes	Surgeons
Critical Care (Intensivists)	81	Yes	Yes	Medical Specialists
Department Store (For DMERC Use)	A7	No	No	Not Applicable
Dermatology	07	Yes	Yes	Medical Specialists
Diagnostic Radiology	30	Yes	Yes	Other Medical Professionals
Emergency Medicine	93	Yes	Yes	Other Medical Professionals
Endocrinology	46	Yes	Yes	Medical Specialists
Gastroenterology	10	Yes	Yes	Medical Specialists
General Surgery	02	Yes	Yes	Surgeons
Geriatric Psychiatry	27	Yes	Yes	Medical Specialists
Grocery Store (For DMERC Use)	A8	No	No	Not Applicable
Gynecologist/Oncologist	98	Yes	Yes	Surgeons
Hand Surgery	40	Yes	Yes	Surgeons
Hematology	82	Yes	Yes	Medical Specialists
Hematology/Oncology	83	Yes	Yes	Medical Specialists
Home Health Agency (DMERCs Only)	A4	No	No	Not Applicable
Hospice and Palliative Care	17	Yes	Yes	Medical Specialists
Hospital	A0	No	No	Not Applicable
Independent Diagnostic Testing Facility	47	No	No	Not Applicable

Specialty Description	CMS Specialty Code	Eligible Professional?	Physician?	Provider Stratification Category
Individual Certified Orthotist	55	No	No	Other Medical Professionals
Individual Certified Prosthetist	56	No	No	Other Medical Professionals
Individual Certified Prosthetist-Orthotist	57	No	No	Other Medical Professionals
Infectious Disease	44	Yes	Yes	Medical Specialists
Intensive Cardiac Rehabilitation	31	No	No	Not Applicable
Intermediate Care Nursing Facility (DMERCs Only)	A2	No	No	Not Applicable
Interventional Pain Management	09	Yes	Yes	Medical Specialists
Interventional Radiology	94	Yes	Yes	Other Medical Professionals
Licensed Clinical Social Worker	80	Yes	No	Other Medical Professionals
Mammography Screening Center	45	No	No	Not Applicable
Mass Immunization Roster Biller	73	No	No	Not Applicable
Maxillofacial Surgery	85	Yes	Yes	Surgeons
Medical Oncology	90	Yes	Yes	Medical Specialists
Medical Supply Company For DMERC	54	No	No	Not Applicable
Medical Supply Company with Certified Orthotist	51	No	No	Not Applicable
Medical Supply Company with Certified Prosthetist	52	No	No	Not Applicable
Medical Supply Company with Certified Prosthetist-Orthotist	53	No	No	Not Applicable
Medical Supply Company with Pedorthic Personnel	B3	No	No	Not Applicable
Medical Supply Company with Registered Pharmacist	58	No	No	Not Applicable
Medical Supply Company with Respiratory Therapist (DMERCs Only)	A6	No	No	Not Applicable
Nephrology	39	Yes	Yes	Medical Specialists
Neurology	13	Yes	Yes	Medical Specialists
Neuropsychiatry	86	Yes	Yes	Medical Specialists
Neurosurgery	14	Yes	Yes	Surgeons
Nuclear Medicine	36	Yes	Yes	Other Medical Professionals
Nurse Practitioner	50	Yes	Yes	Other Medical Professionals
Nursing Facility, Other (DMERCs Only)	A3	No	No	Not Applicable
Obstetrics/Gynecology	16	Yes	Yes	Surgeons
Occupational Therapist (Independently Practicing)	67	Yes	No	Other Medical Professionals
Ocularist	B5	No	No	Not Applicable
Ophthalmology	18	Yes	Yes	Surgeons
Optician	96	No	No	Not Applicable
Optometrist	41	Yes	Yes	Other Medical Professionals
Oral Surgery (Dentists Only)	19	Yes	Yes	Surgeons
Orthopedic Surgery	20	Yes	Yes	Surgeons
Osteopathic Manipulative Therapy	12	Yes	Yes	Medical Specialists
Otolaryngology	04	Yes	Yes	Surgeons
Pain Management	72	Yes	Yes	Other Medical Professionals
Pathology	22	Yes	Yes	Other Medical Professionals
Pediatric Medicine	37	Yes	Yes	Other Medical Professionals
Pedorthic Personnel	B2	No	No	Not Applicable
Peripheral Vascular Disease	76	Yes	Yes	Surgeons
Pharmacy (DMERCs Only)	A5	No	No	Not Applicable
Physical Medicine and Rehabilitation	25	Yes	Yes	Medical Specialists
Physical Therapist (Independently Practicing)	65	Yes	No	Other Medical Professionals

