DETAILED METHODOLOGY FOR THE 2013 QUALITY AND RESOURCE USE REPORTS AND 2015 VALUE-BASED PAYMENT MODIFIER

CONTENTS

EXHIBITS

FIGURES

DETAILED METHODOLOGY FOR THE 2013 QUALITY AND RESOURCE USE REPORTS AND 2015 VALUE-BASED PAYMENT MODIFIER

I. OVERVIEW

A. What are the 2013 Quality and Resource Use Reports?

The 2013 Quality and Resource Use Reports (QRURs) are confidential feedback reports provided to solo practitioners and groups of physicians nationwide that (a) include at least one eligible professional[1] who billed for Medicare-covered services under a single taxpayer identification number (TIN) in 2013 and (b) had at least one eligible case for one or more of the quality or cost measures included in the QRURs. This group includes participants in the 2013 Group Practice Reporting Option (GPRO) of the Physician Quality Reporting System (PQRS). The 2013 QRURs were not disseminated to TINs participating in the Medicare Shared Savings Program, the Pioneer Accountable Care Organization (ACO) Model, or the Comprehensive Primary Care Initiative. They contain information on the quality of care provided to Medicare fee-for-service (FFS) beneficiaries that these TINs treated in 2013, as well as the resources used to provide that care. Additionally, for GPROs, the reports include the incentive payment earned under the 2013 GPRO program.

These feedback reports were developed under the Centers for Medicare & Medicaid Services (CMS) Physician Feedback/Value-Based Modifier Program. They are integral to CMS's efforts to support value-based purchasing initiatives to enhance the quality and efficiency of health services provided to Medicare beneficiaries (see box, "Summary of the Physician Feedback/Value-Based Modifier Program" on the following page for more information). The 2010 Affordable Care Act directs the Secretary of the U.S. Department of Health and Human Services to develop and implement a budget-neutral payment system that will employ a value-based payment modifier (VM). The VM will adjust Medicare Physician Fee Schedule payments based on the quality and cost of care that physicians provide to Medicare beneficiaries. The 2013 QRURs provide information on the VM adjustment that will be applied to the 2015 Physician Fee Schedule payments of physician groups of 100 or more eligible professionals.

The 2013 QRURs also provide information on the new cost measures that will be used to calculate the 2016 VM. These measures serve an informational purpose only, because the 2016 VM will be based on 2014 performance.

[1] Eligible professionals include physicians, practitioners, physical or occupational therapists or qualified speech-language pathologists, and qualified audiologists. A physician is one of the following: a 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: a certified registered nurse anesthetist, anesthesiology assistant, certified nurse midwife, clinical social worker, clinical psychologist, nurse practitioner, physician assistant, or registered dietician or nutrition professional. The term "eligible professionals" does not include health care suppliers such as orthotists/prosthetists, opticians, independent diagnostic testing or screening centers, or independent clinical laboratories. Appendix Table F.1 lists providers designated as eligible professionals by CMS based on their two-digit CMS specialty codes.

Summary of the Physician Feedback/Value-Based Modifier Program

To enhance the quality and efficiency of health care services provided to Medicare beneficiaries, Centers for Medicare and Medicaid Services (CMS) is developing and implementing a set of value-based purchasing initiatives across many health care settings, including physicians and groups of physicians. To support these initiatives, CMS has been developing physician resource use and quality measures, evaluating physicians on their comparative quality and resource use, and educating physicians about the efficient use of resources. These efforts support expanded physician feedback reports detailing physician quality and cost performance, and performance-based payment.

As part of its value-based purchasing initiatives, for the past several years under the Physician Feedback/Value-Based Modifier Program, CMS has disseminated a limited number of confidential reports to physicians and groups of physicians that include measures of resource use and quality. CMS has pursued a phased approach to implementing physician feedback reporting as a way to expand understanding of policy issues related to measuring physician-driven costs of care and quality. In the earliest phase of the program (2009), CMS tested approximately 300 reports with physicians and physician groups that included individual physician-level cost measures. The Physician Feedback/Value-Based Modifier Program was expanded under Section 3003 of the 2010 Affordable Care Act[2], which requires the secretary of the U.S. Department of Health and Human Services to provide confidential information to physicians and groups of physicians about the quality of care furnished to Medicare beneficiaries compared with the cost of that care. In subsequent phases, CMS distributed reports that contained information on both the quality and the cost of care to growing numbers of physicians and groups of physicians. In 2012, CMS provided reports to all groups of physicians participating in the 2011 Physician Quality Reporting System (PQRS) Group Practice Reporting Option (GPRO) I program, and also to the approximately 95,000 physicians who practiced in nine states (California, Illinois, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, or Wisconsin) in 2011 and submitted Medicare FFS (fee-for-service) claims as part of a group of physicians (as identified by taxpayer identification number) with 25 or more eligible professionals. In the fall of 2013, CMS distributed feedback reports to all groups of physicians nationwide with at least 25 eligible professionals. In the fall of2014, CMS distributed feedback reports to all groups of physicians nationwide with at least one eligible physician.

CMS will continue to refine the design, content, and underlying methodology of the physician feedback reports as it incorporates new measures and more detailed data.

The Physician Feedback/Value-Based Modifier Program also supports the Affordable Care Act's value-based payment modifier (VM) program, which will be phased in beginning in 2015. The initial performance period took place in 2013. In 2015, CMS will apply the VM to nearly all groups of physicians with 100 or more eligible professionals, based on their participation in the PQRS in 2013. (The VM will not initially apply to groups participating in the Medicare Shared Savings Program, the Pioneer Accountable Care Organization Model, or the Comprehensive Primary Care Initiative.) Beginning in 2017, the VM will affect all physicians paid under the Medicare Physician Fee Schedule.

[2] The full text of the Affordable Care Act and Reconciliation Act can be found at http://housedocs.house.gov/energycommerce/ppacacon.pdf (Accessed September 2014).

B. What are the goals of the 2013 QRURs?

A primary goal of the 2013 QRURs is to support the efforts of physicians and physician groups that are working to efficiently provide high quality care to their Medicare FFS patients. The reports are designed to complement existing quality improvement initiatives by providing meaningful information on the quality of care received by the TINs' Medicare beneficiaries and the costs associated with delivering that care. They also indicate how these TINs are performing relative to their peers. Another goal is to illustrate how quality-of-care and resource use information are used in VM calculations.

C. What information do the 2013 QRURs include?

Each recipient's QRUR has detailed information on the eligible professionals that billed under the TIN in 2013 (QRUR Exhibit 1 and Supplementary Exhibit 1); beneficiaries for whom the TIN provided a plurality of primary care services during 2013 (QRUR Exhibits 2 and 3, and Supplementary Exhibit 2); and the measures of the quality of care received by these beneficiaries as well as the resource use associated with delivering that care (QRUR Exhibits 5 and 8–10, respectively). Additionally, the QRUR includes benchmarks that indicate how well the TIN performed on these measures relative to his or her peers (QRUR Exhibits 5, 8–10, and 13–14).[3] It also includes information on the hospitals treating these beneficiaries and lists the primary diagnoses and discharge status for most of their hospital stays (QRUR Exhibit 6 and Supplementary Exhibit 3). From this information, CMS computes the quality and cost composite measure scores that determine the TIN's VM and displays its scores in the 2013 QRURs (QRUR Exhibits 4 and 7, respectively). (The 2013 Medicare Physician Fee Schedule Final Rule,[4] as well as Section III of this document, describes the computation of these composite scores.) The report also displays 2015 VM eligible TINs' quality and cost category assignment based on its 2013 performance under the quality-tiering approach (described below in Section III and detailed on the QRUR Performance Highlights page).

A TIN's quality composite score summarizes its performance on as many as six equally weighted quality domains: (1) Clinical Process/Effectiveness, (2) Patient and Family Engagement, (3) Population/Public Health, (4) Patient Safety, (5) Care Coordination, and (6) Efficient Use of Healthcare Resources. The quality scores reported in the QRUR reflect how much a TIN's performance differs from the mean performance on a measure-by-measure basis within each quality domain. For groups of physicians that have satisfactorily reported data to the 2013 PQRS via the GPRO web interface or a qualified registry, the group's quality composite score reflects performance on the PQRS quality measures they reported (Sections IV.A and IV.B). For other TINs, the quality composite score reflects performance on a set of 14 CMS-calculated administrative claims-based quality measures, derived from FFS Medicare claims submitted for Medicare beneficiaries attributed to the TIN in 2013 (Section IV.C). In addition, the quality measure scores for all TINs incorporate performance on three outcome measures that CMS calculates from FFS Medicare claims: two composite measures of hospital admissions for acute and chronic ambulatory care sensitive conditions (ACSCs) and one measure of all-cause hospital readmissions.

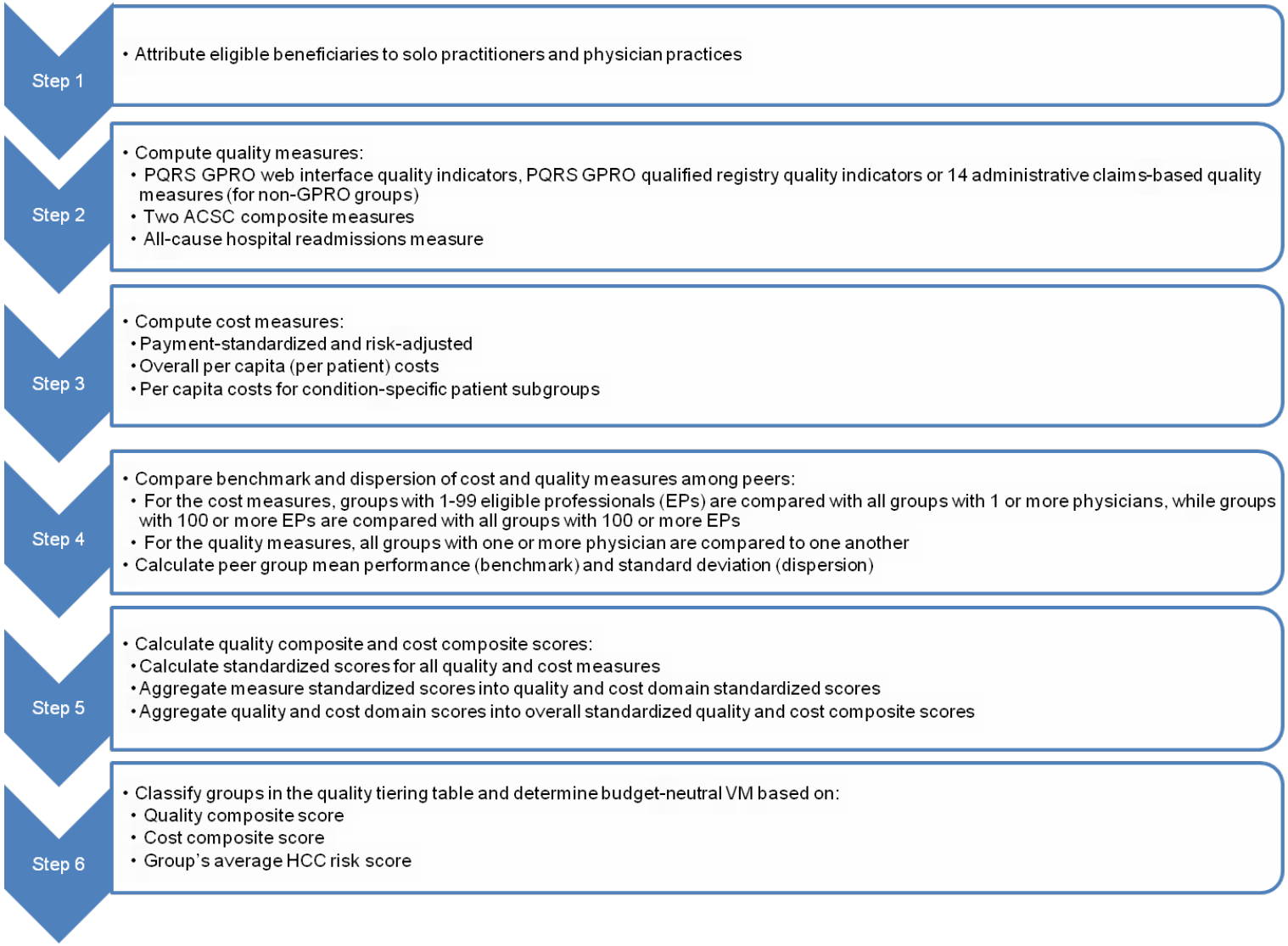
[3] For GPRO groups, the reports also include information about any incentive earned under the PQRS program.

[4] See http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeeSched/. Accessed September 2014.

To assess resource use, a TIN's cost composite score summarizes its performance on as many as two equally weighted cost domains: (1) Total Per Capita (per patient) Costs for All Attributed Beneficiaries and (2) Per Capita Costs for Attributed Beneficiaries with Specific Conditions, namely, diabetes, coronary artery disease (CAD), chronic obstructive pulmonary disease (COPD), and heart failure. The cost measures reported in the QRUR reflect how much a TIN's performance differs from the mean performance on a measure-by-measure basis within each cost domain. Beneficiary costs, as identified by allowed charges in Medicare claims, are standardized to remove geographic Medicare payment differences (described in Section V.B. and Appendix B) and then risk-adjusted (described in Section V.C. and Appendix C) before calculating total per capita costs and specific-chronic conditions per capita costs.

Exhibit I.1 provides a summary of the steps involved in assessing the performance of physicians and physician groups on quality and resource use measures. Appendix A includes a detailed description of the data used to compute the statistics included in the report.

Exhibit I.1. Pathway from beneficiary attribution to performance assessment, 2013 QRURs



D. How do the 2012 and 2013 QRURs differ?

In response to stakeholder feedback, and as part of a continuing effort to enhance the usefulness and expand the comprehensiveness of the QRURs, CMS incorporated the following changes in this year's reports:

1. **Expand the number of physicians and groups of physicians receiving reports.** CMS provided 2012 QRURs to Taxpayer Identification Numbers (TINs) that (a) had at least 25 eligible professionals billing under the TIN and that (b) had at least 20 eligible cases for at least one of the quality or cost measures included in the QRUR. CMS expanded the number of physicians and groups of physicians eligible to receive a QRUR to all TINs nationwide meeting two criteria: (a) at least one physician billed under the TIN in 2013, and (b) the TIN had at least one eligible case for at least one of the quality or cost measures included in the QRUR. CMS did not disseminate 2013 QRURs to TINs that participated in the Medicare Shared Savings Program, the Pioneer ACO Model, or the Comprehensive Primary Care Initiative in 2013.
2. **Provide information on the 2015 value-based payment modifier (VM).** The 2013 QRUR contains data regarding a physician's or group of physicians' quality and cost of care for calendar year 2013. For groups of 100 or more eligible professionals that elected to have their VM calculated based on their performance on quality and cost measures, the 2013 QRUR shows how Medicare Physician Fee Schedule payments to physicians in the group will be affected by the VM in 2015, including any upward, neutral, or downward payment adjustment. Groups of 100 or more eligible professionals that did not elect to have their VM calculated based on their quality and cost performance will have a neutral (or no) payment adjustment under the VM, provided that they registered for a PQRS Group Practice Reporting Option and successfully reported quality measures under the PQRS in 2013. For group practices with fewer than 100 eligible professionals and for solo practitioners, the QRUR is for informational purposes only, and payments will not be affected by the VM in 2015.
3. **Include a preview of new cost measures that will be included in the 2016 VM.** The Spending per Hospital Patient with Medicare (or Medicare Spending per Beneficiary (MSPB)) measure is a new cost measure, finalized in the 2014 Physician Fee Schedule Final Rule, that will be included in the cost composite score calculation for the 2016 VM. Moreover, all cost measures included in the 2016 VM will be adjusted to reflect the mix of physician specialties within a TIN. The 2013 QRUR previews performance on these measures (QRUR Exhibit 13) based on the methodology for the 2016 VM.
4. **Provide information on the effect of risk adjustment on quality and cost measures.** All claims-based quality outcome measures and cost measures are risk adjusted to account for differences in patient characteristics that may affect outcomes and costs. The 2013 QRUR provides performance information for these measures before and after risk adjustment (QRUR Exhibits 11 and 12).
5. **Provide additional detailed data on each TIN's attributed beneficiaries and their hospitalizations, and the TIN's associated eligible professionals.** Complementing the 2013 QRURs are supplementary exhibits that provide information on each beneficiary attributed to the TIN and each eligible professional billing under the TIN. Additional information in the 2013 supplementary exhibits include:

a. Beneficiaries (Supplementary Exhibit 2): CMS added additional information to the exhibit, including the beneficiary risk percentile ranking and basis for the beneficiary's attribution to the physician or group of physicians; names and specialties of providers inside and outside of the TIN who billed the most primary care and non-primary care professional services for the beneficiary; and an index variable for linking beneficiary information across supplementary exhibits.

b. Spending per Hospital Patient with Medicare Episodes (Supplementary Exhibit 4): This new supplementary exhibit provides beneficiary information corresponding to the Spending per Hospital Patient with Medicare (or Medicare Spending per Beneficiary) measure, including identifying beneficiary information, identifying eligible professional information, total payment-standardized episode costs, hospital admission date, admitting hospital, principal diagnosis, discharge date, discharge status, and spending by categories of service furnished by all providers.

6. **Modify attribution of beneficiaries to physicians and groups of physicians.** In 2013, beneficiaries receiving the plurality of their primary care services from a Federally Qualified Health Center, Rural Health Clinic, Critical Access Hospitals Billing Under Method II or Electing Teaching Amendment Hospitals will be attributed to the relevant institutional entity and, thus, are not eligible for attribution to a TIN-identified physician or physician group.