Specialty Description	CMS Specialty Code	Eligible Professional?	Physician?	Provider Stratification Category
Physician Assistant	97	Yes	No	Other Medical Professionals
Plastic and Reconstructive Surgery	24	Yes	Yes	Surgeons
Podiatry	48	Yes	Yes	Other Medical Professionals
Portable X-Ray Supplier	63			Not Applicable
Preventive Medicine	84	Yes	Yes	Medical Specialists
Psychiatry	26	Yes	Yes	Medical Specialists
Public Health or Welfare Agencies (Federal, State, and Local)	60	No	No	Not Applicable
Pulmonary Disease	29	Yes	Yes	Medical Specialists
Radiation Oncology	92	Yes	Yes	Other Medical Professionals
Radiation Therapy Centers	74			Not Applicable
Registered Dietician/Nutrition Professional	71	Yes	No	Other Medical Professionals
Rehabilitation Agency	B4	No	No	Not Applicable
Rheumatology	66	Yes	Yes	Medical Specialists
Single or Multispecialty Clinic or Group Practice	70	Yes	Yes	Other Medical Professionals
Skilled Nursing Facility	A1	No	No	Not Applicable
Sleep Medicine	C0	Yes	Yes	Medical Specialists
Slide Preparation Facilities	75	No	No	Not Applicable
Speech Language Pathologists	15	Yes	No	Other Medical Professionals
Sports Medicine	23	Yes	Yes	Other Medical Professionals
Surgical Oncology	91	Yes	Yes	Surgeons
Thoracic Surgery	33	Yes	Yes	Surgeons
Unassigned	95	No	No	Not Applicable
Unknown Physician	99	Yes	Yes	Other Medical Professionals
Unknown Supplier/Provider	88	No	No	Not Applicable
Urology	34	Yes	Yes	Surgeons
Vascular Surgery	77	Yes	Yes	Surgeons
Voluntary Health or Charitable Agencies (e.g., National Cancer Society, National Heart Association, Catholic Charities)	61	No	No	Not Applicable

{Only for non-GPRO groups: skip to Glossary of Terms.}

{Only for GPRO groups:}

APPENDIX B

Earned Incentive Under the Physician Quality Reporting System Group Practice Reporting Option

{Only for GPRO participants that earned an incentive:} Based on a review of all data submitted for your medical group practice as a participant in the 2012 Group Practice Reporting Option (GPRO), your medical group practice qualified to earn an incentive payment of $#, equivalent to #.#% of your group's total estimated allowed Medicare Part B Physician Fee Schedule charges.

Exhibit B-1. Summary of GPRO Earned Incentive, 2012

Total Earned Incentive Amount	Total Estimated Allowed Medicare Part B Physician Fee Schedule Charges	Distribution of Total Incentive Earned Among Medicare Administrative Contractors (MACs) or Carriers		
		MAC or Carrier Identification Number	Earned Incentive Amount	Proportion for This MAC or Carrier
$	$	#	$	#.#%

{Only for GPRO participants that did not earn an incentive:} Based on a review of all data submitted for your medical group practice as a participant in the 2012 Group Practice Reporting Option (GPRO), your medical group practice did not qualify for an incentive.

GLOSSARY OF TERMS

ALL-CAUSE HOSPITAL READMISSIONS. The all-cause hospital readmissions measure is a MEDICAL GROUP PRACTICE–specific all-cause 30-day rate of acute care hospital readmissions (defined as an unplanned readmission for any cause within 30 days from the date of discharge of an index admission in 2012) for beneficiaries discharged from an acute care or critical access hospital. The measure does not apply to ATTRIBUTED beneficiaries who were under age 18 on January 1, 2012, discharged against medical advice, or transferred to another acute care hospital. Beneficiaries who died within 30 days of discharge and those without continuous enrollment in Medicare Part A for at least one month following discharge are likewise excluded. Certain hospitalizations, such as those related to treatment of cancer or primary psychiatric disease, are excluded from the set of index admissions considered. Index admissions are grouped into five specialty cohorts—surgery/gynecology, cardiorespiratory, cardiovascular, neurology, and medicine—based on the presumption that admissions treated by similar teams of clinicians are likely to have similar risks of readmission. Readmissions are RISK ADJUSTED via hierarchical logistic regression models that estimate a series of ratios (one for each specialty cohort) of the number of readmissions predicted for the specific medical group practice, given its case mix, to the number of readmissions expected among all medical group practices in the peer group with a similar case mix. A case-weighted geometric mean of these ratios is then computed and multiplied by the overall readmission rate for all beneficiaries across all groups.

ALL OTHER SERVICES. Exhibit 10 displays seven categories of Medicare-covered services: evaluation and management in non-emergency settings, procedures in non-emergency settings, inpatient hospital, outpatient hospital (excluding emergency outpatient), emergency services that did not result in a hospital admission, ancillary services in non-emergency ambulatory settings, and post-acute care services. All other Medicare-covered services (with the exception of Medicare Part D prescription drug costs) not included in those seven categories are captured in Exhibit 10 as "All Other Services." This includes anesthesia, ambulance services, chemotherapy, other Part B drugs, chiropractic, enteral and parenteral nutrition, some vision services, some hearing and speech services, and influenza immunization.

AMBULATORY CARE SENSITIVE CONDITIONS (ACSCS). ACSCs are conditions for which good outpatient care can prevent complications or more serious disease. The Agency for Healthcare Research and Quality (AHRQ) developed measures of potentially avoidable hospitalizations for ACSCs as part of a larger set of Prevention Quality Indicators (PQIs). The measures rely on hospital discharge data but are not intended to measure hospital quality. Rather, high or increasing rates of hospitalization for these conditions in a defined population of patients may indicate inadequate access to high-quality ambulatory care.

The Care Coordination quality domain includes two composite measures of hospital admissions for acute and chronic ACSCs, as shown in Exhibit 4-CC. The admission rates are calculated from 2012 Medicare Part A claims data, based on the individual PQIs shown in Exhibit G-1.

Exhibit G-1. AHRQ Prevention Quality Indicators Used to Calculate ACSC Rates

Acute Conditions Composite	
PQI #11	Bacterial Pneumonia Admission Rate
PQI #12	Urinary Tract Infection Admission Rate
PQI #10	Dehydration Admission Rate
Chronic Conditions Composite	
PQI #01	Diabetes Short-Term Complications Admission Rate (included in diabetes composite)
PQI #03	Diabetes Long-Term Complications Admission Rate (included in diabetes composite)
PQI #14	Uncontrolled Diabetes Admission Rate (included in diabetes composite)
PQI #16	Rate of Lower-Extremity Amputation Among Patients With Diabetes (included in diabetes composite)
PQI #05	Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Older Adults Admission Rate
PQI #08	Heart Failure Admission Rate

Source: Agency for Healthcare Research and Quality and Mathematica Policy Research.

The ACSC measures are RISK ADJUSTED by comparing the MEDICAL GROUP PRACTICE's actual rate of potentially avoidable hospitalizations to an expected rate. The numerator of the actual rate is the number of beneficiaries ATTRIBUTED to the medical group who were identified as having been hospitalized for each of the individual PQI conditions in 2012. Only those admissions where the measure of interest is listed as the primary diagnosis are counted. The denominators for the rates have been modified from the original PQI population-based measures to include only those Medicare beneficiaries attributed to the medical group practice being assessed. The denominator for measures in the Chronic Conditions Composite (diabetes, COPD/asthma, heart failure) is restricted to patients diagnosed with the specific condition. For measures in the Acute Conditions Composite (bacterial pneumonia, urinary tract infection, dehydration), the denominator includes all Medicare patients attributed to the medical group practice.

For each measure, the expected rate reflects the average experience of Medicare beneficiaries in the same age category and of the same gender as those attributed to the group. The risk-adjusted rate is calculated as the ratio of the actual rate to the expected rate multiplied by the average actual rate per 1,000 beneficiaries. Each of the composite rates is the weighted sum of the component rates, with each component's weight equal to the percentage of all attributed beneficiaries included in the component rate's denominator. The PQI measure specifications, including numerator diagnoses, are available on AHRQ's website at http://www.qualityindicators.ahrq.gov/Modules/pqi_resources.aspx.

ATTRIBUTION OF BENEFICIARIES TO MEDICAL GROUP PRACTICES. Medicare beneficiaries are considered for assignment to a MEDICAL GROUP PRACTICE, identified by Taxpayer Identification Number (TIN), in a two-step process based on primary care services (Exhibit G-2) provided by the group, as captured in 2012 Part B Medicare claims.

1. The first step assigns a beneficiary to a group if the beneficiary receives the plurality of his or her primary care services from primary care physicians within the group. Primary care physicians are those with one of four specialty designations: family practice, general practice, geriatric medicine, or internal medicine.

2. The second step applies only to beneficiaries who did not receive a primary care service from any primary care physician in 2012. Under this second step, a beneficiary is assigned to a group if the beneficiary (a) received at least one primary care service from a physician within the group and (b) received a plurality of his or her primary care services from specialist physicians and certain non-physician practitioners (nurse practitioners, clinical nurse specialists, and physician assistants) within the group.

Beneficiaries were not attributed to any medical group practice if, for any month in 2012, any of the following situations applied to them: they were enrolled in Part A only or Part B only; they were enrolled in Medicare managed care; they resided outside the United States, its territories, and its possessions; or they did not have any Medicare allowed charges in 2012.

The same population of beneficiaries attributed to a medical group practice is used for calculating the denominators of all non–PHYSICIAN QUALITY REPORTING SYSTEM (PQRS) quality and cost measures displayed in this report. Performance on any displayed GROUP PRACTICE REPORTING OPTION (GPRO) quality indicators, however, is based on a sample of beneficiaries who had at least two office or other outpatient visits with the medical group practice and for whom the medical group practice provided the plurality of all office and other outpatient services during approximately the first ten months of 2012; Medicare Advantage enrollees and beneficiaries for whom Medicare was not the primary payer for all of 2012 are excluded.