II. HOW ARE MEDICARE BENEFICIARIES ATTRIBUTED TO PHYSICIANS AND GROUPS OF PHYSICIANS?

A. Attribution

Medicare beneficiaries are considered for assignment either to a physician or physician group, as identified by TIN, or to other entities (Federally Qualified Health Centers, Rural Health Clinics, Critical Access Hospitals Billing Under Method II, and Electing Teaching Amendment Hospitals) identified by CMS Certification Number (CCN).[5] Attribution for the ambulatory care sensitive condition measures (Section IV.D), the all-cause hospital readmissions measure (Section IV.E), administrative claims-based quality measures (Section IV.C), and per capita cost measures (Sections V.D and V.E) takes place in a two-step process based on total allowed charges billed for primary care services (see Exhibit II.1) by the TIN or other entity, as captured in 2013 Carrier and Outpatient Medicare claims. Prior to applying the two steps, beneficiaries who have had at least one primary care service rendered by a physician are identified.

1. The first step assigns a beneficiary to a physician, physician group, or other entity if the beneficiary receives the plurality of his or her primary care services, as measured by allowed charges, from primary care physicians within the group or entity. Primary care physicians are physicians 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 2013. Under this second step, a beneficiary is assigned to a TIN if the beneficiary (a) received at least one primary care service from a physician of any specialty within the TIN and (b) received a plurality of his or her primary care services from specialist physicians and certain nonphysician practitioners (nurse practitioners, clinical nurse specialists, and physician assistants) within the TIN.

[5] The attribution process for the PQRS GPRO measures is discussed in Section IV.A and the attribution process for the Spending per Hospital Patient with Medicare measure is described in Section V.F.

Exhibit II.1. Healthcare Common Procedure Coding System (HCPCS) primary care service codes

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 CMS website (http://www.cms.gov) for detailed definitions.

B. Which beneficiaries and claims are excluded from the QRUR?

When calculating the ambulatory care sensitive condition measures, the all-cause hospital readmissions measure, administrative claims-based quality measures, and per capita cost measures, beneficiaries were not attributed to any physician or group of physicians if they met any of the following criteria:

- They were enrolled in Medicare Part A only or Part B only for any month in 2013.[6]
- They were not enrolled in both Medicare Part A and Part B for at least one month in 2013.
- They were enrolled in Medicare managed care (a Medicare Advantage plan) for any month in 2013.[7]
- They resided outside of the United States, its territories, and its possessions for any month in 2013.[8]

[6] A beneficiary is considered to have uneven enrollment if, for any month of the year, the buy-in indicator field in the enrollment data has a value other than 3 ("Part A and Part B") or C ("Parts A and B, State Buy-In").

[7] A beneficiary is considered to have enrolled in managed care if, for any month of the year, the health maintenance organization (HMO) indicator field in the enrollment data has a value other than 0 ("not a member of HMO") or 4 ("fee-for-service participant in case or disease management demonstration project").

[8] A beneficiary is considered to live outside of the United States in 2013 if the state code in the Medicare beneficiary enrollment file is not a U.S. state or U.S. territory code.

- They did not have any Medicare allowed charges in 2013.

Beneficiaries who are eligible for Medicare due to age (65 or older), end-stage renal disease (ESRD), or a qualifying disability are included in all quality and resource use measures if they are not otherwise excluded by the criteria above or by a particular measure's specifications.

Certain types of claims are excluded from the computation of quality and cost claims-based measures, but the beneficiaries with such claims are nonetheless retained. Specifically, claims with payments that are zero, negative, missing, or very low[9] are excluded. The sample also excludes claims for inpatient hospital encounters appearing in the FFS data but with a beneficiary that was not otherwise identified as having been enrolled in Medicare managed care for any part of the year. However, the beneficiary and the beneficiary's remaining claims are not excluded.

Certain quality and resource use measures have further restrictions (beyond those in the bulleted list above) regarding the set of beneficiaries included in the computation of each performance measure for which the beneficiary meets the measure's specific eligibility criteria. For example, beneficiaries may be excluded from certain administrative claims-based quality measures based on the measure steward's specifications.[10] (Note that Section IV.C describes administrative claims-based quality measures in more detail.) Measure-specific exclusions are described along with other measure-level information in the appropriate sections of this document. (Section IV covers quality measures in the VM quality composite score, and Section V covers resource use measures in the VM's cost composite score.)

[9] The sample excludes claims with standardized allowed amounts under 50 cents. In many cases, these claims provide clinical rather than billing information—such as a quality-data code for a PQRS measure. They include nominal amounts, because the provider's billing software cannot accommodate a charge of $0.00.

[10] See http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeedbackProgram/2013-QRUR.html for a list of these specifications.

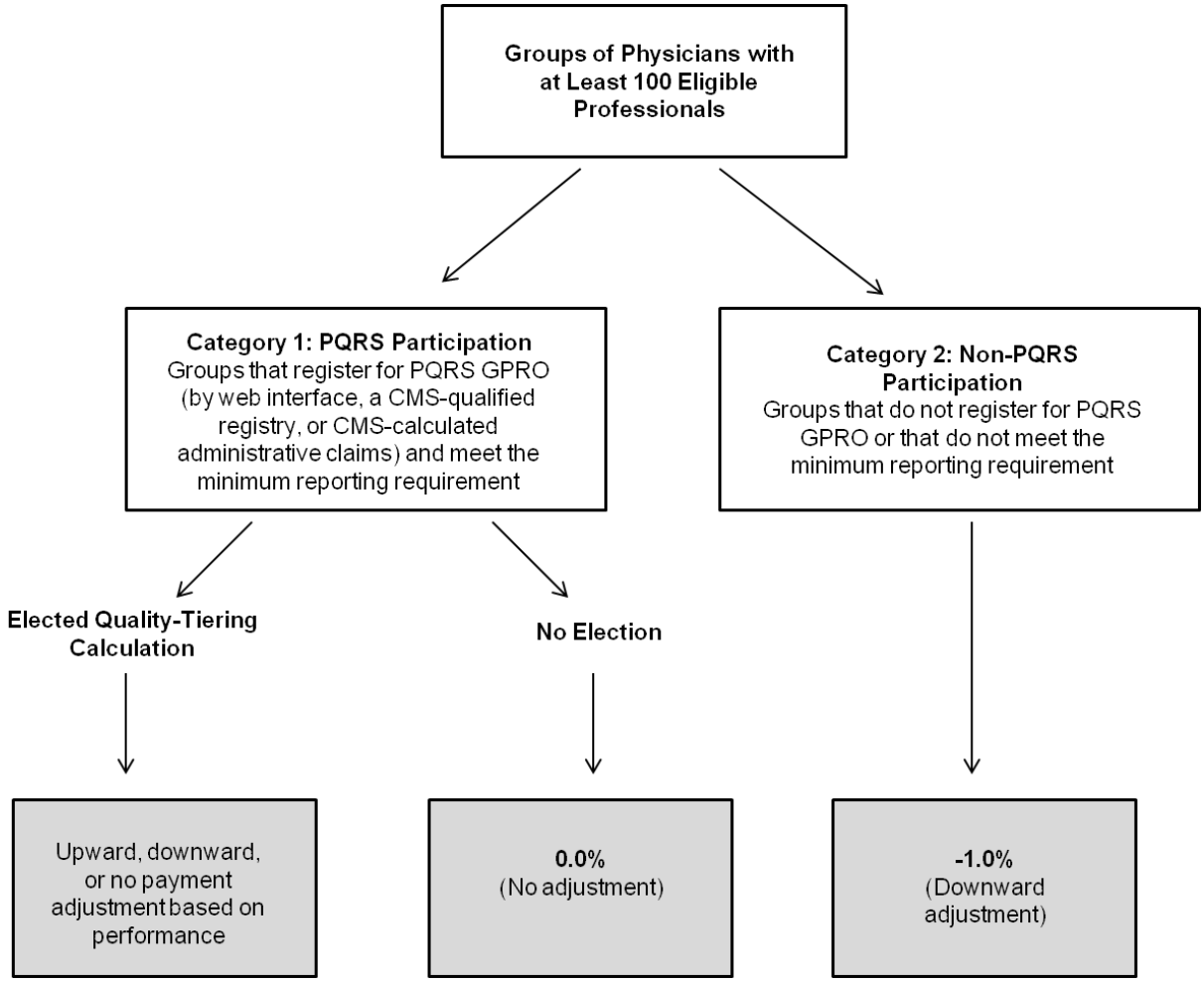
III. WHAT IS THE VALUE-BASED PAYMENT MODIFIER AND HOW IS IT CALCULATED?

The value-based payment modifier (VM) is an adjustment to payments under the Medicare Physician Fee Schedule that will reward higher quality care delivered at lower resource use, as required under Section 3007 of the Affordable Care Act. As the 2013 Physician Fee Schedule Notice of Final Rulemaking describes, CMS will initially apply the VM only to physicians practicing in groups with a TIN indicating 100 or more eligible professionals as long as at least 100 eligible professionals actually billed Medicare under that group's TIN during 2013. (Professionals are identified by the Medicare Provider Enrollment, Chain, and Ownership System (PECOS) as of October 15, 2013.) CMS separated these groups into two categories based on their registration and participation in the PQRS in 2013. Groups were able to participate in PQRS in 2013 under one of three PQRS reporting options: (1) the GPRO web interface, (2) a qualified registry, or (3) CMS-calculated administrative claims. Groups that did not register and participate in PQRS in one of these three ways will have a VM set at -1.0 percent and applied to all of the group's physician'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 VM set at 0.0 percent, meaning that they will incur no negative or positive adjustment to their 2015 Medicare Physician Fee Schedule payments unless they elect to have CMS calculate their VM using a quality-tiering approach based on their 2013 performance (described below). Those electing the quality-tiering approach may have an upward, downward, or no payment adjustment. CMS will not apply the 2015 and 2016 VM to groups of physicians participating in the Medicare Shared Savings Program, the Pioneer ACO Model, or the Comprehensive Primary Care Initiative even if they include 100 or more eligible professionals.

The VM is derived from a quality composite score and a cost composite score. The quality composite score (shown in QRUR Exhibit 4) summarizes a TIN's performance on quality care for Medicare beneficiaries for as many as six, equally weighted quality domains: (1) Clinical Process/Effectiveness, (2) Patient and Family Engagement, (3) Population/Public Health, (4) Patient Safety, (5) Care Coordination, and (6) Efficient Use of Healthcare Resources. Section IV of this document describes the measures included in computing the quality composite score. The cost composite score (shown in QRUR Exhibit 7) summarizes a TIN's performance regarding resource use for its attributed Medicare beneficiaries, across two equally weighted cost domains: Per Capita Costs for All Attributed Beneficiaries and Per Capita Costs for Beneficiaries with Specific Conditions (diabetes, CAD, COPD, and heart failure). Section V further describes these measures.

Figure 1 provides an overview of the 2015 VM.

Figure 1. Overview of CMS calculation of the value modifier for calendar year 2015



A. Method for calculating the quality composite score for the VM

The quality composite score is calculated by first standardizing performance on each quality measure with at least 20 eligible cases and for which a benchmark is available, then averaging measure-standardized scores within quality domains to obtain domain-level performance scores, and finally averaging the quality domain performance scores to obtain the quality composite score.

Measure-level performance is standardized by subtracting from a TIN's performance rate the case-weighted mean performance rate on the same measure in the prior year (2012) calculated for the relevant peer group (benchmark). The result is then divided by the case-weighted standard deviation of the measure's prior year (2012) performance across the peer group to produce a score that measures the TIN's performance in terms of the number of standard deviations from the peer group mean. Mean peer-group performance rates and standard deviations are both case-weighted, with each peer-group member receiving a weight equal to the TIN's number of eligible cases for the specific measure (for example, number of attributed beneficiaries with a specific health condition or number of hospitalizations for specific

beneficiaries). For quality measures, the peer group is defined as all physicians and groups of physicians nationwide that had at least 20 eligible cases for the measure. For additional information on the benchmarks for the 2013 QRURs, see http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeedbackProgram/2013-QRUR.html. Measures for which no benchmark is available (for example, new measures in 2013) are not included in the calculation of the quality composite score, but they are reported in the 2013 QRUR for informational purposes only.

Quality domain-level performance scores (shown in QRUR Exhibit 4) are calculated as the simple (equally weighted) average of a TIN's non-missing, standardized measure scores within the domain, if the TIN has a score for at least one measure included in the quality domain. Only measures with at least 20 eligible cases and for which benchmarks are available are included in the quality domain-level performance scores. Finally, the overall quality composite score is calculated as the simple (equally weighted) average of the TIN's non-missing domain performance scores, if the TIN has a score for at least one domain included in the overall quality composite. To generate a distribution of quality composite scores centered at zero and with a standard deviation of one, each TIN's overall quality composite score is standardized by subtracting the peer group's overall quality composite score mean and dividing the difference by the peer group's overall quality composite score standard deviation.

B. Method for calculating the cost composite score for the VM

Like quality measure performance, a TIN's performance on each resource use measure is compared with that of its peers. Moreover, as with the quality composite score, the cost composite score is calculated by first standardizing performance on each individual cost measure with at least 20 eligible cases, then averaging measure-standardized scores within cost domains to obtain domain-level performance scores, and finally averaging the cost domain performance scores to obtain the cost composite score.

Measure-level performance is standardized by subtracting from a TIN's performance rate the case-weighted mean performance rate on the same measure in the current year (2013) calculated for the relevant peer group (benchmark). The result is then divided by the case-weighted standard deviation of the measure's current year (2013) performance across the peer group to produce a score that measures the TIN's performance in terms of the number of standard deviations from the peer group mean. Mean peer group performance rates and standard deviations are both case-weighted, with each peer group member receiving a weight equal to the TIN's number of eligible cases for the specific measure. For cost measures, the peer group for groups of physicians with at least 100 eligible professionals is all groups of physicians with at least 100 eligible professionals. The peer group for physicians and groups of physicians with at least one eligible professional but fewer than 100 eligible professionals is all physicians and groups of physicians with at least one eligible professional (including groups with 100 or more eligible professionals).

Cost domain-level performance scores (shown in QRUR Exhibit 7) are calculated as the simple (equally weighted) average of all of a TIN's non-missing, standardized measure scores within the domain, if the TIN has a score for at least one measure included in the cost domain. Only measures with at least 20 eligible beneficiaries are included in the cost domain-level performance scores. Finally, the overall cost composite score is calculated as the simple (equally

weighted) average of the TIN's non-missing domain performance scores, if the TIN has a score for at least one domain included in the overall cost composite. As with the overall quality composite score, each TIN's overall cost composite score is standardized by subtracting the peer group overall cost composite score mean and dividing the difference by the peer group overall cost composite score standard deviation.

C. Description of the quality-tiering approach

Groups of physicians subject to the 2015 VM (those with 100 or more eligible professionals) have the option of having their VM calculated using a quality-tiering approach based on their 2013 quality and cost performance. Groups electing this option may earn an upward payment adjustment for strong performance on the quality and cost measures but will also be at risk for a downward payment adjustment for poor performance. To be considered either a high or low performer relative to its peers on the quality composite measure, a qualifying TIN's score must be at least one standard deviation above or below the mean quality composite score and statistically significantly different from the mean quality composite score. If the difference between a TIN's score and the mean is not statistically significant, then the TIN is categorized as having insufficient data for quality-tiering purposes. Statistical significance is assessed using a two-tailed test. In computing the test statistic for the composites, we assumed that observations for different beneficiaries are independent and that expected values are non-stochastic, justified by the large sample sizes used to compute the estimates and its application in other similar contexts (for example, see Adams et al. 2010[11]). For the all-cause hospital readmission measure, we also assumed that the TIN-specific effects for each specialty cohort are uncorrelated, to improve the computational efficiency of the estimation.

High and low performance is determined similarly for the cost composite measure, however higher cost composite scores are associated with poorer performance. The 2013 QRUR report provides information on high, low, or average quality and cost performance, even for TINs not subject to the VM or for those that did not elect quality-tiering. These data are for informational purposes only, because quality-tiering will not be mandatory until the 2016 VM.

To distinguish between high, low, and average performance for quality or cost, the peer group for groups of physicians with at least 100 eligible professionals comprises all groups of physicians with at least 100 eligible professionals and for which the composite score is calculated. The peer group for groups of physicians with at least one eligible professional but fewer than 100 eligible professionals is all physicians and groups of physicians with at least one eligible professional (including groups with 100 or more eligible professionals) and for which the composite score is calculated.[12] The separate peer group was defined for groups with 100 or more eligible professionals because the VM will apply to this peer group in 2015 based on its performance in 2013 and each group with 100 or more eligible professionals will be evaluated against this group to determine the payment adjustment for each physician billing under the group's TIN.

[11] See http://www.nejm.org/doi/full/10.1056/NEJMsa0906323#t=article. Accessed September 2014.

[12] TINs participating in the Medicare Shared Savings Program, the Pioneer Accountable Care Organization Model, or the Comprehensive Primary Care Initiative were also included in the peer group, if a composite score could be calculated.

Exhibit III.1 and a similar table in the 2013 QRUR on the Performance Highlights page display the basic structure of the VM under the quality-tiering option. Because the value modifier must be budget-neutral, the precise size of the reward for higher performing TINs—those that are at least average on both quality and cost, and better than average on at least one of these composites—will depend on the projected billings of these TINs relative to lower performing TINs (as captured in the table by the variable "AF"). These data will vary from year to year with differences in actuarial estimates and are based on the number and relative performance of groups of physicians electing the quality-tiering option. Higher performing TINs treating beneficiaries with an average health expenditure risk greater than or equal to the risk of the 75th percentile beneficiary in the Medicare population (that is, those TINs with particularly high-risk beneficiaries, on average) and who satisfactorily reported PQRS quality measures via the GPRO web interface or qualified registry will receive an additional 1.0 percent incentive payment on top of the standard VM upward adjustment.