Exhibit G-2. Healthcare Common Procedure Coding System (HCPCS) Primary Care Service Codes Criteria

HCPCS Codes	Brief Description
99201–99205	New patient, office or other outpatient visit
99211–99215	Established patient, office or other outpatient visit
99304–99306	New patient, nursing facility care
99307–99310	Established patient, nursing facility care
99315–99316	Established patient, discharge day management service
99318	Established patient, other nursing facility service
99324–99328	New patient, domiciliary or rest home visit
99334–99337	Established patient, domiciliary or rest home visit
99339–99340	Established patient, physician supervision of patient (patient not present) in home, domiciliary or rest home
99341–99345	New patient, home visit
99347–99350	Established patient, home visit
G0402	Initial Medicare visit
G0438	Annual wellness visit, initial
G0439	Annual wellness visit, subsequent

Note: Labels are approximate. See the American Medical Association's Current Procedural Terminology and the Centers for Medicare & Medicaid Services website (http://www.cms.gov) for detailed definitions.

CHRONIC HEALTH CONDITIONS. Chronic health conditions are diseases or illnesses that are commonly expected to last at least six months, require ongoing monitoring to avoid loss of normal life functioning, and are not expected to improve or resolve without treatment. For this report, PER CAPITA COSTS FOR BENEFICIARIES WITH SPECIFIC CONDITIONS were calculated for four conditions common to the Medicare population: diabetes, coronary artery disease, chronic obstructive pulmonary disease, and heart failure.

COST COMPOSITE SCORE. The Cost Composite Score is one of two composite scores used to calculate the VALUE-BASED PAYMENT MODIFIER under the QUALITY TIERING option. It summarizes a MEDICAL GROUP PRACTICE'S performance on costs across two equally-weighted cost domains: PER CAPITA COSTS FOR ALL ATTRIBUTED BENEFICIARIES and PER CAPITA COSTS FOR BENEFICIARIES WITH SPECIFIC CONDITIONS (diabetes, coronary artery disease, chronic obstructive pulmonary disease, and heart failure). Standardized scores reflect how much a group's performance differs from the national mean performance on a measure-by-measure basis within each domain. For groups attributed fewer than 20 beneficiaries with diabetes, coronary artery disease, chronic obstructive pulmonary disease, or heart failure, the Cost Composite Score is based solely on Per Capita Costs for All Attributed Beneficiaries.

ELIGIBLE PROFESSIONALS. An eligible professional is an individual provider, as identified by his or her individual National Provider Identifier (NPI), who is either a physician, a practitioner, a physical or occupational therapist or qualified speech-language pathologist, or a qualified audiologist. A physician is one of the following: doctor of medicine, doctor of osteopathy, doctor of dental surgery or dental medicine, doctor of podiatric medicine, doctor of optometry, or chiropractor. A practitioner is any of the following: certified registered nurse anesthetist, anesthesiology assistant, certified nurse-midwife, clinical social worker, clinical psychologist, or registered dietician or nutrition professional. An eligible professional's medical specialty was determined from the specialty listed by the provider in the Provider Enrollment, Chain, and Ownership System (PECOS); in cases where multiple specialties are listed for a provider in PECOS, the provider is assigned the specialty recorded most often on those 2012 Part B claims for which the professional was the performing provider.

GROUP PRACTICE REPORTING MECHANISMS. MEDICAL GROUP PRACTICES participating in the PHYSICIAN QUALITY REPORTING SYSTEM (PQRS) through the GROUP PRACTICE REPORTING OPTION (GPRO) may report quality measures through one of three options: (1) a qualified registry, (2) the GPRO web interface, or (3) the administrative claims reporting method. Only group practices with 25 or more ELIGIBLE PROFESSIONALS may use the web interface as a reporting method. Under the administrative claims reporting method, the Centers for Medicare & Medicaid Services (CMS) will calculate performance on quality measures based on Medicare Part B claims data submitted by the group. Groups may elect the administrative claims reporting option in 2013 for the purpose of 2015 value-based payment adjustment, but not for 2013 GPRO incentive payments.

GROUP PRACTICE REPORTING OPTION (GPRO). In accordance with section 1848(m)(3)(C) of the Social Security Act, the Centers for Medicare & Medicaid Services (CMS) created a new group practice reporting option (GPRO) for the PHYSICIAN QUALITY REPORTING SYSTEM (PQRS) in 2010. MEDICAL GROUP PRACTICES that satisfactorily report data on specified PQRS quality indicators for a particular reporting period are eligible to earn a PQRS incentive payment equal to a specified percentage of the group practice's total estimated Medicare Part B physician fee schedule allowed charges for covered professional services furnished during the reporting period. For purposes of determining whether a group practice satisfactorily submits PQRS quality measures data for 2012, each selected GPRO participant is required to report 29 quality measures. More complete information about GPRO, including descriptions of each of the 29 measures, is available from the GPRO website at https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/PQRS/Group_Practice_Reporting_Option.html**.**

MEASURE POPULATIONS. All administrative claims-based measures—including any claims-based quality measures, AMBULATORY CARE SENSITIVE CONDITION (ACSC) rates, ALL-CAUSE HOSPITAL READMISSION RATES, and PER CAPITA COST measures—in this report are calculated based on all Medicare fee-for-service (FFS) beneficiaries ATTRIBUTED to the medical group practice. In contrast, any PHYSICIAN QUALITY REPORTING SYSTEM (PQRS) quality measures are calculated based on a sample of Medicare FFS beneficiaries attributed to the MEDICAL GROUP PRACTICE. Each participating medical group practice is required to report clinical data for at least the first 218 or 411 beneficiaries (depending on the group's size) on their list of assigned beneficiaries that the Centers for Medicare & Medicaid Services (CMS) has determined meet criteria for specific measures, or on 100 percent of the beneficiaries on their list for that measure, whichever is smaller.

MEDICAL GROUP PRACTICE. Medical group practice refers to a single provider entity, identified by its Taxpayer Identification Number (TIN), to which at least 25 ELIGIBLE PROFESSIONALS reassigned their billing rights in 2012.

MEDICAL PROFESSIONALS. Medical professionals are individual providers, as identified by individual National Provider Identifier (NPI), who are eligible for payment from Medicare for Medicare-covered services. These include all ELIGIBLE PROFESSIONALS, as well as orthotists, prosthetists, orthotist-prosthetists, opticians, and

ocularists. A medical professional's medical specialty was determined from the specialty listed by the provider in the Provider Enrollment, Chain, and Ownership System (PECOS); in cases where multiple specialties are listed for a provider in PECOS, the provider is assigned the specialty recorded most often on those 2012 Part B claims for which the professional was the performing provider.

MEDICARE CLAIMS DATA USED IN THE COST MEASURES. The cost measures displayed in this report use 2012 Part A and Part B Medicare claims data to provide feedback to MEDICAL GROUP PRACTICES about selected cost measures related to the care provided to Medicare beneficiaries ATTRIBUTED to their group. These data include inpatient hospital, outpatient hospital, hospice, skilled nursing facility, home health, and durable medical equipment claims, as well as claims submitted by individual (non-institutional) providers and suppliers to their Part B Medicare Administrative Contractors (MACs). Part D prescription drug costs are not included in the cost measures.

PAYMENT STANDARDIZATION. Payment standardization equalizes the costs associated with a specific service, such that a given service is priced at the same level across all providers of the same type, regardless of geographic location, differences in Medicare payment rates among facilities, or the year in which the service was provided. These may include discrete services (such as physician office visits or consultations) or bundled services (such as hospital stays).

For most types of medical services, Medicare adjusts payments to providers to reflect differences in local input prices (for example, wage rates and real estate costs). The costs reported in this report are therefore payment standardized to allow for comparisons to peers who may practice in locations or facilities where reimbursement rates are higher or lower. Payment standardization is performed prior to calculating per capita payment-adjusted and RISK-ADJUSTED cost measures.

PEER GROUP. To provide a comparative context for the information in this report, a MEDICAL GROUP PRACTICE'S performance on cost, utilization, and quality measures is compared to that of its peers. For the PHYSICIAN QUALITY REPORTING SYSTEM (PQRS) GROUP PRACTICE REPORTING OPTION (GPRO) quality indicators displayed in this report, the peer group is defined as all medical group practices participating in GPRO in 2012. A list with the name and state of group practices who satisfactorily reported the GPRO quality indicators for the 2012 program year is available at <insert URL>. For all other measures displayed in this report, medical group practices with at least 25 but less than 100 ELIGIBLE PROFESSIONALS are compared to all medical group practices nationwide with at least 25 eligible professionals; medical group practices with at least 100 eligible professionals are compared to all medical group practices nationwide with at least 100 eligible professionals. All peer group totals include data for the specific medical group practice profiled in the QRUR.

PER CAPITA COSTS FOR ALL ATTRIBUTED BENEFICIARIES. Per capita costs are the average (mean) of all 2012 Medicare fee-for-service (FFS) Parts A and B payments to all providers for beneficiaries ATTRIBUTED to a MEDICAL GROUP PRACTICE. A medical group's per capita cost measures are presented in the report compared to all other medical group practices nationwide of similar size (see PEER GROUP).

Per capita cost measures in this report were calculated using 2012 Medicare Part A (Hospital Insurance) and Part B (Medical Insurance) claims for all FFS Medicare beneficiaries attributed to the medical group practice. Medicare costs were obtained from 2012 administrative claims data using inpatient, outpatient, skilled nursing facility, home health, hospice, durable medical equipment, and non-institutional provider/supplier claims. Outpatient prescription drug (Part D) claims were not included in the 2012 cost measure calculations. Payments to providers from Medicare are the primary component of costs. To the extent that Medicare claims contain information on beneficiary copayments and deductibles and third-party private payers, those amounts are also included in costs.