Exhibit III.1. Value-based payment modifier based on quality-tiering

	Low quality	Average quality	High quality
Low cost	+0.0%	+1.0 x AF*	+2.0 x AF*
Average cost	-0.5%	+0.0%	+1.0 x AF*
High cost	-1.0%	-0.5%	+0.0%

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

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

The same (calendar year) 2012 Hierarchical Condition Category (HCC) risk scores that are calculated by CMS and used to risk-adjust the per capita cost measures included in the cost composite measure (see the description in Section V below) were used to measure the average risk of each TIN's attributed beneficiaries. The risk score assigned to each Medicare beneficiary predicts the beneficiary's medical costs in 2013 relative to average (mean) costs among all Medicare FFS beneficiaries nationwide (where a score of 1.0 represents average risk), based on the presence of factors known to affect costs and utilization. The 2012 HCC risk score distribution, from the lowest beneficiary risk score to the highest beneficiary risk score, as well as percentile thresholds, were determined for all Medicare FFS beneficiaries nationally, and then average risk scores for beneficiaries attributed to QRUR recipients were compared with these national percentile thresholds. TINs with average beneficiary risk scores at or above the 75th percentile of all beneficiary risk scores nationwide are eligible for an additional upward payment adjustment in the VM under the quality-tiering approach if they are categorized as low cost–average quality, low cost–high quality, or average cost–high quality performers.

D. The value-based payment modifier for 2016

In 2016, the VM will be applied to all groups of physicians with 10 or more eligible professionals, based on 2014 performance. Appendix H summarizes information on the 2016 VM and changes from the 2015 VM. Additional information is also available at http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeedbackProgram/2013-QRUR.html.

IV. WHICH QUALITY MEASURES DOES THE VM QUALITY COMPOSITE SCORE INCLUDE?

The 2013 quality composite score for the VM includes one of three sets of measures of a TIN's quality of care for Medicare beneficiaries, depending on the program in which the TIN participated. For GPROs, the set includes either the PQRS GPRO web interface quality measures or the PQRS GPRO registry measures reported by these types of groups. Alternatively, TINs could elect to have CMS calculate a set of 14 administrative claims-based quality measures. Two ACSC composite measures and an all-cause hospital readmission measure, derived from Medicare claims, are included for all TINs. A description of each of these quality measure sets appears below.

A. PQRS GPRO web interface quality measures

To be eligible to receive a PQRS incentive payment, each group that participated in the 2013 PQRS GPRO program was required to report, through the GPRO web interface, its performance on 22 clinical quality measures and 2 composite measures. Of the 22 measures, 21 are endorsed by the National Quality Forum (NQF). The measures target high-cost, chronic conditions and preventive care and are grouped into the following modules:

- Coronary artery disease (two measures and one composite)
- Diabetes (six measures and one composite)
- Heart failure (one measure)
- Hypertension (one measure)
- Ischemic vascular disease (two measures)
- Preventive care (eight measures)
- Care coordination/patient safety (two measures)

The measures cover three quality domains: Clinical Process/Effectiveness (15 measures and 2 composites), Population/Public Health (5 measures), and Patient Safety (2 measures).[13] The 2013 QRUR displays the number of cases and performance rate for each of the 22 measures and two composites for each GPRO, by quality domain (shown in QRUR Exhibits 5), as well as the peer group's mean (benchmark) performance and average performance range (the benchmark plus or minus one standard deviation) for each measure.

For each module, CMS pre-populated a database with a sample of Medicare beneficiaries attributed to the group of physicians that met the eligibility criteria for those measures. CMS used the following methodology to attribute beneficiaries to TINs for the web interface measures:

[13] A list of these measures and their specifications is available in the 2013 Downloads section of CMS' Group Practice Reporting Option web page at https://www.cms.gov/Medicare/Quality-Initiatives-Patient-Assessment-Instruments/PQRS/Group_Practice_Reporting_Option.html. Accessed September 2014.

1. Assign the beneficiary to the TIN if the beneficiary received the plurality of his or her primary care services from primary care physicians billing under the TIN during approximately the first 10 months of 2013.
2. If the beneficiary was not attributed in Step 1, then the beneficiary was attributed to the TIN whose "other professionals" billed under the TIN during approximately the first 10 months of 2013. Other professionals include non-primary care physicians, nurse practitioners, clinical nurse specialists, and physician assistants.

Medicare Advantage enrollees were excluded from attribution. GPROs comprising 25–99 eligible professionals were required to report clinical data based on services furnished during 2013 for at least the first 218 assigned patients (with an oversample of 327 patients) for each measure. If a measure applied to fewer than 218 beneficiaries, the group had to submit clinical data for 100 percent of the assigned patients for that measure. GPROs comprising 100 or more eligible professionals were required to report clinical data based on services furnished during 2013 for at least the first 411 assigned patients (with an oversample of 616 patients) for each measure. If a measure applied to fewer than 411 beneficiaries, the group had to submit clinical data for 100 percent of the assigned patients for that measure. Note that a sample is used only for these 22 quality indicators and 2 composites. For all other measures included in the QRURs, all attributed beneficiaries eligible for a measure are included (that is, not just a sample).

B. PQRS GPRO registry quality measures

Groups with two or more eligible professionals that self-nominated or registered to participate in PQRS GPRO were eligible to submit PQRS quality measures through a qualified registry. To meet the satisfactory reporting requirements, each eligible professional must have reported on at least 80 percent of the eligible cases for three registry measures. Patient data for beneficiaries identified by the group are submitted to a qualified registry for measure calculation. The 2013 QRURs include 203 registry measures across six quality domains. The domains consist of Clinical Process and Effectiveness (132 measures), Patient and Family Engagement (5 measures), Population/Public Health (9 measures) Patient Safety (19 measures), Care Coordination (29 measures), and Efficient Use of Health Care Resources (9 measures).[14] Of the 203 registry measures, 127 had a prior year benchmark and were, therefore, eligible to be included in the VM quality composite score.

The 2013 QRUR displays the number of cases and performance rate for each of the 203 measures that had positive case counts, by quality domain, (shown in QRUR Exhibits 5), as well as the peer group's mean (benchmark) performance and average performance range (the benchmark plus or minus one standard deviation) for the 127 measures with a prior year benchmark (and included in the VM quality composite score). The measures not included in the composite score are indicated in the QRUR with a benchmark of "Not Available."

[14] The full list of the 2013 registry measures is available at http://www.cms.gov/apps/ama/license.asp?file=/PQRS/downloads/2013_PQRS_MeasuresList_ImplementationGuide_12192012.zip. Accessed September 2014.

C. Administrative claims-based quality measures

In 2013, TINs that did not select the PQRS GPRO web interface or registry reporting mechanisms[15] were able to request that Medicare compute their performance on a set of 14 administrative claims-based quality measures as part of the quality composite of the VM.[16] For each TIN with one or more eligible professionals in 2013 that did not participate in the 2013 GPRO program, the Medicare Shared Savings Program, the Comprehensive Primary Care Initiative, or the Pioneer ACO Model, performance on the 14 measures was derived from 2013 Medicare FFS claims submitted for all Medicare beneficiaries attributed to the TIN in 2013, as described in Section II. The measures are grouped into seven disease modules: (1) bone, joint, and muscle disorders (one measure); (2) COPD (one measure); (3) diabetes mellitus (four measures); (4) ischemic vascular disease (IVD; two measures); (5) mental health (two measures, each with two rates); (6) medication management (one measure with two rates); and (7) preventive care (three measures, one with two rates).[17]

The claims-based quality measures are calculated solely from Medicare administrative claims and enrollment data submitted for medical services rendered and are not enhanced with additional clinical information. Beneficiaries' eligibility for inclusion in the computation of each performance measure is determined by the measure steward's specifications. The measurement year for calculating these measures —that is, the period during which services were delivered to patients—is January 1, 2013 through December 31, 2013. For measures requiring a look-back period, claims were available for a two-year period extending back to January 1, 2011.[18] Only services recorded on claims, which include those reimbursed as part of a bundled payment but requiring itemization on claims, are counted in computing quality measures.

The 2013 QRURs display the number of cases and performance rate for each of the 14 measures for each non-GPRO TIN, by quality domain (shown in QRUR Exhibits 5). There were 11 measures in the Clinical Process/Effectiveness domain, 2 in the Patient Safety domain, and one in the Care Coordination domain. The 2013 performance rates are based on the measure stewards' most current specifications. The QRURs also display the prior year 2012 benchmark rate and the average performance range (the benchmark plus or minus one standard deviation). Prior-year benchmarks are calculated for all 14 measures based on the measure stewards' specifications for 2012 QRURs.

D. Ambulatory care sensitive condition measures

The Agency for Healthcare Research and Quality (AHRQ) has developed a set of Prevention Quality Indicators (PQIs) that includes measures of potentially avoidable hospitalizations for ambulatory care sensitive conditions (ACSCs). The measures rely on hospital discharge data but

[15] These TINs include groups participating in the 2013 Comprehensive Primary Care Initiative.

[16] Requests were made via the Physician Value-Physician Quality Reporting System. For more information, see http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeedbackProgram/Self-Nomination-Registration.html. Accessed September 2014.

[17] A list of these measures and their specifications can be found at http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/PhysicianFeedbackProgram/2013-QRUR.html. Accessed September 2014.

[18] A two-and-a-half-year look-back period was used for the COPD measure to align with measure steward specifications.

are not intended to measure hospital quality. Rather, high or increasing rates of hospitalization for these conditions in a defined population of patients might indicate inadequate access to high quality ambulatory care. The 2013 QRURs display six individual measures (for bacterial pneumonia, urinary tract infection, dehydration, diabetes, COPD or asthma, and heart failure) and two composite measures of hospital admissions, both of which are included in the Care Coordination quality domain. The two composite ACSC measures were included in calculating the TIN's quality composite score for the VM if the TIN had at least 20 eligible cases for the measure (shown in QRUR Exhibit 5-CC). The admission rates were calculated from 2013 Medicare Part A claims data based on the individual PQIs shown in Exhibit IV.1 below. The individual diabetes ACSC measure is a composite of the four PQI diabetes indicators listed in the exhibit.

Exhibit IV.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: AHRQ and Mathematica Policy Research.

For all ACSC measures, AHRQ PQI software programs were applied to acute care hospital claims to identify hospitalizations for each ACSC, based on diagnostic and procedure information on the claims.[19] The ACSC measures were risk-adjusted for age and gender by comparing the TIN's actual rate of potentially avoidable hospitalizations with an expected rate.

For a given ACSC measure, the numerator of the actual rate is the number of hospitalizations among beneficiaries attributed to the TIN and eligible for the measure who were identified as having been hospitalized in 2013 for the condition (as identified by the primary diagnosis on the inpatient claim) associated with the measure.[20] For acute ACSC measures, the denominator of the actual rate is Medicare beneficiaries attributed to the TIN being assessed, who are 18 or older and do not have a missing value for gender.

For chronic ACSC measures, the denominator is beneficiaries attributed to the TIN who have been identified through claims as having the relevant condition and who meet the measures' other conditions for inclusion (for example, 40 years or older and no missing value for gender for the COPD/asthma measure). Beneficiaries with one of the four chronic conditions were identified using the most current claims-based guidance developed by CMS' Chronic Conditions Data Warehouse (CCW)[21] to determine whether the pattern of utilization observed in Medicare claims indicated the presence of the condition for the beneficiary during the surveillance period, either during the current or prior year. Three of the conditions require a two-year reference period: diabetes; CAD, which uses the ischemic heart disease algorithm; and heart failure.

The acute conditions composite measure (consisting of bacterial pneumonia, urinary tract infection, and dehydration ACSCs) is computed as the simple (equally weighted) average of its three component measures; the number of eligible cases associated with the acute composite measure is the same as the number of cases in the component measure denominators. By contrast, the chronic conditions composite measure is a case-weighted average of the three chronic condition component measures (the diabetes composite, COPD or asthma, and heart failure ACSCs). The number of eligible cases associated with the chronic composite measure is the number of distinct beneficiaries with at least one of the four chronic conditions.

---

[19] More information is available at http://www.qualityindicators.ahrq.gov/modules/pqi_overview.aspx. Accessed September 2014. Note that AHRQ's PQIs are population-based area measures, indicating the rate of hospitalizations for ACSCs within a given geographic region. The measures included in the QRURs differ from the PQIs in that they include in the denominator only those beneficiaries attributed to the TIN (or those attributed beneficiaries with a specific condition), rather than all adults in a specified geographic area. Additionally, the QRUR ACSC measures adjust rates for months in which beneficiaries did not have both Medicare Part A and Part B in 2013, and exclude beneficiaries with missing data for gender or age. The QRUR ACSC rates also exclude hospitalizations with a missing principal diagnosis and hospitalizations identified as direct transfers from another acute care hospital because the discharge date on the prior hospital stay and the admission date on the current hospital stay are the same.

[20] The exception to this rule is diabetes. In addition to the principal diagnosis, hospital stays with a lower extremity amputation (evidenced by a procedure code) and a (principal or secondary) diabetes diagnosis, qualify as an ACSC.

[21] The QRUR algorithms closely follow those of the CCW, with two exceptions: (1) a comparison of the CCW code list with the ICD-9-CM handbooks for corresponding years resulted in the addition of one code (362.07 for diabetes) that was not included in the CCW list but clinically should be included; and (2) in contrast to CCW documentation, the QRURs require that, for conditions requiring at least two outpatient claims, the claims must occur on different dates. See http://www.ccwdata.org/cs/groups/public/documents/document/ccw_conditioncategories2011.pdf (accessed September 2014) for a list of condition definitions.

For each ACSC 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 TIN, estimated via a logistic regression model in which the dependent variable indicates whether the beneficiary had a hospitalization for the ACSC condition and the independent variables are 14 gender-by-age category indicators.

The risk-adjusted rate for each ACSC measure is calculated as the ratio of the actual rate to the expected rate, multiplied by the average actual rate per 1,000 beneficiaries (for acute ACSCs), or the rate per 1,000 beneficiaries with the specified condition (for chronic ACSCs). This average is the population condition-specific hospital discharge rate per 1,000 Medicare beneficiaries (or per 1,000 beneficiaries with the condition) across all groups of physicians with one or more eligible professional.

As with the other quality measures, the 2013 QRURs display the 2012 prior-year benchmark rate (the weighted mean performance rate among all of TINs in the peer group, in which the weight is the number of eligible cases for the TIN) and the average performance range (the benchmark plus or minus one standard deviation).

E. All-cause hospital readmissions measure

The all-cause hospital readmissions measure included in the 2013 QRURs—part of the Care Coordination quality domain—is a TIN-specific all-cause 30-day rate of acute care hospital readmissions for beneficiaries age 65 years and older who were discharged from an acute care or critical access hospital from January 1, 2013 through December 1, 2013 (shown in QRUR Exhibit 5-CC). The measure is a risk-standardized readmission rate based on unplanned readmissions, for any cause, within 30 days from the date of discharge of an initial admission. The risk-standardized rate (that is, the initial hospitalization) is derived from a weighted mean of five statistical models that adjust for patient case and service mix (described below). The quality indicator is the same as the risk-standardized all-condition hospital readmission measure used in the Medicare Shared Savings Program, as well as the 30-day hospital-wide readmission measure publicly reported in 2013 for the Hospital Inpatient Quality Reporting Program; however, it is calculated at the TIN level instead of the hospital facility level.[22]

Eligible admissions for the measure consist of nearly all hospitalizations at nonfederal, short-stay acute care or critical access hospitals for most beneficiaries attributed to the TIN. Admissions related to medical treatment of cancer, primary psychiatric disease, or rehabilitation care, fitting of prostheses, and adjustment devices are excluded. The measure does not apply to beneficiaries who were under age 65 on January 1, 2013, discharged against medical advice, or transferred to another acute care hospital. Beneficiaries who died during the hospitalization, had a hospital stay greater than 365 days, or did not have continuous enrollment in Medicare Part A for at least one month following discharge or in the 12 months prior to admission are likewise excluded. Planned readmissions are excluded and are those for which one of 35 typical

[22] See http://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/sharedsavingsprogram/Downloads/Measure-ACO-8-Readmission.pdf. Accessed September 2014.

procedures occurs, the Discharge Condition Category is not acute or a complication of care, or the readmissions are for maintenance chemotherapy, organ transplant, or rehabilitation.[23]

In addition to patient case mix adjustment (described below), the index admissions are assigned to one of five mutually exclusive specialty cohort groups consisting of related conditions or procedures: (1) medicine, (2) surgery/gynecology, (3) cardiorespiratory, (4) cardiovascular, and (5) neurology. The groupings presume 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. For each of the five cohorts, a standardized readmission rate, equal to the ratio of the number of predicted readmissions to the number of expected readmission, is computed; specifically, the predicted number of readmissions is based on the hospital's performance with its observed case and service mix, and the expected number is based on the performance of an average hospital with the same case and service mix. Thus, a readmission ratio of less than one indicates lower-than-expected readmissions, or better quality, and a readmission ratio greater than one indicates higher-than-expected readmissions, or poorer quality.

Each specialty-cohort risk-adjustment logistic regression adjusts for patient case mix based on patient age and clinical characteristics, with comorbid risk variables captured through selected CMS Condition Category (CMS-CC) groups. CMS-CCs are formed by first mapping International Classification of Diseases–9th Revision, Clinical Modification (ICD-9-CM) diagnosis codes to a single diagnosis group (DXG) that represents a well-specified medical condition, such as DXG 96.01: precerebral or cerebral arterial occlusion with infarction. DXGs are aggregated further into Condition Categories. Condition Categories describe a broader set of similar diseases. Although not as homogeneous as DXGs, diseases within a Condition Category are related clinically and with respect to cost. For simplicity and ease of data collection and analysis, a fixed, common set of Condition Category variables is used in each of the five specialty-cohort risk-adjustment regression models. The regression also adjusts for a TIN's specific risk of readmission, after accounting for patient risk.

The specialty-cohort-specific standardized risk ratios are then combined for each TIN. Using the number of eligible admissions, a case-weighted geometric mean of the standardized risk ratios of the five specialty-cohorts is computed to create a TIN-specific composite standardized risk ratio. It then is multiplied by the national crude readmission rate for all beneficiaries across all TINs to represent the measure in the 2013 QRURs as the risk-standardized readmission rate.

[23] For additional information on the hospital readmission measure, see https://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1219069855841. Accessed September 2014.

V. WHICH RESOURCE USE MEASURES ARE INCLUDED IN THE VM'S COST COMPOSITE SCORE?

Two sets of resource use indicators for a TIN's attributed Medicare beneficiaries are displayed in the 2013 QRURs (shown in QRUR Exhibit 8) and included in the 2013 cost composite score for the VM for all TINs. A total per capita cost measure is calculated for all beneficiaries attributed to the TIN (subject to measure-specific exclusions), and four chronic condition-specific per capita cost measures are calculated for all beneficiaries with the specific chronic condition attributed to the TIN.

A. Overview of per capita cost measures

All costs are payment standardized, and both non-risk-adjusted and risk-adjusted per capita costs are reported in QRUR Exhibit 12. Payment standardization and risk adjustment are employed to accommodate differences in costs among peers that result from circumstances beyond physicians' control. Non-risk-adjusted costs for each TIN are calculated as the sum of all payment-standardized Medicare Part A and Part B allowed charges[24] for all attributed beneficiaries, divided by the number of attributed beneficiaries. The per capita risk-adjusted cost measure is calculated as the ratio of the TIN's payment standardized non-risk-adjusted per capita costs to its expected per capita costs, as determined by the risk-adjustment algorithm. This ratio then is multiplied by the mean payment standardized but non-risk-adjusted cost of all beneficiaries included in all 2013 QRURs to denominate the risk-adjusted cost measure in dollars. A risk-adjusted cost less than the mean beneficiary cost reflects a TIN for which actual (that is, payment standardized non-risk-adjusted) costs were less than the expected costs for the TIN's attributed beneficiaries. Conversely, a risk-adjusted cost that is greater than the mean beneficiary cost reflects a TIN for which actual (that is, payment standardized non-risk-adjusted) costs were higher than expected costs for the TIN's attributed beneficiaries.

The cost measures use 2013 administrative claims data that include inpatient hospital; outpatient hospital; skilled nursing facility; home health; hospice; durable medical equipment, prosthetics, orthotics, and supplies (DMEPOS); and Medicare carrier (noninstitutional physician/supplier) claims. The measures exclude all claims with a missing, zero, negative or very low[25] payment amount. To the extent that Medicare claims include such information, costs comprise payments to providers from Medicare, beneficiaries (copayments and deductibles), and third-party private payers. In addition to the general exclusions in Section II.B, the per capita cost measures exclude attributed beneficiaries enrolled in both Medicare Parts A and B for only part of the year (including those who died or were newly enrolled in Medicare in 2013), along with all costs associated with their care.

[24] Note that Part D prescription drug spending is not included.

[25] Measures exclude claims with standardized allowed amounts under 50 cents. In many cases, these claims provide clinical information—such as a quality-data code for a PQRS measure—for which nominal amounts must be included, because the provider's billing software cannot accommodate a charge of $0.00.

In addition to measuring total per capita costs for each TIN's attributed patients, payment-standardized and risk-adjusted per capita costs are reported by type of service for informational purposes only—including evaluation and management (E&M) visits,[26] inpatient hospital facility services, and laboratory and other tests. Because total per capita costs are payment-standardized and risk-adjusted, non-risk-adjusted costs for each service type are scaled by the same factor used to transform non-risk-adjusted per capita costs for all services combined to risk-adjusted costs. For example, suppose that risk adjustment results in a total per capita cost for a TIN that is 10 percent lower than the TIN's non-risk-adjusted cost. Reported per capita costs for each type of service are computed by reducing by 10 percent the non-risk-adjusted per capita cost for each type of service. The per capita costs for specific services are not included as separate measures in the cost composite for the VM and are reported for informational purposes only.

Non-risk-adjusted and risk-adjusted per capita costs also are reported separately for beneficiaries with diabetes, CAD, COPD, and heart failure (described below). These four condition-specific per capita cost measures constitute the specific-conditions cost domain for the VM and are included in the VM's overall cost composite.

For all of these measures and statistics (total per capita cost, service-specific per capita costs, and condition-specific per capita costs), the 2013 QRURs also display the peer group's mean (benchmark) performance and average performance range (the benchmark plus or minus one standard deviation) for each measure or statistic.

Additionally, by broad type-of-service categories, the QRURs display the positive or negative difference between the TIN's (risk-adjusted) per capita costs and the peer group's average (risk-adjusted) per capita costs for the particular service (shown in QRUR Exhibits 9 and 10).

The remainder of this section provides details on payment standardization methods, risk adjustment, and the computation of per capita costs for specific services and subgroups of beneficiaries with the four chronic conditions. Appendices B and C provide additional details regarding payment standardization and risk adjustment, respectively.

B. Payment standardization

Geographic variation in Medicare payments to providers can reflect factors unrelated to the care provided to patients. 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). Failure to account for these differences would result in nonmeaningful and unfair comparisons of resource across TINs located in different geographic areas. Before any resource use measures are calculated for the QRUR, 2013 Medicare unit costs are standardized to equalize payments for each service provided in a given health care setting. The standardized payment for a given service is the same, regardless of the state or city in which the service was provided or differences in Medicare payment rates among the same class of providers (for example, prospective payment hospitals versus critical access hospitals). Unit costs refer to the total reimbursement paid to providers for services delivered to Medicare beneficiaries. These services

[26] Note that E&M services included in the QRUR's service-specific table include all E&M services, not only the subset of E&M services classified as primary care services for the purpose of attributing beneficiaries to TINs.

can be discrete (such as physician office visits or consultations) or bundled (such as hospital stays). The standardized payment methodology, described in further detail in Appendix B, achieves the following measures:

- Eliminates adjustments made to national allowed payment amounts to reflect differences in regional labor costs and practice expenses
- Eliminates payments not directly related to services rendered, such as graduate medical education (GME), indirect medical education (IME), and disproportionate share hospital (DSH) payments to hospitals
- Substitutes a national amount for services paid on the basis of state fee schedules
- Maintains differences in actual payments resulting from the choice of setting in which a service is provided, the choice of who provides the service, and the choice of whether to provide multiple services in the same encounter
- Adjusts outlier payments for differences in area wages

Additional details relating to the payment standardization algorithm (which is also used for CMS' Medicare Spending per Beneficiary measure under its Hospital Value-Based Purchasing program), are available at http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228772057350.[27]

C. Risk adjustment

Risk adjustment accounts for patient differences that can affect their medical costs, regardless of the care provided. Per capita cost measures for the QRUR are risk-adjusted so that physicians and groups of physicians can be compared more fairly with their peers. Risk-adjusted costs for a TIN attributed a disproportionate number of high-risk beneficiaries will be lower than the TIN's non-risk-adjusted costs, because the high-risk beneficiaries' expected costs will exceed the average beneficiary cost across all TINs; similarly, risk-adjusted costs will be higher than non-risk-adjusted costs for TINs that are attributed comparatively low-risk beneficiaries. Risk-adjustment of the per capita cost measures employs two models sequentially: the CMS-HCC risk-adjustment model produces beneficiary-level risk scores that are then input into a subsequent QRUR risk-adjustment model to yield the risk adjustment factors applied to each TIN receiving a QRUR.

[27] The CMS document refers to this process as "price standardization" rather than "payment standardization," but the two terms are equivalent.

Costs are risk-adjusted prospectively using prior year (2012) HCC risk scores derived from the CMS-HCC risk-adjustment model that Medicare uses to adjust payments to Medicare Advantage plans. The CMS-HCC risk-adjustment model assigns ICD-9 diagnosis codes obtained from Medicare claims to 70 HCC categories that have related disease characteristics and costs.[28] The model also incorporates gender, age, original reason for Medicare entitlement (either age or disability), and Medicaid enrollment. Each risk score summarizes, in a single number, each Medicare beneficiary's expected cost of care relative to other beneficiaries, given the beneficiary's demographic profile and medical history. Like the CMS-HCC model, the QRUR risk-adjustment model is prospective—in the sense that it uses 2012 risk factors to predict 2013 costs[29]—to ensure that the model measures the influence of health on the treatment provided (costs incurred), rather than the converse of measuring the influence of treatment on a beneficiary's health status.

To limit the influence of outliers on the calculation of risk-adjusted costs, attributed beneficiaries across all TINs with costs in the bottom one percent of the payment-standardized (but non-risk-adjusted) distribution of costs are excluded before estimating the QRUR risk-adjustment model. The payment-standardized, non-risk-adjusted costs of beneficiaries with costs exceeding the 99th percentile have their costs reset to the 99th percentile value (a process known as Winsorizing).

The QRUR risk-adjustment model regresses beneficiary costs on a constant, the beneficiary's risk score, the squared value of the risk score, and an indicator for the presence of ESRD.[30] This model then is used to compute the expected cost for each beneficiary across all QRUR recipients, given the beneficiary's risk profile (that is, risk score and ESRD status). A TIN's expected per capita costs are equal to the sum of expected costs of all attributed beneficiaries, divided by the number of attributed beneficiaries. As noted earlier, each TIN's risk-adjusted per capita cost is computed as the ratio of non-risk-adjusted per capita costs to expected per capita costs, multiplied by the mean beneficiary cost across all QRUR recipients.

Appendix C displays the 70 HCCs that CMS incorporates into its risk scores and provides additional detail on the steps for risk-adjusting 2013 QRUR per capita cost measures.

D. Per capita costs by type of service

The 2013 QRURs report total per capita costs for all services in total and by detailed type of service, all of which sum to the total (shown in QRUR Exhibits 9 and 10, respectively). The goal

[28] The CMS-HCC model uses diagnoses identified for a patient within a given year to predict health risks for the following year, along with potential resource utilization. The model consists of cost groups, or diagnoses, that are grouped into the 70 HCCs. These groups include similar diagnoses that CMS has deemed risk factors for patients. Each HCC has a specific weight (and specific reimbursement tied to it from which a Medicare Advantage Contractor is paid). HCC scores are calculated each year for each Medicare beneficiary.

[29] In contrast to a prospective model, a "concurrent" risk adjustment model would use current year (2013) beneficiary risk factors to predict current year (2013) beneficiary medical costs.

[30] The CMS-HCC model actually generates several risk scores. For beneficiaries with a full year of medical claims history in 2012, it uses the HCC community risk score. For those lacking a full year of medical claims history, it uses the HCC new enrollee score. The ESRD indicator is taken from the beneficiary enrollment data rather than the CMS-HCC model. Details are in Appendix C.

of separating per capita costs into categories of services is to provide report recipients with details on how their costs of delivering specific health care services compare with those of their peers. However, categories of service can be substitutes or complements. For example, TINs providing more ambulatory preventive care might avoid hospitalizing some of their patients, leading to higher E&M costs but lower inpatient hospital costs compared with peers (service substitutes). At the same time, higher numbers of E&M 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 efficiency of care. CMS chose service categories that (1) correspond to the organization of Medicare claims and (2) capture distinct types of services that TINs might be able to influence either directly, through their own practice patterns (for instance, E&M services), or indirectly, through referral patterns or improved outpatient care (which can prevent certain types of hospitalizations). Appendix D lists the categories of services displayed in the 2013 QRURs. Appendix E provides more detail on how Medicare claims are categorized into one (and only one) of the service categories displayed in the Appendix D table.

Calculation of service-specific per capita costs requires classifying each service rendered into a unique category. This objective is achieved according to the mapping from claim types, provider types, and CMS Berenson-Eggers Type of Service (BETOS) codes to service categories in Appendix E (Exhibit E.1). Any service that does not fit into one of the specifically listed services categories is assigned to the All Other Services Not Otherwise Classified category. Appendix E (Exhibit E.2) contains brief descriptions of each BETOS category.

In addition to separating costs according to service type, for two categories—E&M Services and Procedures in Non-Emergency Settings—services are first identified according to whether the TIN itself provided the service to an attributed beneficiary or whether some other TIN provided the service. Then, for each of these two categories, service costs are further identified by the broad specialty category of the medical professionals rendering them: primary care physicians (PCPs), medical specialists, surgeons, and other professionals (separately by all four categories for services delivered by the physician or physician group itself, and by PCPs versus the other three categories combined for services delivered by other TINs). The Other Professionals category includes, for example, physician assistants, nurse practitioners, clinical nurse specialists, certified nurse anesthetists, clinical social workers, clinical psychologists, dieticians, audiologists, and physical and speech-language therapists. The method for determining a medical professional's specialty is described in Appendix F, which includes an exhibit showing how specialties map to specialty categories.

Risk-adjusted per capita costs by type of service for a physician or group of physicians are calculated by first computing the total payment-standardized, non-risk-adjusted service-specific costs per capita for all beneficiaries attributed to the TIN. These non-risk-adjusted service-specific per capita costs are then multiplied by a factor that includes the ratio of the mean total (not service-specific) cost of all beneficiaries across all TINs to the expected total per capita cost of beneficiaries attributed to the TIN[31] (from the risk-adjustment algorithm) and also accounts for the Winsorization process employed in developing total risk-adjusted costs. This calculation

[31] This process is necessary because risk adjustment occurs only at the total cost level rather than at the type of service level.

modifies the service-specific per capita costs by rescaling these costs with the same scale factor used to risk adjust total per capita costs. Such an adjustment ensures that the adjusted service-specific per capita costs sum across all service categories to the reported total per capita cost for the TIN.

E. Total per capita costs for condition-specific Medicare beneficiary subgroups

In addition to reporting each TIN's total per capita costs for all beneficiaries attributed to the physician or group of physicians, the 2013 QRURs display total per capita costs for attributed beneficiaries with selected chronic health conditions: diabetes, CAD, COPD, or heart failure (shown in QRUR Exhibit 8). Chronic health conditions are diseases or illnesses commonly expected to require ongoing monitoring to avoid loss of normal life functioning and not expected to improve or resolve without treatment. Total per capita cost measures for these subgroups include the costs associated with all 2013 Medicare FFS claims (except for Part D-covered prescription drugs) and are not limited to costs associated with treating the condition itself. Additionally, the four selected chronic conditions are not mutually exclusive; many Medicare beneficiaries have more than one of these chronic conditions. Consequently, a TIN's total per capita cost for beneficiaries with one of these chronic conditions reflects the total cost of treating these beneficiaries, not the cost of treating the condition.

Calculation of subgroup-specific per capita costs requires first identifying beneficiaries who have the chronic conditions of interest and then computing each TIN's payment-standardized and risk-adjusted per capita cost for the subset of beneficiaries attributed to the TIN who have that condition. Four risk-adjustment models, which use the same independent variables as the model for total per capita costs, for beneficiaries with diabetes, CAD, COPD, and heart failure are estimated separately to risk-adjust the per capita costs of each beneficiary subgroup.

As with the ACSC measures, beneficiaries are identified as having one or more of the four chronic conditions of interest by using the most current claims-based guidance developed by the CCW to determine whether the pattern of utilization observed in Medicare claims indicates the presence of the condition for the beneficiary during the surveillance period.

F. Spending per Hospital Patient with Medicare (or Medicare Spending per Beneficiary)

The Spending per Hospital Patient with Medicare measure will be used in the value-based payment modifier starting in 2016 and is included in the 2013 QRUR for informational purposes only. This measure evaluates each TIN's resource use during the period immediately prior to, during, and following a Medicare beneficiary's hospital stay. Specifically, it measures all Medicare Part A and Part B payments for services provided to the TIN's attributed Medicare beneficiaries during spending-per-beneficiary episodes spanning from three days prior to an inpatient hospital admission through 30 days after discharge. This measure controls for variation in spending levels due to factors such as patient case mix (risk adjustment) and geographic differences in Medicare payment levels (payment standardization).

Beneficiaries are attributed to physicians and physician groups for the purposes of calculating this measure in a separate procedure from the attribution process described in Section II.A ("Attribution"). For this measure, a hospitalization episode is attributed to a physician or

physician group if the TIN provided more Part B-covered services, as measured by Medicare allowed charges, during the hospitalization than any other TIN. Beneficiaries eligible to be included in the Spending per Hospital Patient with Medicare measure are those who were enrolled in both Medicare Parts A and B for the period 90 days prior to the start of an episode until 30 days after discharge from a short-term acute care hospital during 2013. Hospitalization episodes are excluded if the beneficiary was enrolled in a Medicare Advantage plan or Medicare was the secondary payer at any time during the period 90 days prior to the start of the episode until 30 days after discharge; the beneficiary died during the inpatient stay or within 30 days after discharge; or the beneficiary was covered by the Railroad Retirement Board. If Medicare did not reimburse the hospital through the Inpatient Prospective Payment System (IPPS), then that hospital was not eligible to begin an episode included in this measure. Hospitalizations that included a transfer between two acute care hospitals or an acute care hospital and a Critical Access Hospital (CAH) was also not included.

VI. WHAT OTHER INFORMATION IS AVAILABLE TO PHYSICIANS ACCESSING THEIR QRURs?

In addition to selected quality and resource use measures, and the quality and cost composite scores that make up the VM, the 2013 QRURs provide supplemental information relating to beneficiary attribution, hospital use, and incentives earned. Beneficiary-level and hospital admission-level data are also available to physicians and groups of physicians receiving a QRUR.