PAYMENT-STANDARDIZED *but non-RISK-ADJUSTED* per capita costs were calculated by first summing the payment-standardized Medicare Parts A and B costs during the 2012 calendar year for all Medicare

beneficiaries who were attributed to the medical group (the numerator) and then dividing by the number of beneficiaries attributed to the medical group (the denominator). Part-year beneficiaries who became eligible for Medicare or died during the year were included. However, beneficiaries who were enrolled in Part A only (no Part B) or Part B only for one or more months in 2012, as well as those who were enrolled in a Medicare Advantage program for part of the year, were excluded along with the costs associated with their care.

Payment-standardized *and risk-adjusted* per capita costs were computed by dividing the medical group practice's actual payment-standardized but non-risk-adjusted per capita costs by the group's expected payment-standardized costs for all attributed beneficiaries. Expected costs were computed by multiplying the coefficients of the risk adjustment model (see RISK ADJUSTMENT) by the characteristics of the medical group practice's attributed beneficiaries. This ratio was then multiplied by the mean per capita cost of all beneficiaries attributed to any medical group practices in the sample.

To provide more detail on the per capita cost measures displayed in the reports, additional breakdowns by category of service are provided for the following categories:

- All professional evaluation and management (E&M) services provided by primary care physicians, medical specialists, surgeons, and other medical professionals in non-emergency settings (Appendix A shows how medical professionals were grouped into one of these four categories)
- All procedures performed in non-emergency settings by primary care physicians, medical specialists, surgeons, and other medical professionals
- Hospital facility services, including inpatient and outpatient services but excluding emergency department services that did not result in an inpatient hospital admission
- Emergency department services for beneficiaries not admitted to a hospital, including visits, procedures, laboratory and other tests, and imaging services
- Services provided in non-emergency ambulatory settings, including laboratory and other tests, imaging services, and durable medical equipment
- Post-acute services including skilled nursing care; psychiatric, rehabilitation, or other long-term facility care; and home health care
- All other Medicare-covered services not captured in other categories, such as anesthesia, ambulance services, chemotherapy, other Part B drugs, chiropractic, enteral and parenteral nutrition, vision services, hearing and speech services, and influenza immunization

PER CAPITA COSTS FOR BENEFICIARIES WITH SPECIFIC CONDITIONS. Per capita costs for Medicare beneficiaries with specific conditions are the average of 2012 Medicare FFS Parts A and B standardized payments per attributed beneficiary with one of four specific CHRONIC HEALTH CONDITIONS: diabetes, coronary artery disease, chronic obstructive pulmonary disease, and heart failure.

The per capita costs for beneficiaries with each condition were computed in the same manner as the PER CAPITA COSTS FOR ALL ATTRIBUTED BENEFICIARIES, except that expected costs for beneficiaries with a specific condition were computed based on a risk adjustment model that included only beneficiaries with that condition. These condition-specific per capita costs include all costs and are not limited to costs associated with treating the condition itself.

The four chronic health conditions are not mutually exclusive. Beneficiaries with two or more conditions are counted (as are their per capita costs) within each of the condition subgroups. For each chronic condition

subgroup, the separate condition-specific risk adjustment model estimated for that subgroup captures other chronic and acute co-morbidities associated with beneficiaries in the particular subgroup.

PHYSICIAN QUALITY REPORTING SYSTEM (PQRS). The PQRS is a reporting program that uses a combination of incentive payments and payment adjustments to promote reporting of quality information by ELIGIBLE PROFESSIONALS. The program provides an incentive payment to practices with eligible professionals who satisfactorily report data on quality measures for covered Physician Fee Schedule (PFS) services furnished to Medicare Part B FFS beneficiaries (including Railroad Retirement Board and Medicare Secondary Payer). Beginning in 2015, the program also applies a negative payment adjustment to eligible professionals who do not satisfactorily report data on quality measures for covered professional services (see VALUE-BASED PAYMENT MODIFIER). Physicians may participate in PQRS as individuals or, at the group level, through the GROUP PRACTICE REPORTING OPTION (GPRO). Physician quality reporting is mandated by federal legislation. CMS implements the program through regulations published in the Federal Register.

QUALITY COMPOSITE SCORE. The Quality Composite Score is one of two composite scores used to calculate the VALUE-BASED PAYMENT MODIFIER under the QUALITY TIERING option. It summarizes a MEDICAL GROUP PRACTICE'S performance on quality up to six equally-weighted quality domains: Clinical Process/Effectiveness, Patient and Family Engagement, Population/Public Health, Patient Safety, Care Coordination, and Efficient Use of Healthcare Resources. Only domains containing at least one quality measure with at least 20 eligible cases are included in the quality composite score. Standardized scores reflect how much a group's performance differs from the national mean performance on a measure-by-measure basis within each quality domain.