A. Additional information included in the QRUR (for informational purposes only)

For informational purposes, the 2013 QRUR displays several statistics related to the eligible professionals billing to the TIN and the beneficiaries attributed to the TIN. These data include the number of eligible professionals, including physicians, who billed to the TIN in 2013 (shown in QRUR Exhibit 1). It also includes the total number of beneficiaries attributed to the TIN, the number of beneficiaries attributed because primary care physicians provided the plurality of primary care services to these beneficiaries, and the number of beneficiaries attributed because non-primary care specialists provided the plurality of primary care services to these beneficiaries (shown in QRUR Exhibit 2). The QRURs also display the average number of eligible professionals (both those billing under the TIN and those not) who treated each of the TIN's attributed beneficiaries, as well as the average number of primary care services provided to each of the TIN's attributed beneficiaries (shown in QRUR Exhibit 3).

The 2013 QRURs also include information about hospital use by attributed beneficiaries. Specifically, the reports include a list of hospitals accounting for at least 5 percent of all admissions for the TIN's attributed beneficiaries in 2013 (shown in QRUR Exhibit 6). A hospital admission is counted as a single hospital stay and refers to all types of hospitals, such as short-term acute, long-term, and psychiatric hospitals.

The 2013 QRURs also include performance information on new cost measures that will be used in the value-based payment modifier for 2016 (shown in QRUR Exhibit 13). Specifically, the Spending per Hospital Patient with Medicare or Medicare Spending per Beneficiary measure is a new cost measure that will be used to calculate the cost composite score for the 2016 VM (this measure is described in more detail in Section V.F). Moreover, all cost measures used for the 2016 VM will be adjusted to reflect the mix of physician specialties within a TIN (described in Appendix G).[32]

For TINs with eligible professionals that participated in PQRS as individuals in 2013, the 2013 QRURs show 2013 PQRS performance for these eligible professionals in Supplementary Exhibit 5. For the 2016 VM, physician groups that do not participate in GPRO reporting options will be able to have individual PQRS data aggregated to the group level for the purposes of calculating the quality composite score for the 2016 VM, provided that at least 50 percent of the TIN's eligible professionals are incentive-eligible for PQRS under the TIN. QRUR Exhibit 14

[32] Note that the 2016 VM will be based on 2014 performance.

shows aggregate group-level 2013 PQRS performance for eligible professionals who participated in PQRS as individuals and were incentive-eligible for PQRS under the TIN in 2013.

Finally, for groups of physicians participating in the GPRO program, the 2013 QRURs report the dollar value of any incentive earned from successful participation in the 2013 PQRS program (shown in Supplementary Exhibit 6 for qualifying groups).

B. Detailed information on beneficiaries, admissions, and eligible professionals

CMS is providing detailed tables online that physicians and groups of physicians can view and download to obtain more information on the physicians and other eligible professionals who billed under their TIN in 2013, each Medicare beneficiary attributed to the TIN, and hospital admissions during 2013 for the TIN's attributed beneficiaries.

1. Physicians and nonphysician eligible professionals billing under the TIN

For each physician or other eligible professional who filed a Medicare professional service (Part B) claim under the TIN in 2013 and was the performing provider on a claim for at least one of the TIN's attributed beneficiaries, Supplementary Exhibit 1 displays each provider's National Provider Identifier (NPI), his or her name, and whether he or she is a physician or a nonphysician eligible professional (as defined in Appendix F). The table also lists each provider's specialty designation, obtained from CMS' Provider Enrollment, Chain, and Ownership System (PECOS). When multiple specialties are listed, the provider is assigned the specialty recorded most often on those 2013 Part B claims for which the professional was the performing provider. Finally, the table lists the date of the last claim that the provider billed under the TIN in 2013.

2. Characteristics of attributed beneficiaries

Supplementary Exhibit 2 provides the Medicare Health Insurance Claim (HIC) number of all beneficiaries attributed to the TIN under the attribution rule (described in Section II.A). For each of these beneficiaries, the table lists the beneficiary's gender, date of birth, HCC risk score percentile, and basis for attribution to the TIN. It also lists an index variable for linking beneficiary information across supplementary exhibits and indicates whether the beneficiary died in 2013. The beneficiary's HCC risk score is compared with all other Medicare beneficiaries, with higher percentiles indicating higher health expenditure risk. This risk is the same 2012 HCC risk score described in Appendix A.D. It is also used to risk-adjust the per capita cost measures included in the VM cost composite (Section V.C.) and to identify TINs with attributed beneficiaries who have high average risk scores, for determining whether the TIN is eligible for an additional VM payment adjustment under quality-tiering (Section III.C). Additionally, the table lists whether the beneficiary was treated for diabetes, CAD, COPD, or heart failure in 2013. The table also displays the date the beneficiary was last admitted to any hospital in 2013.

The table also provides selected information on attributed beneficiaries' FFS claims, including the date of the last professional service claim for which an affiliated provider within the TIN billed Medicare in 2013 for the beneficiary, the number of primary care services the TIN's physicians and nonphysician practitioners—including clinical nurse specialists, nurse practitioners, or physician assistants—provided to the beneficiary in 2013, and the proportion that these primary care services represent of all primary care services received by the beneficiary

in 2013. In addition, the table displays the NPI, name, specialty, and date of last filed claims for (a) the eligible professional in the TIN billing the most primary care services, (b) the eligible professional in the TIN billing the most non-primary care professional services, (c) the eligible professional in another TIN who billed the most primary care services, and (d) the eligible professional in another TIN who billed the most non-primary care professional services.

The table also includes a breakdown of total medical care costs by type of major service category that each of the TIN's attributed beneficiaries received in 2013. The service categories are the same as those displayed in Exhibit 10 of the 2013 QRURs (and defined in Appendices D and E): E&M services, procedures, inpatient hospital care, outpatient hospital care, emergency services, ancillary services, hospice, post-acute care services, and all other medical services.

3. Attributed beneficiaries' hospital admissions for any cause

For each of the TIN's attributed beneficiaries who were hospitalized in 2013, Supplementary Exhibit 3 lists the beneficiary's Health Insurance Claims (HIC) number, gender, and date of birth, as well as an index variable for linking beneficiary information across supplementary exhibits, and details about the beneficiary's hospital admissions in 2013. These data include the date of admission, the admitting hospital name, the principal diagnosis on the hospital claim, whether the admission was through the hospital's emergency department, whether the hospitalization was for one of the six ACSC conditions (see Section IV.D), and whether there was a readmission to any hospital for any cause 30 days following discharge (Section IV.E). Hospital admissions with a principal diagnosis for conditions associated with alcohol and substance abuse are excluded from these Supplementary Exhibits but are included in QRUR Exhibit 6. Admission through the hospital's emergency department was determined by examining revenue center codes on the hospital's claim, with any of the following indicating that the beneficiary was admitted through the emergency department: codes 0450 (general emergency room), 0451 (Emergency Medical Treatment and Labor Act emergency medical screening services), 0452 (emergency room beyond Emergency Medical Treatment and Labor Act screening), 0456 (urgent care), 0459 (other emergency room), or 0981 (emergency room professional fees).

Each hospital stay also includes the date of discharge and to where the beneficiary was discharged (home, skilled nursing facility, and so on). Discharge status was determined by examining the two-digit patient discharge status code on the last claim in a hospital stay, which identifies where the patient was located at the conclusion of the health care facility encounter (Exhibit VI.1).

Exhibit VI.1. Medicare hospital claim patient discharge status codes

Discharge status code	Discharge status
01	Discharged to Home
02	Transferred to Another Short-Term General Hospital
03	Discharged to Skilled Nursing Facility (SNF) with Medicare Certification
04	Discharged to Intermediate Care Facility
05	Discharged to Other Hospital
06	Discharged to Home Health
07	Left Against Medical Advice (AMA)
08	(Discontinued)
09	Admitted to Same Hospital
20	Expired
21	Discharged to Court
30	Still Patient
40	Expired Home – Hospice
41	Expired Facility – Hospice
42	Expired Unknown – Hospice
43	Discharged to Federal Hospital
50	Discharged to Hospice – Home
51	Discharged to Hospice – Facility
61	Transferred to Medicare-Approved Swing Bed
62	Discharged to Rehabilitation Facility
63	Discharged to Long-Term Care Hospital
64	Discharged to Skilled Nursing Facility (SNF) with Medicaid Certification
65	Discharged to Psychiatric Hospital
66	Discharged to Critical Access Hospital
69	Discharged to Designated Disaster Alternate Care
70	Discharged to Other Facility
71	(Discontinued)
72	(Discontinued)
81	Discharged to Home – Planned Readmission
82	Transferred to Short-Term General Hospital – Planned Readmission
83	Discharged to Skilled Nursing Facility (SNF) with Medicare Certification – Planned Readmission

Exhibit VI.6 *(continued)*

Discharge status code	Discharge status
84	Discharged to Custodial or Support Care – Planned Readmission
85	Discharged to Other Hospital – Planned Readmission
86	Discharged to Home Health – Planned Readmission
87	Discharged to Court – Planned Readmission
88	Discharged to Federal Hospital – Planned Readmission
89	Transferred to Medicare-Approved Swing Bed – Planned Readmission
90	Discharged to Rehabilitation Facility – Planned Readmission
91	Discharged to Long-Term Care Hospital – Planned Readmission
92	Discharged to Skilled Nursing Facility (SNF) with Medicaid Certification – Planned Readmission
93	Discharged to Psychiatric Hospital – Planned Readmission
94	Discharged to Critical Access Hospital – Planned Readmission
95	Discharged to Other Facility – Planned Readmission

Source: Research Data Assistance Center (ResDAC) 2013, http://www.resdac.org/cms-data/variables/patient-discharge-status-code.

4. Beneficiaries attributed to the TIN for the Spending per Hospital Patient with Medicare (or Medicare Spending per Beneficiary) measure

Supplementary Exhibit 4 provides information on the beneficiaries attributed to the TIN for the Spending per Hospital Patient with Medicare measure. It lists the beneficiary's HIC number, gender, and date of birth, as well as an index variable for linking beneficiary information across supplementary exhibits and details about the beneficiary's hospital admissions in 2013. The characteristics of the hospital admissions include the apparent lead eligible professional for each admission[33], as well as the total cost of the episode, the date of admission, the name of the admitting hospital, the principal diagnosis on the claim, and a breakdown of costs by type of service.

[33] For each hospitalization episode included in the Medicare Spending per Hospital Patient with Medicare measure, the eligible professional who is associated with the plurality of the episode's Part B costs is designated the apparent lead.

APPENDIX A
DESCRIPTION OF DATA SOURCES

We used multiple data sources to calculate the performance measures included in the 2013 QRURs. Performance on the PQRS quality indicators is derived from the information each participating group of physicians submitted to CMS through the 2013 GPRO web interface or registry. The 14 administrative claims-based quality measures used 2013 Medicare enrollment and Parts A, B, and D paid claims extracted from CMS' systems. The per capita cost, service-specific per capita cost, chronic condition subgroup-specific per capita cost, hospital readmission rate, ACSC composite measures, and the utilization statistics and chronic condition indicators used 2013 Medicare enrollment and Parts A and B FFS paid claims extracted from CMS's systems as the primary data sources. HCC risk scores were used in the risk-adjustment models for per capita costs. We discuss each of these data sources in detail below.

A. GPRO PQRS quality indicator data

The PQRS quality measures included in the 2013 QRUR are the same indicators the TIN submitted to the 2013 PQRS. We describe data requirements for these programs in Sections IV.A and IV.B of this document.

Prior-year measures used for calculating peer group benchmarks for the GPRO PQRS measures (when a comparable measure was available in the prior year) are the same indicators that participating groups of physicians submitted to the 2012 GPRO PQRS. Prior-year data also include performance on PQRS measures for physicians who participated in the PQRS program individually through claims-based reporting, electronic health records (EHRs), or registries, and who were eligible for a PQRS incentive payment in 2012. Individually reported physician measures are rolled up to the TIN-level for non-GPROs by summing numerators for all physicians billing under the TIN who reported the measure, summing denominators for the same physicians, and dividing the numerator sum by the denominator sum.

B. Medicare enrollment data

The Medicare Part A and Part B enrollment data contain demographic and enrollment information about each beneficiary enrolled in Medicare during a calendar year. The data include the beneficiary's unique Medicare identifier, state and county residence codes, zip code, date of birth, date of death, gender, race/ethnicity, age, monthly Medicare entitlement indicators, reasons for entitlement, whether the beneficiary's state of residence paid for the beneficiary's Medicare Part A or Part B monthly premiums ("state buy-in"), and monthly Medicare managed care enrollment indicators. The Medicare Part D enrollment data include monthly indicators for the type of outpatient prescription drug plan in which a beneficiary is enrolled. A beneficiary is considered enrolled in Part D if the data indicate enrollment in a prescription drug plan, a managed care organization (other than a regional preferred provider organization), or an employer-sponsored plan.

C. Medicare claims

Computations for the 14 administrative claims-based quality measures, the ACSC measures, the all-cause readmissions measure, and the resource use measures are based on all 2013 final-action Medicare claims available on CMS' Integrated Data Repository (IDR) as of April 9, 2014.

Specifically, inpatient hospital, outpatient hospital, skilled nursing facility, home health, hospice, carrier (physician/supplier), DMEPOS, and outpatient prescription drug (Part D) claims are analyzed as appropriate for the relevant measure. (For instance, the per capita cost measures do not include Part D drug costs, but several of the administrative claims-based quality measures analyze Part D drug claims in determining measure performance.)

Under Medicare procedures, when an error is discovered on a claim, a duplicate claim is submitted indicating that the prior claim was in error; a subsequent claim containing the corrected information can then be submitted. 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. The scope of claims on the IDR is national. The zip code is the most discrete level of geographic detail available. Medicare Administrative Contractors (MACs) submit data continually to CMS, which updates it at least weekly on the IDR. For the purposes of producing the 2013 QRURs, the end date of the claim determines the calendar year with which the claim is associated. Providers submit claims to their MAC for processing and payment. The MAC forwards all claims to CMS, which stores it in the Common Working File and the National Claims History database. The National Claims History database is the source of FFS claims in the IDR. Prior-year data used for calculating either peer group benchmarks for the claims-based quality measures or performance rates for measures that require a "look-back" period are final-action Medicare claims obtained from the IDR for the appropriate calendar year.

D. Hierarchical Condition Category (HCC) risk scores

Clinical differences among patients can affect their medical costs, regardless of the care provided. For peer comparisons, a TIN's per capita costs and subgroup-specific per capita costs are risk-adjusted based on the unique mix of patients that the TIN treated during a given period. For the 2013 QRURs, a CMS-HCC model was used that assigns ICD-9 diagnosis codes to 70 clinical conditions, grouping together codes with similar disease characteristics and costs. The CMS-HCC risk-adjustment model adjusts payments for Part C benefits offered by Medicare Advantage plans and payments to the Program of All-Inclusive Care for the Elderly organizations for aged and disabled beneficiaries. The model predicts costs based on disease, demographic, and insurance factors from the previous year. There are separate sets of coefficients for beneficiaries in the community; beneficiaries in long-term care institutions; new Medicare enrollees; and beneficiaries with ESRD in dialysis, transplant, and functioning-graft status (both community and institutional).

To risk-adjust costs for the 2013 QRURs, the 2012 community and new enrollee HCC risk scores are used as inputs into a second risk-adjustment model described in Appendix C; the ESRD and institutional scores are not used. Because the ESRD model is concurrent, the process uses an ESRD indicator (yes or no) from the 2012 enrollment data instead of the ESRD HCC risk score. Including the indicator instead of the concurrent score in the risk-adjustment model permits estimation of the prospective impact of ESRD on costs. Because institutionalization during the year is endogenous, no adjustment is made for institutional status; the effect of institutionalization on costs is small, on average, once the HCC risk scores are included in the risk-adjustment model.

APPENDIX B
PAYMENT STANDARDIZATION

Acumen, LLC, a CMS contractor, standardized payments for all 2013 Medicare claims. Mathematica merged these standardized payments with original Medicare claims by the four-part claim key[34] provided both in the IDR and in the standardized payment data stored on the IDR. This appendix summarizes the standardization method for each of the seven Medicare claim types: (1) inpatient hospital, (2) outpatient hospital, (3) skilled nursing facility (SNF), (4) home health agency, (5) hospice, (6) carrier (physician services), and (7) DMEPOS. This appendix is a summary of key parts of the payment standardization methodology. Full details of this methodology are available at http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228772057350.[35]

A. Inpatient hospital claims

The standardized payment for a stay at an acute care hospital, critical access hospital (CAH), Maryland waiver hospital, or cancer hospital is built as the sum of national base payment rates for labor, nonlabor, and capital expenditures, multiplied by the stay's diagnosis-related group rate. Outlier payments are added in and adjusted for geographic differences using the hospital wage index. Device payments are subtracted out, and new technology and clotting factor payments are added in. The standardization excludes graduate medical education (GME), indirect medical education (IME), and disproportionate share payments (DSH). Standardized payments for transfer stays and discharges to post-acute care facilities are calculated as the lesser of the national base payment rates for labor, nonlabor, and capital expenditures, multiplied by the stay's diagnosis-related group rate or a standardized per diem rate based on the diagnosis-related group. Claims from Maryland hospitals, CAHs, and cancer hospitals are standardized using the same methods as other acute care hospital Inpatient Prospective Payment System (IPPS) hospitals because these hospitals provide a similar set of acute hospital services as IPPS hospitals, even though they are paid under special systems.

Inpatient psychiatric facility (IPF) standardized payments are built up from the national base payment rate, multiplied by the IPF adjustment factor, the age factor, the comorbidity factor, and the variable per diem factor based on length of stay (LOS). Any outlier payments are added in and adjusted for geographic differences, using the hospital wage index for the labor share and the cost of living adjustment (COLA) for the nonlabor share. Device payments are subtracted out, and new technology is added in, as are electroconvulsive therapy base payments, times the number of units.

Long-term care hospital (LTCH) standardized payments for claims that have shorter lengths of stay than usual for an LTCH are calculated as the actual payment amount on the claim plus any deductible or coinsurance amount, adjusted for differences in wages using the hospital wage index for the LTCH labor share and the COLA for the nonlabor share. LTCH standardized payments for normal lengths of stay are built up from the national base payment rate, multiplied

[34] The four-part key consists of four fields (geo_bene_sk, clm_dt_sgntr_sk, clm_type_cd, c.clm_num_sk) in the IDR claims table; when used together, it uniquely identifies a claim.

[35] The CMS document refers to this as "price standardization" rather than "payment standardization," but the two terms are equivalent.

by the long-term care diagnosis-related groups (LTC-DRG) weight. Any outlier payments are added in and adjusted for geographic differences using the hospital wage index for the LTCH labor share and the COLA for the nonlabor share. Device payments are subtracted out, and new technology and clotting factor payments are added in.

Inpatient rehabilitation facility (IRF) short-stay standardized payments are built up from the national IRF base payment rate, which is multiplied by a case-mix group (CMG)/tier-specific per diem amount and adjusted for the length of stay. Any outlier payments are added in and adjusted for geographic differences using the IRF hospital wage index. The IRF hospital wage index is determined based on the provider ID and the IRF provider specific file. The core based statistical area (CBSA) of the provider is taken from the IRF provider specific file, and the associated wage index is used from the IRF wage index file included with the IRF pricer on the CMS website. If the CBSA of a provider cannot be determined, a wage index of 1.0 is assumed. Device payments are subtracted out, and new technology and clotting factor payments are added in. IRF-standardized payments for normal IRF claims are built up from the national IRF base payment rate, multiplied by the CMG weight for the discharge. Any outlier payments are added in and adjusted for geographic differences using the IRF hospital wage index. Device payments are subtracted out, and new technology and clotting factor payments are added in.

Payments for other inpatient stays are standardized by adjusting the total payment (including deductible and coinsurance) for differences in area wages.

The online documentation referenced above provides additional details about the identification of short-stay transfers and post-acute care facility discharges, the identification of Maryland hospitals, and the identification of interim claims.

B. Skilled nursing facility (SNF) claims

The standardization procedure for SNF claims depends on the type of SNF claim, of which there are four: (1) prospective payment system SNF claims, (2) CAH swing bed claims, (3) SNF claims for beneficiaries without Part A coverage or who have exhausted this coverage, and (4) claims for outpatient services provided by SNFs. For prospective payment system claims, the standardized payment is equal to the applicable rehabilitation resource utilization group (RUG) per diem rate, multiplied by the number of Medicare covered days and an AIDS adjustment, if applicable. The RUG applicable per diem rate is equal to the average of the urban and rural base rates for the RUG. If the RUG on the revenue center line cannot be matched to a RUG weight, then the standardized payment is equal to the actual payment with coinsurance added back in, adjusted for differences in area wages.

For CAH swing bed claims, the standardized payment is the actual payment with coinsurance added back in, adjusted for differences in area wages.

SNF claims for beneficiaries without Part A coverage or who have exhausted this coverage and claims for outpatient services provided by SNFs are standardized using the HCPCS code on each revenue center line and standardized similarly to other Part B fee schedule claims by using the physician fee schedule, the clinical laboratory fee schedule, the ambulance fee schedule, and the DMEPOS fee schedule, as applicable.

C. Home health agency claims

The standardization method for home health claims depends on whether the claim type is designated as home health or outpatient and, if the former, whether or not the claim receives special treatment. For full-episode home health claims, the standardized payment is built up from the base rate for each Home Health Resource Group (HHRG), multiplied by the applicable HHRG weight and added to a supply amount; outlier payments adjusted by the labor-related wage rate; and any add-ons for prosthetics, durable medical equipment (DME), or oxygen present on the claim. For home health claims that indicate partial-episode payment, the base rate times the HHRG weight and the supply amount are adjusted by the number of days between the first and last visit, divided by 60. Outlier payments are adjusted by the labor related wage index and added to the standardized amount.

If the home health claim is for a short episode (fewer than five visits), the standardized payment is built up by using the number of visits of each type, times the associated per-visit base rate, plus a low utilization payment adjustment (LUPA) add-on amount if applicable.

For claims identified by their claim type as outpatient claims, the standardized payment is calculated using the HCPCS code on each revenue center line and standardized similarly to other Part B fee schedule claims by using the physician fee schedule, the clinical laboratory fee schedule, the ambulance fee schedule, and the DMEPOS fee schedule, as applicable.

D. Hospice claims

The standardization of hospice claims depends on the revenue center code for each line item. If the revenue center code is for services furnished to patients by a physician or nurse practitioner, then the standardized payment is calculated the same way as physician services; that is, it is equal to the conversion factor multiplied by the sum of (the relevant work Relative Value Units [RVUs] * Adjuster $^{+}$ transitioned practice expense RVUs + malpractice RVUs). If the modifier code indicates that the services are provided by a nurse practitioner, a 15 percent reduction is applied to the payment. If the revenue center code for a line item indicates continuous home care, the standardized payment is equal to the base rate for continuous home care for that year, times the number of units. Units are calculated as the revenue center units divided by four (revenue center units are reported in 15-minute increments) and are limited to no more than 24. If the revenue center code indicates that the service is for routine home care, inpatient respite care, or general inpatient care, the standardized payment is equal to the base rate for that type of care for that year, multiplied by the minimum of the number of units and the length of stay, as indicated by the number of covered utilization days on the claim.

E. Outpatient hospital claims

The standardization method for an outpatient hospital claim depends on whether the claim is for a service paid on a reasonable cost or pass-through basis, under the Outpatient Prospective Payment System (OPPS), or under another fee schedule. Outpatient hospital claims from Maryland are standardized using the same methods as non-Maryland claims to allow for uniform national standardization. Outpatient hospital claims from CAHs also are standardized using the same methods as for non-CAH hospitals using a crosswalk from HCPCS code to Ambulatory Payment Classifications (APCs, which are not listed on CAH claims). The three methods include the following:

1. Revenue center lines for reasonable cost or pass-through services[36]
2. Revenue center lines with an APC paid under OPPS
3. Revenue center lines with status indicating services not paid under OPPS

Revenue center lines for reasonable costs or pass-through services are standardized by using the actual payment and adding the coinsurance and deductible amounts from the revenue center line.

There are four different categories of revenue center lines with an APC: (1) those for procedures subject to multiple-procedure discounting; (2) those for ancillary services; (3) those that can be linked to the OPPS fee schedule; and (4) those that cannot be linked to the OPPS fee schedule. For lines subject to multiple-procedure discounting, the standardized payment is constructed by adjusting the actual payment by a coinsurance adjustment factor, adding in the deductible, and adjusting by the labor-related wage rate. For ancillary service lines, the standardized payment is set to the actual payment amount, plus any applicable cost sharing for that line. For revenue center lines that can be linked to the OPPS fee schedule, the standardized payment is set equal to the APC schedule amount for the HCPCS code on the revenue line minus the device credit (if applicable), multiplied by the number of units on the revenue line, and adjusted for multiple procedures as indicated by the modifier on the revenue line item. APC revenue center lines that cannot be linked to the OPPS fee schedule are standardized as the actual payment amount, plus any applicable cost sharing for that line.

Revenue center lines not paid under OPPS are standardized by using the rates indicated on the various Part B fee schedules (physician, clinical laboratory, ambulance, and DMEPOS).

Although the CMS methodology available online standardizes all outpatient hospital claim outlier payments at the claim-level, development of certain components of the QRUR requires outpatient hospital claims at the line-item level. Consequently, neither actual nor standardized outlier payments are added to the line-level standardized payments for outpatient hospital claims.[37]

The standardized amounts of some additional services whose claims appear in the hospital outpatient file are calculated separately. These facilities include the following:

1. Rural Health Clinics and Federally Qualified Health Centers, for which standardized payments are equal to actual payment amounts, plus deductibles and coinsurance, adjusted for wage differences.
2. Comprehensive outpatient rehabilitation facilities and outpatient rehabilitation facilities, for which standardized payments are calculated in the same way as those for services paid under

[36] Reasonable cost or pass-through revenue center lines are identified by status indicators: F (corneal tissue acquisition, certain certified registered nurse anesthetist services, and hepatitis B vaccines); G (drug/biological pass-through); H (device or therapeutic radiopharmaceuticals pass-through); and L (influenza or pneumococcal pneumonia vaccines).

[37] In the 2013 QRURs, if the standardized payment amount at the line-item level was more than ten times the total allowed charges, and the difference was greater than $1,000, the standardized payment amount was set equal to the total allowed charge.

the physician fee schedule. For services that do not match a fee schedule, the standardized amount is equal to the actual allowed amount.

3. Community mental health centers, for which standardized payments are calculated in the same way as those for services paid under the OPPS fee schedule.
4. Renal dialysis facilities, for which the standardized payment is calculated according to the ESRD PPS bundled payment system, excluding geographic adjustments. For certain line items allowed to be paid outside the PPS bundle, such as vaccinations, the payment is taken as is from the claim.

F. Physician services claims

Payments for services included in the carrier claims file are standardized using various methods, depending on the type of service. These claims can be categorized into six broad areas:

1. Physician services, including all E&M; all procedures; all imaging; laboratory diagnostic tests paid under the physician fee schedule and non-laboratory diagnostic tests; chiropractic services; vision, hearing, and speech services; and other services
2. Anesthesia services
3. Ambulatory Surgical Center (ASC) services
4. Clinical laboratory services
5. Part B-covered drugs
6. Ambulance services

Standardized payments for the physician services are calculated by multiplying the annual conversion factor by the sum of the relevant work, transitioned practice expense, and malpractice relative value units (RVUs). Adjustments are made for technical versus professional components, multiple procedures, co-surgeon and assistant surgeon deductions, nonphysician-supplied services, facility versus non-facility settings, and the number of units. These aspects of the claims are specified in modifier and place-of-service fields at the individual line-item level of each claim.[38] The adjusted amount is multiplied by the number of units to reach the final standardized amount.

Standardized payments for anesthesia services are calculated by multiplying the anesthesia conversion factor for the relevant year by the sum of the base units for the specified anesthesia HCPCS code and the units for that service on the line item. An additional multiple-procedure discount or certified registered nurse anesthetist adjustment also may apply, as specified in the modifier field of the line item.

Standardized payments for ASC services are generally equal to the ASC fee schedule amount for the service provided, minus any device reduction amounts for that service, multiplied by the number of units, and adjusted for multiple procedures.

[38] In the 2013 QRURs, if the standardized payment amount at the line-item level was more than ten times the total allowed charges, and the difference was greater than $1,000, the standardized payment amount was set equal to the total allowed charge.

Standardized payments for clinical laboratory services are equal to the national limit amounts for specified services (as captured by HCPCS codes), multiplied by the number of units. If an HCPCS code has a national limit amount equal to zero, or if the code indicates an automated general profile, the standardized amount is equal to the actual claim line payment amount plus the coinsurance and deductible for that claim line.

The standardized payment for Part B-covered drugs is equal to the actual claim line payment amount plus the coinsurance and deductible for that claim line.

Ambulance services are standardized using two methods. For claim lines for mileage, the standardized amount is equal to the arithmetic mean of the actual allowed claim line amounts for the year for all claims. For all other ambulance services, the standardized amount is equal to the mean of the actual line amounts over all line items in the claims data set associated with the specific ambulance HCPCS code present on the claim line.

G. DMEPOS claims

In general, the standardized payment for durable medical equipment line items is equal to the ceiling of the DMEPOS fee schedule relevant for that service, times an adjustment factor based on the modifier code for the service, times the number of units. If the HCPCS code refers to a device that is for prosthetics, orthotics, or surgical supplies, the standardized payment is equal to five-sixths times the DME fee schedule amount for that HCPCS code and modifier, times the number of units. The basic approach to standardization is the same for both competitive and noncompetitive bidding.

APPENDIX C
RISK ADJUSTMENT

The five per capita cost and Spending per Hospital Patient with Medicare (or Medicare Spending per Beneficiary (MSPB)) measures are risk-adjusted to account for differences in patient characteristics that can affect their medical costs or utilization. This appendix summarizes the process for risk adjusting these measures.

A. Per capita costs

The risk-adjustment process for per capita costs involves several steps, beginning with preparing the data for risk adjustment at the beneficiary level and culminating with the computation of a TIN-specific risk-adjusted per capita cost for attributed beneficiaries that serves as the basis for comparison among physicians and groups of physicians.

1. **Calculate each beneficiary's total 2013 costs.** For each beneficiary attributed to a TIN, CMS sums the beneficiary's total payment-standardized 2013 Medicare Part A and Part B claims costs.
2. **Exclude beneficiaries with the lowest costs and modify high costs.** CMS removes from further analysis those beneficiaries with total costs in the bottom one percent of the cost distribution of all beneficiaries with positive payment-standardized total costs who were attributed to all TINs.[39] To limit the influence of the highest-cost patients on the risk-adjustment model, CMS replaces total costs for beneficiaries in the top one percent (highest costs) with the value of the 99th percentile of the distribution of total patient costs, a process known as Winsorization.
3. **For each beneficiary, use the appropriate risk score.** For new enrollees without a full year of medical history, CMS uses the new-enrollee risk score produced by CMS' New Enrollee CMS-HCC Model, and for all others, CMS uses the community risk score.[40] Exhibit C.1 below displays the 70 HCCs that CMS uses in its model to produce HCC risk scores.
4. **Compute expected beneficiary costs.** To compute expected beneficiary costs, CMS regresses the 2013 payment-standardized total costs (after Winsorization) of retained beneficiaries on the following independent variables:
    - 2012 HCC community risk score
    - 2012 HCC community risk score squared
    - 2012 HCC new-enrollee risk score
    - 2012 HCC new-enrollee risk score squared

[39] A close examination of the data when this model was under development revealed that most extremely low- or zero-value claims are likely erroneous. All claims following payment standardization with a zero payment amount are dropped from the analysis, so no beneficiary has a total 2013 payment-standardized cost equal to zero.

[40] There are separate CMS-HCC models for new enrollees (the New Enrollee Model) and continuing enrollees (the Community Model). The New Enrollee Model adjusts payments based on age, gender, and disability status, while the Community Model also incorporates medical history.

- 2012 indicator of ESRD

Only one risk score—either the community score or the new-enrollee score—is used for each beneficiary in the regression. If a beneficiary has only one score, that score is used and the other is given a value of zero in the regression. If a beneficiary has both scores, the new-enrollee score is used. 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.

5. **Compute expected costs at the beneficiary level.** For each beneficiary attributed to a given TIN, CMS uses the coefficients from the regression model estimated in Step 4 to compute the beneficiary's expected costs, given the beneficiary's HCC risk score, type of score (community or new enrollee), and ESRD status.

6. **Compute the ratio of observed to expected costs at the TIN level.** For each TIN, CMS sums the total Winsorized payment-standardized (but non-risk-adjusted) costs for all beneficiaries attributed to the TIN, and divides that sum by the sum of expected costs computed for the same set of beneficiaries.

7. **Compute risk-adjusted per capita costs.** For each TIN, CMS multiplies the ratio of observed to expected costs computed in the previous step by the mean Winsorized payment-standardized (but non-risk-adjusted) total cost among all beneficiaries included in the QRUR reports.

B. Spending per Hospital Patient with Medicare (or Medicare Spending per Beneficiary)

The Spending per Hospital Patient with Medicare measure's risk adjustment methodology adjusts for age and severity of illness. Severity of illness is measured using 70 HCC indicators derived from the beneficiary's claims during the 90 days prior to the start of the episode, an indicator of whether the beneficiary recently required long-term care, and the Medicare Severity Diagnosis Related Group (MS-DRG) code of the index hospitalization. The risk-adjustment methodology also includes non-diagnostic measures of severity of illness: status indicator variables for whether the beneficiary qualifies for Medicare through disability or age and an indicator of whether the beneficiary currently has End-Stage Renal Disease (ESRD). The risk-adjustment process involves the following steps, and broadly follows the CMS-HCC risk adjustment methodology, which is derived from Medicare Part A and B claims and is used in the Medicare Advantage (MA) program.[41] Because the relationship between the episode costs associated with each comorbidity may be non-linear in some cases (i.e., beneficiaries may also have more than one disease during a hospitalization episode), the model also takes into account interactions between HCCs and/or enrollment status variables that are included in the MA model. The risk adjustment method does not control for the beneficiary's sex or race. Full details of the risk adjustment methodology are included in the "MSPB Measure Information Form" document available at http://www.qualitynet.org/dcs/ContentServer?c=Page&pagename=QnetPublic%2FPage%2FQnetTier4&cid=1228772057350.