QUALITY TIERING. MEDICAL GROUP PRACTICES participating in the PHYSICIAN QUALITY REPORTING SYSTEM (PQRS) will have the option of having their 2015 VALUE-BASED PAYMENT MODIFIER calculated using a quality-tiering approach based on 2013 performance. Groups electing this option will have the opportunity to earn an upward payment adjustment for performance in the higher quality and lower cost tiers but will also be at risk for a downward payment adjustment for lower quality and higher cost performance. To be considered either a high or a low performer, a qualifying group's score must be at least one standard deviation above or below the national mean performance score and statistically different from the mean score at the five percent level of significance.

The basic structure of value-based payment modification under the quality tiering option is displayed below. Because the modifier must be budget neutral, the precise size of the reward for higher performing groups—those that are at least average on both quality and cost and better than average on at least one—will depend on the projected billings of these groups relative to lower performing groups (as captured in the table by the variable *x*), which will vary from year to year with differences in actuarial estimates and in the number and relative performance of medical group practices electing the quality tiering option. Higher performing groups treating beneficiaries with an average risk exceeding the risk of the 75th percentile beneficiary in the Medicare population receive an additional 1.0 percent incentive payment on top of the standard upward adjustment.

	Low Quality	Average Quality	High Quality
Low Cost	+0.0%	+1.0x%*	+2.0x%*
Average Cost	-0.5%	+0.0%	+1.0x%*
High Cost	-1.0%	-0.5%	+0.0%

Note: *x* refers to a payment adjustment factor yet to be determined.

* Higher performing groups serving high-risk beneficiaries (based on average risk scores) are eligible for an additional adjustment of +1.0*x*%.

RISK ADJUSTMENT. Risk adjustment accounts for differences in patient characteristics that can affect their medical costs or utilization, regardless of the care provided. For PEER GROUP comparisons, a MEDICAL GROUP PRACTICE'S per capita costs are risk adjusted based on the unique mix of patients ATTRIBUTED to the group. For medical group practices that have a higher than average proportion of patients with serious medical conditions

or other higher-cost risk factors, risk-adjusted per capita costs will be lower than unadjusted costs (because costs associated with higher-risk patients are adjusted downward). For medical group practices that treat comparatively lower-risk patients, risk-adjusted per capita costs will be higher than unadjusted costs and admissions (because costs for lower-risk patients are adjusted upwards).

For these reports, risk adjustment was based on the hierarchical condition categories (HCC) model developed for the Centers for Medicare & Medicaid Services (CMS) that assigns ICD-9 diagnosis codes (each with similar disease characteristics and costs) to 70 clinical conditions. For each Medicare beneficiary attributed to a medical group practice in 2012, the HCC model generates a 2012 score based on the presence of these conditions in 2011—and on sex, age, original reason for Medicare entitlement (either age or disability), and Medicaid entitlement—as a predictor of beneficiary costs in 2012. Risk adjustment of 2012 costs also takes into account the presence of end-stage renal disease (ESRD) in 2011.

A statistical risk adjustment model estimates the independent effects of these factors on absolute beneficiary costs and adjusts 2012 annual beneficiary costs for each beneficiary prior to calculating per capita risk-adjusted cost measures for a medical group practice. To ensure that extreme outlier costs do not have a disproportionate effect on the cost distributions, costs below the 1st percentile are eliminated from the cost calculations, and costs above the 99th percentile are rounded down to the 99th percentile.

VALUE-BASED PAYMENT MODIFIER. The value-based payment modifier is an adjustment to payments under the Medicare physician fee schedule that will reward higher quality care delivered at lower cost, as required under Section 3007 of the Affordable Care Act. As described in the 2013 Physician Fee Schedule Notice of Final Rulemaking, the Centers for Medicare & Medicaid Services (CMS) will initially apply the value-based payment modifier only to physicians practicing in a MEDICAL PRACTICE GROUP with 100 or more ELIGIBLE PROFESSIONALS billing under a single Taxpayer Identification Number (TIN) as of October 15, 2012. CMS will separate these groups into two categories, based on their registration and participation in the PHYSICIAN QUALITY REPORTING SYSTEM (PQRS) in 2013. Groups may participate under one of three PQRS reporting options: (1) the GROUP PRACTICE REPORTING OPTION (GPRO) web interface, (2) a qualified registry, or (3) CMS-calculated administrative claims. Groups choosing not to register and participate in PQRS in one of these three ways will have a value-based payment modifier set at -1.0 percent, applied to all of the group's Medicare physician fee schedule payments in 2015. Groups that register and participate in PQRS via one of the three reporting options will have their value-based payment modifier set at 0.0 percent, meaning that they will incur no negative adjustment to their 2015 physician fee schedule payments. During the registration period, groups participating in PQRS can request, instead, that CMS calculate their 2015 value-based payment modifier using a QUALITY TIERING approach based on 2013 performance.

CMS will not apply the value-based payment modifier for 2015 and 2016 to groups of physicians that are participating in the Medicare Shared Savings Program, the testing of the Pioneer ACO Model, or the Comprehensive Primary Care Initiative.