[41] Centers for Medicare and Medicaid Services, Office of the Actuary. "Announcement of Calendar Year (CY) 2009 Medicare Advantage Capitation Rates and Medicare Advantage and Part D Payment Policies." April 2008. http://www.cms.gov/MedicareAdvtgSpecRateStats/Downloads/Announcement2009.pdf

1. **Calculate payment-standardized claim payments.** CMS calculates standardized payments for each claim using the payment-standardization methodology described in Appendix B.
2. **Calculate payment-standardized episode spending.** CMS calculates standardized spending during an episode as the sum of all the standardized Medicare claims payments made during the episode (i.e., between 3 days prior to the hospital admission until 30 days after discharge).
3. **Calculate expected episode spending.** Using a separate model for episodes within each major diagnostic category (MDC), as determined by the MS-DRG of the index hospitalization, CMS regresses standardized episode spending on the following variables to compute the expected spending for the episode:
    - Age
    - HCCs
    - Enrollment status
    - ESRD status
    - Comorbidity interactions
    - Long-term care
    - MS-DRG code of index hospitalization
4. **Truncate predicted values.** To limit the impact of extreme predicted values, CMS replaces predicted values in the bottom one-half percent with the value of the 0.5th percentile of the distribution of predicted values, a process known as Winsorization. CMS also renormalizes predicted values to ensure that the average expected episode spending level for each MDC is the same before and after Winsorization. The renormalization occurs by multiplying the Winsorized predicted values by the ratio of the average standardized spending levels and the average Winsorized predicted spending levels.
5. **Calculate residuals.** CMS calculates the residuals for each episode as the difference between the standardized episode spending level and the Winsorized predicted value of spending for that episode.
6. **Exclude outliers.** To mitigate the effect of high-cost and low-cost outliers on each hospital's Spending per Hospital Patient with Medicare measure score, CMS excludes episodes whose residuals fall above the 99th percentile or below the 1st percentile of the distribution from the Spending per Hospital Patient with Medicare rate calculation. This step also renormalizes the predicted values to ensure that the average expected episode spending levels are the same as average standardized spending levels after outlier exclusions. This renormalization multiplies the predicted values after excluding outliers by the ratio of the average standardized spending levels and the average Winsorized predicted spending levels after excluding outliers.
7. **Compute the ratio of observed to expected spending at the TIN level.** For each TIN, CMS computes the average standardized episode spending for episodes attributed to the TIN, and divides that by the average of expected episode spending computed for the same set of episodes.

8. **Compute the (risk-adjusted) Spending per Hospital Patient with Medicare amount.** For each TIN, CMS multiplies the ratio of observed to expected spending computed in the previous step by the average standardized episode spending across all TINs.

Exhibit C.1. Hierarchical condition categories (HCCs) included in the CMS-HCC risk-adjustment model

HCC number and brief description of disease/condition	
HCC1 = HIV/AIDS	HCC75 = Coma, Brain Compression/Anoxic Damage
HCC2 = Septicemia/Shock	HCC77 = Respirator Dependence/Tracheostomy Status
HCC5 = Opportunistic Infections	HCC78 = Respiratory Arrest
HCC7 = Metastatic Cancer and Acute Leukemia	HCC79 = Cardio-Respiratory Failure and Shock
HCC8 = Lung, Upper Digestive Tract, and Other Severe Cancers	HCC80 = Congestive Heart Failure
HCC9 = Lymphatic, Head and Neck, Brain, and Other Major Cancers	HCC81 = Acute Myocardial Infarction
HCC10 = Breast, Prostate, Colorectal, and Other Cancers and Tumors	HCC82 = Unstable Angina and Other Acute Ischemic Heart Disease
HCC15 = Diabetes with Renal or Peripheral Circulatory Manifestation	HCC83 = Angina Pectoris/Old Myocardial Infarction
HCC16 = Diabetes with Neurologic or Other Specified Manifestation	HCC92 = Specified Heart Arrhythmias
HCC17 = Diabetes with Acute Complications	HCC95 = Cerebral Hemorrhage
HCC18 = Diabetes with Ophthalmologic or Unspecified Manifestation	HCC96 = Ischemic or Unspecified Stroke
HCC19 = Diabetes without Complication	HCC100 = Hemiplegia/Hemiparesis
HCC21 = Protein-Calorie Malnutrition	HCC101 = Cerebral Palsy and Other Paralytic Syndromes
HCC25 = End-Stage Liver Disease	HCC104 = Vascular Disease with Complications
HCC26 = Cirrhosis of Liver	HCC105 = Vascular Disease
HCC27 = Chronic Hepatitis	HCC107 = Cystic Fibrosis
HCC31 = Intestinal Obstruction/Perforation	HCC108 = Chronic Obstructive Pulmonary Disease
HCC32 = Pancreatic Disease	HCC111 = Aspiration and Specified Bacterial Pneumonias
HCC33 = Inflammatory Bowel Disease	HCC112 = Pneumococcal Pneumonia, Emphysema, Lung Abscess
HCC37 = Bone/Joint/Muscle Infections/Necrosis	HCC119 = Proliferative Diabetic Retinopathy and Vitreous Hemorrhage
HCC38 = Rheumatoid Arthritis and Inflammatory Connective Tissue Disease	HCC130 = Dialysis Status
HCC44 = Severe Hematological Disorders	HCC131 = Renal Failure
HCC45 = Disorders of Immunity	HCC132 = Nephritis
HCC51 = Drug/Alcohol Psychosis	HCC148 = Decubitus Ulcer of Skin
HCC52 = Drug/Alcohol Dependence	HCC149 = Chronic Ulcer of Skin, Except Decubitus
HCC54 = Schizophrenia	HCC150 = Extensive Third-Degree Burns
HCC55 = Major Depressive, Bipolar, and Paranoid Disorders	HCC154 = Severe Head Injury
HCC67 = Quadriplegia, Other Extensive Paralysis	HCC155 = Major Head Injury
HCC68 = Paraplegia	HCC157 = Vertebral Fractures Without Spinal Cord Injury
HCC69 = Spinal Cord Disorders/Injuries	HCC158 = Hip Fracture/Dislocation
HCC70 = Muscular Dystrophy	HCC161 = Traumatic Amputation
HCC71 = Polyneuropathy	HCC164 = Major Complications of Medical Care and Trauma
HCC72 = Multiple Sclerosis	HCC174 = Major Organ Transplant Status
HCC73 = Parkinson's and Huntington's Diseases	HCC176 = Artificial Openings for Feeding or Elimination
HCC74 = Seizure Disorders and Convulsions	HCC177 = Amputation Status, Lower Limb/Amputation Complications

Exhibit C.2. Major diagnostic categories

MDC	Description
0	Pre-MDC
1	Nervous System
2	Eye
3	Ear, Nose, Mouth, and Throat
4	Respiratory System
5	Circulatory System
6	Digestive System
7	Hepatobiliary System and Pancreas
8	Musculoskeletal System and Connective Tissue
9	Skin, Subcutaneous Tissue, and Breast
10	Endocrine, Nutritional, and Metabolic System
11	Kidney and Urinary Tract
12	Male Reproductive System
13	Female Reproductive System
14	Pregnancy, Childbirth, and Puerperium
15	Newborn and Other Neonates (Perinatal Period)
16	Blood and Blood Forming Organs and Immunological Disorders
17	Myeloproliferative DDs (Poorly Differentiated Neoplasms)
18	Infectious and Parasitic DDs
19	Mental Diseases and Disorders
20	Alcohol/Drug Use or Induced Mental Disorders
21	Injuries, Poison and Toxic Effect of Drugs
22	Burns
23	Factors Influencing Health Status
24	Multiple Significant Trauma
25	Human Immunodeficiency Virus Infection
U	Ungroupable

APPENDIX D
SPECIFIC SERVICE CATEGORIES MEASURED IN THE 2013 QRURs

The 2013 QRURs display per capita costs by specific types of services. They report major categories, along with the subcategories that constitute the major categories listed in Exhibit D.1.

Exhibit D.1. Specific service categories measured in the 2013 QRURs

	Major category	Subcategories
1a.	E&M Services in Non-Emergency Settings Provided by Your Group	Services from primary care physicians Services from medical specialists Services from surgeons Services from other eligible professionals
1b.	E&M Services in Non-Emergency Settings Provided by Other Groups	Services from primary care physicians Services from medical specialists, surgeons, and other eligible professionals
2a.	Procedures in Non-Emergency Settings Provided by Your Group	Procedures by primary care physicians Procedures by medical specialists Procedures by surgeons Procedures by other eligible professionals
2b.	Procedures in Non-Emergency Settings Provided by Other Groups	Procedures by primary care physicians Procedures by medical specialists, surgeons, and other eligible professionals
3a.	Inpatient Hospital Facility Services	None
3b.	Outpatient Hospital Facility Services (Excluding Emergency Outpatient	None
4.	Emergency Services That Did Not Result in a Hospital Admission	Emergency visits Procedures Laboratory and other tests Imaging services
5.	Services in Non-Emergency Ambulatory Settings	Laboratory and other tests Imaging services Durable medical equipment
6.	Post-Acute Care	Hospice care Skilled nursing facility Home health Psychiatric, rehabilitation, or other post-acute care
7.	Other Services Billed by Non-Institutional Providers	Ambulance services Chemotherapy and other Part B–covered drugs All other services not otherwise classified

APPENDIX E
DETAILED DESCRIPTION OF CATEGORIES OF SERVICES METHOD

Each Medicare claim is categorized into one of the service categories displayed in the exhibit in Appendix D. Claim costs are included in a given service category based on the claim type, BETOS code, place of service, and/or provider type (Exhibit E.1). CMS assigns a BETOS code to each HCPCS code that may appear on a carrier or outpatient hospital claim. For example, BETOS code M1A (office visits—new) consists of the following E&M HCPCS codes: 99201, 99202, 99203, 99204, 99205, 99381, 99382, 99383, 99384, 99385, 99386, 99387, 0500F, G0101, G0245, G0248, and G0402. CMS developed the BETOS coding system primarily for analyzing the growth in Medicare expenditures. The coding system covers all HCPCS codes, assigns a HCPCS code to one and only one BETOS code, consists of readily understood clinical categories (as opposed to statistical or financial categories), consists of categories that permit objective assignment, is stable over time, and is relatively immune to minor changes in technology or practice patterns. Exhibit E.2 lists BETOS code descriptions.

Exhibit E.1. Categorization codes for type of service categories

		Criteria for including claim (line item) in category		
Category	Claim type	BETOS criterion	Place of service criterion	Specialty criterion
All Services	Sum of 1a, 1b, 2a, 2b, 3a, 3b, 4, 5, 6, 6d, 7			
1a. E&M Services in Non-Emergency Settings—Your Group	Carrier claim line items minus Ambulatory Surgical Center (ASC) claims (CMS specialty code on the Carrier line item = 49 or claim type of service = "F")	All Carrier line items with M1–M6 codes	Carrier place of service not equal to 23 (emergency room)	CMS specialty code NOT in {"31," "45," "47," "49," "51"–"61," "63," "69," "73"–"75," "87"–"88," "95"–"96," "A0"–"A8," "B2"–"B5," "C1," and "C2"} AND limited to Carrier line items provided by a performing NPI associated with the TIN ("Your Group")
1b. E&M Services in Non-Emergency Settings—Other Groups	Carrier claim line items minus Ambulatory Surgical Center (ASC) claims (CMS specialty code on the Carrier line item = 49 or claim type of service = "F")	All Carrier line items with M1–M6 codes	Carrier place of service not equal to 23 (emergency room)	CMS specialty code NOT in {"31," "45," "47," "49," "51"–"61," "63," "69," "73"–"75," "87"–"88," "95"–"96," "A0"–"A8," "B2"–"B5," "C1," and "C2"} AND limited to Carrier line items provided by a performing NPI NOT associated with the TIN ("Other Groups")

Exhibit E.1 *(continued)*

Category	Claim type	Criteria for including claim (line item) in category		
		BETOS criterion	Place of service criterion	Specialty criterion
2a. Procedures in Non-Emergency Settings—Your Group	Carrier claim line items minus Ambulatory Surgical Center (ASC) claims (CMS specialty code on the Carrier line item = 49 or claim type of service = "F")	All Carrier line items with P1–P9 codes	Carrier place of service not equal to 23 (emergency room)	CMS specialty code NOT in {"31," "45," "47," "49," "51"–"61," "63," "69," "73"–"75," "87"–"88," "95"–"96," "A0"–"A8," "B2"–"B5," "C1," and "C2"} AND limited to Carrier line items provided by a performing NPI associated with the TIN ("Your Group")
2b. Procedures in Non-Emergency Settings—Other Groups	Carrier claim line items minus Ambulatory Surgical Center (ASC) claims (CMS specialty code on the Carrier line item = 49 or claim type of service = "F")	All Carrier line items with P1–P9 codes	Carrier place of service not equal to 23 (emergency room)	CMS specialty code NOT in {"31," "45," "47," "49," "51"–"61," "63," "69," "73"–"75," "87"–"88," "95"–"96," "A0"–"A8," "B2"–"B5," "C1," and "C2"} AND limited to Carrier line items provided by a performing NPI NOT associated with the TIN ("Other Groups")
3a. Inpatient Hospital Facility Services	Inpatient short-stay hospital claims	Not applicable	Provider (CCN) number ends in {0001–0899} or {1300–1399]	Not applicable
3b.Outpatient Hospital Facility Services (excluding emergency outpatient)	Outpatient hospital claims, plus ASC Carrier claims	All M1–M6, P1–P9, I1–I4, or T1–T2 codes	Carrier place of service not equal to 23 (for ASC claims); Outpatient revenue center line code NOT in {0450–0459, 0981} for Outpatient claims (emergency room)	CMS specialty code on the Carrier line item = 49 or claim type of service = "F" (ASC)
4. Emergency Services that did not result in a hospital admission: All Emergency Services	Sum of 4a-4d			

Exhibit E.1 *(continued)*

Category	Claim type	Criteria for including claim (line item) in category		
		BETOS criterion	Place of service criterion	Specialty criterion
4a. Emergency Services that did not result in a hospital admission: Emergency Visits	Outpatient hospital claims, plus Carrier claim line items minus Ambulatory Surgical Center (ASC) claims (CMS specialty code on the Carrier line item = 49 or claim type of service = "F")	All M1–M6 codes	Carrier place of service = 23 or Outpatient revenue center line code in {0450–0459, 0981}	None for Outpatient claims*, for Carrier claims CMS specialty code NOT in {"31," "45," "47," "49," "51"–"61," "63," "69," "73"–"75," "87"–"88," "95"–"96," "A0,"–"A8," "B2"–"B5," "C1," and "C2"}
4b. Emergency Services that did not result in a hospital admission: Procedures	Outpatient hospital claims, plus Carrier claim line items minus Ambulatory Surgical Center (ASC) claims (CMS specialty code on the Carrier line item = 49 or claim type of service = "F")	All P1–P9 codes	Carrier place of service = 23 or Outpatient revenue center line code in {0450–0459, 0981}	None for Outpatient claims*, for Carrier claims CMS specialty code NOT in {"31," "45," "47," "49," "51"–"61," "63," "69," "73"–"75," "87"–"88," "95"–"96," "A0"–"A8," "B2"–"B5," "C1," and "C2"}
4c. Emergency Services that did not result in a hospital admission: Laboratory and Other Tests	Outpatient hospital claims, plus Carrier claim line items minus Ambulatory Surgical Center (ASC) claims (CMS specialty code on the Carrier line item = 49 or claim type of service = "F")	All T1–T2 codes	Carrier place of service = 23 or Outpatient revenue center line code in {0450–0459, 0981}	Not applicable
4d. Emergency Services that did not result in a hospital admission: Imaging Services	Outpatient hospital claims, plus Carrier claim line items minus Ambulatory Surgical Center (ASC) claims (CMS specialty code on the Carrier line item = 49 or claim type of service = "F")	All II–I4 codes	Carrier place of service = 23 or Outpatient revenue center line code in {0450–0459, 0981}	Not applicable
5. Services in Non-Emergency Ambulatory Settings: All Ancillary Services	Sum of 5a–5c			
5a. Ancillary Services: Laboratory and Other Tests	Carrier claim line items minus Ambulatory Surgical Center (ASC) claims (CMS specialty code on the Carrier line item = 49 or claim type of service = "F")	All T1–T2 codes	Carrier place of service not equal to 23 (emergency room)	Not applicable
5b. Ancillary Services: Imaging Services	Carrier claim line items minus Ambulatory Surgical Center (ASC) claims (CMS specialty code on the Carrier line item = 49 or claim type of service = "F")	All I1–I4 codes	Carrier place of service not equal to 23 (emergency room)	Not applicable

Exhibit E.1 *(continued)*

Category	Claim type	Criteria for including claim (line item) in category		
		BETOS criterion	Place of service criterion	Specialty criterion
5c. Ancillary Services: Durable Medical Equipment	Durable Medical Equipment claims	Not applicable	Not applicable	Not applicable
6. Post-Acute Care: All Post-Acute Services (excluding Hospice)	Sum of 6a–6c			
6a. Post-Acute Services: Skilled Nursing Facility	Skilled nursing facility claims	Not applicable	Not applicable	Not applicable
6b. Post-Acute Services: Home Health	Home health clams	Not applicable	Not applicable	Not applicable
6c. Post-Acute Services: Psychiatric, Rehabilitation, or Other Post-Acute Care	Inpatient hospital claims	Not applicable	Provider (CCN) number ends in {2000–2299, 3025–3099, 4000–4499} or its third position is in {M, R, S, T}	Not applicable
6d. Post-Acute Services: Hospice	Hospice	Not applicable	Not applicable	Not applicable
7. Other Services Billed by Non-Institutional Providers: All Other Services	Sum of 7a–7c			
7a.Other Services: Ambulance Services	Carrier claim line items	OA1 codes	Not applicable	Not applicable
7b. Other Services: Chemotherapy and Other Part B-Covered Drugs	Carrier claim line items	O1D, O1E	Not applicable	Not applicable
7c. Other Services: All Other Services Not Otherwise Classified	Remainder of total costs from claims files (excluding Part D)	Not applicable	Total costs associated with all claims and/or line items not identified in rows above	Not applicable

* Under the “Emergency Services” category, in the “Lab Tests,” and “Imaging” subcategories, we include services from non-eligible professionals (which is consistent with the definition of the “Ancillary Services” subcategories “Lab Tests,” and “Imaging”). In the “Visits,” and “Procedures” subcategories, we limit carrier claims to those provided by an eligible professional (which is consistent with the definition of the “E&M Services,” and “Procedures” type-of-service categories (1a, 1b, 2a, 2b)). However, given that outpatient claims do not include a specialty (HCFA) code, this exclusion is not made on outpatient claims.

Exhibit E.2. 2013 BETOS codes and descriptions

Code	Description
Evaluation and Management	
M1A	Office visits—new
M1B	Office visits—established
M2A	Hospital visit—initial
M2B	Hospital visit—subsequent
M2C	Hospital visit—critical care
M3	Emergency room visit
M4A	Home visit
M4B	Nursing home visit
M5A	Specialist—pathology
M5B	Specialist—psychiatry
M5C	Specialist—ophthalmology
M5D	Specialist—other
M6	Consultations
Procedures	
P0	Anesthesia
P1A	Major procedure—breast
P1B	Major procedure—colectomy
P1C	Major procedure—cholecystectomy
P1D	Major procedure—turp
P1E	Major procedure—hysterectomy
P1F	Major procedure—explor/decompr/excisdisc
P1G	Major procedure—other
P2A	Major procedure, cardiovascular—CABG
P2B	Major procedure, cardiovascular—aneurysm repair
P2C	Major procedure, cardiovascular—thromboendarterectomy
P2D	Major procedure, cardiovascular—coronary angioplasty (PTCA)
P2E	Major procedure, cardiovascular—pacemaker insertion
P2F	Major procedure, cardiovascular—other
P3A	Major procedure, orthopedic—hip fracture repair
P3B	Major procedure, orthopedic—hip replacement
P3C	Major procedure, orthopedic—knee replacement
P3D	Major procedure, orthopedic—other
P4A	Eye procedure—corneal transplant
P4B	Eye procedure—cataract removal/lens insertion
P4C	Eye procedure—retinal detachment
P4D	Eye procedure—treatment of retinal lesions
P4E	Eye procedure—other
P5A	Ambulatory procedures—skin
P5B	Ambulatory procedures—musculoskeletal
P5C	Ambulatory procedures—groin hernia repair
P5D	Ambulatory procedures—lithotripsy
P5E	Ambulatory procedures—other
P6A	Minor procedures—skin
P6B	Minor procedures—musculoskeletal
P6C	Minor procedures—other (Medicare fee schedule)

Exhibit E.2 *(continued)*

Code	Description
P6D	Minor procedures—other (non-Medicare fee schedule)
P7A	Oncology—radiation therapy
P7B	Oncology—other
P8A	Endoscopy—arthroscopy
P8B	Endoscopy—upper gastrointestinal
P8C	Endoscopy—sigmoidoscopy
P8D	Endoscopy—colonoscopy
P8E	Endoscopy—cystoscopy
P8F	Endoscopy—bronchoscopy
P8G	Endoscopy—laparoscopic cholecystectomy
P8H	Endoscopy—laryngoscopy
P8I	Endoscopy—other
P9A	Dialysis services (Medicare Fee Schedule)
P9B	Dialysis services (non-Medicare Fee Schedule)
Imaging	
I1A	Standard imaging—chest
I1B	Standard imaging—musculoskeletal
I1C	Standard imaging—breast
I1D	Standard imaging—contrast gastrointestinal
I1E	Standard imaging—nuclear medicine
I1F	Standard imaging—other
I2A	Advanced imaging—CAT/CT/CTA: brain/head/neck
I2B	Advanced imaging—CAT/CT/CTA: other
I2C	Advanced imaging—MRI/MRA: brain/head/neck
I2D	Advanced imaging—MRI/MRA: other
I3A	Echography/ultrasonography—eye
I3B	Echography/ultrasonography—abdomen/pelvis
I3C	Echography/ultrasonography—heart
I3D	Echography/ultrasonography—carotid arteries
I3E	Echography/ultrasonography—prostate, transrectal
I3F	Echography/ultrasonography—other
I4A	Imaging/procedure—heart including cardiac catheter
I4B	Imaging/procedure—other
Tests	
T1A	Lab tests—routine venipuncture (non-Medicare fee schedule)
T1B	Lab tests—automated general profiles
T1C	Lab tests—urinalysis
T1D	Lab tests—blood counts
T1E	Lab tests—glucose
T1F	Lab tests—bacterial cultures
T1G	Lab tests—other (Medicare fee schedule)
T1H	Lab tests—other (non-Medicare fee schedule)
T2A	Other tests—electrocardiograms
T2B	Other tests—cardiovascular stress tests
T2C	Other tests—EKG monitoring
T2D	Other tests—other

Exhibit E.2 *(continued)*

Code	Description
Durable Medical Equipment	
D1A	Medical/surgical supplies
D1B	Hospital beds
D1C	Oxygen and supplies
D1D	Wheelchairs
D1E	Other DME
D1F	Prosthetic/orthotic devices
D1G	Drugs administered through DME
Other	
O1A	Ambulance
O1B	Chiropractic
O1C	Enteral and parenteral
O1D	Chemotherapy
O1E	Other drugs
O1F	Hearing and speech services
O1G	Immunizations/vaccinations
Exceptions/Unclassified	
Y1	Other—Medicare fee schedule
Y2	Other—non-Medicare fee schedule
Z1	Local codes
Z2	Undefined codes

Source: Centers for Medicare & Medicaid Services Health Care Common Procedure Coding System, 2013.

Note: For a crosswalk of HCPCS codes to BETOS codes, see http://www.cms.gov/apps/ama/license.asp?file=/MedHCPCSGenInfo/downloads/betpuf13.zip (select r-me-bet13.txt)

APPENDIX F
PHYSICIAN SPECIALTIES AND PROFESSIONAL STRATIFICATION CATEGORIES

To display information on the type of medical professionals providing E&M services or procedures for a TIN's attributed beneficiaries, the 2013 QRUR requires information on whether the medical professionals are physicians and the broad specialty category into which they fall: primary care physician, medical specialist, surgeon, or other eligible professional. The QRURs use the two-digit CMS specialty codes that appear on Medicare carrier claims to define specialties. Before developing the reports, CMS identified which specialties should be considered physicians—namely, doctors of medicine, doctors of osteopathic medicine, doctors of dental surgery, doctors of podiatric medicine, doctors of optometry and chiropractors. Assignment of medical professionals to broad specialty categories, referred to here as professional stratification categories, comprises two steps. First, each provider is assigned a medical specialty. Second, each specialty is assigned a broad specialty category.

A. Determining the medical specialty of medical professionals

For some medical professionals, different CMS specialty codes are included on different claims—for example, general practitioner versus endocrinologist—depending on the treatment provided to a given patient or at a given practice site. However, a single medical specialty designation for each professional in each TIN is required to categorize visits and services reported in the QRUR by provider stratification category. For the purposes of the QRUR, a medical professional's specialty is determined from 2013 carrier claims based on the CMS specialty code listed most frequently on line items for services rendered by the professional. In the case of a tie, the specialty listed on the most recent claim is selected.

B. Grouping medical specialties into physician and provider stratification categories

Exhibit F.1 identifies which specialties are physician specialties, and the broad professional stratification categories to which each specialty is assigned. Specialty codes for which the provider stratification category is not applicable generally indicate nonmedical professionals, such as facilities or medical supply companies.

Exhibit F.1. Physician specialties and professional 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 (for example, Drug Stores)	87	No	No	Not Applicable
Allergy/Immunology	03	Yes	Yes	Medical Specialists
Ambulance Service Supplier (for example, Private Ambulance Companies, Funeral Homes)	59	No	No	Not Applicable
Ambulatory Surgical Center	49	No	No	Not Applicable
Anesthesiologist Assistant	32	Yes	No	Other Eligible Professionals
Anesthesiology	05	Yes	Yes	Other Eligible Professionals
Audiologist (billing independently)	64	Yes	No	Other Eligible 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 Eligible Professionals
Certified Nurse Midwife	42	Yes	No	Other Eligible Professionals
Certified Registered Nurse Anesthesiologist	43	Yes	No	Other Eligible Professionals
Chiropractor, Licensed	35	Yes	Yes	Other Eligible Professionals
Clinical Laboratory (billing independently)	69	No	No	Not Applicable
Clinical Psychologist	68	Yes	No	Other Eligible Professionals
Clinical Psychologist (billing independently)	62	Yes	No	Other Eligible 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 Eligible Professionals

Exhibit F.1 *(continued)*

Provider or supplier specialty description	CMS specialty code	Eligible professional?	Physician?	Provider stratification category
Emergency Medicine	93	Yes	Yes	Other Eligible 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
Indirect Payment Procedure	C2	No	No	Not Applicable
Individual Certified Orthotist	55	No	No	Not Applicable
Individual Certified Prosthetist	56	No	No	Not Applicable
Individual Certified Prosthetist-Orthotist	57	No	No	Not Applicable
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 Eligible Professionals
Licensed Clinical Social Worker	80	Yes	No	Other Eligible 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

Exhibit F.1 *(continued)*

Provider or supplier specialty description	CMS specialty code	Eligible professional?	Physician?	Provider stratification category
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 Eligible Professionals
Nurse Practitioner	50	Yes	No	Other Eligible 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 Eligible Professionals
Ocularist	B5	No	No	Not Applicable
Ophthalmology	18	Yes	Yes	Surgeons
Optician	96	No	No	Not Applicable
Optometrist	41	Yes	Yes	Other Eligible 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 Eligible Professionals
Pathology	22	Yes	Yes	Other Eligible Professionals
Pediatric Medicine	37	Yes	Yes	Other Eligible 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 Eligible Professionals
Physician Assistant	97	Yes	No	Other Eligible Professionals

Exhibit F.1 *(continued)*

Provider or supplier specialty description	CMS specialty code	Eligible professional?	Physician?	Provider stratification category
Plastic and Reconstructive Surgery	24	Yes	Yes	Surgeons
Podiatry	48	Yes	Yes	Other Eligible Professionals
Portable X-Ray Supplier	63	No	No	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 Eligible Professionals
Radiation Therapy Centers	74	No	No	Not Applicable
Registered Dietician/Nutrition Professional	71	Yes	No	Other Eligible 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 Eligible 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 Eligible Professionals
Sports Medicine	23	Yes	Yes	Other Eligible 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 Eligible 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 (for example, National Cancer Society, National Heart Association, Catholic Charities)	61	No	No	Not Applicable

Source: 2013 Source for CMS Specialty Code: Medicare Claims Processing Manual, Chapter 26—Completing and Processing Form CMS-1500 Data Set (Rev. 2814, Issued November 15, 2013, Rev. 2842), Issued December 27, 2013.

APPENDIX G
SPECIALTY ADJUSTMENT

All cost measures contributing to the 2016 VM will be adjusted to reflect the mix of physician specialties within a TIN. The specialty-adjustment methodology, which will be applied separately for each cost measure, is as follows:

1. **Compute "national specialty-specific expected costs" for each specialty.** CMS will compute these costs as the weighted average of all TINs' payment-standardized and risk-adjusted costs, where the weight for each TIN is the number of eligible cases for the measure multiplied by that specialty's share of the TIN's eligible professionals within the TIN, multiplied by the number of EPs of that specialty in the TIN.
2. **Compute the "specialty-adjusted expected cost" for each TIN.** CMS will compute this cost as the weighted average of the national specialty-specific expected cost of all the specialties in the TIN, where the weights are each specialty's proportion of the TIN's total Part B payments.
3. **Compute the "specialty-adjusted cost" for each TIN.** CMS will divide the TIN's payment-standardized and risk-adjusted cost by their specialty-adjusted expected cost, and multiply this ratio by the national average payment standardized, but not risk-adjusted, cost computed across all beneficiaries.

To illustrate, below is an example where there are only two TINs (TIN 1 and TIN 2) and two specialties (A and B) , with the following characteristics:

			# of EPs in TIN		Share of EPs in TIN		Share of Part B payments		
TIN	Risk-adjusted per capita cost	# of attributed beneficiaries	Specialty A	Specialty B	Specialty A	Specialty B	Specialty A	Specialty B	National average per capita cost
TIN 1	$12,000	1,500	10	30	25%	75%	35%	65%	$9,714
TIN 2	$8,000	2,000	21	39	35%	65%	60%	40%	$9,714

To compute the national specialty-specific expected cost for a specialty across all TINs, we first calculate the numerator, which is the product of each TIN's risk-adjusted per capita cost times its weight (the number of attributed beneficiaries times that specialty's share of the TIN's EPs times the number of EPs of that specialty in that TIN), summed across all TINs. This sum is divided by the denominator, which is the sum across all TINs of the same weights that were used in the numerator. For this example, the national specialty-specific expected cost for Specialty A is ($12,000 * 1,500 * 25% * 10 + $8,000 * 2,000 * 35% * 21) / (1,500 * 25% * 10 + 2,000 * 35% * 21) = $8,813. Similarly, the national specialty specific expected cost for Specialty B is ($12,000 * 1,500 * 75% * 30 + $8,000 * 2,000 * 65%*39) / (1,500 * 75% * 30 + 2,000 * 65% * 39) = $9,599.

To calculate the specialty adjusted expected cost for each TIN, we would multiply the above national specialty-specific expected costs by each TIN's proportion of specialty-specific Part B payments. For each TIN, we compute the product of the TIN's proportion of specialty specific Part B payments, summed across all specialty types of the TIN. In our example, the specialty-adjusted expected cost for TIN 1 would be computed as 35% * $8,813 + 65% * $9,599 = $9,324. Similarly, the specialty-adjusted expected cost for TIN 2 would be 60% * $8,813 + 40% * $9,599 = $9,127.

Divide the total per capita cost by the specialty-adjusted expected cost and multiply this ratio by the national average per capita cost, to convert this ratio to a dollar amount. Assuming the national average per capita cost is $9,714, compute the specialty-adjusted total per capita cost for each TIN. In our example, the specialty-adjusted per capita cost for TIN1 would be computed as $9,714 * ($12,000/$9,324) = $12,502. Similarly, the specialty-adjusted cost for TIN 2 would be $9,714*($8,000/$9,127) = $8,515.

APPENDIX H
CHANGES TO THE VALUE-BASED PAYMENT MODIFIER FOR 2016

The following changes will apply to the 2016 VM:

- In 2016, the VM will be applied to all groups of physicians with 10 or more eligible professionals, and it will be based on 2014 performance.
- Beginning in 2016, quality-tiering will be mandatory for all groups of physicians with 10 or more eligible professionals that meet the criteria for successful reporting or participation in the PQRS (referred to in the Federal Rule as "Category 1"). However, groups of physicians with 10 to 99 eligible professionals will be subject only to upward or neutral value-based payment modifiers, while groups of physicians with 100 or more eligible professionals will be subject to upward, neutral, or downward adjustments.
- For groups of physicians with 100 or more eligible professionals, the amount of payment at risk under quality-tiering will increase from 1.0 percent to 2.0 percent.
- Groups of physicians with 10 or more eligible professionals that do not meet the criteria for satisfactory reporting in PQRS (referred to in the Federal Rule as "Category 2") will be subject to a value modifier of -2.0 percent (a downward adjustment), in addition to the 2016 PQRS payment adjustment of -2.0 percent.
- The 2016 VM will include all PQRS GPRO reporting mechanisms available to groups of physicians and all PQRS reporting mechanisms available to individual eligible professionals for the 2014 reporting period. The PQRS Administrative Claims reporting option will no longer be available.
- Beginning in 2016, the Spending per Hospital Patient with Medicare measure (also known as the Medicare Spending per Beneficiary, or MSPB measure) will be included in the Total Per Capita Costs for All Attributed Beneficiaries domain of the cost composite.
- All cost measures in the 2016 value modifier will be adjusted to account for the specialty mix of the TIN.

APPENDIX I
LIST OF ACRONYMS

ACO	accountable care organization
ACSC	ambulatory care sensitive conditions
AF	(payment) adjustment factor
AHRQ	Agency for Healthcare Research and Quality
APC	ambulatory payment classification
ASC	ambulatory surgical/surgery center
BETOS	Berenson-Eggers Type of Service
CAD	coronary artery disease
CAH	critical access hospital
CBSA	core based statistical area
CCN	CMS certification number
CCW	Chronic Condition Data Warehouse
CMG	case mix group
CMS	Centers for Medicare & Medicaid Services
CMS-CC	Centers for Medicare & Medicaid Services Condition Category
COLA	cost-of-living adjustment
COPD	chronic obstructive pulmonary disease
DME	durable medical equipment
DSH	disproportionate share payments
DMEPOS	durable medical equipment, prosthetics, orthotics, and supplies
DXG	diagnosis group
E&M	evaluation and management
EHR	electronic health record
ESRD	end-stage renal disease
FFS	(Medicare) fee-for-service
GME	graduate medical education
GPRO	Group Practice Reporting Option
HCC	Hierarchical Condition Category
HCFA	Health Care Financing Administration
HCPCS	Healthcare Common Procedure Coding System
HHRG	home health resource group
HIC	health insurance claim (number)
HMO	health maintenance organization
ICD-9	International Classification of Diseases–9th Edition Clinical Modification
IDR	integrated data repository
IME	indirect medical education

IPF	inpatient psychiatric facility
IPPS	Inpatient Prospective Payment System
IRF	inpatient rehabilitation facility
LOS	length of stay
LTC-DRG	long-term care diagnosis-related groups
LTCH	long-term care hospital
LUPA	low utilization payment adjustment
MA	Medicare Advantage
MAC	Medicare Administrative Contractor
MDC	major diagnostic category
MS-DRG	Medicare severity diagnosis related group
MSPB	Medicare Spending per Beneficiary measure (also known as the Spending per Hospital Patient with Medicare measure)
NPI	National Provider Identifier
NQF	National Quality Forum
OPPS	Outpatient Prospective Payment System
PCP	primary care physician (or provider)
PECOS	Provider Enrollment, Chain, and Ownership System
PQI	prevention quality indicator
PQRS	Physician Quality Reporting System
QRUR	Quality and Resource Use Report
SNF	skilled nursing facility
TIN	taxpayer identification number
RUG	resource utilization group
RVU	relative value units
VM	value-based payment modifier