Return to Measure Evaluation

Cost and Resource Use 2012

Total Per Capita Cost Measure for Medicare Fee-for-Service Beneficiaries – Table for Section H. Related and Competing Measures

Table H.1.2.1. Areas in Which the Specifications Are Not Completely Harmonized: Differences, Rationale, and Impact on Interpretability

Description of Measure Specifications in Which Harmonization Is Not Complete	Rationale and Impact of Interpretability	Total Per Capita Cost Measure for Medicare Fee-for-Service Beneficiaries	NQF #1598 Total Resource Use Population-Based Per Member Per Month Index
Target Population	CMS's measure focuses on total per capita cost for Medicare fee-for-service (FFS) beneficiaries. The measure has been tested and validated, specifically for the Medicare FFS population to evaluate the total per capita cost of beneficiaries attributed to medical group practices. The measure is not intended to be applied to the commercial or Medicaid population.	Medicare FFS	Commercial
Exclusions	**Age Limitation:** We do not set any age limitations so as to provide a comprehensive measure of resource use for all Medicare FFS beneficiaries. **Enrollment Period:** Because our measure is an annual measure of per capita cost, continuous enrollment during the performance year enables us to evaluate costs without having to impute costs.	**Age limitation:** None (all Medicare FFS beneficiaries are included) **Enrollment Period:** Beneficiaries enrolled in both Medicare FFS Parts A and B for all 12 months	**Age Limitation:** Age < 1 or > 64 **Enrollment Period:** Commercial health plan members enrolled in plan for at least 9 months

Description of Measure Specifications in Which Harmonization Is Not Complete	Rationale and Impact of Interpretability	Total Per Capita Cost Measure for Medicare Fee-for-Service Beneficiaries	NQF #1598 Total Resource Use Population-Based Per Member Per Month Index
Types of Services or Costs	Costs related to Part D drugs are excluded from our measure. Only 60 percent of beneficiaries were enrolled in Part D plans in 2011. CMS does not have prescription drug data, as these are private plans. In addition, some beneficiaries who do not have Medicare Part D might have prescription drug coverage through other insurance sources or the retiree subsidy, for which Medicare does not have claims data.	Exclude prescription drugs (due to data limitations of Part D) and lack of access to prescription drug data from private plans	Include prescription drugs within a commercial health plan
Attribution Approach	The attribution method for the proposed measure of per capita cost is closely aligned with the beneficiary attribution methods used across several CMS programs targeting Medicare FFS populations and the physicians who serve them: the Medicare Shared Savings Program, the Physician Quality Reporting System, the Quality and Resource Use Reports, and the Physician Value-Based Payment Modifier. Applying consistent attribution methods across these programs allows CMS to streamline processes and reduce confusion	Medicare beneficiaries are attributed via a two-step process. The attribution method emphasizes primary care provided by primary care physicians (PCPs) through the first step attribution rule, while also acknowledging the role that physicians of other specialties and other eligible professionals have in providing primary care services (PCS) through the second step of the method.	Commercial health plan members are attributed to a PCP based on the PCP claims. Members are attributed to PCPs with whom they had the greatest number of primary care visits.

Description of Measure Specifications in Which Harmonization Is Not Complete	Rationale and Impact of Interpretability	Total Per Capita Cost Measure for Medicare Fee-for-Service Beneficiaries	NQF #1598 Total Resource Use Population-Based Per Member Per Month Index
	among group practices. Through this attribution approach, CMS is focusing on primary care and addressing care fragmentation, which is common in traditional Medicare. This differs from the commercial health plan environment, in which primary care physicians have a more prominent role.		
Payment-Standardization	CMS's payment-standardization approach equalizes the costs associated with a specific service, such that a given service is paid at the same level across all providers of the same type. More specifically, the measure adjusts for observed payments for Medicare FFS geographic adjustment factors, such as the hospital wage index and geographic cost index. Payment standardization also removes supplemental payments CMS makes to academic medical centers and providers that treat a disproportionate share of low-income patients.	Payments are standardized for the same type of services provided in a given health care setting regardless of when and where it was provided, and regardless of differences in Medicare payment rates among the same class of providers. The methodology is based specifically on CMS payment systems and payment rates.	Standardized costing code table: Total Care Relative Resource Values (TCRRVs)

Description of Measure Specifications in Which Harmonization Is Not Complete	Rationale and Impact of Interpretability	Total Per Capita Cost Measure for Medicare Fee-for-Service Beneficiaries	NQF #1598 Total Resource Use Population-Based Per Member Per Month Index
Risk-Adjustment	CMS applies a risk-adjustment approach developed specifically for Medicare beneficiaries. The methodology has been tested, validated, and tailored for the Medicare patient population. Using a common, publicly available methodology increases transparency and usability of this measure across the Agency and providers.	CMS-HCC risk score	Johns Hopkins ACG System Version 9.0 (diagnoses from claims, age, gender); uses ACG weights